UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 30, 2024

Or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____________ to _____________

Commission file number 000-31285

TTM TECHNOLOGIES, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware *(State or Other Jurisdiction of Incorporation or Organization)*	**91-1033443** *(I.R.S. Employer Identification No.)*
200 East Sandpointe, Suite 400 **Santa Ana, California** *(Address of Principal Executive Offices)*	**92707** *(Zip Code)*

(714) 327-3000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value	TTMI	Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☑ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☑

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☑	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☑

The aggregate market value of Common Stock held by non-affiliates of the registrant (based on the closing price of the registrant's Common Stock as reported on the Nasdaq Global Select Market on July 1, 2024, the last business day of the most recently completed second fiscal quarter), was $1,918,589,626. For purposes of this computation, all officers, directors, and 10% beneficial owners of the registrant are deemed to be affiliates of the registrant. Such determination should not be deemed to be an admission that such officers, directors, or 10% beneficial owners are, in fact, affiliates of the registrant.

As of February 14, 2025, there were outstanding 102,108,642 shares of the registrant's Common Stock, $0.001 par value.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for its 2025 Annual Meeting of Stockholders will be incorporated by reference into Part III of this Annual Report on Form 10-K. Such Proxy Statement, or an amendment to this Report, will be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year to which this Report relates.

Auditor Firm Id:	185	Auditor Name:	KPMG LLP	Auditor Location:	Irvine, CA

TTM TECHNOLOGIES, INC.

ANNUAL REPORT ON FORM 10-K

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PART I

Statement Regarding Forward-Looking Statements

This Annual Report on Form 10-K (Report) contains forward-looking statements regarding future events or our future financial and operational performance. Forward-looking statements include statements regarding markets for our products; trends in net sales, gross profits, and estimated expense levels; liquidity and anticipated cash needs and availability; and any statement that contains the words "anticipate," "believe," "plan," "forecast," "foresee," "estimate," "project," "expect," "seek," "target," "intend," "goal" and other similar expressions. The forward-looking statements included in this Report reflect our current expectations and beliefs, and we do not undertake publicly to update or revise these statements, even if experience or future changes make it clear that any projected results expressed in this Report or future quarterly reports to stockholders, press releases or company statements will not be realized. In addition, the inclusion of any statement in this Report does not constitute an admission by us that the events or circumstances described in such statement are material. Furthermore, we wish to caution and advise readers that these statements are based on assumptions that may not materialize and may involve risks and uncertainties, many of which are beyond our control, that could cause actual events or performance to differ materially from those contained or implied in these forward-looking statements. These risks and uncertainties include the business and economic risks described in "Item 1A, Risk Factors".

Unless otherwise indicated or unless the context requires otherwise, all references to time periods refer to our fiscal year, and all reference to "TTM," "the Company," "we," "us," "our," and similar names refer to TTM Technologies, Inc. and its subsidiaries.

ITEM 1. *BUSINESS*

General

We are a leading global manufacturer of technology solutions, including mission systems, radio frequency (RF) components, RF microwave/microelectronic assemblies, and quick-turn and technologically advanced printed circuit boards (PCB). According to a December 2024 report by Prismark Partners, we are one of the largest PCB manufacturers in the world based on 2023 revenue. In 2024, we generated approximately $2.4 billion in net sales and ended the year with approximately 16,400 employees worldwide. We currently operate a total of 23 specialized facilities in North America and Asia. We focus on providing time-to-market and volume production of advanced technology products and offer a one-stop design, engineering and manufacturing solution to our customers. This solution allows us to align technology development with the diverse needs of our customers and to enable them to reduce the time required to develop new products and bring them to market. We serve a diversified customer base consisting of approximately 1,400 customers in various markets throughout the world, including aerospace and defense, data center computing, automotive, medical, industrial and instrumentation, and networking. Our customers include original equipment manufacturers (OEMs), electronic manufacturing services (EMS) providers, original design manufacturers (ODMs), distributors, and government agencies (both domestic and allied foreign governments).

We report our worldwide operations based on two reportable segments: (1) *PCB*, which consists of 15 domestic system, subsystem, and PCB plants; four PCB fabrication plants in China; one in Malaysia; and one in Canada; and (2) *RF and Specialty Components (RF&S Components)*, which consists of one domestic RF component plant and one RF component plant in China. Each segment operates predominantly in the same industries with facilities that produce customized products for our customers and use similar means of product distribution.

Additional information on our reportable segments and product information is contained in Part II, Item 8, Note 10, *Segment Information*, of the Notes to Consolidated Financial Statements.

Industry Overview

TTM provides a variety of hardware technology solutions, including completely designed and engineered systems, RF microwave/microelectronic assemblies, product lines of RF components, and technologically advanced PCBs.

TTM's engineered systems are sold primarily to the aerospace and defense market, generally tier one subcontractors but also directly to government agencies (both domestic and allied foreign governments). Due, in part, to an increasing global threat environment, the President's U.S. Department of Defense budget request grew by nearly $34 billion, or 4.2% over the two-year period, from the fiscal year 2023 actual to the fiscal year 2025 request according to the United States Department of Defense Fiscal Year 2025 Budget Request Overview Book. Additionally, due to modernization priorities, an increased proportion of defense budgets is geared towards defense electronics such as radar, communications, and surveillance. These are the key markets for our engineered systems products.

TTM's RF microwave/microelectronic assemblies are also used in complete defense electronic systems and sold to tier one subcontractors. They benefit from increasing electronics content in defense programs as well as increased focus on solid-state active electronically scanned array (AESA) radar systems. Based on our internal market intelligence, we expect this market to grow faster than the overall defense market.

TTM also offers a variety of high-volume commercial RF components product lines. These components are utilized by TTM's customers to achieve advance signal conditioning in transceiver applications for 5G and other communication systems. Examples of

RF components offered are: Hybrid and Directional Couplers, Baluns, Power Dividers, and RF Resistors. All of these products are highly engineered to meet the customers' critical high-performance and size requirements. The growth of the 5G transceiver market is expected to exceed overall telecommunications market growth over the next several years.

PCBs are manufactured in panels from sheets of laminated material. Each panel is typically subdivided into multiple PCBs, each consisting of a pattern of electrical circuitry etched from copper to provide an electrical connection between the components mounted to it. PCBs serve as the foundation for virtually all electronic products, including the electronic components integrated into automobiles, high-end commercial electronic equipment (such as medical equipment, data communications routers, switches, and servers), and aerospace and defense electronic systems.

Products designed to offer faster data transmission, thinner and more lightweight packaging, and reduced power consumption generally require increasingly complex PCBs to meet these criteria. By using advanced technology PCB product solutions such as High-Density Interconnect (HDI) and Substrate-like PCB (SLP) technologies, circuit densities can be increased, thereby providing for smaller products with higher packaging densities. Furthermore, rigid-flex circuits can be found in small and lightweight end products and other space-challenged electronics packaging applications across all end markets. Some PCB manufacturers also manufacture high-performance substrates that serve as the interconnect between integrated circuits (IC) and the PCB in many advanced electronic products serving a wide variety of end markets. Combined with the engineered systems and assemblies described earlier, we collectively refer to all of these technologies as "advanced technologies", and they generally have growth rates which are higher than conventional technologies. In addition, most of our markets have low volume requirements during the prototype stage that demand a highly flexible manufacturing environment which later transitions to a higher volume requirement during product ramp.

According to estimates in a December 2024 report by Prismark Partners, worldwide demand for PCBs was expected to be $73.6 billion for 2024. Of this worldwide demand for production in 2024, Prismark Partners reports that PCB production in the Americas accounted for approximately 5% (approximately $3.4 billion), PCB production in China accounted for approximately 56% (approximately $41.0 billion), and PCB production in the rest of the world accounted for approximately 39% (approximately $29.2 billion). According to the same report by Prismark Partners, worldwide demand for PCBs is forecast to grow at a 5.6% compound annual growth rate (CAGR) from 2023 to 2028 driven by recovery from the 2023 market downturn, continued expected growth in the data center and networking end markets from various demand sources including generative artificial intelligence (AI), and continued projected growth in the aerospace and defense end market from increasing defense growth. From a product standpoint, the fastest growth is expected to be in HDI, high layer count boards, and substrates.

Industry Trends

We believe that several trends impacting the advanced hardware technology design and manufacturing industry will benefit us in the future. These trends include:

Increasing complexity of electronic products, which requires technologically complex PCBs that can accommodate higher speeds and component densities, including high layer count, HDI, flexible, and substrate-like PCBs as well as intricately engineered RF components and subsystems and completely designed engineered systems.

Increasing domestic demand for microelectronics advanced packaging assembly, which utilizes HDI and substrate-like PCBs in their construction, to integrate chiplets into heterogeneous integrated packages – SIPs (system in package), utilizing both 2.5D and 3D construction with organic, silicon, and glass interposers.

Higher demand for reliable products manufactured in the U.S. and South East Asia, stemming from closer U.S. government oversight of sub-tier supply chain materials and controls. In addition, trade tensions between the U.S. and China as well as the conflicts between Russia and Ukraine and other global conflicts have increased the importance of supply chain partners with strong domestic capabilities and manufacturing footprints.

Increasing use of hardware technology solutions in diverse end markets as advanced electronics enable new capabilities. Many end markets that TTM serves have generally seen or are otherwise seeing a renaissance of growth opportunities due to the implementation of sophisticated electronics. In the defense market, solid-state radar systems referred to as AESA are being adopted in key new defense programs, replacing legacy mechanical systems. Also, the proliferation of sensors, data, data processing, and communications within the operational environment is driving significant growth in sophisticated electronic components as well as integrated systems. In the medical end market, remote diagnostic systems and robotics are seeing increasing adoption. In data center computing and networking, investments in generative AI and advanced networking are leading to demand for more advanced PCBs, supporting an ever connected world. Finally, in the automotive market, an increasing trend toward sophisticated safety systems, automated driving, electric/hybrid vehicles, connectivity, and miniaturization of electronic devices is driving increasing electronic content and higher PCB usage in automobiles, particularly with regard to the increased demand for advanced technologies like HDI, and RF PCBs for radar and sensor applications.

Supply chain consolidation by commercial OEMs. We believe that technology solution providers that can offer one-stop manufacturing capabilities — from prototype to volume production — with a globally diverse manufacturing footprint and integration capabilities have a competitive advantage in the market.

Our Strategy

Our vision is to inspire innovation as a global preeminent technology solutions company. Our core strategy includes the following elements:

Provide differentiated capabilities by incorporating advanced design-to-specification engineering support, testing, components, and specialized assembly into the value-added solution provided to customers. With our acquisition of Anaren in 2018, we moved beyond build-to-print manufacturing and assembly capabilities to engage with customers in designing a more complete RF solution to meet their technology needs. As a result of the additional design capabilities that stemmed from the acquisition, we are more capable of providing cost-effective, ready for manufacture, enabling technologies to the customer. With our acquisition of Telephonics in 2022, we built on the Anaren acquisition to expand into integrated systems, and deepen our RF and radar related engagement with key aerospace and defense customers.

Maintain our customer-driven culture and provide superior service to our customers in our core markets of aerospace and defense, automotive, data center computing, medical/industrial/instrumentation, and networking. Our customer-oriented culture is designed to achieve extraordinary service, competitive differentiation, and superior execution. Our customer-oriented strategies include engaging in co-development of new products, capturing new technology products for next generation equipment, and continuing investments to enhance our broad offering of PCB and RF/microwave technologies from components through integrated mission systems. We have invested in and employ a diverse group of design engineers and field application engineers (FAEs) to provide technical expertise to our customers with the goal of designing the best product and service solutions for their needs, and to provide ongoing technical support. We believe our ability to anticipate and meet customers' needs is critical to retaining existing customers and attracting leading companies as new customers.

Drive operational efficiency and productivity. We are highly focused on improving our operational execution to increase efficiency, productivity, and yields. We strongly believe in the benefits of sharing best practices across our extensive manufacturing footprint and rely on stringent goals for throughput, quality, and customer satisfaction to measure our effectiveness. The fast-paced nature of our business requires a disciplined approach to manufacturing that is rooted in continuous improvement.

Accelerate customer, end market, and technology diversification through strategic mergers and acquisitions. We have a history of executing successful acquisitions that have been key to our growth and profitability. Historically, we focused on strategic opportunities that could facilitate our efforts to further diversify into other growing end markets. Now that we have a more diversified end market mix, our focus is to expand our presence in existing end markets, particularly aerospace and defense which has longer product and program life cycles. We will also look for strategic opportunities that further strengthen our leading-edge technology capabilities. For example, the acquisition of Anaren in 2018 added critical RF engineering, simulation, and integration capabilities, the acquisition of certain assets of i3 Electronics, Inc. (i3) in 2019 allowed us to broaden our technology portfolio for high mix, low volume advanced technology PCBs, and the subsequent acquisition of Telephonics in 2022 significantly expanded our aerospace and defense product offering vertically into highly engineered integrated mission system solutions and horizontally into surveillance and communications markets, while strengthening our position in radar systems.

Accelerate our expansion into growing markets using our advanced technology as a key point of differentiation. With rising requirements for faster data transmission, shrinking features (i.e., lightweight and thin), and lower power consumption, many PCB designs have migrated to more complex HDI PCBs from conventional multilayer PCB technologies. This trend began with PCBs used in portable devices such as smartphones and other mobile devices but has become an increasing trend in other end markets, such as automotive, data center computing, networking, medical, and aerospace and defense. As our customers consolidate their supply chains, our objective is to differentiate ourselves as a strategic supplier with the technology breadth to meet most, if not all, of our customers' PCB and RF related requirements. In the defense industry, there is growing use of electronics, particularly RF/Microwave technologies to develop AESA radars and other integrated mission systems that demonstrate significant performance improvement over traditional systems.

Address customer needs in all stages of the product life cycle. By aiming to provide a one-stop solution, we work to service our customers' needs from the earliest stages of product design and development through volume production. We believe that by servicing our customers early in the development process, we are able to demonstrate our capabilities and establish an incumbent position early in the product development cycle, which translates into additional opportunities as our customers move into volume production. We believe our expertise is enhanced by our ability to deliver highly complex PCBs to customers in significantly compressed lead times. This rapid delivery service enables OEMs to develop sophisticated electronic products more quickly and reduce their time to market. We believe we will be able to continue to increase customer engagement with customized RF solutions from the concept stage through volume production, which typically results in intensified customer engagement. Further, by providing complete engineered systems, we are working more closely with the end customer, providing them with a more complete final product which also enhances our early engagement.

Deliver consistently strong financial performance and execute on our balance sheet strategy. We aspire to deliver industry-leading financial performance. We expect to achieve this by servicing our customers' needs in higher-growth end markets in a cost-efficient and effective manner. We believe that this strategy will allow us to generate strong cash flows, which we expect will provide us with the financial flexibility for continued investments for growth and return of capital to shareholders.

Continuously enhance the elements that make TTM an appealing employer. We aim to attract the right employees who are aligned with our values and desire growth in their professional careers. We believe our employee engagement model, emphasis on communications and inclusion, commitment to career development and talent, and collaborative culture are the top reasons employees embrace us. Our ability to retain valued talent while attracting the right candidates is paramount to our continued human capital strategy.

Products and Services

We offer a wide range of engineered systems, RF and microwave assemblies, HDI PCBs, flexible PCBs, rigid-flex PCBs, custom assemblies and system integration, IC substrates, passive RF components, advanced ceramic RF components, hi-reliability multi-chip modules, beamforming and switching networks, PCB products, RF components, and backplane/custom assembly solutions, including conventional PCBs. We also offer certain value-added services to support our customers' needs. These include design-for-manufacturability (DFM), PCB layout design, simulation and testing services, and quick turnaround (QTA) production. For our RF subassemblies and components, we provide specialized assembly and RF testing to offer value-added solutions to our customers. By offering this wide range of engineered systems, RF components and subsystems, PCB products, and complementary value-added services, we aim to provide our customers with a "one-stop" manufacturing solution for their hardware technology and integration requirements. We believe this differentiates us from our competition and enhances our customer relationships. Below we describe our product lines in more detail.

Radar Systems

We provide a wide range of high-performing, lightweight, and cost-effective maritime surveillance and weather avoidance radar systems for fixed- and rotary-wing aircraft, Unmanned Aerial Vehicles (UAVs), and shipboard platforms to the U.S. government, tier one OEMs, and numerous international defense agencies. At this time, we are also the sole provider of the U.S. Navy's AN/APS-153 multi-mode radar on the MH-60R helicopter, and the communications suite within the MH-60R/S multi-mission helicopters. Our maritime surveillance radars offer advanced features such as Ground Moving Target Indicator (GMTI), Synthetic Aperture Radar (SAR), Inverse Synthetic Aperture Radar (ISAR), Automatic Identification System (AIS), and weather avoidance. We are in the process of developing the next generation multi-mode maritime and overland surveillance AESA radar known as MOSAIC®.

Surveillance

We are a global leader in Identification Friend or Foe (IFF), Monopulse Secondary Surveillance Radars (MSSR), and Air Traffic Control (ATC) systems enabling military and civilian air traffic controllers to effectively identify aircraft and vehicles as friendly. We provide both equipment and supporting services required to safely and reliably control flight operations. These systems are used by the U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marines, Federal Aviation Administration (FAA), North Atlantic Treaty Organization (NATO), and numerous international defense agencies including those of Japan and South Korea. These systems have been fielded globally in a wide range of ground, air, and sea-based applications.

Communications Systems

Our advanced wired and wireless communication systems provide the digital backbone for numerous defense and civil platforms worldwide, including fixed- and rotary-wing aircraft and ground control shelters. These systems are designed to meet stringent customer requirements to support adaptability to special missions and communications protocol requirements. Our vehicle-based intercommunications systems deliver traditional intercom system capabilities while incorporating software-defined features, including an open architecture for integration into vehicle C4 (command, control, communications, and computing) systems, networked communications gateways, and combat vehicles. Commercial audio products and headsets are utilized worldwide in a wide range of military and civilian applications, including audiometric testing. Our communications systems are fielded within the U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marines, and numerous international defense agencies. These systems are also sold to aerospace manufacturers, commercial airlines, and audiometric original equipment manufacturers.

RF and Microwave Assemblies

We design, produce, and test specialized circuits and components used in radio frequency or microwave emission and collection applications. These products are typically used for radar, transmit/receive antennas and similar wireless applications. Markets for these products include defense, avionics, satellite, and commercial applications including telecommunications, networking, instrumentation, and automotive. The manufacture of these products requires advanced materials, equipment, and methods that are highly specialized and distinct from conventional printed circuit manufacturing techniques. We also offer specialized radio frequency assembly and test services. We have developed integrated solutions across our facilities and capabilities to provide sophisticated integrated electronics for numerous platforms, ranging from digital RF memory (DRFM) to frequency up/down converters (UDC) and channelized amplifiers for military and space applications.

Passive RF Components

Our line of products consists of off-the-shelf surface mount microwave components which provide passive microwave signal distribution functions. These products were developed to provide a lower-cost high-performance signal distribution component, which could be placed on standard printed circuit boards with automated production equipment. The primary applications of these products are currently in equipment for cellular base stations and in Wireless Local Area Network (WLAN), Bluetooth, and satellite television. In cellular base stations, our surface mount products are utilized in RF power amplifiers, and are also found in low-noise amplifiers, radios, and antennas. 5G advancements and the continued proliferation of wireless technology may create new applications for these products across other end markets.

Advanced Ceramic RF Components

Our ceramic offerings include standard and etched thick-film ceramic substrates. Etched thick-film ceramic circuits compete favorably with thin-film ceramic circuits in cost while providing comparable performance. These products are generally customer designed in close collaboration with our engineering staff to ensure the highest possible performance and manufacturability. These capabilities are aimed at high-performance applications in the medical, industrial, and defense markets.

Hi-Reliability Multi-Chip Modules

We offer custom hybrid and multi-chip modules, high-performance radiation-hardened and space-qualified microelectronics, and power management and control electronics utilizing traditional chip and wire 2D construction as well as 2.5/3DHI advanced packaging assembly.

Beamforming and Switching Networks

Our beamforming technologies are used in military and aerospace applications, offering a variety of active and passive high-performance RF assemblies, including L-band/LEO and L- and S-band/GEO space beamformers, UHF thru Ka-band radar AESA RF networks, Butler matrices, multi-octave, and more.

Custom Designed Application Specific Integrated Circuits (ASICs)

Our Custom Integrated Circuits (CIC) group has designed nearly 400 mixed-signal custom ASICs for customers in the automotive, industrial, defense/avionics, and smart energy markets. The CIC organization works with our customers' technical teams, taking complete responsibility for the ASIC development process, from the initial ASIC specification definition through qualification and volume production, to meet the most stringent customer program requirements.

Conventional PCBs

A conventional PCB is made from a composite laminate that is metalized with a conductive material such as copper. The PCB is the basic platform used to interconnect components in most electronic products including computers, networking and communications equipment, high-end consumer electronics, automotive controls, commercial aerospace and defense systems, and medical and industrial equipment. Conventional PCBs can be classified as single-sided, double-sided, and multilayer boards.

We focus on higher layer count conventional PCBs. A multilayer PCB can accommodate more complex circuitry than a single-sided or double-sided PCB and as such, requires more sophisticated production techniques. The number of layers comprising a PCB often increases with the complexity of the end product. For example, a simple consumer device such as a garage door controller may use a single-sided or double-sided PCB, while a high-end network router or computer server may use a PCB with 30 or more layers.

High-density interconnect or HDI PCBs

Our facilities in North America and Asia also produce HDI PCBs, which are PCBs with higher interconnect density per unit area requiring more sophisticated technology and manufacturing processes for their production than conventional PCB products. HDI PCBs are boards with high-density characteristics including micro-sized holes, or microvias (diameter at or less than 0.15 mm), and fine line circuitry (circuit line width and spacing at or less than 0.075 mm) and are fabricated with thin high-performance materials, thereby enabling more interconnection functions per unit area. HDI PCBs generally are manufactured using a sequential build-up process in which circuitry is formed in the PCB one layer at a time through successive drilling, plating, and lamination cycles. In general, a board’s complexity is a function of interconnect and circuit density, layer count, laminate material type, and surface finishes. As electronic devices have become smaller and more portable with higher functionality, demand for advanced HDI PCB products has increased dramatically. We define advanced HDI PCBs as those having more than one layer of microvia interconnection structure.

Substrate-like PCBs or SLPs

SLPs represent the next evolution of high-end HDI PCBs. SLPs are PCBs with even higher interconnect density per unit area than the traditional advanced HDI PCBs described above requiring an even more sophisticated manufacturing technology adapted from IC substrate fabrication with enhancements to the subtractive and additive techniques of traditional PCBs. This enables fine line circuitry (circuit line width and spacing at or less than 0.03 mm). Demand for this type of high-density circuit is continuing to penetrate the markets of more traditional PCBs. In addition, we now offer an alternative approach to building SLP technology in the United States for lower volume, higher mix commercial and aerospace and defense applications.

Flexible PCBs

Flexible PCBs are printed circuits produced on flexible films, allowing them to be folded or bent to fit the available space or allowing for application movement. We manufacture circuits on flexible substrates that can be installed in three-dimensional applications for electronic packaging systems. Use of flexible circuitry can enable improved reliability and electrical performance, reduced weight and reduced assembly costs when compared with traditional wire harness or ribbon cable packaging. Flexible PCBs can provide for flexible electronic connectivity of an electrical device's apparatus such as printer heads, cameras, televisions, mobile handsets, and tablets. For some of our flexible PCB customers, we also assemble components onto the flexible PCBs we manufacture.

Rigid-flex PCBs

Rigid-flex circuitry provides a simple means to integrate multiple PCB assemblies and other elements such as display, input, or storage devices without wires, cables, or connectors, replacing them with thin, light composites that integrate wiring in ultra-thin, flexible ribbons between rigid sections. In rigid-flex packaging, a flexible circuit substrate provides a backbone of wiring with rigid multilayer circuit sections built up as modules where needed.

Since the ribbons can be bent or folded, rigid-flex provides a means to compactly package electronics in three dimensions with dynamic or static bending functions as required, enabling miniaturization, and thinness of product design. The simplicity of rigid-flex integration also generally reduces the number of parts and interconnections required, which can improve reliability.

Rigid-flex technology is essential to a broad range of applications including aerospace and defense, industrial, and transportation systems requiring high reliability; hand-held and wearable electronics, such as video cameras and music players, where thinness and mechanical articulation are essential; and ultra-miniaturized products such as headsets, medical implants, and semiconductor packaging where size and reliability are paramount.

Custom assemblies

Our assembly facilities produce custom electronic assemblies. Custom electronic assemblies refers to a variety of PCB assemblies such as backplane and mid-plane assemblies, flexible and rigid-flex assemblies, and RF assemblies. Each of these assemblies involves mounting electronic components to a printed circuit board and then testing the assembly for electrical continuity.

IC substrates

IC substrates provide the mechanical support and electrical interconnect used to package ICs (integrated circuits or semiconductors) either in single chip packages or multi-chip modules. IC substrates, also known as chip carriers, are highly miniaturized circuits manufactured by a process largely similar to that for PCBs but requiring the use of ultra-thin materials and including micron-scale features, because they must bridge the gap between sub-micron IC features and millimeter scale PCBs. Consequently, IC substrates are generally manufactured in a clean room environment to ensure products are free of defects and contamination and employ advanced HDI processes and manufacturing approaches used in SLP technology.

Quick turnaround services

We refer to our rapid delivery services as QTA because we provide custom-fabricated PCBs to our customers within as little as 24 hours to ten days. As a result of our ability to rapidly and reliably respond to the critical time requirements of our customers, we generally receive premium pricing for our QTA services as compared to standard lead time prices.

- *Prototype production.* In the design, testing, and launch phase of a new electronic product, our customers typically require limited quantities of PCBs in a very short period of time. We satisfy this need by manufacturing prototype PCBs in small quantities, with delivery times ranging from as little as 24 hours to ten days.
- *Ramp-to-volume production.* After a product has successfully completed the prototype phase, our customers introduce the product to the market and require larger quantities of PCBs in a short period of time. This transition stage between low-volume prototype production and volume production is known as ramp-to-volume. Our ramp-to-volume services typically include manufacturing up to several hundred PCBs per order with delivery times ranging from five to 15 days.

Thermal management

Increased component density on circuit boards often requires improved thermal dissipation to reduce operating temperatures. We produce printed circuits with heavy copper cores and both embedded and press-fit coins. In addition, we produce PCBs with electrically passive heat sinks laminated externally on a circuit board or between two circuit boards, as well as PCBs with electrically active thermal cores.

Manufacturing Technologies

The market for our products is characterized by rapidly evolving technology. The trend in the electronic products industry continues to be to implement and develop means to increase the speed, complexity, and performance of components while reducing their size. We believe our technological capabilities allow us to address the needs of manufacturers to bring complicated electronic products to market faster.

To manufacture PCBs, we generally receive circuit designs directly from our customers in the form of computer data files, which we review to ensure data accuracy and product manufacturability. Processing these data files with computer aided manufacturing (CAM) technology, we generate images of the circuit patterns that we then physically develop on individual layers, using advanced photographic and direct imaging processes. Through a variety of plating and etching processes, we selectively add and remove conductive materials to form horizontal layers of thin circuitry, which are separated by electrical insulating material. A multilayer circuit board is produced by laminating together multiple layers of circuitry, using intense heat and pressure under vacuum. Vertical connections between layers are achieved by drilling and plating through small holes, called vias. Vias are made by highly specialized drilling equipment capable of achieving extremely fine tolerances with high accuracy. We specialize in high layer count PCBs with extremely fine geometries and tolerances. Because of the tolerances involved, we employ clean rooms in certain manufacturing processes where tiny particles might otherwise create defects on the circuit patterns. We also use automated optical inspection systems and electrical testing systems to ensure consistent quality of the circuits we produce.

Our highly specialized equipment and advanced manufacturing processes enable us to reliably produce PCBs with the following characteristics:

- *High layer count.* Manufacturing PCBs with a large number of layers is difficult to accomplish due to the accumulation of manufacturing tolerances and registration systems required. In our PCB reportable segment, we regularly manufacture PCBs with more than 30 layers on a quick-turn and volume basis.
- *Blind and buried vias*. Vias are drilled holes that provide electrical connectivity between layers of circuitry in a PCB. Blind vias connect the surface layer of the PCB to an internal layer and terminate at the internal layer. Buried vias are holes that do not reach either surface of the PCB but allow inner layers to be interconnected. Products with blind and buried vias can be made thinner, smaller, lighter, and with higher component density and more functionality than products with traditional vias.
- *Microvias*. HDI technology utilizes microvias, which are small vias with diameters generally less than 0.15 mm after plating. Advanced HDI products may also require the microvias to be fully filled using a specialized plating process so that additional microvia structures can be stacked to form more complex interconnections. These microvias consume much less space on the layers they connect, thereby providing for greater wiring densities and flexibility, and also providing closer spacing of components and their attachment pads. The fabrication of PCBs with microvias requires specialized equipment, such as laser drills, and highly developed process knowledge. Higher end applications in both defense and commercial markets employ microvias to obtain a higher degree of functionality from a given surface area.
- *Embedded passives.* Embedded passive technology involves embedding either capacitive or resistive elements inside the PCB, which allows for removal of passive components from the surface of the PCB and thereby leaves more surface area for active components. Use of this technology provides greater surface area for surface-mounted ICs and better signal performance, as well as increased functionality of products with higher component density.
- *Fine line traces and spaces.* Traces are the connecting copper lines between the different components of the PCB, and spaces are the distances between traces. The smaller the traces and the tighter the spaces, the higher the density of the PCB and the greater the expertise required to achieve a desired final yield performance level. We are able to manufacture PCBs with traces and spaces less than 0.030 mm.
- *High aspect ratios.* The aspect ratio is the ratio between the thickness of the PCB and the diameter of a drilled hole. As the aspect ratio increases, it becomes increasingly difficult to consistently and reliably form, electroplate, and finish all the holes on a PCB. In production, we are able to provide aspect ratios of up to 30:1.
- *Thin core processing.* A core is the basic inner-layer building block material from which PCBs are constructed. A core consists of a flat sheet of material comprised of glass-reinforced resin with copper foil laminated on either side. The thickness of inner-layer cores is typically determined by the overall thickness of the PCB and the number of layers required. The demand for thinner cores derives from the requirements for thinner PCBs, higher layer counts and various electrical parameters. Core thickness in our PCBs ranges from as little as 0.025 mm up to 1.57 mm.
- *Advanced hole fill processes.* Our advanced hole fill processes provide designers the opportunity to increase the density of component placements by reducing the surface area required to place many types of components. In traditional design, components are routed from their surface interfaces through via connections in order to access power and ground connections and the internal circuitry used to connect to other discrete components. Our advanced hole fill processes provide methods to allow for vias to be placed inside their respective surface mount pads by filling the vias with a thermoset epoxy and plating flat copper surface mount pads directly over the filled hole.

- *Advanced materials*. We manufacture circuit boards using a wide variety of advanced dielectric materials. These high-performance materials offer electrical, thermal, and long-term reliability advantages over conventional materials but are more difficult to manufacture. We are certified by Underwriters Laboratories to manufacture PCBs using many types and combinations of these specialty materials. This broad offering allows us to manufacture PCBs for a wide array of end-use applications, including highly complex PCBs for niche and high-end commercial and aerospace and defense markets.
- *Quick-turn manufacturing*. In addition, in circumstances where our customers require time critical engineering and manufacturing services, we are able to react to our customers' needs with our quick-turn manufacturing capabilities.

Our Integrated Electronics manufacturing organization principally designs and manufactures state-of-the-art microwave-based hardware for use in advanced radar systems, advanced jamming systems, missiles, and decoys, electronic surveillance systems, and satellite and ground-based communication systems. Several core manufacturing technology areas include:

- *Electronic Systems Integration.* Assembly and Testing of Radar, Surveillance and Communications Systems, which are composed of Low/High Power, High Reliability modules that interconnect via cables and harnesses, Circuit cards, Flexprint assemblies, backplanes, Illuminated Panels for the purpose of IFF, Intercommunications, and Maritime/Overland surveillance. Material is stored using automated retrieval and storage systems. Product is built using both manual and robotic processes including automation for Conformal Coating of CCA's. Product is tested using Functional Acceptance Testing of Hardware and Software using both Commercial and designed equipment; Environmental Thermal and Stress Screening using both Conventional and Highly Accelerated chambers with profiles typically +70°C/-55°C; Vibration at X/Y/Z axis, DITMCO and Cirrus Chassis Harness Point-to-Point Validation; and Spectrum/Teredyne Functional Circuit card and Module test sets.
- *Microwave Assembly Technology.* Our Microwave product capabilities include simple isolator components for large scale phased array radars to very complex highly integrated Electronic Warfare Line Replaceable Units. All products are designed internally to customer specifications using the latest versions of microwave design and simulation software, coupled with an extensive internal design library. Our radar beamforming solutions are realized through internal design, manufacturing, and highly automated test processes for circulators, RF distribution, and manifold assemblies. Automated pick-and-place, surface mount reflow, fully automated visual inspection, and automated test stands ensure highly repeatable integrated microwave assembly performance. Our environmental lab test capability is used for product qualification and Highly Accelerated Life Testing when required.
- *Microelectronics Module Technology.* Analog and mixed-signal multi-chip modules (also known as hybrid integrated circuits) are assembled in our Microelectronics Center of Excellence, which is certified to MIL-PRF-38534 and -38535 Class H and Class K for high reliability ground, airborne, and space applications. We continue to invest in state-of-the-art equipment for precision microelectronic assembly processes including custom ceramic substrate manufacturing, eutectic die attach, precision flip chip die attach, underfill, automated epoxy dispense, wire bonding, lid attach, and lead forming. Our packaging technology serves traditional chip and wire 2D construction as well as 2.5/3DHI advanced packaging assembly. All modules are electrically tested for performance and subjected to environmental testing as required.
- *Ceramic Technology.* We believe Low Temperature Co-fired Ceramic (LTCC) circuits are well-suited for high-performance RF packages for multi-function applications such as transmit-receive modules or other RF integrated modules. We have developed proprietary processes to allow for the use of less expensive conductors (silver vs. traditional gold) in the LTCC product thus providing significantly lower-cost options to our customers. We have also developed a proprietary etched thick-film process resulting in thin film performance at a much-reduced cost. We recently deployed customized equipment to support automated test, visual and electrical inspection, and final tape-and-reel for ceramic resistor products significantly reducing cost and enhancing product quality.

Customers and Markets

Our customers include end-users, OEMs, EMS providers, ODMs, and distributors that primarily serve the aerospace and defense, automotive, data center computing, medical/industrial/instrumentation, and networking end markets of the electronics industry. Included in the end markets that our OEM and EMS customers serve is the U.S. federal government. As a result, we are a supplier, primarily as a subcontractor, to the U.S. federal government. In addition, we also sell directly to government agencies (both domestic and allied foreign governments).

See table in Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations* for the percentage of our net sales in each of the principal end markets we serve.

Sales attributed to OEMs include sales made through EMS providers and ODMs. Although our contractual relationships are often with the EMS or ODM companies, we typically negotiate price and volume requirements directly with the OEMs. In addition, we are on the approved vendor lists of several of our EMS providers. This positions us to participate in business that is awarded at the discretion of the EMS provider.

Our sales and marketing strategy focuses on building long-term relationships with our customers' engineering and new product introduction personnel early in the product development phase, frequently through strategic account management teams. Traditional build-to-print opportunities involve TTM engineering providing design for manufacture reviews and making recommendations for both manufacturability and cost reductions without impacting specifications. Prototype builds to verify design ensue, along with the early stages of production. As the product then matures from the prototype stage to volume production, we shift our focus to the customers' procurement departments in order to capture sales at each point in the product's life cycle. Our design-to-specification capabilities allow us to engage at the onset in the engineering cycle at critical aerospace and defense customers as they begin the process of specifying system requirements. At that stage, we support our customers by designing a solution as well as providing early prototyping and test support for that solution. We will then work to meet the ramp-to-volume production requirements of our customers. Building upon this strategy and moving further vertically along the customer value chain, we also design and manufacture highly-engineered integrated mission systems for aerospace and defense applications.

Our staff of engineers, sales support personnel, and managers assist our sales representatives in advising customers with respect to manufacturing feasibility, design review, and technological capabilities through direct communication and visits. We combine our sales efforts with customer service personnel at each facility to better serve our customers. Each large customer is typically assigned an account manager to coordinate all of the Company's services across all of our facilities. Additionally, the largest and most strategic customers are also supported by select program management and engineering teams. Our global sales force is comprised of direct sales personnel, complemented by commission-based independent representatives, and supports customers throughout North America, Europe, Asia, and the Middle East.

Our North America footprint includes facilities from our PCB and RF&S Components reportable segments with 16 PCB fabrication and engineered system plants located in California, Colorado, Connecticut, New Hampshire, New York, Ohio, Oregon, Utah, Virginia, Wisconsin, and Ontario, Canada; and one RF component plant located in New York.

Our Asia footprint includes facilities from our PCB and RF&S Components reportable segments. We have five PCB fabrication plants located in Huiyang, Dongguan, Guangzhou, and Zhongshan, China and Penang, Malaysia; and one RF component plant located in Suzhou, China.

On November 1, 2023, we announced our selection of Syracuse, New York as the location for a proposed advanced technology PCB manufacturing facility. In the third quarter of 2024, we broke ground and started construction on the 24-acre property adjacent to our existing facility in Syracuse for the campus expansion and the site for the new facility, and we expect to commence initial low rate production in 2026.

For certain risks attendant to our foreign operations, see Item 1A, *Risk Factors*.

Suppliers

The supply chain for our different product areas is meaningfully diverse. For PCBs, primary raw materials are copper clad laminates and chemicals, while for engineered systems and RF components and subsystems, primary raw materials are components such as circuit card assemblies, PCBs, semiconductors, and connectors.

The primary raw materials we use in PCB manufacturing include copper clad laminate, chemical solutions such as copper and gold for plating operations, photographic film, carbide drill bits, and plastic for testing fixtures. Although we have preferred suppliers for some raw materials used in the manufacture of PCBs, most of our raw materials are generally readily available in the open market from numerous other potential suppliers.

The primary raw materials we use in engineered systems, RF components, RF subsystems, backplane assemblies, and other PCB assemblies are manufactured components such as PCBs, ceramic and ferrite substrates, connectors, capacitors, resistors, diodes, and integrated circuits, many of which are custom made and controlled by our customers' approved vendors. The more complicated RF subsystems may require us to purchase integrated subassemblies and super-components such as RF oscillators, frequency converters, power supplies, and microprocessors. These components for backplane assemblies and other PCB assemblies in some cases have limited or sole sources of supply. For example, in some instances, our customers will require use of a specific component from a particular supplier or require use of a component provided by the customer itself, in which case we may have a single or limited number of suppliers for these specific components. The backplane assemblies, PCB assemblies, and precision metal fabricated chassis and enclosures which we produce are often incorporated into a fully integrated and tested system delivered to our customer. These products often incorporate procured power, thermal, interconnect, and mechanical components sourced from either customer directed or our selected suppliers.

Radar, Communication, and Surveillance systems use highly sophisticated electronic subassemblies including Transmitter and Receiver CCA's/Modules, Traveling Wave Tube Assemblies, Exciters, Wave Form Generators, and Frequency Generators. Many of these systems also require the acquisition of RF antenna arrays, illuminated panel subassemblies, inertial navigation/GPS subassemblies from OEMs or parts specifically designed for certain applications. The material for these systems come from a variety of sources, including OEMs and Contract Manufacturers, and are often defined by the end customer.

We typically use just-in-time procurement practices to maintain our raw materials inventory at low levels and work closely with our suppliers to obtain technologically advanced raw materials. In addition, we periodically seek alternative supply sources with the goal of ensuring that we are receiving competitive pricing and service. Certain raw materials, particularly semiconductors continue to be in short supply and are limiting production of some of our engineered systems while other raw materials for PCBs and subassemblies are in adequate supply now. Supply for PCB materials can vary over time depending on supply/demand dynamics for key raw materials such as copper clad laminates. See Item 1A, *Risk Factors* for more details.

Competition

For PCBs, our competitors are mostly based in China and Taiwan. For engineered products such as RF subassemblies and systems, we compete with a different set of competitors largely based in the U.S. and Europe. The PCB industry remains fragmented and characterized by intense competition. There are several competitive factors our customers consider when choosing their supplier including, but not limited to, technical capabilities, pricing, service, support, reliability, quality, and location. Our principal PCB and substrate competitors include AT&S (Austria Technologie & Systemtechnik Aktiengesellschaft), Chin-Poon Industrial Co., Ltd., Founder PCB, Gold Circuit Electronics Ltd., ISU Petasys Co., Ltd., Sanmina Corporation, Shennan Circuits Co., Ltd., Suzhou Dongshan Precision Manufacturing Co., Ltd., Tripod Technology Corporation, Unimicron Technology Corporation, Victory Giant Technology, WUS Printed Circuit Co., Ltd., and Zhen Ding Technology Holding Ltd. Our competition for RF products and engineered systems include BAE Systems plc, Honeywell, Crane Aerospace & Electronics, Elta Systems Ltd., Hensoldt AG, Mercury Systems, Inc., RN2 Technologies Co., Selex ES (subsidiary of Leonardo S.p.A.), Smiths Group plc, and Thales Group.

We believe that our key competitive strengths include:

Leading global technology solutions manufacturer. We are one of the largest technology solutions manufacturers in North America, one of the largest suppliers to the aerospace and defense industry and have a global sales and manufacturing presence. Historically, we have focused on manufacturing PCBs, but we have been moving further up our customers' value chain by also designing and manufacturing RF subassemblies and engineered systems. According to a December 2024 report by Prismark Partners, we are one of the largest and most diversified PCB manufacturers in the world based on 2023 revenues, and we enjoy significant economies of scale, with net sales of approximately $2.4 billion for fiscal year 2024. This scale has helped us invest both organically and inorganically to provide more technology and manufacturing solutions to our customers. The PCB industry is highly fragmented with the top 40 PCB providers comprising approximately 80% of market share based on 2023 revenue, according to Prismark Partners. As our customers consolidate their supply base, we offer the technology breadth and scale to emerge as a preferred partner.

Breadth of technology and products. We offer a wide range of engineered systems, passive RF components, advanced ceramic RF components, hi-reliability multi-chip modules, beamforming and switching networks, IC substrates, and PCB and RF products, including HDI and Ultra-HDI PCBs, conventional PCBs, flexible PCBs, rigid-flex PCBs, and custom assemblies. We also offer certain value-added services to support our customers' needs. These include RF design-to-specification capability, DFM, PCB layout design, simulation and testing services, and QTA services. By providing these value-added services to customers, we are capable of providing our customers with a "one-stop" technology solution, which we believe enhances our relationships with our customers.

Diversified business model. Our sales are diversified by a well-balanced portfolio of end markets that we serve and by the customers we sell to within those end markets. This diversity reduces our exposure to, and reliance on, any single end market or customer. We enjoy a large and diverse customer base with over 1,400 customers, as well as long-term relationships in excess of ten years with our ten largest customers.

Focused on attractive end markets with a favorable growth outlook and dependence on sophisticated product capabilities. We believe that our global manufacturing footprint and breadth of capabilities enables us to serve multiple key end markets for our technology solutions. The aerospace & defense industry in particular provides an opportunity for us as we combine our traditional market strength in core PCB technology with the advanced technologies, RF capabilities and engineered systems we offer for growing requirements in both traditional and AESA radar systems for defense applications.

One-stop solution for customers. We are capable of providing a one-stop design, manufacturing, and test solution to our customers with design services, engineering support, and prototype development through final volume production around the globe. This one-stop solution allows us to better serve our customers, many of whom are based in time-critical high growth markets, enabling our customers to reduce the time required to develop new products and bring them to market. We utilize a facility specialization strategy in which each customer is directed to the facility best suited to the customer's product type, delivery time, complexity, and volume needs. This enables us to reduce the time from order placement to delivery. As our commercial customers ramp to volume, we are positioned to transition them to one of our volume facilities in China or Malaysia.

Leading aerospace and defense supplier. We have passed OEM and government certification processes, and the administrative requirements associated with participation in government and commercial aerospace programs. When supplying various departments and agencies of the U.S. government, we are required to maintain facility security clearances under the National Industrial Security Program Operating Manual (NISPOM) and International Traffic in Arms Regulations (ITAR). Along with supply of traditional and RF PCBs, we offer a variety of RF components and subassemblies, engineered systems, as well as our engineering services and assembly capabilities which allow us to bring additional value to our customers.

Seasonality

We tend to experience modest seasonal softness in the first and third quarters due to holidays and vacation periods in China and North America, respectively, which limit production leading to stronger revenue levels in the second and fourth quarters.

Intellectual Property

Our intellectual property strategy remains deliberate and aimed at protecting the innovations critical to TTM's business and the success of our customers. We now have a total of approximately one hundred fifty-four (154) patents, with approximately thirty-three (33) pending patent applications. These patents are derived from internal research and development as well as a number of intellectual property portfolio acquisitions beginning in 2018. Our PCB business depends on the effectiveness of our fabrication techniques, proprietary PCB structures, and our ability to continually improve our manufacturing processes. We rely on the collective experience of our employees in the manufacturing process to ensure that we continuously evaluate and adopt new technologies available within our industry. In addition, we depend on robust training, recruiting, and retention of our employees, who are required to be knowledgeable in the operation of advanced equipment and complicated manufacturing processes. In regard to our RF products, the vast majority are proprietary and protected or covered by approximately forty-five (45) patents and three (3) currently pending patent applications directed towards products for both the wireless infrastructure and aerospace and defense markets.

National Security Matters

A portion of our business consists of manufacturing defense and defense-related items for various departments and agencies of the U.S. government, including the U.S. Department of Defense (DoD), which requires that we maintain facility security clearances under the NISPOM. The NISPOM requires that a corporation with significant foreign ownership maintaining a facility security clearance take steps to prevent foreign ownership, control, or influence (FOCI). In February of 2023, our Board of Directors passed a Special Board Resolution (SBR), replacing the Special Security Agreement (SSA) that we entered into with the Defense Counterintelligence and Security Agency (DCSA) in 2010. The replacement of the SSA with the SBR is a result of the significantly reduced foreign ownership of TTM. DCSA accepted the SBR and the effective date of the SBR was February 2, 2023. The SBR codifies the maintenance of the Government Security Committee of the Board to oversee our compliance and cybersecurity efforts and to put into place best practices in our facilities in the U.S. and overseas to ensure that we maintain robust security practices and policies as we serve the interests of our customers in the Aerospace and Defense market. The Government Security Committee of our Board of Directors consists of at least three Board members that hold a National Security Clearance. The DCSA will continue to review TTM's compliance with the terms of the SBR annually at each of TTM's sites which operate under a U.S. DoD security clearance. In addition, all of TTM's Board is currently comprised of U.S. citizens and per the terms of the SBR, in the future, no foreign citizen will be allowed to sit on TTM's Board.

Other Governmental Regulations

Our operations, particularly those in North America, are subject to a broad range of regulatory requirements relating to export control, environmental compliance, waste management, and health and safety matters. In particular, we are subject to the following:

- U.S. Department of State regulations, including the Arms Export Control Act (AECA) and ITAR located at 22 Code of Federal Regulations (CFR) Parts 120-130;
- U.S. Department of Commerce regulations, including the Export Administration Regulations (EAR) located at 15 CFR Parts 730-744;
- Office of Foreign Asset Control (OFAC) regulations located at 31 CFR Parts 500-599;
- U.S. Occupational Safety and Health Administration (OSHA), and state OSHA and Department of Labor laws pertaining to health and safety in the workplace;
- U.S. Environmental Protection Agency regulations pertaining to air emissions; waste water discharges; and the use, storage, discharge, and disposal of hazardous chemicals used in the manufacturing processes; the reporting of chemical releases to the environment; and the reporting of chemicals manufactured in by-products that are beneficially recycled;
- Department of Homeland Security regulations regarding the storage of certain chemicals of interest;
- California Climate Corporate Data Accountability Act (SB 253) and the California Climate-Related Financial Risk Act (SB 261);
- corresponding state laws and regulations, including site investigation and remediation;
- corresponding U.S., county and city agencies;
- corresponding regulations and agencies in China for our Chinese facilities;
- material content directives and laws that ban or restrict certain hazardous substances in products sold in member states of the European Union, China, and other countries and jurisdictions;

- Securities and Exchange Commission (SEC) rules that require reporting of the use of certain metals (conflict minerals) originating in the Democratic Republic of the Congo and the countries adjacent to it pursuant to Section 1502 of the Dodd-Frank Act; and
- reporting requirements of the California Transparency in Supply Chains Act of 2010 that requires reporting on efforts to eradicate slavery and human trafficking in retailers' and manufacturers' supply chains.

The process to manufacture PCBs and our other products requires adherence to city, county, state, federal, and foreign environmental laws and regulations regarding the storage, use, handling, and disposal of chemicals, solid wastes, and other hazardous materials, as well as compliance with wastewater and air quality standards. We believe that our facilities in the United States and Canada comply in all material respects with applicable environmental laws and regulations. In Asia, the government has a history of changing legal requirements with minimal notice. We believe that our facilities in Asia comply in all material respects with current applicable environmental laws and regulations and have resources in place to maintain compliance to them. The capital expenditure costs expected for environmental improvement initiatives are included in our annual capital expenditure projections.

Human Capital

How we manage and leverage our human capital is essential in executing our strategy. At TTM, we believe a key differentiator is our culture, which has been shaped through considerable thought and energy. Our culture has served us well as we integrate acquired companies and optimize our organizational structures and teams to better serve our customers. The following elements underpin our culture:

- Vision – Inspire innovation as a global preeminent technology solutions company.
- Mission – Provide customers with market leading, differentiated solutions, and an extraordinary customer experience.
- The "TTM Values" that apply to all employees are: Integrity, Teamwork, Clear Communication, and Performance Excellence.
- Our people leaders are guided by our "Leadership Principles" which are: Results, Communications, Collaboration, and Career Development.
- "One TTM" – embodies our collective "team" approach to solving problems, working together, robust collaboration, and proactive communication throughout the organization to better serve our customers.

Commitment to Values and Ethics. The foundation of TTM's strategic vision is its corporate culture and its way of doing business with integrity, teamwork, clear communication, and performance excellence. We seek to demonstrate the importance we place on these values through our goal setting and performance management process as well as providing ethics training to employees every year.

Along with the TTM Values and our Leadership Principles, we discuss and act in accordance with, and provide annual training for, our Code of Conduct, which outlines our expectations and provides guidance for our employees. Our Code of Conduct includes topics such as anti-corruption, discrimination, harassment, privacy, appropriate use of company assets, protecting confidential information, and reporting Code of Conduct violations. Our Code of Conduct reinforces the importance of fostering an open, welcoming environment in which all employees have a voice and a confidential outlet to raise concerns regarding potential violations.

Our commitment to our communities is demonstrated through our volunteer efforts, charitable donations, and sponsorships. As an employer, our local sites choose the organizations to affiliate with that best reflect our values.

In 2021, the TTM Board of Directors established the TTM Chair for Community Service Award to recognize one outstanding team for their contributions to the local community during that year. We host the winning external organization along with TTM employees and executive leaders in an annual awards ceremony. In 2024, we honored the Zhongshan Charity Federation and contributed a Renminbi (RMB) 148,000 (approximately $20,000) check to Qizhi Special Education Project in January 2025. This project will mainly focus on improving the teaching facilities and environment at the Qizhi Training Center, enhancing teaching quality, enriching course content, and providing higher quality and comprehensive educational resources for special needs children.

Talent Acquisition. Our vision is to provide exceptional talent acquisition, recognized for our commitment to engaging with and building robust talent sources, the optimized use of technology, and a compelling employment brand. We aspire to create a seamless and candidate-centric experience that not only meets the needs of TTM globally, but also ensures a positive and engaging journey. By continually refining our approach and embracing innovative solutions, we aim to build a workforce that drives the company's success and fosters a culture of growth and opportunity.

Talent Development. Talent development is a collective and continuous effort of all of our people managers. We engage in regular talent reviews to calibrate on performance, potential, development gaps and progress, and to evaluate the depth and strength of our integrated succession plans. Our approach to learning is a continuous one, regardless of experience level or tenure. We provide leadership development programs with individually tailored development plans anchored in dedicated coaching and select internal mentors. To ensure focus on individual development for growth and readiness for career opportunities, we track the completion of development plans of our employees in management, technical, and professional career tracks, with over 91% documented plans in 2024. We provide recurring instructor-led, blended learning, online courses, and development programs for different stages of leadership including new people leaders through more senior leaders. Additionally, we extend competency-based training, sponsor job rotations, and form project teams comprised of emerging talent. We provide tuition reimbursement assistance, as well as a monthly stipend to engineers to pay down student debt. Our global learning management system houses extensive internal content as well as select external materials for all to access.

Inclusion. Recognizing and respecting our global presence, we strive to build and maintain a workforce that is diverse in talents and experiences as we promote an inclusive culture that reflects the communities that we reside in and serve. As part of our efforts, TTM's Inclusion Council works collaboratively across the organization to drive our culture and support key corporate wide initiatives. We have expanded and continue to develop our existing policies and training to address harassment, bullying, and the elimination of bias in the workplace to curb discrimination in all forms. Our focus on inclusion is aimed at helping managers and employees contribute and collaborate in team environments where respect is essential and everyone is encouraged to participate. Finally, our global efforts at building inclusive teams comes to life through our annual art contest where employees (and family members) express themselves through art displays what inclusion and diversity means to them.

Employee Engagement & Turnover. We periodically survey our employees and benefit from favorable participation rates to identify and act on specific opportunities to enhance our work environment, improve communications, and strengthen the connection between supervisors and employees. In 2024, we deployed a full-scale engagement survey on 14 engagement drivers with 97% participation rate globally. TTM's overall engagement survey results indicated High Performing (compared to benchmark) in 13 of the 14 drivers, with Culture and Inclusion registering the highest scores. From our initial survey in 2022, these results showed improvement in many areas to include our promoter score. The voice of our employees provides valuable insights on how we invest in people and prioritize specific actions and programs to attract and retain talent. We have shared the results with our employees and gathered additional insights before completing detailed action plans covering every manufacturing plant and corporate function in 2025.

To further gauge talent attraction and the onboarding experience, we utilize a new hire survey to gather insight into our employee's experience from the moment they first interact with TTM as a candidate to settling into their first couple of months in their new role. Completing the employee life cycle, we implemented an exit survey to gather feedback from employees leaving TTM.

Our two regional change agent networks (Asia and North America) exist to improve communications from the factory and office floor up to the senior management team. We select several employees within each site who are respected, influential, and representative of the employee base to serve as change agents. This network discusses and then communicates the key initiatives within the sites in addition to raising employee concerns. Additionally, these teams prioritize site initiatives around community activities, site improvement projects, recognition programs, and new communication methods.

We review employee turnover rates paying particular attention to supervisor and technical retention. We believe the emphasis we place on selecting, training, and coaching supervisors positively impacts their ability to lead people. Our leadership principles of results, communications, collaboration, and career development are designed to improve the employee experience and strengthen working relationships. Through internal surveys, it is clear our employees value their relationships with their supervisors, career opportunities, and the corporate culture.

Compensation and Benefits. We strive to align our compensation and benefit programs with ever changing market conditions. We are committed to reviewing our programs annually and recommend changes to improve our market competitiveness and ability to attract and retain our talent. In 2024, we continued to enhance and mature our global job infrastructure that we developed in 2022. Our goal of this global framework is to invest in our employees' total cash compensation for competitive reasons while outlining career tracks and levels to provide development opportunities. Our people leaders are dedicated to engaging with their employees to explain the career framework, their compensation, and potential for future jobs. We have seen the positive impact of the adjustments we made to base salaries and incentive compensation coupled with the conversations on career opportunities from managers. We believe other benefits of this structure are as follows:

- Globally integrated job architecture that is adaptable for future acquisitions,
- Market competitive guidelines for attracting, retaining, and rewarding our employees; implemented a progressive pay structure to support our Operator Advancement program.
- An improved ability to recruit and hire North America talent through enhanced recruitment advertising strategies. As a result, our applicant flow has continued to increase from 2023.
- A disciplined annual salary review and incentive program, which rewards for both business and/or individual performance.
- A global 90-Day New Hire Review was introduced for entry level manufacturing operators to improve first year retention and enhance employee experience.

We also offer comprehensive benefit plans for eligible employees including mental health, employee assistance program (EAP), telemedicine offerings, several medical and dental plans with qualifying employer-funded health savings accounts, life insurance, specialty programs for diabetes and weight loss, wellness challenges, and an on-site health and physical therapy center at one of our largest U.S. facilities.

Employee Data

As of December 30, 2024, we had approximately 16,400 employees. Our employees were distributed by function approximately as follows: 13,100 in manufacturing positions, 1,800 in engineering or technician positions, 500 in sales and marketing positions, and 1,000 in professional, managerial, or other administrative positions. Of our 5,800 U.S. employees, 50 are represented by unions. In China, approximately 8,500 employees are members of the All-China Federation of Trade Unions and accordingly are considered to be represented by a labor union. We believe that our relations with both our union and non-union employees are satisfactory.

Availability of Reports Filed with the Securities and Exchange Commission

We are a Delaware corporation founded in 1998, with our principal executive offices located at 200 East Sandpointe, Suite 400, Santa Ana, CA 92707. Our telephone number is (714) 327-3000. Our website address is www.ttm.com. We routinely post important information for investors on our website in the “Investor Relations” section. We use this website as a means of disclosing material information in compliance with our disclosure obligations under Regulation Fair Disclosure (FD). Accordingly, investors should monitor the “Investor Relations” section of our website, in addition to following our press releases, SEC filings, public conference calls, presentations, and webcasts. Information included on our websites is not incorporated into this Report. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports are available without charge on our website at https://investors.ttm.com/, as soon as reasonably practicable after they are filed with or furnished electronically to the SEC. Our SEC filings are also available to the public at www.sec.gov. Copies are also available without charge by (1) telephonic request by calling our Investor Relations Department at (714) 327-3000; (2) e-mail request to investor@ttmtech.com; or (3) a written request to TTM Technologies, Inc., Attention: Investor Relations, 200 East Sandpointe, Suite 400, Santa Ana, CA 92707.

ITEM 1A. *RISK FACTORS*

Risk Factor Summary

The risk factors summarized below could materially harm our business, operating results and/or financial condition, impair our future prospects and/or cause the price of our common stock to decline. Listed below is a summary of the principal risks, which are discussed more fully immediately following this summary.

- Global economic and market uncertainty may adversely impact our business and operating results.
- Uncertainty, volatility, and adverse changes in the global economy and financial markets could have an adverse impact on our business and operating results.
- We are subject to the risks characteristic of international operations, including tariffs.
- We are subject to risks of currency fluctuations.
- If our goodwill or other intangible assets become impaired in the future, we would be required to record a non-cash charge to earnings.
- We may not fully realize the anticipated positive impacts to future financial results from our restructuring efforts.
- We depend on the U.S. federal government for a significant portion of our business.
- Our raw material suppliers or equipment manufacturers may experience disruptions to their supply chain or operations, or otherwise fail to satisfy our product quality standards, or the prices or availability of raw materials may change.
- We may be unable to maintain satisfactory capacity utilization rates.
- Our results of operations are often subject to demand fluctuations and seasonality. With a high level of fixed operating costs, even small revenue shortfalls would decrease our gross margins.
- We may fail to meet the strict quality control standards of the industries in which we participate.
- A decline in sales to the relatively small number of OEM customers on whom we depend for a large portion of our sales would materially adversely affect our business.
- Competition in the printed circuit boards (PCB) market is intense, and we could lose market share, or our profit margins may decrease, if we are unable to maintain our current competitive position in end markets.
- We may not be able to compete effectively if we are unable to adapt our design and production processes when needed.
- Products we manufacture may contain design or manufacturing defects.
- Damage to any of our manufacturing facilities could materially adversely affect our business.
- The prominence of electronic manufacturing services (EMS) companies as our customers could reduce our gross margins, potential sales, and customers.
- The worldwide electronics industry is intensely competitive and volatile.
- We serve customers and have manufacturing facilities throughout the world and are subject to risks caused by local and global pandemics and other similar risks.
- We may encounter risks associated with potential divestitures of assets and acquisitions of other businesses.
- We are exposed to the credit risk of our customers and to credit exposures in weakened markets.
- We are subject to risks from rising labor costs and labor shortages, employee strikes, and other labor-related disruptions.
- We may be unable to hire and retain sufficient qualified personnel at all levels of our organization, and we are subject to risks from the loss of any of our key executive officers, or the inability to maintain a sufficient workforce to satisfy production demands.
- Initiatives aimed at addressing potential climate change risks could materially adversely affect our business.
- Infringement of our intellectual property rights could negatively affect us, and we may be exposed to intellectual property infringement claims from third parties.
- Foreign laws may not afford us sufficient protections for our intellectual property.
- We have substantial outstanding indebtedness, which could adversely impact our liquidity, our flexibility in obtaining additional financing, and our ability to fulfill our debt obligations.
- We are subject to interest rate risk, which could cause our debt service obligations to increase significantly.

- Servicing our debt requires a significant amount of cash, and we may be forced to take other actions to satisfy our obligations under our debt.
- We are subject to the requirements of the National Industrial Security Program Operating Manual (NISPOM) for our facility security clearance, which is a prerequisite to our ability to perform on classified contracts for the U.S. government.
- Our operations in Asia subject us to risks and uncertainties relating to the local laws and regulations and adverse effects of political tensions that arise from time to time with China.
- Our failure to comply with the requirements of environmental laws could result in litigation, fines, revocation of necessary permits, or debarment from our participation in federal government contracts.
- Our international sales are subject to laws and regulations relating to corrupt practices, trade and export controls, and economic sanctions. Any non-compliance could have a material adverse effect on our business.
- Outages, computer viruses, cyber-attacks and cybersecurity incidents, and similar events could materially disrupt our operations.
- Privacy, information security, and data protection laws, rules, and regulations could affect or limit how we collect and use personal information, increase our costs, and adversely affect our business opportunities.
- Issues arising during the upgrade of our enterprise resource planning (ERP) system could affect our operating results and ability to manage our business effectively.
- Our ability to use net operating loss carryforwards to offset future taxable income for U.S. federal, state, and foreign income tax purposes is subject to limitations, and future transfers of shares of our common stock could cause us to experience an “ownership change” that could further limit our ability to utilize our net operating losses.

An investment in our common stock involves a high degree of risk. You should carefully consider the factors described below, in addition to those discussed elsewhere in this Report, in analyzing an investment in our common stock. If any of the events described below occurs, our business, financial condition, and results of operations would likely suffer, the trading price of our common stock could fall, and you could lose all or part of the money you paid for our common stock. Risks and uncertainties not known to us currently, or that may appear immaterial, also may have a material adverse effect on our business, financial condition, and results of operations.

In addition, the following risk factors and uncertainties could cause our actual results to differ materially from those projected in our forward-looking statements, whether made in this Report or the other documents we file with the Securities and Exchange Commission (SEC), or our annual or quarterly reports to stockholders, future press releases, or orally, whether in presentations, responses to questions, or otherwise.

Risks Related to our Business

Global economic and market uncertainty may adversely impact our business and operating results.

Uncertain global economic conditions have in the past and may in the future adversely impact our business. The current uncertainty in the worldwide economic environment together with other unfavorable changes in economic conditions, such as higher inflation and interest rate increases currently being experienced or implemented by most developed economies, as well as recessions that have affected major countries, may negatively impact consumer confidence and spending, ultimately causing our customers to postpone purchases and may ultimately impact our profitability. Inflation and rapid fluctuations in inflation rates have had in the past, and may in the future have, negative effects on economies and financial markets. We could experience period-to-period fluctuations in operating results due to general industry or economic conditions and volatile or uncertain economic conditions can adversely impact our sales and profitability and make it difficult for us to accurately forecast and plan our future business activities. Furthermore, inflationary pressure and increases in interest rates may negatively impact revenue, earnings, and demand for our products. During challenging economic times, our current or potential future customers may experience cash flow problems and as a result may modify, delay, or cancel plans to purchase our products. Additionally, if our customers are not successful in generating sufficient revenue or are unable to secure financing, they may not be able to pay, or may delay payment of, accounts receivable that they owe us. Any inability of our current or potential future customers to pay us for our products may adversely affect our earnings and cash flow. Moreover, our key suppliers may reduce their output or become insolvent, thereby adversely impacting our ability to manufacture our products.

Uncertainty, volatility, and adverse changes in the global economy and financial markets, including those resulting from the conflict between Russia and Ukraine and other global conflicts, could have an adverse impact on our business and operating results.

Uncertainty, volatility, or adverse changes in the economy could lead to a significant decline in demand for the end products manufactured by our customers, which, in turn, could result in a decline in the demand for our products and increase pressure to reduce our prices. Any decrease in demand for our products could have an adverse impact on our financial condition, operating results, and cash flows. Uncertainty and adverse changes in the economy could also increase the cost and decrease the availability of potential sources of financing and increase our exposure to losses from bad debts, either of which could have a material adverse effect on our financial condition, operating results, and cash flows.

The conflict between Russia and Ukraine and in other global regions has contributed to volatility in the global economy and markets and ongoing geopolitical instability and is likely to have further global economic consequences, including ongoing disruptions of the global supply chain and energy markets. The effects of the conflict have contributed to significant volatility in credit and capital markets, spikes in energy prices, changes in laws and regulations that may affect our business, sanctions or counter-sanctions, and increased cybersecurity threats and concerns. As a result, there is a risk that supplies of our products may be significantly delayed by or may become unavailable as a result of the conflict between Russia and Ukraine and in other global regions affecting us or our suppliers. The conflicts may, at times, reduce demand for our products because of reduced global or national economic activity, disruptions and extreme volatility in global financial markets, increased rates of default and bankruptcy, and reduced levels of business and consumer spending. The effects of these conflicts could heighten or exacerbate many of the risk factors described in this Item 1A, *Risk Factors*, and may adversely affect our business, financial condition, and results of operation.

We have manufacturing facilities and serve customers outside the United States and are subject to the risks characteristic of international operations, including tariffs.

We have significant manufacturing operations in China, elsewhere in Asia and Canada and sales offices located in Asia and Europe. We continue to consider additional opportunities to make foreign investments and construct new foreign facilities.

In addition, for the year ended December 30, 2024, we generated approximately 47% of our net sales from non-U.S. operations, and a significant portion of our manufacturing material was provided by international suppliers during this period. The United States' trade policies and those of foreign countries are subject to change which could adversely affect our ability to purchase and sell goods and materials without significant tariffs, taxes, or duties that may be imposed on the materials we purchase or the goods we sell, thereby increasing the cost of such materials and potentially decreasing our margins. Further, our revenues could be impacted if our customers' ability to sell their goods is reduced by such tariffs, taxes, or duties. Both the U.S. and Chinese governments have included PCBs among items subjected to tariffs imposed on imports from such countries, which may negatively impact our revenue and profitability. In addition, we are subject to risks relating to significant international operations, including but not limited to:

- managing international operations;
- imposition of governmental controls;
- unstable regulatory environments;
- compliance with employment laws;
- implementation of disclosure controls, internal controls, financial reporting systems, and governance standards to comply with U.S. accounting and securities laws and regulations;
- limitations on imports or exports of our product offerings;
- fluctuations in the value of local currencies;
- inflation or changes in political and economic conditions;
- public health crises;
- labor unrest, rising wages, difficulties in staffing, and geographical labor shortages;
- government or political unrest;
- conflict or war between nations over territory that impacts the electronics supply chain leading to potential trade restrictions to and from the nations involved, including Russia, Ukraine, and China;
- longer payment cycles;
- language and communication barriers, as well as time zone differences;
- cultural differences;
- increases in duties and taxation levied on our products;
- other potentially adverse tax consequences;
- imposition of restrictions on currency conversion or the transfer of funds;
- travel restrictions;
- expropriation of private enterprises;
- the potential reversal of current favorable policies encouraging foreign investment and trade;

- the potential for strained trade relationships between the United States and its trading partners, including trade tariffs which could create competitive pricing risk; and
- government imposed sanction laws and regulations.

Further, the conflict between Russia and Ukraine and in other global regions described in the previous risk factor, and the effects thereof, may adversely affect our manufacturing facilities and our customers.

We are subject to risks of currency fluctuations.

A portion of our cash, other assets and liabilities is held in currencies other than the U.S. dollar. Changes in exchange rates among other currencies and the U.S. dollar will affect the value of these assets or liabilities as re-measured to U.S. dollars on our balance sheet. To the extent that we ultimately decide to repatriate some portion of these funds to the United States, the actual value transferred could be impacted by movements in exchange rates. Any such type of movement could negatively impact the amount of cash available to fund operations or to repay debt. Additionally, we have revenues and costs denominated in currencies other than the U.S. dollar (primarily the Renminbi (RMB)). Fluctuations in the exchange rates between the U.S. dollar and the RMB could result in increases or decreases in our costs or revenues which could negatively impact our business, financial condition, and results of operations. Significant inflation or disproportionate changes in foreign exchange rates could occur as a result of general economic conditions, acts of war or terrorism, changes in governmental monetary or tax policy, or changes in local interest rates. Further, China's government imposes controls over the convertibility of RMB into foreign currencies, which subjects us to further currency exchange risk.

We have a significant amount of goodwill and other intangible assets on our consolidated balance sheet. If our goodwill or other intangible assets become impaired in the future, we would be required to record a non-cash charge to earnings, which may be material and would also reduce our stockholders' equity.

As of December 30, 2024, our consolidated balance sheet included $862.0 million of goodwill and definite-lived intangible assets. During the year ended December 30, 2024, we recorded a non-cash goodwill impairment charge of $32.6 million related to our RF and Specialty Components (RF&S Components) reportable segment. We periodically evaluate whether events and circumstances have occurred, such that the potential for reduced expectations for future cash flows coupled with further decline in the market price of our stock and market capitalization may indicate that the remaining balance of goodwill and definite-lived intangible assets may not be recoverable. If factors indicate that assets are impaired, we would be required to reduce the carrying value of our goodwill and definite-lived intangible assets, which could harm our results during the periods in which such a reduction is recognized.

We may not fully realize the anticipated positive impacts to future financial results from our restructuring efforts.

We previously announced plans to consolidate our integrated electronics facilities in Elizabeth City, North Carolina and Huntington, New York into existing facilities in order to improve efficiencies. As of the end of fiscal year 2024, the closure of Elizabeth City has been completed and the closure of Huntington is expected by the middle of 2025. If economic conditions deteriorate, we may not achieve the expected increase in overall profitability as a result of the consolidation. Our ability to achieve the anticipated cost savings and other benefits from our restructuring efforts within expected time frames is subject to many estimates and assumptions, and may vary materially based on factors such as market conditions and the effect of our restructuring efforts on our work force. These estimates and assumptions are subject to significant economic, competitive, and other uncertainties, some of which are beyond our control. There can be no assurance that we will fully realize the anticipated positive impacts to future financial results from our current or future restructuring efforts. If our estimates and assumptions are incorrect or if other unforeseen events occur, we may not achieve the cost savings expected from such restructurings, and our business and results of operations could be adversely affected.

We depend on the U.S. federal government for a significant portion of our business, which involves unique risks. Changes in government defense spending or regulations could have a material adverse effect on our business, financial condition, and results of operations.

A significant portion of our revenues is derived from products and services that are ultimately sold to the U.S. federal government by our OEM and EMS customers and is therefore affected by, among other things, the federal government budget process. We supply to defense prime companies, the U.S. federal government and its agencies, as well as foreign governments and agencies. The contracts between our direct customers and the government end-user are subject to political and budgetary constraints and processes, changes in short-range and long-range strategic plans, the timing of contract awards, the congressional budget authorization and appropriation processes, the government's ability to terminate contracts for convenience or for default, as well as other risks, such as contractor suspension or debarment in the event of certain violations of legal and regulatory requirements.

For the year ended December 30, 2024, aerospace and defense sales accounted for approximately 46% of our total net sales. The substantial majority of aerospace and defense sales are related to both U.S. and U.S. federal government approved foreign military and defense programs. Consequently, our sales are affected by changes in the defense budgets of the U.S. and foreign governments and may be affected by federal budget sequestration measures.

The domestic and international threat of terrorist activity, emerging nuclear states, and conventional military threats have generally led to an increase in demand for defense products and services and homeland security solutions in the recent past. The termination or failure to fund one or more significant defense programs or contracts by the U.S. federal government could have a material adverse effect on our business, financial condition, and results of operations.

Future changes to the U.S. Munitions List could reduce or eliminate restrictions that currently apply to some of the products we produce. If these regulations or others are changed in a manner that reduces restrictions on products being manufactured overseas, we would likely face an increase in the number of competitors and increased price competition from overseas manufacturers, who are restricted by current import and export laws from manufacturing products for U.S. defense systems.

We rely on suppliers and equipment manufacturers for the timely delivery of raw materials, components, equipment, and spare parts used in manufacturing our PCBs. If a raw material supplier or equipment manufacturer goes bankrupt, liquidates, consolidates out of existence, experiences excess demands or other disruptions to their supply chain or operations, or otherwise fails to satisfy our product quality standards, or if the prices or availability of raw materials change, it could harm our ability to purchase new manufacturing equipment, service the equipment we have, or timely produce our products, thereby affecting our customer relationships.

To manufacture PCBs, we use raw materials such as laminated layers of fiberglass, copper foil, chemical solutions, gold, copper, and other commodity products, which we order from our suppliers. For Hybrid Microelectronics and radio frequency (RF) components, we use various high-performance materials such as Rad Hard & Space active components, Silicon transistors, insulated-gate bipolar transistors (IGBTs), field-effect transistors (FETs), Signal & Zener diodes, magnets, inductors, coils, beryllium oxide (BeO), and silicon nitride (SiN) substrates, as well as ceramics and printed circuit board materials. In the case of backplane assemblies, components include connectors, sheet metal, capacitors, resistors, and diodes, many of which are custom made and controlled by our customers' approved vendors. For our Radar, Communication, and Surveillance systems, we use highly sophisticated electronic assemblies including Transmitter and Receiver CCA's/Modules, Traveling Wave Tube Assemblies, Exciters, Wave Form Generators, and Frequency Generators which are specifically designed for their application.

Our success is due in part to our ability to deliver products timely to our customers, which requires successful planning and logistics infrastructure, including, ordering, transportation and receipt processing, and the ability of suppliers to meet our materials requirements.

Consolidations and restructuring in our supplier base and equipment fabricators related to our raw materials purchases or the manufacturing equipment we use to fabricate our products may result in adverse changes in pricing of materials due to reduction in competition among our raw material suppliers or an elimination or shortage of equipment and spare parts from our manufacturing equipment supply base. Suppliers and equipment manufacturers may be impacted by other events outside our control including macroeconomic events, financial instability, environmental occurrences, or supplier interruptions due to fire, natural catastrophes, public health crises or otherwise. Several of these factors have contributed to supply chain constraints we continue to experience. As a result, suppliers and equipment manufacturers have extended lead times, limited supplies, and/or increased prices due to capacity constraints and other factors. These have impacted our ability to deliver our products on a timely basis, our inventory levels and cash flow, and could negatively impact our financial results. The severity of the constraints in the supply chain is continuously changing, which creates substantial uncertainties in our business. In addition, in extreme circumstances, the suppliers we purchase from could cease production altogether due to a fire, natural disaster, consolidation, or liquidation of their businesses. The supply chain constraints and other factors discussed above may continue to impact our ability to deliver our products on a timely basis, harm our customer relationships and negatively impact our financial results.

In particular, the ongoing macroeconomic conditions, including the inflationary environment, have increased the cost of our raw materials and components. If raw material and component prices remain elevated and the cost of the metals that we use to produce our product, especially if the prices of copper, gold, tin, palladium, and other precious metals we use to manufacture our products remain elevated or otherwise continue to increase, it may reduce our gross margins. Should the supply of materials used in the above manufacturing processes become limited, our ability to obtain the quantities necessary to meet our customers' demand may be impacted which could cause us to encounter reduced revenue levels or price increases which would impact our profit margins. If either of these situations occurs, our financial condition and results of operations could be negatively impacted.

If we are unable to maintain satisfactory capacity utilization rates, our business, financial condition, and results of operations would be materially adversely affected.

Given the high fixed costs of our operations, decreases in capacity utilization rates can have a significant effect on our business. Accordingly, our ability to maintain or enhance gross margins will continue to depend, in part, on maintaining satisfactory capacity utilization rates. In turn, our ability to maintain satisfactory capacity utilization will depend on the demand for our products, the volume of orders we receive, our ability to maintain a sufficient workforce at our facilities, and our ability to offer products that meet our customers' requirements at competitive prices. If current or future production capacity fails to match current or future customer demands, our facilities would be underutilized, our sales may not fully cover our fixed overhead expenses, and we would be less likely to achieve expected gross margins. If forecasts and assumptions used to support the realizability of our long-lived assets change in the future, significant impairment charges could result that would materially adversely affect our business, financial condition, and results of operations.

In addition, we generally schedule our quick turnaround production facilities at less than full capacity to retain our ability to respond to unexpected additional quick-turn orders. However, if these orders are not received, we may forego some production and could experience continued excess capacity. If we conclude we have significant, long-term excess capacity, we may decide to permanently close one or more of our facilities and lay off some of our employees. Closures or lay-offs could result in our recording of restructuring charges such as severance, other exit costs, and asset impairments, as well as potentially causing disruptions in our ability to supply customers.

Our results of operations are often subject to demand fluctuations and seasonality. With a high level of fixed operating costs, even small revenue shortfalls would decrease our operating margins.

Our results of operations fluctuate for a variety of reasons, including:

- timing of orders from and shipments to major customers;
- the levels at which we utilize our manufacturing capacity;
- price competition;
- changes in our mix of revenues generated from quick-turn versus standard delivery time services;
- expenditures, charges, or write-offs, including those related to acquisitions, facility restructurings, or asset impairments; and
- expenses relating to expanding existing manufacturing facilities.

A significant portion of our operating expenses are relatively fixed in nature, and planned expenditures are based in part on anticipated orders. Accordingly, unexpected revenue shortfalls may decrease our operating margins. In addition, we have experienced sales fluctuations due to seasonal patterns in the capital budgeting and purchasing cycles, as well as inventory management practices of our customers and the end markets we serve. These seasonal trends have caused fluctuations in our operating results in the past and may continue to do so in the future. Results of operations in any period should not be considered indicative of the results that may be expected for any future period. In addition, our future quarterly operating results may fluctuate and may not meet the expectations of securities analysts or investors.

We participate in competitive industries, including the automotive industry, which requires strict quality control standards. Failure to meet these standards may adversely affect our business, financial condition, and results of operations.

Our customer base demands the highest customer service, on time delivery and quality standards in a competitive market. Failure to meet these ever-increasing standards may result in a loss of market share for our products and services to our competitors, which may result in a decline in our overall revenue. For example, a significant portion of our sales are to customers within the automotive industry, which has historically experienced multi-year cycles of growth and decline. If sales of automobiles should decline or go into a cyclical downturn, our sales could decline, and this could have a materially adverse impact on our business, financial condition, and result of operations. For safety reasons, automotive customers have strict quality standards that generally exceed the quality requirements of other customers. If such products do not meet these quality standards, our business, financial condition, and results of operations may be materially adversely affected. These automotive customers may require long periods of time to evaluate whether our manufacturing processes and facilities meet their quality standards. If we were to lose automotive customers due to quality control issues, we might not be able to regain those customers or gain new automotive customers for long periods of time, which could have a material adverse effect on our business, financial condition, and results of operations. Moreover, we may be required under our contracts with automotive industry customers to indemnify them for the cost of warranties and recalls relating to our products.

We depend upon a relatively small number of OEM customers for a large portion of our sales, and a decline in sales to major customers would materially adversely affect our business, financial condition, and results of operations.

A small number of customers are responsible for a significant portion of our sales. Our five largest OEM customers collectively accounted for approximately 42%, 41%, and 33% of our net sales for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively, and one customer represented 11% of our net sales for the year ended December 30, 2024. Furthermore, our business has benefited from OEMs deciding to outsource their PCB and Integrated Electronics manufacturing needs to us, and our future revenue growth partially depends on new outsourcing opportunities from OEMs. Sales attributed to OEMs include both direct sales as well as sales that the OEMs place through EMS providers. Our customer concentration could fluctuate, depending on future customer requirements, which will depend in large part on market conditions in the electronics industry segments in which our customers participate. The loss of one or more significant customers or a decline in sales to our significant customers would materially adversely affect our business, financial condition, and results of operations. In addition, we generate significant accounts receivable in connection with providing manufacturing services to our customers. If one or more of our significant customers were to become insolvent or were otherwise unable to pay for the manufacturing services provided by us, our business, financial condition, and results of operations would be materially adversely affected.

In addition, during industry downturns, we may need to reduce prices to limit the level of order losses, and we may be unable to collect payments from our customers. There can be no assurance that key customers would not cancel orders, that they would continue to place orders with us in the future at the same levels as experienced by us in prior periods, that they would be able to meet their payment obligations, or that the end-products that use our products would be successful. This concentration of customer base may materially adversely affect our business, financial condition, and results of operations due to the loss or cancellation of business from any of these key customers, significant changes in scheduled deliveries to any of these customers, or decreases in the prices of the products sold to any of these customers.

Competition in the PCB market is intense, and we could lose market share, or our profit margins may decrease, if we are unable to maintain our current competitive position in end markets using our quick-turn, high-technology, and high-mix manufacturing services.

The PCB industry is intensely competitive, highly fragmented, and rapidly changing. We expect competition to continue, which could result in price reductions, reduced gross margins, and loss of market share. In addition, we increasingly compete on an international basis, and new and emerging technologies may result in new competitors entering our markets.

Some of our competitors and potential competitors have advantages over us, including:

- greater financial and manufacturing resources that can be devoted to the development, production, and sale of their products;
- more established and broader sales and marketing channels;
- more manufacturing facilities worldwide, some of which are closer in proximity to OEMs;
- manufacturing facilities that are located in countries with lower production costs;
- lower capacity utilization, which in peak market conditions can result in shorter lead times to customers;
- ability to add additional capacity faster or more efficiently;
- preferred vendor status with existing and potential customers;
- greater name recognition; and
- larger customer bases.

In addition, these competitors may respond more quickly to new or emerging technologies or adapt more quickly to changes in customer requirements than we do. We must continually develop improved manufacturing processes to meet our customers' needs for complex products, and our manufacturing process technology is generally not subject to significant proprietary protection. During recessionary periods in the electronics industry, our strategy of providing quick-turn services, an integrated manufacturing solution, and responsive customer service may take on reduced importance to our customers. As a result, we may need to compete more on the basis of price, which would cause our gross margins to decline.

We and some of our competitors have reduced average selling prices in the past. In addition, competitors may reduce their average selling prices faster than our ability to reduce costs, which can also accelerate the rate of decline of our selling prices. When prices decline, we may also be required to write down the value of our inventory. In addition, we could yield lower or no profit from the sale of our products if we price our products aggressively in response to market conditions.

If we are unable to adapt our design and production processes in response to rapid technological change and process development, we may not be able to compete effectively.

The markets for our products and manufacturing services are characterized by rapidly changing technology and continual implementation of new designs and production processes. The future success of our business will depend in large part upon our ability to maintain and enhance our technological capabilities, to design and manufacture products that meet changing customer needs, and to successfully anticipate or respond to technological changes on a cost-effective and timely basis. We expect that the investment necessary to maintain our technological position will increase as customers make demands for products and services requiring more advanced technology on a quicker turnaround basis. For example, in our PCB segment, we expect to continue to make capital expenditures to expand our High Density Interconnect (HDI), RF technology, and other advanced manufacturing capabilities while in our RF&S Components segment, we are designing products that we hope our customers adopt and incorporate into their products. We may not be able to obtain access to additional sources of funds in order to respond to technological changes as quickly as our competitors. In addition, our failure to adopt and implement technological improvements quickly may cause inefficiencies in our production process as our product yields or quality may decrease, resulting in increased costs, and may lead to customers not adopting our product designs.

We also could encounter competition from new or revised manufacturing, production, and design technologies that render existing manufacturing, production, and design technology less competitive or obsolete. We may not respond effectively to the technological requirements of the changing market. If we need new technologies and equipment or if we are not able to design new products acceptable to customers to remain competitive, the development, acquisition, and implementation of those designs, technologies, and equipment may require us to make significant capital investments.

New emerging technology trends, such as artificial intelligence (AI), require us to keep pace with evolving regulations and industry standards. In the United States, there are various current and proposed regulatory frameworks relating to the use of AI in products and services. We expect that the legal and regulatory environment relating to emerging technologies such as AI will continue to develop and could increase the cost of doing business, and create compliance risks and potential liability, all which may have a material adverse effect on our financial condition and results of operations. Governments are also considering the new issues in intellectual property law that AI creates, which could result in different intellectual property rights in technology we create with AI and development processes and procedures and could have a material adverse effect on our business.

Products we manufacture may contain design or manufacturing defects, which could result in reduced revenue from the sale of our products or services and may result in liability claims against us.

We manufacture products to our customers' specifications, which are highly complex and may contain design or manufacturing errors or failures, despite our quality control and quality assurance efforts. Defects in the products we manufacture, whether caused by a design, manufacturing, or materials failure or error, may result in delayed shipments, customer dissatisfaction, a reduction or cancellation of purchase orders, or liability claims against us. If these defects occur either in large quantities or too frequently, our business reputation may be impaired, and our customers may decrease the orders for products or services that they purchase from us, thereby decreasing our overall revenue. Since our products are used in products that are integral to our customers' businesses, errors, defects, or other performance problems could result in financial or other damages to our customers beyond the cost of the PCB, for which we may be liable. Although our invoices and sales arrangements generally contain provisions designed to limit our exposure to product liability and related claims, existing or future laws or unfavorable judicial decisions could negate these limitation of liability provisions. If any of our products are or are alleged to be defective, we may be required to participate in a recall of such products, particularly with respect to our products for automotive customers. As suppliers become more integral to the vehicle design process and assume more of the vehicle assembly functions, vehicle manufacturers are increasingly looking to their suppliers for contributions when faced with product liability claims or recalls. In addition, vehicle manufacturers, which have traditionally borne the costs associated with warranty programs offered on their vehicles, are increasingly requiring suppliers to guarantee or warrant their products and may seek to hold us responsible for some or all of the costs related to the repair and replacement of parts supplied by us to the vehicle manufacturer.

Damage to any of our manufacturing facilities due to fire, natural disaster, or other events could materially adversely affect our business, financial condition, and results of operations.

The destruction or closure of any of our facilities for a significant period of time as a result of fire, explosion, blizzard, act of war or terrorism, flood, tornado, earthquake, lightning, other natural disasters, required maintenance, or other events could harm us financially, increasing our costs of doing business and limiting our ability to deliver our manufacturing services on a timely basis.

Our insurance coverage with respect to damages to our facilities or our customers' products caused by natural disasters is limited and is subject to deductibles and coverage limits. Such coverage may not be adequate or continue to be available at commercially reasonable rates and terms.

In the event one or more of our facilities is closed on a temporary or permanent basis as a result of a natural disaster, required maintenance or other event, our operations could be significantly disrupted. Such events could delay or prevent product manufacturing and shipment for the time required to transfer production or repair, rebuild, or replace the affected manufacturing facilities. This time frame could be lengthy and result in significant expenses for repair and related costs. While we have disaster recovery plans in place, there can be no assurance that such plans will be sufficient to allow our operations to continue in the event of every natural or man-made disaster, required repair, or other extraordinary event. Any extended inability to continue our operations at unaffected facilities following such an event would reduce our revenue and potentially damage our reputation as a reliable supplier.

The prominence of EMS companies as our customers could reduce our gross margins, potential sales, and customers.

Sales to EMS companies represented approximately 28%, 31%, and 37% of our net sales for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively. Sales to EMS providers include sales directed by OEMs as well as orders placed with us at the EMS providers' discretion. EMS providers source on a global basis to a greater extent than OEMs. The growth of EMS providers increases the purchasing power of such providers and has in the past, and could in the future, result in increased price competition or the loss of existing OEM customers. In addition, some EMS providers, including some of our customers, have the ability to directly manufacture PCBs and create backplane assemblies. If a significant number of our other EMS customers were to acquire these abilities, our customer base might shrink, and our sales might decline substantially. Moreover, if any of our OEM customers outsource the production of PCBs and creation of backplane assemblies to these EMS providers, our business, financial condition, and results of operations may be materially adversely affected.

The worldwide electronics industry is intensely competitive and volatile.

A majority of our revenue is generated from the electronics industry, which is characterized by intense competition, relatively short product life cycles, and significant fluctuations in product demand. The industry is subject to economic cycles and recessionary periods. Due to the uncertainty in the end markets served by most of our customers, we have a low level of visibility with respect to future financial results. Consequently, our past operating results, earnings, and cash flows may not be indicative of our future operating results, earnings, and cash flows.

We serve customers and have manufacturing facilities throughout the world and are subject to risks caused by local and global pandemics and other similar risks, which could materially adversely affect our business, financial condition, and results of operations.

Local and global pandemics or other disasters or public health concerns in regions of the world where we have operations or source material or sell products could result in the disruption of our business. Specifically, these pandemics, disasters and health concerns can result in increased travel restrictions and extended shutdowns of certain businesses in the regions in which we operate, as well as social, economic, or labor instability. Disruptions in our product shipments or impacts on our manufacturing in affected regions over a prolonged period could have a material adverse impact on our business and our financial results.

In particular, multiple facets of our business may be negatively impacted by the fear of exposure to or actual effects of disease outbreaks, epidemics, pandemics, and similar widespread public health concerns. These impacts include but are not limited to:

- failure of third parties on which we rely, including, without limitation, our suppliers, commercial banks, and other external business partners, to meet their obligations to us, caused by significant disruptions in their ability to do so or their own financial or operational difficulties;
- supply chain risks such as disruptions of supply chains, excess demand on suppliers, and scrutiny or embargoing of goods produced in infected areas;
- reduced workforces and labor shortages at all levels of our organization, which may be caused by, but not limited to, the temporary inability of the workforce to work due to illness, lockdowns, quarantine, or government mandates and incentives;
- temporary business closures due to reduced workforces or government mandates;
- reduced demand for our products and services caused by, but not limited to, the effect of quarantine or other travel restrictions or financial hardship on our workforce or the businesses in the industries we service; or
- restrictions to our business as a result of federal or state laws, regulations, orders or other governmental or regulatory actions, if adopted.

Any of the foregoing factors, or other cascading effects that are not currently foreseeable, could materially increase our costs, negatively impact our sales, or damage the Company's financial condition, results of operations, cash flows, and its liquidity position, possibly to a significant degree. The duration of any such impacts cannot be predicted.

We have pursued and intend to continue to pursue potential divestitures of assets and acquisitions of other businesses and may encounter risks associated with these activities, which could harm our business and operating results. If we are unable to manage our growth effectively, our business, financial condition, and results of operations could be materially adversely affected.

As part of our business strategy, we expect that we will continue to implement and align our strategy by pursuing potential divestitures of assets, such as our sale of Shanghai Backplane Assembly, and acquisitions of businesses, technologies, assets, or product lines that complement or expand our business, such as our acquisition of Gritel Holding Co., Inc. (Gritel) and ISC Farmingdale Corp. in 2022. Telephonics Corporation is now a wholly-owned subsidiary of TTM by way of our acquisition of Gritel, the Telephonics direct parent company.

Acquisitions of high technology companies and assets are inherently risky, and no assurance can be given that our prior or future acquisitions will be successful. Failure to manage and successfully integrate acquisitions we make could have a material adverse effect on our business, financial condition, and results of operations. Even when an acquired company has already developed and marketed products, product enhancements may not be made in a timely fashion. In addition, unforeseen issues might arise with respect to such products after any such acquisition.

As we continue to experience growth in the scope and complexity of our operations, we may be required to implement additional operating and financial controls and hire and train additional personnel. There can be no assurance that we will be able to do so in the future, and failure to do so could jeopardize our expansion plans and seriously harm our operations. In addition, growth in our capacity could result in reduced capacity utilization and a corresponding decrease in gross margins.

We are exposed to the credit risk of our customers and to credit exposures in weakened markets.

Most of our sales are on an "open credit" basis, with standard industry payment terms. We monitor individual customer payment capability in granting such open credit arrangements, seek to limit such open credit to amounts we believe the customers can pay, and maintain reserves we believe are adequate to cover exposure for doubtful accounts. During periods of economic downturn in the electronics industry and the global economy, our exposure to credit risks from our customers increases. Although we have programs in place to monitor and mitigate the associated risks, such programs may not be effective in reducing our credit risks.

Additionally, our OEM customers often direct a significant portion of their purchases through a relatively limited number of EMS companies. Our contractual relationship is often with the EMS companies, who are obligated to pay us for our products. Because we expect our OEM customers to continue to direct our sales to EMS companies, we expect to continue to be subject to this credit risk with a limited number of EMS customers. If one or more of our significant customers were to become insolvent or were otherwise unable to pay us, our business, financial condition, and results of operations would be materially adversely affected.

Rising labor costs and labor shortages, including due to pandemics and other disasters, employee strikes, and other labor-related disruptions may materially adversely affect our business, financial condition, and results of operations.

Our business is labor intensive, utilizing large numbers of engineering and manufacturing personnel. There is uncertainty with respect to rising labor costs and ongoing labor shortages. Furthermore, labor disputes and strikes based partly on wages have in the past slowed or stopped production by certain manufacturers in China. In some cases, employers have responded by significantly increasing the wages of workers at such plants. Any increase in labor costs due to minimum wage laws or customer requirements about scheduling and overtime that we are unable to recover in our pricing to our customers could materially adversely affect our business, financial condition, and results of operations. In addition, general labor shortages, a high turnover rate, and our difficulty in recruiting and retaining qualified employees at any level of our organization could result in a potential for defects in our products, production disruptions or delays, or the inability to ramp production to meet increased customer orders, resulting in order cancellation or imposition of customer penalties if we are unable to deliver products in a timely manner.

To respond to competitive pressures and customer requirements, we may further expand both domestically and internationally. If we pursue such expansions, we may be required to make additional capital expenditures. For instance, we have commenced construction of our new proposed advanced technology PCB manufacturing facility in Syracuse, New York. Phase one of the proposed project, including capital for campus-wide improvements is estimated to be $100.0 million to $130.0 million. In addition, the cost structure in certain regions or countries that are now considered to be favorable may increase as economies develop, causing local wages to rise. As a result, we may need to continue to seek new locations with lower costs and the employee and infrastructure base to support PCB manufacturing and we may lose business in our existing facilities as a result of such potential shifts in the market. We cannot assure investors that we will realize the anticipated strategic benefits of our new locations, or that such locations will contribute positively to our operating results.

In North America, we are experiencing wage inflation pressures, as a result of labor shortages, and certain pressures which are also mandated by local and state governments. Further, we are experiencing rising health care costs. While we strive to manage these challenges, there can be no assurance that our efforts will succeed which would result in higher costs and lower profits. The competition for talent and labor in North America and in general is currently high. In this competitive environment, our business could be adversely impacted by increases in labor costs, which could include increases in wages and benefits necessary to attract and retain high-quality employees with the right skill sets, increases triggered by regulatory actions regarding wages, scheduling, and benefits; and increases in health care and workers' compensation insurance costs. In light of the current challenging labor market conditions, our wages and benefits programs and any steps we take to increase our wages and benefits, may be insufficient to attract and retain talent at all levels of our organization. Existing labor shortages, and our inability to attract employees to maintain a qualified workforce, could adversely affect our production and our overall business and financial performance.

Strikes or labor disputes with our unionized employees, primarily in China, may adversely affect our ability to conduct our business. If we are unable to reach agreement with any of our unionized work groups on future negotiations regarding the terms of their collective bargaining agreements, we may be subject to work interruptions or stoppages. Any of these events could be disruptive to our operations and could result in negative publicity, loss of contracts, and a decrease in revenues. We may also become subject to additional collective bargaining agreements in the future if more employees or segments of our workforce become unionized, including any of our employees in the United States.

We may be unable to hire and retain sufficient qualified personnel at all levels of our organization, and the loss of any of our key executive officers, or the inability to maintain a sufficient workforce to satisfy production demands, could materially adversely affect our business, financial condition, and results of operations.

We believe that our future success will depend in large part on our ability to attract and retain highly skilled, knowledgeable, sophisticated, and qualified managerial and professional personnel. Furthermore, we have limited patent or trade secret protection for our manufacturing processes and rely on the collective experience of our employees involved in our manufacturing processes to ensure that we continuously evaluate and adopt new technologies in our industry. We may not be able to retain our executive officers and key personnel or attract additional qualified management in the future. We can make no assurances that future changes in executive management will not have a material adverse effect on our business, financial condition, or results of operations. Our business also depends on our continuing ability to recruit, train, and retain highly qualified employees, particularly engineering and sales and marketing personnel. The competition for these employees is intense, and the loss of these employees could harm our business.

In addition, our industry continues to experience a shortage of workers, which may prove to be systemic. We rely on maintaining a sufficient workforce at all levels of our organization to design, manufacture, and distribute our products. If the labor markets remain tight and we are unable to adequately staff our facilities due to a shortage of qualified workers, our operations and financial performance would likely be adversely affected.

Our business, financial condition, and results of operations could be materially adversely affected by initiatives aimed at addressing potential climate change risks.

Our manufacturing processes require that we purchase significant quantities of energy from third parties, which results in the generation of greenhouse gases, either directly on-site or indirectly at electric utilities. Both domestic and international legislation to address the risks posed by potential climate change impacts, and the potential required disclosures of those risks, including by reducing greenhouse gas emissions could create increases in energy costs and price volatility. Considerable international attention is now focused on development of an international policy framework to guide international action to address risks posed by projected climate change. We are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended (Exchange Act), and regulators are considering new regulations which are expected to require, among other things, that we report our climate-related costs and activities and our customers and suppliers. Such regulations could cause us to incur significant costs to monitor and report, which would have negative impact on our profitability. Proposed and existing legislative efforts to control or limit greenhouse gas emissions could affect our energy sources and supply choices, as well as increase the cost of energy and raw materials that are derived from sources that generate greenhouse gas emissions.

Infringement of our intellectual property rights could negatively affect us, and we may be exposed to intellectual property infringement claims from third parties that could be costly to defend, could divert management's attention and resources, and if successful, could result in liability.

We rely on a combination of copyright, patent, trademark, trade secret laws, confidentiality procedures, contractual provisions, and other measures to establish and protect our proprietary and confidential information. All of these measures afford only limited protection. These measures may be invalidated, circumvented, breached, or challenged, and others may develop intellectual property, technologies, or processes that are similar, or superior to, our intellectual property or technology. We may not have adequate controls and procedures in place to protect our proprietary and confidential information. Despite our efforts to protect our intellectual property and proprietary rights, unauthorized parties may attempt to copy and succeed in copying our products or may obtain or use information that we regard as proprietary or confidential. If it becomes necessary for us to resort to litigation to protect our intellectual property rights, any proceedings could be burdensome, costly, and distracting to management, and we may not prevail. Further, adequate remedies may not be available in the event of an unauthorized use or disclosure of our proprietary or confidential information. Failure to successfully establish or enforce our intellectual property rights could materially and adversely affect our business, financial condition, and results of operations. Furthermore, there is a risk that we may infringe on the intellectual property rights of others. As is the case with many other companies in the PCB industry, we from time to time receive communications from third parties asserting patent rights over our products and enter into discussions with such third parties. Irrespective of the validity or the successful assertion of such claims, we could incur costs in either defending or settling any intellectual property disputes alleging infringement. If any claims, regardless of whether they have merit, are brought against our customers for such infringement, we could be required to expend significant resources in defending such claims, developing non-infringing alternatives, or obtaining licenses. We may not be successful in developing such alternatives or in obtaining such licenses on reasonable terms, or at all, and may be required to modify or cease marketing our products or services, which could disrupt the production processes, damage our reputation, and materially and adversely affect our business, financial condition, and results of operations.

Foreign laws may not afford us sufficient protections for our intellectual property, and we may not be able to obtain patent protection outside of the United States.

Certain nations in which we operate may not grant us certain intellectual property rights that are customarily granted in more developed legal systems. Patent law reform in the United States and other countries may also weaken our ability to enforce our patent rights or make such enforcement financially unattractive. For example, despite continuing international pressure on the Chinese government, intellectual property rights protection continues to present significant challenges to foreign investors and, increasingly, Chinese companies. Chinese commercial law is considered by some to be relatively undeveloped compared to the commercial law in our other major markets and only limited protection of intellectual property is available in China as a practical matter. Although we have taken precautions in the operations of our Chinese subsidiaries and in our joint venture agreement to protect our intellectual property, any local design or manufacture of products that we undertake in China could subject us to an increased risk that unauthorized parties will be able to copy or otherwise obtain or use our intellectual property, which could harm our business. We may also have limited legal recourse in the event we encounter patent or trademark infringement. Uncertainties with respect to the Chinese legal system may adversely affect the operations of our Chinese subsidiaries. China has put in place a comprehensive system of intellectual property laws; however, incidents of infringement are relatively common, and enforcement of rights can, in practice, be difficult. If we are unable to manage our intellectual property rights, our business and operating results may be seriously harmed.

Risks Related to our Indebtedness

We have substantial outstanding indebtedness, and our outstanding indebtedness could adversely impact our liquidity and flexibility in obtaining additional financing, our ability to fulfill our debt obligations, and our financial condition and results of operations.

We have substantial debt and, as a result, we have significant debt service obligations. We and a number of our direct and indirect subsidiaries also have various credit facilities and letters of credit. Such agreements also contain certain financial covenants which require us to maintain, under the occurrence of certain events, a consolidated fixed charge coverage ratio.

Subject to the limits contained in the credit agreements governing the Term Loan Facility due 2030 (Term Loan Facility), the U.S. Asset-Based Lending Credit Agreement (U.S. ABL), the Asia Asset-Based Lending Credit Agreement (Asia ABL), the indenture governing the Senior Notes due 2029, and our other debt instruments, we may be able to incur substantial additional debt from time to time to finance working capital, capital expenditures, investments, or acquisitions, or for other purposes. If we do so, the risks related to our high level of debt could intensify. Specifically, our high level of debt could have important consequences to us and our shareholders. For example, it could:

- make it more difficult for us to satisfy our obligations with respect to our indebtedness, which could in turn result in an event of default on such indebtedness;
- require us to use a substantial portion of our cash flow from operations for debt service payments, thereby reducing the availability of cash for working capital, capital expenditures, acquisitions, and other general corporate purposes;
- impair our ability to obtain additional financing in the future for working capital, capital expenditures, acquisitions, and other investments or general corporate purposes, which may limit our ability to execute our business strategy;
- diminish our ability to withstand a downturn in our business, the industry in which we operate or the economy generally and restrict us from exploiting business opportunities or making acquisitions;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate or the general economy;
- increase our vulnerability to general adverse economic and industry conditions, including increases in interest rates, that result in increased borrowing costs;
- limit management’s discretion in operating our business; and
- place us at a competitive disadvantage as compared to our competitors that have less debt as it could limit our ability to capitalize on future business opportunities and to react to competitive pressures or adverse changes.

In addition, the indenture governing the Senior Notes due 2029 and the credit agreements governing the Term Loan Facility, the U.S. ABL, and the Asia ABL contain restrictive covenants that limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of all our debt.

Furthermore, we and our subsidiaries may decide to incur significant additional indebtedness in the future. Although the indenture governing the Senior Notes due 2029, and the credit agreements governing the Term Loan Facility, the U.S. ABL, and the Asia ABL will contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of qualifications and exceptions, and the additional indebtedness incurred in compliance with these restrictions could be substantial. These restrictions also will not prevent us from incurring obligations that do not constitute indebtedness.

Our variable rate indebtedness subjects us to interest rate risk, which could cause our debt service obligations to increase significantly.

Our Term Loan Facility and our Asia ABL are subject to interest at a floating rate of Term Secured Overnight Financing Rate (SOFR) plus a margin, and as a result, we have exposure to interest rate risk. Certain central banks, such as the U.S. Federal Reserve, effected multiple interest rate increases in recent years. Increases in interest rates increase our cost of borrowing and/or potentially make it more difficult to refinance our existing indebtedness, if necessary. We endeavored to mitigate this risk by entering into a four-year pay-fixed, receive-floating (1-month Chicago Mercantile Exchange (CME) Term SOFR) interest rate swap arrangement in March 2023. The swap has a notional amount of $250.0 million for the period beginning April 1, 2023 and ending on April 1, 2027. Under the terms of the interest rate swap, we pay a fixed rate of 3.49% against the first interest payments of a portion of our Term SOFR-based debt and receive floating 1-month CME Term SOFR during the swap period. Although we have taken measures to mitigate our risk to interest rate increases, our swap instruments may not be wholly effective in mitigating this risk or otherwise provide an effective hedge against all interest rate volatility. See *Quantitative and Qualitative Disclosures About Market Risk* and *Interest Rate Risks* appearing in Part II, Item 7A of this Report for further information.

Servicing our debt requires a significant amount of cash and we may not be able to generate sufficient cash to service all of our debt and may be forced to take other actions to satisfy our obligations under our debt, which may not be successful.

Based on certain parameters defined in the Term Loan Facility, including a Secured Leverage Ratio, we may be required to make an additional principal payment on an annual basis if our Secured Leverage Ratio is greater than 2.0.

Our ability to make scheduled payments on or to refinance our debt obligations and to fund planned capital expenditures and expansion efforts depends on our ability to generate cash in the future and our financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to certain regulatory, competitive, financial, business, and other factors beyond our control.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems and could be forced to reduce or delay investments and capital expenditures or to dispose of material assets or operations, seek additional capital (which could include obtaining additional equity capital on terms that may be onerous or highly dilutive) or restructure or refinance our indebtedness. We may not be able to affect any such alternative measures, if necessary, on commercially reasonable terms or at all and, even if successful, those alternative actions may not allow us to meet our scheduled debt service obligations. The credit agreements governing the Term Loan Facility, the U.S. ABL, the Asia ABL, and the indenture governing the Senior Notes due 2029 restrict our ability to dispose of assets and use the proceeds from those dispositions and may also restrict our ability to raise debt or equity capital to be used to repay other indebtedness when it becomes due. We may not be able to consummate those dispositions or to obtain proceeds in an amount sufficient to meet any debt service obligations then due.

In addition, we conduct certain of our operations through our subsidiaries. Accordingly, repayment of our indebtedness may be dependent on the generation of cash flow by our subsidiaries and their ability to make such cash available to us, by dividend, debt repayment or otherwise. Unless they are guarantors of the Senior Notes due 2029 or our other indebtedness, our subsidiaries do not have any obligation to pay amounts due on our indebtedness or to make funds available for that purpose. Our subsidiaries may not be able to, or may not be permitted to, make distributions to enable us to make payments in respect of our indebtedness. Each subsidiary is a distinct legal entity, and under certain circumstances, legal and contractual restrictions may limit our ability to obtain cash from our subsidiaries. While the indenture governing the Senior Notes due 2029 and the credit agreements governing the Term Loan Facility, the U.S. ABL, and the Asia ABL limit the ability of our subsidiaries to incur consensual restrictions on their ability to pay dividends or make other intercompany payments to us, these limitations are subject to qualifications and exceptions. In the event that we do not receive distributions from our subsidiaries, we may be unable to make required principal and interest payments on our indebtedness.

Our inability to generate sufficient cash flows to satisfy our debt obligations, or to refinance our indebtedness on commercially reasonable terms or at all, would materially and adversely affect our financial position and results of operations and our ability to satisfy our obligations under our indebtedness.

If we cannot make scheduled payments on our debt, we will be in default and holders of the Senior Notes due 2029 could declare all outstanding principal and interest to be due and payable, the lenders under the Term Loan Facility, the U.S. ABL, and the Asia ABL could terminate their commitments to loan money, the lenders could foreclose against the assets securing their borrowings and we could be forced into bankruptcy or liquidation.

Regulatory Risks

We are subject to the requirements of the NISPOM for our facility security clearance, which is a prerequisite to our ability to perform on classified contracts for the U.S. government.

A facility security clearance is required in order to be awarded and perform on classified contracts for the Department of Defense and certain other agencies of the U.S. government. As a cleared entity, we must comply with the requirements of the NISPOM, and any other applicable U.S. government industrial security regulations. Further, our Board has adopted a Special Board Resolution (SBR) that has been approved by the Defense Counterintelligence and Security Agency (DCSA) that requires the Company to adopt certain corporate constructs, policies, and procedures.

If we were to violate the terms and requirements of the SBR, the NISPOM, or any other applicable U.S. government industrial security regulations (which may apply to us under the terms of classified contracts), we could lose our security clearance. We cannot be certain that we will be able to maintain our security clearance. If for some reason our security clearance is invalidated or terminated, we may not be able to continue to perform on classified contracts and would not be able to enter into new classified contracts, which could materially adversely affect our business, financial condition, and results of operations.

Our operations in Asia subject us to risks and uncertainties relating to the local laws and regulations and adverse effects of political tensions that arise from time to time with China.

The government of China is adopting evolving policies regarding foreign and domestic trade. No assurance can be given that the government of China will continue to pursue policies that allow for open trade with foreign countries, that such policies will be successful if pursued, or that such policies will not be significantly altered from time to time, particularly in light of the trade and travel restrictions that the United States and China have implemented in recent years. Despite progress in developing its legal system, certain countries in Asia do not have a comprehensive and highly developed system of laws, particularly with respect to foreign investment activities and foreign trade. Enforcement of existing and future laws and contracts is uncertain, and implementation and interpretation thereof may be inconsistent. As the legal system develop, the promulgation of new laws, changes to existing laws, and the preemption of local regulations by national laws may adversely affect foreign investors. Further, any litigation may be protracted and may result in substantial costs and diversion of resources and management's attention. Also, the evolving landscape of the interrelation between China and Hong Kong may have an adverse impact on our operations in Hong Kong and may impact our ability to attract and maintain necessary talent in that area. In addition, though changes in government policies and rules are timely published or communicated, there is usually no indication of the duration of any grace period before which full implementation and compliance will be required. As a result, it is possible that we might operate our business in violation of new rules and policies before full compliance can be achieved. These uncertainties could limit the legal protections available to us and adversely impact our results of operations.

Our failure to comply with the requirements of environmental laws could result in litigation, fines, revocation of permits necessary to our manufacturing processes, or debarment from our participation in federal government contracts.

Our operations are regulated under a number of domestic and foreign environmental and safety laws and regulations that govern, among other things, the discharge of hazardous materials into the air and water, as well as the handling, storage, recycling, and disposal of such materials. These laws and regulations include the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Superfund Amendment and Reauthorization Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Toxic Substances Control Act, and the Federal Motor Carrier Safety Improvement Act, as well as analogous state, local, and foreign laws. Compliance with these environmental laws is a major consideration for us because our manufacturing processes use and generate materials classified as hazardous. Because we use hazardous materials and generate hazardous wastes in our manufacturing processes, we may be subject to potential financial liability for costs associated with the investigation and remediation of our own sites, or sites at which we have arranged for the disposal of hazardous wastes, if such sites become contaminated. Even if we fully comply with applicable environmental laws and are not directly at fault for the contamination, we may still be liable. The wastes we generate include spent ammoniacal and cupric etching solutions, metal stripping solutions, waste acid solutions, waste alkaline cleaners, waste oil, and waste waters that contain heavy metals such as copper, tin, lead, nickel, gold, silver, cyanide, and fluoride, and both filter cake and spent ion exchange resins from equipment used for on-site waste treatment.

Environmental law violations, including the failure to maintain required environmental permits, could subject us to fines, penalties, and other sanctions, including the revocation of our effluent discharge permits. This could require us to cease or limit production at one or more of our facilities and could have a material adverse effect on our business, financial condition, and results of operations. Even if we ultimately prevail, environmental lawsuits against us would be time consuming and costly to defend.

Environmental laws have generally become more stringent, and we expect this trend to continue over time, especially in developing countries, imposing greater compliance costs, and increasing risks and penalties associated with violation. We operate in environmentally sensitive locations, and we are subject to potentially conflicting and changing regulatory agendas of political, business, and environmental groups. Changes or restrictions on discharge limits, emissions levels, material storage, handling, or disposal might require a high level of unplanned capital investment or relocation to another global location where prohibitive regulations do not exist. It is possible that environmental compliance costs and penalties from new or existing regulations may materially adversely affect our business, financial condition, and results of operations.

We are increasingly required to certify compliance with various material content restrictions in our products based on laws of various jurisdictions or territories such as the Restriction of Hazardous Substances (RoHS) and Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) directives in the European Union and China's RoHS legislation. Similar laws have been adopted in other jurisdictions and may become increasingly prevalent. In addition, we must also certify as to the non-applicability of the EU's Waste Electrical and Electronic Equipment directive for certain products that we manufacture. The REACH directive requires the identification of Substances of Very High Concern (SVHCs) periodically. We must survey our supply chain and certify to the non-presence or presence of SVHCs to our customers. As with other types of product certifications that we routinely provide, we may incur liability and pay damages if our products do not conform to our certifications.

We are also subject to an increasing variety of environmental laws and regulations in China, which impose limitations on the discharge of pollutants into the air and water and establish standards for the treatment, storage, and disposal of solid and hazardous wastes for us and our vendors that assist us in managing the waste generated by our manufacturing processes. The manufacturing of our products generates gaseous chemical wastes, liquid wastes, wastewater, and other industrial wastes from various stages of the manufacturing process. Production sites, waste collectors, and vendors in China are subject to increasing regulation and periodic monitoring by the relevant environmental protection authorities. Environmental claims or the failure to comply with current or future regulations could result in the assessment of damages or imposition of fines against us, suspension of production, or cessation of operations.

The process to manufacture PCBs and our other products requires adherence to city, county, state, federal, and foreign environmental laws and regulations regarding the storage, use, handling, and disposal of chemicals, solid wastes, and other hazardous materials, as well as compliance with wastewater and air quality standards. We rely on our vendors for the transportation and disposal of our solid and hazardous wastes generated by our manufacturing processes. If we are not able to find such services, our ability to conduct our business and our results of operations may be adversely impacted. In Asia, the government has a history of changing legal requirements with no or minimal notice. We believe that our facilities in Asia comply in all material respects with current applicable environmental laws and regulations and have resources in place to maintain compliance to them. The capital expenditure costs expected for environmental improvement initiatives are included in our annual capital expenditure projections.

Our international sales are subject to laws and regulations relating to corrupt practices, trade and export controls, and economic sanctions. Any non-compliance could have a material adverse effect on our business, financial condition, and results of operations.

We operate on a global basis and are subject to anti-corruption, anti-bribery, and anti-kickback laws and regulations, including restrictions imposed by the Foreign Corrupt Practices Act (FCPA). The FCPA and similar anti-corruption, anti-bribery, and anti-kickback laws in other jurisdictions generally prohibit companies and their intermediaries and agents from making improper payments to government officials or any other persons for the purpose of obtaining or retaining business. We operate and sell our products in many parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-corruption, anti-bribery, and anti-kickback laws may conflict with local customs and practices. We also, from time to time, undertake business ventures with state-owned companies or enterprises.

Our global business operations must also comply with all applicable domestic and foreign export control laws, including International Traffic In Arms Regulations (ITAR) and Export Administration Regulations (EAR). Some items we manufacture are controlled for export by the U.S. Department of Commerce's Bureau of Industry and Security under EAR.

We train our employees concerning anti-corruption, anti-bribery, and anti-kickback laws and compliance with international regulations regarding trades and exports, and we have policies in place that prohibit employees from making improper payments. We cannot provide assurances that our internal controls and procedures will guarantee compliance by our employees or third parties with whom we work. If we are found to be liable for violations of the FCPA or similar anti-corruption, anti-bribery, or anti-kickback laws in international jurisdictions or for violations of ITAR, EAR, or other similar regulations regarding trades and exports, either due to our own acts or out of inadvertence, or due to the inadvertence of others, we could suffer criminal or civil fines or penalties or other repercussions, including reputational harm, which could have a material adverse effect on our business, financial condition, and results of operations.

Our global business operations also must be conducted in compliance with applicable economic sanction laws and regulations, such as laws administered by the U.S. Department of the Treasury's Office of Foreign Asset Control, the U.S. State Department, and the U.S. Department of Commerce. We must comply with all applicable economic sanction laws and regulations of the United States and other countries. Imposition of economic sanction laws and regulations on a company or country could impact our revenue levels. Violations of these laws or regulations could result in significant additional sanctions including criminal or civil fines or penalties, more onerous compliance requirements, more extensive debarments from export privileges, or loss of authorizations needed to conduct aspects of our international business.

In certain countries, we may engage third-party agents or intermediaries, such as customs agents, to act on our behalf, and if these third-party agents or intermediaries violate applicable laws, their actions may result in criminal or civil fines or penalties or other sanctions being assessed against us. We take specific measures designed to ensure our compliance with U.S. export and economic sanctions laws, anti-corruption laws and regulations, and export control laws. However, it is possible that some of our products were sold or will be sold to distributors or other parties, without our knowledge or consent, in violation of applicable law. There can be no assurances that we will be in compliance in the future. Any such violation could result in significant criminal or civil fines, penalties, or other sanctions and repercussions, including reputational harm, which could have a material adverse effect on our business, financial condition, and results of operations.

In conjunction with defense procurements, some international customers require contractors to comply with industrial cooperation regulations, including entering into industrial participation, industrial development or localization agreements, sometimes referred to as offset agreements, as a condition to obtaining orders for our products and services. These offset agreements generally extend over several years and obligate the contractor to perform certain commitments, which may include in-country purchases, technology transfers, local manufacturing support, consulting support to in-country projects, investments in joint ventures and financial support projects, and to prefer local suppliers or subcontractors. The customer's expectations in respect of the scope of offset commitments can be substantial, including high-value content, and may exceed existing local technical capability. Failure to meet these commitments, which can be subjective and outside of our control, may result in significant penalties, and could lead to a reduction in sales to a country.

We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to current and evolving compliance initiatives and corporate governance practices.

As a public company we incur significant legal, accounting, and other expenses that we likely would not incur as a private company. We are subject to the reporting requirements of the Exchange Act, which require, among other things, that we file with the SEC annual, quarterly, and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act of 2002 and rules subsequently implemented by the SEC and Nasdaq have imposed various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel devote a substantial amount of time to these compliance initiatives. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that have required the SEC, from time to time, to adopt additional rules and regulations in these areas. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to further substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate. The rules and regulations applicable to public companies substantially increase our legal and financial compliance costs and make some activities more time-consuming and costly. When these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition and results of operations. The increased costs may decrease our net income (or increase our net loss) and may require us to reduce costs in other areas of our business or increase the prices of our products or services. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements.

Other Risks

Outages, computer viruses, cyber-attacks, and similar cybersecurity threats could materially disrupt our operations, and breaches of our information systems may cause us to incur significant legal and financial exposure.

We rely on information technology (IT) networks and systems, some of which are owned and operated by third parties, to collect, process, transmit, and store electronic information. In particular, we depend on our information systems for a variety of functions, including worldwide financial reporting, inventory management, procurement, invoicing, and email communications. These information systems are susceptible to outages due to fire, floods, power loss, telecommunications failures, hacking, terrorist attacks, and similar cybersecurity threats. In addition, in the ordinary course of our business, we collect and store sensitive data in our data centers and on our networks, including intellectual property, our proprietary and confidential business information and that of our customers, suppliers and business partners, and personally identifiable information of our employees. The secure collection, processing, storage, maintenance, and transmission of this information is critical to our operations. Despite the implementation of network security measures, our information systems, including those owned and operated by third parties, on which we rely are vulnerable to computer viruses, break-ins, cyber-attacks, attacks by hackers or breaches due to employee or third party (including suppliers and business partners) error, malfeasance, or other disruptions that are material and adverse. Further, our operations could also be materially disrupted if our vendors experience such outages or breaches. While we have experienced cybersecurity incidents in the past, to date none have materially affected us or our business strategy, results of operations, financial condition and/or cash flows. However, if unauthorized parties gain material access to our information systems or material information is used in an unauthorized manner, misdirected, altered, lost, or stolen during transmission, any theft or misuse of such information could result in, among other things, unfavorable publicity, governmental inquiry and oversight, difficulty in marketing our services, allegations by our customers that we have not performed our contractual obligations, loss of customers, litigation by affected parties, and possible financial obligations for damages related to the theft or misuse of such information, any of which could have a material adverse effect on our business, financial condition, and results of operations. In addition, some of our employees work remotely, including while traveling for business, which increases our cybersecurity risk, creates data accessibility concerns, and makes us more susceptible to security breaches or business disruptions.

In addition, threat actors are also increasingly using tools and techniques that circumvent controls, evade detection, and remove forensic evidence, which means that we and others may be unable to anticipate, detect, deflect, contain, or recover from cybersecurity incidents in a timely or effective manner. As AI capabilities improve and are increasingly adopted, we may see cybersecurity incidents created through AI. These attacks could be crafted with an AI tool to directly attack IT systems with increased speed and/or efficiency than a human threat actor or create more effective phishing emails. In addition, the cybersecurity threat could be introduced from the result of our or our customers and business partners incorporating the output of an AI tool that includes a threat, such as introducing malicious code by incorporating AI generated source code. Our information systems, as well as those of our customers and business partners, may be subject to unauthorized access by hackers or breached due to operator error, malfeasance, or other system disruptions.

Privacy, information security, and data protection laws, rules, and regulations could affect or limit how we collect and use personal information, increase our costs, and adversely affect our business opportunities.

Many U.S. and foreign laws and regulations, including those promulgated by the SEC, require companies to provide notice of cybersecurity incidents involving certain types of personal data or unauthorized access to, or interference with, our information systems to the public, certain individuals, the media, government authorities, or other third parties. Certain of these laws and regulations include notice or disclosure obligations contingent upon the result of complex analyses, including in some cases a determination of materiality. The nature of cybersecurity incidents can make it difficult to quickly and comprehensively assess an incident's overall impact to our business, and we may make errors in our assessments. If we are unable to appropriately assess a cybersecurity incident in the context of required analyses then we could face compliance issues under these laws and regulations, and we could be subject to lawsuits, regulatory fines or investigations, or other liabilities, any or all of which could adversely affect our business and operating results. Furthermore, cybersecurity incidents experienced by us, or by our customers or vendors, that lead to public disclosures may also lead to widespread negative publicity and increased government or regulatory scrutiny. Any security compromise in our industry, whether actual or perceived, could harm our reputation; erode customer confidence in our security measures; negatively affect our ability to attract new customers; or subject us to third-party lawsuits, regulatory fines or investigations, or other liability, any or all of which could adversely affect our business and operating results. Even the perception of inadequate security may damage our reputation and negatively impact our ability to win new customers and retain existing customers.

Additionally, we could be required to expend significant capital and other resources to investigate and address any actual or suspected cybersecurity incident or to prevent further or additional incidents. To maintain business relationships, we may find it necessary or desirable to incur costs to provide remediation and incentives to customers or other business partners following an actual or suspected cybersecurity incident. We also cannot be sure that our existing cybersecurity insurance will continue to be available on acceptable terms, in sufficient amounts to cover any claims we submit, or at all. Further, we cannot be sure that insurers will not deny coverage as to any claim, and some cybersecurity incidents may be outside the scope of our coverage, including in instances where they are considered force majeure events. Cybersecurity incidents may result in increased costs for cybersecurity insurance. One or more large, successful claims against us in excess of our available insurance coverage, or changes in our insurance policies, including premium increases or large deductible or co-insurance requirements, could have an adverse effect on our business, operating results, and financial condition.

We may need additional capital in the future to fund investments in our operations, refinance our indebtedness, and to maintain and grow our business, and such capital may not be available on a timely basis, on acceptable terms, or at all.

Our business is capital-intensive, and our ability to increase revenue, profit, and cash flow depends upon continued capital spending. To the extent that the funds generated by our ongoing operations are insufficient to cover our liquidity requirements, we may need to raise additional funds through financings. If we are unable to fund our operations and make capital expenditures as currently planned or if we do not have sufficient liquidity to service the interest and principal payments on our debt, it would have a material adverse effect on our business, financial condition, and results of operations. If we do not achieve our expected operating results, we would need to reallocate our sources and uses of operating cash flows. This may include borrowing additional funds to service debt payments, which may impair our ability to make investments in our business. Looking ahead at long-term needs, we may need to raise additional funds for a number of purposes, including the following:

- to fund capital equipment purchases to increase production capacity, upgrade and expand our technological capabilities, and replace aging equipment or introduce new products;
- to refinance our existing indebtedness;
- to fund our current or planned operations;
- to fund potential acquisitions or strategic relationships;
- to fund working capital requirements for future growth that we may experience;
- to enhance or expand the range of services we offer;
- to increase our sales and marketing activities;
- to respond to competitive pressures or perceived opportunities, such as investment, acquisition, and international expansion activities; or
- to fund our initiatives set forth in our environmental, social, and governance (ESG) policies and practices.

Should we need to raise funds through incurring additional debt, we may become subject to covenants even more restrictive than those contained in our current debt instruments. There can be no assurance that additional capital, including any future equity or debt financing, would be available on a timely basis, on favorable terms, or at all. If such funds are not available to us when required or on acceptable terms, our business, financial condition, and results of operations could be materially adversely affected.

Issues arising during the upgrade of our enterprise resource planning system could affect our operating results and ability to manage our business effectively.

We are continuing the process of upgrading our ERP management system to enhance operating efficiencies and provide more effective management of our business operations. We are investing significant financial and personnel resources into this project. However, there is no assurance that the system upgrade will meet our current or future business needs or that it will operate as designed. The transition to the new ERP system will affect numerous systems necessary for our operation. If we fail to correctly implement one or more components of the ERP system, we could experience significant disruption to our operations. Such disruptions could include, among other things, temporary loss of data, inability to process certain orders, failure of systems to communicate with each other and the inability to track or reconcile key data. We are heavily dependent on automated management systems, and any significant failure or delay in the system upgrade could cause a substantial interruption to our business and additional expense, which could result in an adverse impact on our operating results, cash flows, or financial condition.

Our ability to use net operating loss carryforwards to offset future taxable income for U.S. federal, state, and foreign income tax purposes is subject to limitations, and future transfers of shares of our common stock could cause us to experience an "ownership change" that could further limit our ability to utilize our net operating losses.

Under U.S. federal income tax law, a corporation's ability to utilize its net operating losses (NOLs) to offset future taxable income may be significantly limited if it experiences an "ownership change" as defined in Section 382 of the Internal Revenue Code of 1986, as amended. In general, an ownership change will occur if there is a cumulative change in a corporation's ownership by "5-percent shareholders" that exceeds 50 percentage points over a rolling three-year period.

A corporation that experiences an ownership change will generally be subject to an annual limitation on its pre-ownership change NOLs equal to the value of the corporation immediately before the ownership change, multiplied by the long-term tax-exempt rate (subject to certain adjustments). The annual limitation for a taxable year is generally increased by the amount of any "recognized built-in gains" for such year and the amount of any unused annual limitation in a prior year. As a result of our acquisition of Viasystems, the NOLs acquired were subject to this limitation. Future transfers or sales of our common stock during a rolling three-year period by any of our "5-percent shareholders" could cause us to experience an ownership change under Section 382, which could further limit our use of NOLs.

If our net earnings do not remain at or above recent levels, or we are not able to predict with a reasonable degree of probability that they will continue, we may have to record a valuation allowance against our net deferred income tax assets.

Our U.S. entities and certain of our foreign subsidiaries have deferred income tax assets. Based on our forecast for future earnings and analysis, we believe we may not utilize our deferred income tax assets in future periods in the U.S. and certain subsidiaries in foreign jurisdictions and as a result have established a valuation allowance against those deferred tax assets. If our estimates of future earnings and analysis changes, we may change our determination to have a valuation allowance against our deferred income tax assets, which will result in an increase or decrease to our income tax provision that can impact our results of operations.

Unanticipated changes in our tax rates or in our assessment of the realizability of our deferred income tax assets or exposure to additional income tax liabilities could affect our business, financial condition, and results of operations.

We are subject to income taxes in the United States and various foreign jurisdictions. Significant judgment is required in determining our provision for income taxes and, in the ordinary course of business, there are many transactions and calculations in which the ultimate tax determination is uncertain. Our effective tax rates could be materially adversely affected by changes in the mix of earnings in countries and states with differing statutory tax rates, changes in the valuation of deferred income tax assets and liabilities, changes in tax laws or regulations as well as other factors. Many countries are considering implementing or have implemented legislation to align their tax law with guidance proposed by the Organization for Economic Co-operation and Development (OECD). In particular, the OECD's Pillar Two proposes a global minimum tax of 15% on a country-by-country basis for multinational enterprises (MNEs) which have annual global revenue exceeding Euro (EUR) 750 million. The implementation of Pillar Two, which became effective in many countries on January 1, 2024, in countries in which we operate may adversely impact our effective tax rates. We have evaluated and will continue to evaluate the impact of Pillar Two as the countries in which we operate issue new guidance and regulations. Our tax determinations are regularly subject to audit by tax authorities, and developments in those audits could also adversely affect our income tax provision. Although we believe that our tax estimates are reasonable, the final determination of tax audits or tax disputes may be different from what is reflected in our historical income tax provisions, which could materially adversely affect our business, financial condition, and results of operations.

ITEM 1B. *UNRESOLVED STAFF COMMENTS*

None.

ITEM 1C. *CYBERSECURITY*

We depend on information systems and technology in substantially all aspects of our business, including communications among our employees and with suppliers and customers. Such uses of information systems and technology give rise to cybersecurity risks, including system disruption, security breach, ransomware, theft, espionage, and inadvertent release of information. Our business involves the storage and transmission of numerous classes of sensitive and/or confidential information and intellectual property, including customers' and suppliers' information, private information about employees, and financial and strategic information about the company and its business partners. Further, as we pursue new initiatives that improve our operations and cost structure, we are also expanding and improving our information technologies, resulting in a larger technological presence and increased exposure to cybersecurity risk. If we fail to properly assess and identify cybersecurity risks, we may become increasingly vulnerable to such risks.

Cybersecurity risk management and strategy

We assess and identify security risk to the organization by:

- conducting assessments of risk including likelihood and magnitude from unauthorized access, use, disclosure, disruption, modification, or destruction of information systems and the related information processes, stored, or transmitted;

- performing risk assessments and producing security assessment reports that document the results of the assessment for use and review by IT senior leadership, including the Company's Senior Vice President of Information Technology (SVP-IT);
- ensuring security controls are assessed for effectiveness, are implemented correctly, operating as intended, and producing the desired outcome; and
- periodically scanning for vulnerabilities and remedying all vulnerabilities in accordance with the associated risk.

We have established a continuous monitoring strategy and program, which includes:

- a set of defined security metrics to be monitored;
- performance of security control assessments on an ongoing basis;
- addressing results of analysis and reporting security status to the executive team; and
- monitoring information systems to detect attacks and indicators of potential attacks.

Other processes in place to further manage any additional security risk to the organization include:

- identifying, reporting, and correcting information system flaws, security alerts, and advisories;
- monitoring inbound and outbound communications for unusual or unauthorized activity;
- designing and implementing application systems to include sound backup and recoverability principles, such as periodic data backups in the case of a disaster;
- mechanisms designed for the physical protection of IT resources; and
- use of all third-party and cloud computing services are reviewed and evaluated for material risks of cybersecurity threats by the IT security department before being formally authorized for use. Use of services must comply with all laws and regulations governing the handling of personally identifiable information, corporate financial data, controlled unclassified information, or any other data owned or collected by the company.

Our cybersecurity incident management plan includes the following, among other things:

- The SVP-IT leads the team in the development, documentation, review and testing of security procedures, and incident response procedures. Beyond initial creation, procedures are continually re-assessed, augmented, updated, and tested on an ongoing basis;
- The SVP-IT works with the Executive Team on the identification, assessment, verification, and classification of incidents to determine affected stakeholders and appropriate parties for contact;
- The SVP-IT is responsible for launching the Cybersecurity Incident Response Team (CIRT) if necessary, and for notification to the Chief Executive Officer, who in turn will contact the Board of Directors and Government Security Committee in order to validate the response is being addressed appropriately.
- The CIRT team, in consultation with outside experts if needed, is responsible for the following:
  - Initial containment;
  - Analysis to establish root cause of incidents, identification and evidence collection;
  - Incident containment by further analyzing additional information and further identifying any additional compromised machines or resources not previously identified;
  - Implementing solutions designed to solve underlying problems and prevent re-occurrence;
  - Recovery and restoring normal business functionality;
  - Review after closure of each incident and conducting a post-mortem analysis to improve prevention and help to make incident response processes more efficient and effective. Also, the CIRT evaluates competency and any additional training requirements needed.

While we have experienced cybersecurity incidents in the past, to date none have materially affected us or our business strategy, results of operations, financial condition and/or cash flows. Moreover, we have not identified any risks from cybersecurity threats that have materially affected or are reasonably likely to materially affect our business strategy, results of operations, financial condition and/or cash flows. See Item 1A, *Risk Factors* above for more information. While we continually work to safeguard the information systems we use, and the proprietary, confidential, and personal information residing therein, and mitigate potential risks, there can be no assurance that such actions will be sufficient to prevent cybersecurity incidents or mitigate all potential risks to such systems, networks, and data or those of our third-party providers.

Governance

We have invested in robust data security and privacy protections. We follow industry-standard recommendations for data security such as those outlined in the National Institute of Standards and Technology (NIST) Special Publication 800-171 and evolving Cybersecurity Maturity Model Certification (CMMC) frameworks. We have developed cybersecurity policies and procedures, including a data classification system to ensure the protection of critical data. In addition to periodic internal review, we also employ external auditors as needed, and cybersecurity testing firms to review our cybersecurity posture.

We maintain a CIRT, whose responsibilities are described above. We conduct periodic tests with this team to maintain readiness and resiliency while regularly reviewing its policies in the interest of protecting data security. External companies or agencies may be called upon to provide consulting, guidance, assistance, or some other form of support in response to a cybersecurity incident. The regular training of employees, at least annually, on the ever-present threat of cybersecurity helps maintain data security.

Our Board of Directors receives an update from our SVP-IT twice per year. In addition, our Government Security Committee of the Board of Directors is responsible for reviewing Cybersecurity Posture and overall resilience of the aerospace and defense portion of the network. The Government Security Committee reviews global cybersecurity risk with the SVP-IT at least four times a year. These reviews included standard cybersecurity-related metrics as well as other detailed reviews of sensitive systems. Our SVP-IT has over 25 years of experience in IT, which include various leadership roles at other large corporations and holds an Executive Master in Cybersecurity degree from Brown University.

ITEM 2. *PROPERTIES*

The following table describes our headquarters and our principal manufacturing facilities as of December 30, 2024:

U.S. Locations	Operating Segment	Leased Square Feet	Owned Square Feet	Total Square Feet
Chippewa Falls, WI	PCB	—	280,086	280,086
Farmingdale, NY	PCB	—	171,600	171,600
Forest Grove, OR	PCB	—	212,453	212,453
Huntington, NY	PCB	82,440	—	82,440
Littleton, CO	PCB	54,590	63,210	117,800
Logan, UT	PCB	12,000	118,448	130,448
North Jackson, OH	PCB	8,800	85,000	93,800
Salem, NH	PCB	43,700	—	43,700
San Diego, CA	PCB	43,336	—	43,336
San Jose, CA	PCB	42,434	—	42,434
Santa Ana, CA (1)	Headquarters	14,472	—	14,472
Santa Ana, CA	PCB	13,439	82,550	95,989
Stafford, CT	PCB	—	126,924	126,924
Stafford Springs, CT	PCB	—	115,579	115,579
Sterling, VA (2)	PCB	100,896	—	100,896
Syracuse, NY (3)	PCB and RF&S Components	37,639	162,587	200,226
Total		453,746	1,418,437	1,872,183

Foreign Locations	Operating Segment	Leased Square Feet	Owned Square Feet	Total Square Feet
Canada				
Toronto	PCB	15,500	99,960	115,460
Malaysia				
Penang	PCB	827,000	—	827,000
China				
Dongguan	PCB	—	1,069,129	1,069,129
Guangzhou	PCB	—	1,872,800	1,872,800
Hong Kong (1)	Asia Headquarters	—	24,640	24,640
Huiyang	PCB	—	435,485	435,485
Suzhou	RF&S Components	68,030	—	68,030
Zhongshan	PCB	—	1,132,760	1,132,760
Total		910,530	4,634,774	5,545,304

(1) Location of our headquarters and not a manufacturing facility.
(2) In December 2021, we entered into a joint venture agreement with our landlord, O.J.B./1600 University Boulevard, LLC, Count Du Greenmonet, LLC and GFI#2/DII, LLC, to jointly own approximately 100,896 square feet of land and building. We have a 50% ownership interest and we account for this joint venture under the equity method of accounting and do not consolidate our interest in the property.
(3) Location includes two manufacturing facilities.

We maintain our properties in good operating condition. We believe that our properties are suitable and adequate for us to operate at present levels, and the productive capacity and extent of utilization of the facilities are appropriate for our existing manufacturing requirements.

On November 1, 2023, we announced our selection of Syracuse, New York as the location for a new proposed advanced technology PCB manufacturing facility. We expect that the proposed facility will bring advanced technology capability for our domestic high-volume production of ultra-high-density interconnect (HDI) PCBs in support of national security requirements. We believe the planned investment aligns with New York State's continuing focus on the region as a premier technology hub for U.S. electronics and the recent selection of Buffalo-Rochester-Syracuse (BRS) for the Federal Tech Hub designation. The project reflects our support for cultivating a stronger microelectronics ecosystem in New York and across the U.S. Aerospace and Defense industrial base. We are continuing construction for the new building on the 24-acre property adjacent to our existing facility in Syracuse for the campus expansion and the site for the new facility, and we expect to commence initial low rate production in 2026. Phase one of the proposed project, including capital for campus-wide improvements is estimated to be $100.0 million to $130.0 million. We expect to receive support in the form of grants, awards, and tax credits from both federal and New York state sources of approximately

$52.0 million in the aggregate (subject to certain requirements and contingencies), which would offset the initial capital investment and lower operating expenses.

ITEM 3. ***LEGAL PROCEEDINGS***

From time to time, we may become a party to various legal proceedings arising in the ordinary course of our business. There can be no assurance that we will prevail in any such litigation. We believe that the amount of any reasonably possible or probable loss for known matters would not be material to our financial statements; however, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate potential loss could have a material adverse effect on our financial condition, results of operations, or cash flows in a particular period.

ITEM 4. ***MINE SAFETY DISCLOSURES***

Not applicable.

PART II

ITEM 5. *MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES*

Market Information

Our common stock is traded on the Nasdaq Global Select Market under the symbol "TTMI".

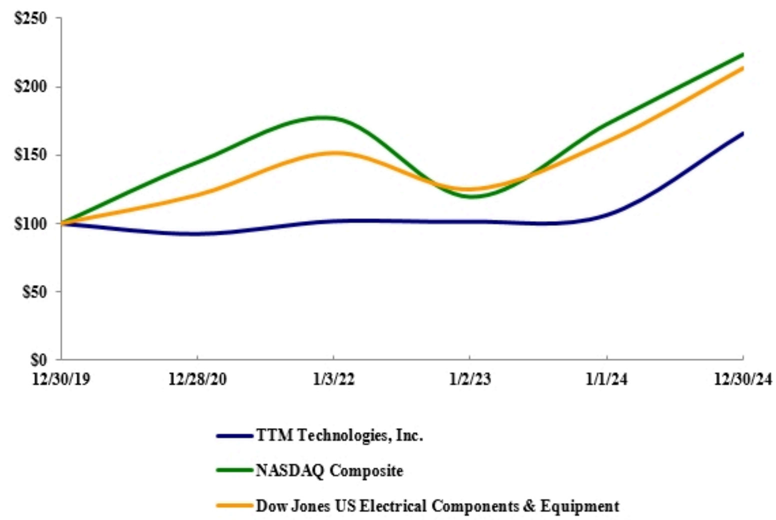
As of February 14, 2025, there were approximately 236 holders of record of our common stock, although there are a significantly larger number of beneficial owners of our common stock.

STOCK PRICE PERFORMANCE GRAPH

The performance graph below compares, for the period from December 30, 2019 to December 30, 2024, the cumulative total stockholder return on our common stock against the cumulative total return of the Nasdaq Composite Index and the Dow Jones U.S. Electrical Components and Equipment Index.

The graph assumes $100 was invested in our common stock on December 30, 2019, and an investment in Nasdaq Composite Index and the Dow Jones U.S. Electrical Components & Equipment Index. The stock performance shown on the graph below represents historical stock performance and is not necessarily indicative of future stock performance.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among TTM Technologies, Inc., the Nasdaq Composite Index
and the Dow Jones U.S. Electrical Components & Equipment Index



* $100 invested on December 30, 2019 in stock or index, including reinvestment of dividends.

	12/30/2019	12/28/2020	1/3/2022	1/2/2023	1/1/2024	12/30/2024
TTM Technologies, Inc.	$ 100.00	$ 92.41	$ 101.75	$ 101.34	$ 106.25	$ 165.99
Nasdaq Composite	100.00	144.92	177.06	119.45	172.77	223.87
Dow Jones U.S. Electrical Components & Equipment	100.00	120.75	151.36	124.87	159.56	213.20

The performance graph above shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (Exchange Act), or otherwise subject to the liability of that section. The performance graph above will not be deemed incorporated by reference into any filing of our company under the Securities Act of 1933, as amended, or the Exchange Act.

Dividends

We have never declared or paid cash dividends on our common stock. We currently expect to retain future earnings for capital expenditures and acquisitions, and to fund working capital requirements, repay existing debt, and to repurchase shares and do not anticipate paying cash dividends in the foreseeable future. Additionally, our ability to pay dividends is limited pursuant to covenants contained in our various debt agreements.

Issuer Purchases of Equity Securities

On May 3, 2023, our Board of Directors authorized a share repurchase program, under which we may repurchase up to $100.0 million of our outstanding shares of common stock through May 3, 2025. We did not repurchase any shares of our common stock during the quarter ended December 30, 2024.

ITEM 6. *RESERVED*

Not applicable.

ITEM 7. ***MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS***

This financial review presents our operating results for each of our three most recent fiscal years and our financial condition as of December 30, 2024. Except for historical information contained herein, the following discussion contains forward-looking statements which are subject to known and unknown risks, uncertainties, and other factors that may cause our actual results to differ materially from those expressed or implied by such forward-looking statements. We discuss such risks, uncertainties, and other factors throughout this Annual Report on Form 10-K (Report) and specifically under Item 1A, Risk Factors of Part I of this Report. In addition, the following discussion should be read in connection with the information presented in our consolidated financial statements and the related notes to our consolidated financial statements.

COMPANY OVERVIEW

We are a leading global manufacturer of technology solutions, including mission systems, radio frequency (RF) components, RF microwave/microelectronic assemblies, and quick-turn and technologically advanced printed circuit boards (PCB). We focus on providing time-to-market and volume production of advanced technology products and offer a one-stop design, engineering, and manufacturing solution to our customers. This solution allows us to align technology development with the diverse needs of our customers and to enable them to reduce the time required to develop new products and bring them to market. We serve a diversified customer base consisting of approximately 1,400 customers in various markets throughout the world, including aerospace and defense, data center computing, automotive, medical, industrial and instrumentation, and networking. Our customers include original equipment manufacturers (OEMs), electronic manufacturing services (EMS) providers, original design manufacturers (ODMs), distributors, and government agencies (both domestic and allied foreign governments).

RECENT DEVELOPMENTS

In the third quarter of 2024, we commenced construction of our new advanced technology PCB manufacturing facility in Syracuse, New York. We expect that our new facility will bring advanced technology capability for our domestic high-volume production of ultra-high-density interconnect (HDI) PCBs in support of national security requirements. We believe the planned investment aligns with New York State's continuing focus on the region as a premier technology hub for U.S. electronics and the recent selection of Buffalo-Rochester-Syracuse (BRS) for the Federal Tech Hub designation. The project reflects our support for cultivating a stronger microelectronics ecosystem in New York and across the U.S. Aerospace and Defense industrial base. The new building will be located on the 24-acre property adjacent to our existing facility in Syracuse, and we expect to commence initial low rate production in 2026. Phase one of the proposed project, including capital for campus-wide improvements is estimated to be $100.0 million to $130.0 million. We expect to receive support in the form of grants, awards, and tax credits from both federal and New York state sources of approximately $52.0 million in the aggregate (subject to certain requirements and contingencies), which would offset the initial capital investment and lower operating expenses.

In addition, we previously announced plans to consolidate our integrated electronics facilities in Elizabeth City, North Carolina and Huntington, New York into existing facilities in order to improve efficiencies. As of the end of fiscal year 2024, the closure of Elizabeth City has been completed and the closure of Huntington is expected by the middle of 2025.

FINANCIAL OVERVIEW

While our customers include both OEMs and EMS providers, we measure customers based on OEM companies, as they are the ultimate end customers. Sales to our five largest customers accounted for 42%, 41%, and 33% of our net sales in fiscal years 2024, 2023, and 2022, respectively, which is in line with the increase in sales in our aerospace and defense end market. We sell to OEMs both directly and indirectly through EMS providers.

The percentage of our net sales attributable to each of the principal end markets we served was as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
End Markets [(1)]:			
Aerospace and Defense	46 %	45 %	35 %
Automotive	13	16	17
Data Center Computing	21	14	15
Medical/Industrial/Instrumentation	14	17	20
Networking	6	8	13
Total	100 %	100 %	100 %

(1) Sales to EMS companies are classified by the end markets of their OEM customers.

We derive revenues primarily from the sale of PCBs, engineered systems using customer-supplied engineering and design plans as well as our long-term contracts related to the design and manufacture of highly sophisticated intelligence, surveillance, and communications solutions, and RF and microwave/microelectronics components, assemblies, and subsystems. Orders for products generally correspond to the production schedules of our customers and are supported with firm purchase orders. Our customers have continuous control of the work in progress and finished goods throughout the PCB and engineered systems manufacturing process, as these are built to customer specifications with no alternative use, and there is an enforceable right of payment for work performed to date. As a result, we recognize revenue progressively over time based on the extent of progress towards completion of the performance obligation. We recognize revenue based on a cost method as it best depicts the transfer of control to the customer which takes place as we incur costs. Revenues are recorded proportionally as costs are incurred.

We also manufacture certain components, assemblies, subsystems, and completed systems which service our RF and Specialty Components (RF&S Components) customers and certain aerospace and defense customers. We recognize revenue at a point in time upon transfer of control of the products to our customer. Point in time recognition was determined as our customers do not simultaneously receive or consume the benefits provided by our performance and the asset being manufactured has alternative uses to us.

Net sales consist of gross sales less an allowance for returns, which typically have been approximately 2% of gross sales. We provide our customers a limited right of return for defective PCBs including components, assemblies, and subsystems. We record an estimate for sales returns and allowances at the time of sale based on historical results and anticipated returns.

Cost of goods sold consists of materials, labor, outside services, and overhead expenses incurred in the manufacture and testing of our products. Shipping and handling fees and related freight costs and supplies associated with shipping products are also included as a component of cost of goods sold. Many factors affect our gross margin, including capacity utilization, product mix, production volume, supply chain costs, and yield.

Selling and marketing expenses consist primarily of salaries, labor-related benefits, and commissions paid to our internal sales force, independent sales representatives, and our sales support staff, as well as costs associated with marketing materials and trade shows.

General and administrative costs primarily include the salaries for executive, finance, accounting, information technology, and human resources personnel, as well as expenses for accounting and legal assistance, incentive compensation expense, and gains or losses on the sale or disposal of property, plant, and equipment.

Research and development expenses consist primarily of salaries and labor-related benefits paid to our research and development staff, as well as material costs.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our consolidated financial statements included in this Report have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, net sales and expenses, and related disclosure of contingent assets and liabilities.

A critical accounting policy is defined as one that is both material to the presentation of our consolidated financial statements and requires us to make judgments that could have a material effect on our financial condition or results of operations. These policies require us to make assumptions about matters that are highly uncertain at the time of the estimate. Critical accounting estimates refers to those estimates made in accordance with U.S. GAAP that have had or are reasonably likely to have a material impact on the amounts reported in the consolidated financial statements and the related notes due to the significant level of uncertainty involved in developing the estimate. Different estimates we could reasonably have used, or changes in the estimates that are reasonably likely to occur, could have a material effect on our financial condition or results of operations.

We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Management has discussed the development, selection, and disclosure of these estimates with the Audit Committee of our Board of Directors. Actual results may differ from these estimates under different assumptions or conditions.

We believe the following critical accounting policies and estimates reflect the more significant judgments and estimates used by us in preparing our consolidated financial statements:

Revenue Recognition

Revenue is recognized when control of the promised goods or services is transferred to customers, in an amount that reflects the consideration to which we expect to be entitled in exchange for those goods or services. We apply a five-step approach in determining the amount and timing of revenue to be recognized: (1) identifying the contract with a customer; (2) identifying the performance obligations in the contract; (3) determining the transaction price; (4) allocating the transaction price to the performance obligations in the contract; and (5) recognizing revenue when the corresponding performance obligation is satisfied.

For PCBs and engineered systems, including pursuant to long-term contracts related to the manufacture of highly sophisticated intelligence, surveillance and communications solutions, components, assemblies, and subsystems, orders for products generally correspond to the production schedules of customers and are supported with firm purchase orders. Customers have continuous control of the work in progress and finished goods throughout the PCB and engineered systems manufacturing process, as these are built to customer specifications with no alternative use, and there is an enforceable right to payment for work performed to date. As a result, we recognize revenue progressively over time based on the extent of progress towards completion of the performance obligation. Revenue recognized is based on a cost method as it best depicts the transfer of control to the customer which takes place as we incur costs. Revenues are recorded proportionally as costs are incurred.

For revenue recorded on an over time basis, we apply a gross margin estimate to inventory in process of being manufactured for customers to determine how much of a contract asset or contract liability should be recorded at period end. As of December 30, 2024, total contract assets were $386.8 million, of which $381.4 million are expected to be collected within one year and recorded as contract assets and $5.4 million are expected to be collected after one year and included as a component of deposits and other non-current assets on the consolidated balance sheets. As of January 1, 2024, total contract assets were $303.3 million, of which $292.1 million were expected to be collected within one year and recorded as contract assets and $11.3 million were expected to be collected after one year and included as a component of deposits and other non-current assets on the consolidated balance sheets. The increase in total contract assets in 2024 is primarily due to an increase in unbilled receivables. We use historical information to estimate the gross margin associated with performance obligations that are satisfied over time. We reevaluate our estimate of gross margins on a quarterly basis. Based on the review of gross margins, we update our estimate to the model as necessary. If our estimates of gross margins are inaccurate, we may recognize too much or too little revenue in a period. While experience has shown that trends in gross margins are not volatile, changes in pricing or cost efficiencies could create significant fluctuations. An increase or decrease of 200 basis points in gross margin estimates would have increased or decreased our contract assets by $3.7 million and $2.3 million, respectively, and decreased or increased our contract liabilities by $7.2 million and $5.6 million, respectively.

In addition, we manufacture components, assemblies, subsystems, and completed systems which service our RF&S Components and certain aerospace and defense customers. We recognize revenue at a point in time upon transfer of control of the products to the customer. Point in time recognition was determined as our customer does not simultaneously receive or consume the benefits provided by our performance and the asset being manufactured has alternative uses to us.

Goodwill and Intangible Assets

We have significant goodwill and definite-lived intangibles. We review these assets for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. In addition, we perform an impairment test related to goodwill at least annually. As necessary, we make judgments regarding future cash flow forecasts in the assessment of impairment.

Goodwill is allocated to our reporting units, which are our operating segments or one level below our operating segments (the component level). Reporting units are determined by the discrete financial information available for the component and whether it is regularly reviewed by segment management. Components are aggregated into a single reporting unit if they share similar economic characteristics. We evaluate goodwill on an annual basis in the fourth quarter or more frequently if we believe indicators of impairment exist. We assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount or perform a quantitative impairment test. When tested quantitatively, we compare the fair value of the applicable reporting unit with its carrying value. We estimate the fair values of our reporting units using a combination of the discounted cash flow (DCF) and market approach. If the carrying amount of a reporting unit exceeds the reporting unit's fair value, the amount by which the carrying value exceeds the fair value is recognized as an impairment loss.

We have two reportable segments: PCB and RF&S Components. Goodwill is attributable to both of our PCB and RF&S Components reportable segments.

In the fourth quarter of 2024, we performed our annual goodwill impairment test qualitatively for the PCB reporting unit and concluded that it was more likely than not that there was no impairment to goodwill.

In the fourth quarter of 2024, we performed our annual goodwill impairment test quantitatively for the RF&S Components reporting unit. As of November 1, 2024, we completed a quantitative goodwill impairment analysis related to our RF&S Components reporting unit by comparing the fair value of the reporting unit with its carrying amount. In making this assessment, we rely on a number of factors, including expected future operating results, business plans, economic projections, anticipated future cash flows, and business trends. We determined the fair value of the reporting unit by using both a DCF and a market approach. Under the market approach, we used revenue and earnings multiples based on comparable industry multiples to estimate the fair value of the reporting unit.

Under the DCF approach, we estimated the future cash flows, as well as selected a risk-adjusted discount rate to measure the present value of the anticipated cash flows. When determining future cash flow estimates, we considered historical results adjusted to reflect current and anticipated future operating conditions. We estimated cash flows for the reporting unit over a discrete period and a terminal period (considering expected long-term growth rates and trends).

Based on our analysis, we determined that the fair value of the RF&S Components reporting unit was less than its carrying value and recorded a non-cash goodwill impairment charge of $32.6 million during the year ended December 30, 2024. Estimating the fair value of the reporting unit requires us to make assumptions and estimates in such areas as future economic conditions, industry-specific conditions, product pricing, and necessary capital expenditures. The use of different assumptions or estimates for future cash flows, discount rates, or terminal growth rates, which are subject to a high degree of judgment, could produce substantially different estimates of the fair value of the reporting unit. We may be subject to additional goodwill impairment charges if actual results do not meet the estimates used in determining the fair value of goodwill and the associated goodwill impairment charge.

Management will continue to monitor the reporting units for changes in the business environment that could impact recoverability. The recoverability of goodwill is dependent upon the continued growth of cash flows from our business activities. If the economy or business environment falter and we are unable to achieve our assumed revenue growth rates or profit margin percentages, our projections used would need to be re-measured, which could impact the carrying value of our goodwill in one or more of our reporting units.

We also assess definite-lived intangibles for potential impairment given similar impairment indicators. When indicators of impairment exist related to our definite-lived intangible assets, we use an estimate of the undiscounted cash flows in measuring whether the carrying amount of the assets is recoverable. If the sum of the undiscounted cash flows is less than the carrying amount of the net assets, impairment is measured based on the difference between the net asset's carrying value and estimated fair value. Fair value is determined through various valuation techniques, including cost-based, market, and income approaches as considered necessary, which involve judgments related to future cash flows and the application of the appropriate valuation model.

RESULTS OF OPERATIONS

We operate on a 52 or 53 week fiscal calendar with the fourth quarter ending on the Monday nearest December 31. Fiscal years 2024, 2023, and 2022 consisted of 52 weeks ended on December 30, 2024, January 1, 2024, and January 2, 2023, respectively.

The relationship of various items to net sales in our consolidated statements of operations was as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
Net sales	100.0 %	100.0 %	100.0 %
Cost of goods sold	80.5	81.5	81.6
Gross profit	19.5	18.5	18.4
Operating expenses:			
Selling and marketing	3.3	3.4	3.0
General and administrative	7.0	6.7	6.4
Research and development	1.3	1.2	1.0
Amortization of definite-lived intangibles	1.4	2.2	1.5
Impairment of goodwill	1.3	2.0	—
Restructuring charges	0.4	1.1	0.2
Gain on sale of Shanghai E-MS (SH E-MS) property	—	—	(2.1)
Total operating expenses	14.7	16.6	10.0
Operating income	4.8	1.9	8.4
Other (expense) income:			
Interest expense	(2.0)	(2.2)	(1.8)
Loss on extinguishment of debt	—	(0.1)	—
Gain on sale of subsidiary	—	0.1	—
Other, net	0.6	0.3	0.7
Total other expense, net	(1.4)	(1.9)	(1.1)
Income before income taxes	3.4	—	7.3
Income tax provision	(1.1)	(0.9)	(3.5)
Net income (loss)	2.3 %	(0.9) %	3.8 %

The Telephonics acquisition occurred on June 27, 2022. Accordingly, our fiscal year 2022 only includes Telephonics' 2022 results of operations since the acquisition date. As of the fourth quarter of 2022, we completed our integration of Telephonics and reassessed our reportable segments, which resulted in the inclusion of Telephonics into our PCB reportable segment.

Net Sales

Total net sales increased $210.2 million, or 9.4%, to $2,442.8 million for the year ended December 30, 2024 from $2,232.5 million for the year ended January 1, 2024. Net sales for the PCB reportable segment increased $211.6 million, or 9.6%, to $2,405.6 million for the year ended December 30, 2024 from $2,194.0 million for the year ended January 1, 2024. The primary driver of this increase was demand growth for generative artificial intelligence (AI) applications in our data center computing end market and strong demand and improved operational execution in our aerospace and defense end market, partially offset by demand weakness due to customers' inventory correction in our automotive, medical, industrial, and instrumentation, and networking end markets. We also sold our Shanghai Backplane Assembly entity in the first quarter of 2023, which had the effect of reducing net sales in 2024 by $8.4 million. Net sales for the RF&S Components reportable segment decreased $1.4 million, or 3.6%, to $37.1 million for the year ended December 30, 2024 from $38.5 million for the year ended January 1, 2024. The decrease in RF&S Components net sales was primarily due to lower demand in our networking end market.

Total net sales decreased $262.5 million, or 10.5%, to $2,232.5 million for the year ended January 1, 2024 from $2,495.0 million for the year ended January 2, 2023. Net sales for the PCB reportable segment decreased $243.9 million, or 10.0%, to $2,194.0 million for the year ended January 1, 2024 from $2,437.9 million for the year ended January 2, 2023. The primary driver of this decrease was demand weakness in our commercial end markets and decrease in sales of $36.3 million from the Shanghai Backplane Assembly entity we sold in the first quarter of 2023, partially offset by the inclusion of a full year of results of Telephonics during the year ended January 1, 2024 (as compared to the inclusion in the year ended January 2, 2023 of its results commencing with its acquisition in 2022), as well as organic growth in our aerospace and defense end market. Net sales for the RF&S Components reportable segment decreased $18.6 million, or 32.5%, to $38.5 million for the year ended January 1, 2024 from $57.1 million for the year ended January 2, 2023. The decrease in RF&S Components net sales was primarily due to lower demand in our networking end market.

For information regarding net sales by country, see Part II, Item 8, Note 10, *Segment Information*, of the Notes to Consolidated Financial Statements in this Report.

Gross Margin

Overall gross margin increased to 19.5% for the year ended December 30, 2024 from 18.5% for the year ended January 1, 2024. The increase in overall gross margin was due to the increase in gross margin for the PCB reportable segment to 20.6% for the year ended December 30, 2024, from 19.3% for the year ended January 1, 2024. This increase was primarily due to higher sales volume, particularly in the data center computing and aerospace and defense end markets, and improved operational execution, partially offset by declines in the automotive, medical, industrial, and instrumentation, and networking end markets, higher employee costs, and continued ramp up costs included in cost of goods sold in connection with our fabrication plant in Penang, Malaysia. Gross margin for the RF&S Components reportable segment decreased to 48.9% for the year ended December 30, 2024, from 54.7% for the year ended January 1, 2024, primarily due to lower sales.

Overall gross margin increased slightly to 18.5% for the year ended January 1, 2024 from 18.4% for the year ended January 2, 2023. The increase in overall gross margin was due to the increase in gross margin for the PCB reportable segment to 19.3% for the year ended January 1, 2024, from 18.2% for the year ended January 2, 2023. This increase was primarily due to better product mix and improved execution in our North America region, partially offset by lower revenues and less quick-turn premium in our commercial markets. Gross margin for the RF&S Components reportable segment decreased to 54.7% for the year ended January 1, 2024, from 62.3% for the year ended January 2, 2023, primarily due to lower sales.

An important factor affecting gross margins is capacity utilization, which is measured by the actual production as a percentage of maximum capacity. This measure is particularly important in our high-volume PCB facilities in Asia, as a significant portion of our operating costs are fixed in nature. We believe that our North America utilization figures are not as meaningful as Asia because bottlenecks in these high mix low volume facilities tend to occur in areas outside of plating, which is the core process that we use for calculating utilization rates. Capacity utilization for the year ended December 30, 2024 in our Asia and North America PCB facilities was 59% and 36%, respectively, compared to 49% and 38%, respectively, for the year ended January 1, 2024. The increase in capacity utilization in our Asia PCB facilities was caused by strong demand in the data center computing end market.

Selling and Marketing Expenses

Selling and marketing expenses increased $3.1 million to $80.0 million for the year ended December 30, 2024 from $76.9 million for the year ended January 1, 2024. However, selling and marketing expenses as a percentage of net sales decreased to 3.3% for the year ended December 30, 2024 as compared to 3.4% for the year ended January 1, 2024. The increase in the amount of selling and marketing expenses was primarily due to an increase of $2.0 million in labor costs, $0.6 million in stock-based compensation, and $0.5 million in travel costs. The decrease in selling and marketing expenses as a percentage of net sales resulted from higher net sales for the year ended December 30, 2024 as compared to January 1, 2024.

Selling and marketing expenses increased $1.7 million to $76.9 million, or 3.4% of net sales, for the year ended January 1, 2024 from $75.2 million, or 3.0% of net sales, for the year ended January 2, 2023. The increase in selling and marketing expense was primarily due to the inclusion of a full year of Telephonics expenses, which resulted in an increase of $3.5 million and an increase in labor and travels costs, partially offset by a $3.7 million decrease in commission expense.

General and Administrative Expenses

General and administrative expenses increased $20.5 million to $170.1 million, or 7.0% of net sales, for the year ended December 30, 2024 from $149.6 million, or 6.7% of net sales, for the year ended January 1, 2024. The increase in general and administrative expenses was primarily due to increases in consulting and other professional services expenses, labor costs, stock-based compensation, bad debt, incentive compensation, and the write down of our Hong Kong building of $6.1 million, partially offset by gains on the sale of assets primarily related to the sale of two buildings vacated with the closure of our Anaheim and Santa Clara plants of $14.4 million.

General and administrative expenses decreased $8.5 million to $149.6 million for the year ended January 1, 2024 from $158.2 million for the year ended January 2, 2023, but increased as a percentage of net sales to 6.7% from 6.4% over the same two periods. The decrease in the amount of general and administrative expenses primarily resulted from $13.2 million of reduced acquisition and integration costs mainly related to the acquisition of Telephonics on June 27, 2022. In addition, there were decreases in incentive compensation and bad debt. These decreases were partially offset by the inclusion of a full year of Telephonics expenses, which resulted in an increase of $1.6 million, increase in labor costs and lower gains on the sale of assets. The increase of general and administrative expenses as a percentage of net sales resulted from lower net sales for the year ended January 1, 2024 as compared to January 2, 2023.

Research and Development Expenses

Research and development expenses increased $4.6 million to $31.8 million, or 1.3% of net sales, for the year ended December 30, 2024 from $27.3 million, or 1.2% of net sales, for the year ended January 1, 2024. The increase in research and development expenses was primarily due to increases in labor costs and research and development projects.

Research and development expenses increased $2.5 million to $27.3 million, or 1.2% of net sales, for the year ended January 1, 2024 from $24.8 million, or 1.0% of net sales, for the year ended January 2, 2023. The increase in expense was primarily due to the inclusion of a full year of Telephonics expenses, which resulted in an increase of $4.5 million, partially offset by a decrease in labor and material costs.

Impairment of Goodwill

For the years ended December 30, 2024 and January 1, 2024, we recorded goodwill impairment charges of $32.6 million and $44.1 million, respectively. See Part II, Item 8, Note 6, *Goodwill*, of the Notes to Consolidated Financial Statements included in this Report for further information.

Restructuring Charges

For the years ended December 30, 2024, January 1, 2024, and January 2, 2023, we incurred restructuring charges of $11.2 million, $24.4 million, and $4.1 million, respectively, related to our global realignment restructuring efforts.

For the year ended December 30, 2024, we recognized restructuring charges of $8.1 million and $3.1 million in our PCB reportable segment and Corporate and Other, respectively. For the year ended January 1, 2024, we recognized restructuring charges of $23.7 million and $0.7 million in our PCB reportable segment and Corporate and Other, respectively. For the year ended January 2, 2023, we recognized restructuring charges of $3.5 million and $0.6 million in our PCB reportable segment and Corporate and Other, respectively. These charges primarily represent employee separation and contract termination and other costs associated with the restructuring plans.

Gain on sale of SH E-MS Property

On December 22, 2022, land, building, and relevant ancillary assets related to our former SH E-MS manufacturing facility was expropriated by the Chinese government for a compensation fee of Renminbi (RMB) 477.6 million ($69.2 million as of January 2, 2023) and we recorded a gain on the sale of $51.8 million during the year ended January 2, 2023.

Total Other Expense, Net

Total other expense, net decreased $9.9 million to $32.1 million for the year ended December 30, 2024 from $42.0 million for the year ended January 1, 2024. This decrease was primarily due to the weakening RMB resulting in a $1.2 million foreign exchange gain during the year ended December 30, 2024, as compared to a $3.9 million foreign exchange loss during the year ended January 1, 2024. We utilize the RMB at our China facilities for employee-related and other costs of running our operations in China. In addition, there was a $3.8 million increase in interest income and $0.6 million decrease in interest expense.

Total other expense, net increased $14.5 million to $42.0 million for the year ended January 1, 2024 from $27.5 million for the year ended January 2, 2023. This increase was primarily due to a decrease in other income of $16.8 million related to the strengthening of the Chinese RMB and an increase in interest expense of $2.6 million due to higher interest rates, partially offset by an increase in interest income of $5.9 million.

Income Taxes

Income tax expense increased $8.6 million to $27.7 million for the year ended December 30, 2024 from $19.0 million for the year ended January 1, 2024, primarily due to an increase in pre-tax book income.

Income tax expense decreased $69.3 million to $19.0 million for the year ended January 1, 2024 from $88.3 million for the year ended January 2, 2023, primarily due to a decrease in pre-tax book income, the absence of an expense to set up a valuation allowance against U.S. deferred tax assets in 2022, and the release of uncertain tax positions due to lapse of statute of limitations.

Our effective tax rate is primarily impacted by tax rates in China and Hong Kong, the U.S. federal income tax rate, apportioned state income tax rates, the generation of credits and deductions available to us, as well as changes in the valuation allowance, certain non-deductible items, global intangible low taxed income, and the establishment of a deferred tax liability related to unremitted foreign earnings.

Liquidity and Capital Resources

Our principal sources of liquidity have been cash provided by operations, the issuance of debt, and borrowings under our revolving credit facilities. Our principal uses of cash have been to finance capital expenditures, finance acquisitions, fund working capital requirements, repay debt obligations, and repurchase common stock. We anticipate that financing capital expenditures, financing acquisitions, funding working capital requirements, servicing debt, and repurchasing common stock will be the principal demands on our cash in the future.

Cash flow provided by operating activities during the year ended December 30, 2024 was $236.9 million as compared to $187.3 million in the same period in 2023. The increase in cash flow was primarily due to the $75.0 million increase in net income.

Net cash used in investing activities was $146.2 million for the year ended December 30, 2024, primarily reflecting the use of $185.7 million for purchases of property, plant, and equipment and other assets. This was partially offset by the receipt of $32.9 million of proceeds from the sale of property, plant, and equipment and other assets primarily related to the sale of two buildings vacated with the closure of our Anaheim and Santa Clara plants and $6.7 million of proceeds from the sale of property associated with our Shanghai E-MS subsidiary. Net cash used in investing activities was $92.0 million for the year ended January 1, 2024, primarily reflecting the use of $160.2 million for purchases of property, plant, and equipment and other assets, partially offset by the receipt of $61.8 million of proceeds from the sale of property associated with our Shanghai E-MS subsidiary and $6.0 million of proceeds from the sale of our Shanghai Backplane Assembly subsidiary, net of cash disposed.

Net cash used in financing activities was $36.8 million for the year ended December 30, 2024, reflecting the use of $34.5 million for repurchases of our common stock, $9.6 million for the repayment of long-term debt borrowings, and $1.2 million for payment of debt issuance costs, partially offset by $8.4 million of proceeds from long-term debt borrowings primarily related to the refinancing of our Term Loan Facility due 2030 (Term Loan Facility). Net cash used in financing activities during the year ended January 1, 2024 was $47.7 million, reflecting repayment of long-term debt borrowings of $291.6 million, repurchases of common stock of $24.4 million, refund of customer deposits of $7.5 million, payment of debt issuance costs of $5.5 million and payment of original issue discount of $3.5 million, partially offset by the receipt of proceeds of $234.8 million from long-term debt borrowing and proceeds of $50.0 million from borrowings under our revolving credit facilities.

As of December 30, 2024, we had cash and cash equivalents of approximately $503.9 million, of which approximately $207.9 million was held by our foreign subsidiaries, primarily in China, and $195.6 million of available borrowing capacity under our revolving credit facilities. Should we choose to remit cash to the United States from our foreign locations, we may incur tax obligations which would reduce the amount of cash ultimately available to the United States. However, we believe there would be no material tax expenses not previously accrued for the repatriation of this cash.

Our total 2025 capital expenditures are expected to be in the range of $230.0 million to $250.0 million, of which approximately $66.0 million relate to our construction of our new plant in Syracuse, New York.

Share Repurchases

On May 3, 2023, our Board of Directors authorized a share repurchase program (2023 Repurchase Program) allowing us to repurchase up to $100.0 million of our common stock from time to time through May 3, 2025. During 2024, we repurchased approximately 2.0 million shares of our common stock for a total cost of $34.5 million (including commissions). As of December 30, 2024, the remaining amount in value available to be repurchased under the 2023 Repurchase Program was approximately $41.1 million.

Long-term Debt and Letters of Credit

As of December 30, 2024, we had $918.2 million of outstanding debt, net of discount and debt issuance costs, composed of $496.6 million of Senior Notes due 2029, $339.2 million under the Term Loan Facility, $80.0 million under the Asia Asset-Based Lending Credit Agreement (Asia ABL), and $2.3 million of other loans.

Pursuant to the terms of the Senior Notes due 2029 and Term Loan Facility, we are subject to certain affirmative and negative covenants, including limitations on indebtedness, corporate transactions, investments, dispositions, and restricted payments. Under the U.S. Asset-Based Lending Credit Agreement (U.S. ABL) and Asia ABL (collectively, the ABL Revolving Loans), we are also subject to various financial covenants, including leverage and fixed charge coverage ratios. As of December 30, 2024, we were in compliance with the covenants under the Senior Notes due 2029, Term Loan Facility, and ABL Revolving Loans.

Based on our current level of operations, we believe that cash generated from operations, cash on hand, and cash from the issuance of term and revolving debt will be adequate to meet our currently anticipated capital expenditure, debt service, and working capital needs for the next twelve months. Additional information regarding our indebtedness, including information about the credit available under our debt facilities, interest rates, and other key terms of our outstanding indebtedness, is included in Part II, Item 8, Note 8, *Long-term Debt and Letters of Credit*, of the Notes to Consolidated Financial Statements included in this Report.

Supplier Finance Program Obligations

We have agreements with financial institutions to facilitate payments to certain suppliers. Under the terms of the agreements, we confirm the validity of each supplier invoice to the respective financial institution upon receipt. The supplier receives payment from the financial institution, and we pay the financial institution based on the terms negotiated, which generally range from 160 days to 360 days. Liabilities associated with these agreements are recorded in accounts payable on the consolidated balance sheets and amounted to $17.2 million and $18.8 million as of December 30, 2024 and January 1, 2024, respectively.

Contractual Obligations and Commitments

As part of our ongoing operations, we enter into contractual arrangements that obligate us to make future cash payments. These obligations impact our liquidity and capital resource needs. Our estimated future obligations consist of long-term debt obligations, interest on debt obligations, derivative liabilities, purchase obligations, and leases.

A summary of our long-term debt obligations as of December 30, 2024 is included in Part II, Item 8, Note 8, *Long-term Debt and Letters of Credit*, of the Notes to Consolidated Financial Statements included in this Report.

Our aggregate interest on debt obligations as of December 30, 2024 amounted to $226.0 million, which are expected to be settled as follows: $47.6 million within 1 year, $94.9 million within 1-3 years, $74.7 million within 4-5 years, and $8.8 million after 5 years. For debt obligations based on variable rates, interest rates used are as of December 30, 2024.

As of December 30, 2024, $0.7 million of our derivative liabilities are expected to be settled within one year.

We also have outstanding firm purchase orders with certain suppliers for the purchase of material and inventory. Orders for standard, or catalog, items can typically be canceled with little or no financial penalty. Our policy regarding non-standard or customized items dictates that such items are only ordered specifically for customers who have contractually assumed liability for the inventory, although exceptions are made to this policy in certain situations. In addition, a substantial portion of catalog items covered by our purchase orders are procured for specific customers based on their purchase orders or a forecast under which the customer has contractually assumed liability for such material. Accordingly, our liability from purchase obligations under these purchase orders is not expected to be significant.

A summary of our lease obligations as of December 30, 2024 is included in Part II, Item 8, Note 4, *Leases*, of the Notes to Consolidated Financial Statements included in this Report.

Offset Agreements

We have previously entered into, and may continue to enter into industrial cooperation agreements, sometimes referred to as offset agreements, as a condition to obtaining orders for our products and services from customers in foreign countries. As of December 30, 2024, we had outstanding offset agreements of approximately $27.3 million, some of which extend through 2028. Offset programs usually extend over several years and in some cases provide for penalties in the event we fail to perform in accordance with contract requirements. To date, we have not been obligated to pay any such penalties. For details about our offset agreements, see Part II, Item 8, Note 14, *Commitments and Contingencies*, of the Notes to Consolidated Financial Statements included in this Report.

Seasonality

We tend to experience modest seasonal softness in the first and third quarters due to holidays and vacation periods in China and North America, respectively, which limit production leading to stronger revenue levels in the second and fourth quarters.

Recently Issued Accounting Standards

For a description of recently adopted and issued accounting standards, including the respective dates of adoption and expected effects on our results of operations and financial condition, see Part II, Item 8, Note 1, *Nature of Operations and Summary of Significant Accounting Policies,* of the Notes to Consolidated Financial Statements.

ITEM 7A. *QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK*

In the normal course of business operations, we are exposed to risks associated with fluctuations in interest rates and foreign currency exchange rates. We address these risks through controlled risk management that includes the use of derivative financial instruments to economically hedge or reduce these exposures. We do not enter into derivative financial instruments for trading or speculative purposes. As of December 30, 2024, we did not have any material commodity contracts in place and believe our exposure to commodity price risk is not material.

We have not experienced any losses to date on any derivative financial instruments due to counterparty credit risk.

Interest Rate Risks

Our business is exposed to risk resulting from fluctuations in interest rates. Our interest expense is more sensitive to fluctuations in the general level of Term Secured Overnight Financing Rate (SOFR) interest rates than to changes in rates in other markets. Increases in interest rates would increase interest expense relating to our outstanding variable rate borrowings and increase the cost of debt. Fluctuations in interest rates can also lead to significant fluctuations in the fair value of our debt obligations.

In March 2023, we entered into a four-year pay-fixed, receive-floating (1-month Chicago Mercantile Exchange (CME) Term SOFR), interest rate swap arrangement with a notional amount of $250.0 million for the period beginning April 1, 2023 and ending on April 1, 2027. Under the terms of the interest rate swap, we pay a fixed rate of 3.49% against a portion of our Term SOFR-based debt and receive floating 1-month CME Term SOFR during the swap period.

At inception, we designated the interest rate swap as a cash flow hedge and the fair value of the interest rate swap was zero. As of December 30, 2024, the fair value of the interest rate swap was recorded as an asset in the amount of $3.1 million, of which $1.8 million is included as a component of prepaid expenses and other current assets and $1.3 million is included as a component of deposits and other non-current assets. As of January 1, 2024, the fair value of the interest rate swap was recorded as a net asset of $1.8 million, of which $3.3 million is included as a component of prepaid expenses and other current assets and $1.5 million is included as a component of other long-term liabilities. No ineffectiveness was recognized for the year ended December 30, 2024. During the years ended December 30, 2024 and January 1, 2024, the interest rate swap decreased interest expense by $4.2 million and $3.2 million, respectively.

Information regarding our interest rate swap is as follows:

	For the Year Ended December 30, 2024 (In thousands, except interest rates)
Average interest received rate	5.16 %
Interest received amount	$ 13,018
Average interest payout rate	3.49 %
Interest payout amount	$ (8,800)

See *Liquidity and Capital Resources* in Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations* and Part II, Item 8, Note 8, *Long-term Debt and Letters of Credit*, of the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K (Report) for further discussion of our financing facilities and capital structure. As of December 30, 2024, approximately 81.1% of our debt was based on fixed rates. Based on our borrowings as of December 30, 2024, an assumed 100 basis point change in variable rates would cause our annual interest cost to change by $1.8 million.

Foreign Currency Exchange Rate Risks

In the normal course of business, we are exposed to risks associated with fluctuations in foreign currency exchange rates related to transactions that are denominated in currencies other than our functional currencies, as well as the effects of translating amounts denominated in a foreign currency to the U.S. Dollar as a normal part of our financial reporting process. Most of our foreign operations have the U.S. Dollar as their functional currency. However, one of our China facilities utilizes the Renminbi (RMB), which results in recognition of translation adjustments included as a component of other comprehensive income (loss). Our foreign exchange exposure results primarily from employee-related and other costs of running our operations in foreign countries, foreign currency denominated purchases, and translation of balance sheet accounts denominated in foreign currencies. We do not engage in hedging to manage this foreign currency risk. However, we may consider the use of derivatives in the future. Our primary foreign exchange exposure is to the RMB and Malaysian Ringgit (MYR). In general, our Chinese customers pay us in RMB, which partially mitigates this foreign currency exchange risk.

Debt Instruments

The fiscal calendar maturities of our debt instruments for the next five years and thereafter were as follows:

	As of December 30, 2024								
	2025	2026	2027	2028	2029	Thereafter	Total	Fair Value	Weighted Average Interest Rate
	(In thousands, except interest rates)								
US$ Variable Rate (1)	$ 3,465	$ 3,465	$ 4,331	$ 83,465	$ 2,599	$ 328,309	$ 425,634	$ 426,930	6.41 %
US$ Fixed Rate	330	350	404	363	500,419	445	502,311	466,636	4.01
Total	$ 3,795	$ 3,815	$ 4,735	$ 83,828	$ 503,018	$ 328,754	$ 927,945	$ 893,566	

(1) Interest rate swap effectively fixed $250,000 of variable rate debt.

ITEM 8. *FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA*

Reference is made to our consolidated financial statements, the notes thereto, and the report thereon, commencing on page 59 of this Report, which consolidated financial statements, notes, and report are incorporated herein by reference.

ITEM 9. *CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE*

Not applicable.

ITEM 9A. *CONTROLS AND PROCEDURES*

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision and with the participation of our Chief Executive Officer (CEO) and Chief Financial Officer (CFO), has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e)) under the Securities Exchange Act of 1934, as amended (Exchange Act), as of the end of the period covered by this Annual Report on Form 10-K (Report). Based on this evaluation, our CEO and CFO have concluded that, as of December 30, 2024 such disclosure controls and procedures were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is (1) recorded, processed, summarized, and reported within the time periods specified in the Securities and Exchange Commission's (SEC) rules and forms and (2) accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosures.

Management’s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). Under the supervision of and with the participation of our CEO and CFO, our management conducted an assessment of the effectiveness of our internal control over financial reporting as of December 30, 2024 based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, our management concluded that our internal control over financial reporting was effective as of December 30, 2024.

The effectiveness of our internal control over financial reporting as of December 30, 2024 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report, which appears under the heading “Report of Independent Registered Public Accounting Firm” on page 60 of this Report.

Inherent Limitations on Effectiveness of Controls

A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system’s objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected.

Changes in Internal Control over Financial Reporting

We continue to expand our implementation of an enterprise resource planning (ERP) system on a worldwide basis, which is expected to improve the efficiency of the financial reporting and related transaction processes. We have completed the implementation at certain locations and as a result, we made changes to our processes and procedures which, in turn, resulted in changes to our internal control over financial reporting, including the implementation of additional controls. We are in the process of rolling out the ERP system to our remaining locations to standardize the ERP system.

There were no other changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended December 30, 2024 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. *OTHER INFORMATION*

Rule 10b5-1 Trading Plans

During the quarter ended December 30, 2024, none of the Company’s directors or executive officers adopted or terminated any contract, instruction, or written plan for the purchase or sale of Company securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any “non-Rule 10b5-1 trading arrangement.”

ITEM 9C. *DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS*

Not applicable.

PART III

ITEM 10. *DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE*

Insider Trading Policy

We have adopted an Insider Trading Policy governing the purchase, sale, and/or other dispositions of our securities by directors, officers, and employees, which is reasonably designed to promote compliance with insider trading laws, rules and regulations, and applicable Nasdaq listing standards. A copy of our Insider Trading Policy is filed as Exhibit 19 to this Annual Report on Form 10-K (Report).

The information required by the other portions of this Item is incorporated herein by reference from the definitive Proxy Statement to be filed pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended (Exchange Act) for our 2025 Annual Meeting of Stockholders or will be included in an amendment to this Report.

ITEM 11. *EXECUTIVE COMPENSATION*

The information required by this Item is incorporated herein by reference from the definitive Proxy Statement to be filed pursuant to Regulation 14A of the Exchange Act for our 2025 Annual Meeting of Stockholders or will be included in an amendment to this Report.

ITEM 12. *SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS*

The information required by this Item is incorporated herein by reference from the definitive Proxy Statement to be filed pursuant to Regulation 14A of the Exchange Act for our 2025 Annual Meeting of Stockholders or will be included in an amendment to this Report.

ITEM 13. *CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE*

The information required by this Item is incorporated herein by reference from the definitive Proxy Statement to be filed pursuant to Regulation 14A of the Exchange Act for our 2025 Annual Meeting of Stockholders or will be included in an amendment to this Report.

ITEM 14. *PRINCIPAL ACCOUNTANT FEES AND SERVICES*

The information required by this Item is incorporated herein by reference from the definitive Proxy Statement to be filed pursuant to Regulation 14A of the Exchange Act for our 2025 Annual Meeting of Stockholders or will be included in an amendment to this Report.

PART IV

ITEM 15. *EXHIBITS, FINANCIAL STATEMENT SCHEDULES*

(a) *Financial Statements*

Financial Statements are listed in the Index to Consolidated Financial Statements on page 59 of this Report.

(b) *Exhibits*

Exhibit Number	Exhibit Description	Filed/Furnished Herewith	Incorporated by Reference			
			Form	File Number	Exhibit	Filing Date
2.1	Stock Purchase Agreement, dated as of April 18, 2022, by and among TTM Technologies, Inc., Griffon Corporation, and Exphonics, Inc.		8-K	000-31285	2.1	June 27, 2022
3.1(a)	Registrant's Certificate of Incorporation, as amended June 3, 2011		8-K	000-31285	3.1	June 6, 2011
3.1(b)	TTM Technologies, Inc. Amended and Restated Certificate of Incorporation, effective May 8, 2024		8-K	000-31285	3.1	May 10, 2024
3.1(c)	Certificate of Correction of the Amended and Restated Certificate of Incorporation, filed June 10, 2024		8-K/A	000-31285	3.3	June 10, 2024
3.2	TTM Technologies, Inc. Sixth Amended and Restated Bylaws		8-K	000-31285	3.2	May 10, 2024
4.1	Form of Registrant's common stock certificate		8-K	000-31285	4.1	August 30, 2005
4.2	Description of the Registrant's Securities	X				
4.3	Indenture dated as of March 10, 2021, by and among the Company, the Guarantors named therein, and Wilmington Trust, National Association, as Trustee		8-K	000-31285	4.1	March 10, 2021
4.4	Form of 4.000% Senior Notes due 2029		8-K	000-31285	4.1 (1)	March 10, 2021
10.1	Form of Director and Officer Indemnification Agreement		8-K	000-31285	10.1	December 15, 2014
10.2‡	Executive and Director Deferred Compensation Plan		8-K	000-31285	10.25	September 19, 2011
10.3‡	Form of Executive Change in Control Severance Agreement and schedule of agreements		10-Q	000-31285	10.4	May 5, 2015
10.4‡	TTM Technologies, Inc. 2006 Incentive Compensation Plan		10-K	000-31285	10.6	March 16, 2007
10.5‡	TTM Technologies, Inc. 2014 Incentive Compensation Plan, as amended		8-K	000-31285	10.1	May 18, 2016
10.6‡	TTM Technologies, Inc. Form of Restricted Stock Unit Award Grant Notice (for U.S. taxpayers) pursuant to TTM Technologies, Inc. 2014 Incentive Compensation Plan		10-Q	000-31285	10.1	August 4, 2016
10.7‡	TTM Technologies, Inc. Form of Restricted Stock Unit Award Grant Notice (for non-U.S. taxpayers) pursuant to TTM Technologies, Inc. 2014 Incentive Compensation Plan		10-Q	000-31285	10.2	May 5, 2015

10.8‡	TTM Technologies, Inc. Form of Performance-Based RSU Grant Notice and Award Agreement pursuant to TTM Technologies, Inc. 2014 Incentive Compensation Plan		10-Q	000-31285	10.2	August 4, 2016
10.9‡	TTM Technologies, Inc. Form of Restricted Stock Unit Award Grant Notice (for non-employee directors) pursuant to TTM Technologies, Inc. 2014 Incentive Compensation Plan		10-Q	000-31285	10.1	August 10, 2015
10.10‡	TTM Technologies, Inc. 2023 Incentive Compensation Plan		S-8	333-272490	99.1	June 7, 2023
10.11‡	TTM Technologies, Inc. 2023 Form of Restricted Stock Unit Award Grant Notice and Award Agreement (for U.S. taxpayers) pursuant to TTM Technologies, Inc. 2023 Incentive Compensation Plan		10-Q	000-31285	10.5	August 10, 2023
10.12‡	TTM Technologies, Inc. 2023 Form of Restricted Stock Unit Award Grant Notice and Award Agreement (for non-U.S. taxpayers) pursuant to TTM Technologies, Inc. 2023 Incentive Compensation Plan		10-Q	000-31285	10.6	August 10, 2023
10.13‡	TTM Technologies, Inc. 2023 Form of Performance-Based RSU Grant Notice and Award Agreement pursuant to TTM Technologies, Inc. 2023 Incentive Compensation Plan		10-Q	000-31285	10.7	August 10, 2023
10.14‡	TTM Technologies, Inc. 2024 Form of Restricted Stock Unit Award Grant Notice (for non-employee directors) pursuant to TTM Technologies, Inc. 2023 Incentive Compensation Plan	X				
10.15‡	Letter Agreement, dated as of July 28, 2023, by and between the Company and Daniel L. Boehle		8-K	000-31285	10.1	August 2, 2023
10.16	Amended & Restated Facility Agreement, dated as of June 14, 2023, by and among TTM Technologies China Limited and TTM Technologies Trading (Asia) Company Limited, as borrowers, TTM Technologies (Asia Pacific) Limited and other parties as guarantors, The Hong Kong and Shanghai Banking Corporation Limited and Barclays Bank PLC as original lenders, and The Hong Kong and Shanghai Banking Corporation Limited as arranger, facility agent, security trustee and issuing bank		8-K	000-31285	10.1	June 20, 2023

10.17	First Amendment, dated as of June 10, 2024, to that certain Amended and Restated ABL Credit Agreement, dated as of May 30, 2023, by and among TTM Technologies, Inc., as Borrower, the several Lenders from time to time parties thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, Barclays Bank PLC, Bank of America, N.A. and Truist Securities, Inc. as Syndication Agents, and HSBC Securities (USA) Inc., as Documentation Agent		10-Q	000-31285	10.1	August 6, 2024
10.18	First Amendment, dated as of August 1, 2024, to that certain Amended and Restated Term Loan Credit Agreement, dated as of May 30, 2023, by and among TTM Technologies, Inc., as Borrower, JPMorgan Chase Bank, N.A., as Administrative Agent, and the several lenders from time to time parties thereto		10-Q	000-31285	10.2	August 6, 2024
19	TTM Technologies, Inc. Insider Trading Policy	X				
21.1	Subsidiaries of the Registrant	X				
23.1	Consent of KPMG LLP, independent registered public accounting firm	X				
31.1	CEO Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	X				
31.2	CFO Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	X				
32.1*	CEO Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X				
32.2*	CFO Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X				
97	TTM Technologies, Inc. Executive Compensation Recoupment Policy		10-K	000-31285	97	February 27, 2024
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the inline XBRL document.					
101.SCH	Inline XBRL Taxonomy Extension Schema With Embedded Linkbase Documents					
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)					

(1) Included as Exhibit A to the Indenture filed as Exhibit 4.1 to the Registrant's Form 8-K filed with the Commission on March 10, 2021, Securities and Exchange Commission (SEC) File Number 000-31285.

‡ Management contract or compensatory plan.

* Furnished herewith. The certifications attached as Exhibits 32.1 and 32.2 that accompany this Report are not deemed filed with the Commission and are not to be incorporated by reference into any filing of Registrant under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date of this Report, irrespective of any general incorporation language contained in such filing.

(c) *Financial Statement Schedules*

None.

ITEM 16. ***FORM 10-K SUMMARY***

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

TTM TECHNOLOGIES, INC.
By: /s/ Thomas T. Edman
Thomas T. Edman
President and Chief Executive Officer

Date: February 21, 2025

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Name	Title	Date
/s/ Thomas T. Edman Thomas T. Edman	President, Chief Executive Officer and Director (Principal Executive Officer)	February 21, 2025
/s/ Daniel L. Boehle Daniel L. Boehle	Executive Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 21, 2025
/s/ Rex D. Geveden Rex D. Geveden	Chairman of the Board	February 21, 2025
/s/ Kenton K. Alder Kenton K. Alder	Director	February 21, 2025
/s/ Wajid Ali Wajid Ali	Director	February 21, 2025
/s/ Julie S. England Julie S. England	Director	February 21, 2025
/s/ Philip G. Franklin Philip G. Franklin	Director	February 21, 2025
/s/ Pamela B. Jackson Pamela B. Jackson	Director	February 21, 2025
/s/ Chantel E. Lenard Chantel E. Lenard	Director	February 21, 2025
/s/ John G. Mayer John G. Mayer	Director	February 21, 2025

TTM TECHNOLOGIES, INC.

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
TTM Technologies, Inc.:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of TTM Technologies, Inc. and subsidiaries (the Company) as of December 30, 2024 and January 1, 2024, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the three-year period ended December 30, 2024, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 30, 2024, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 30, 2024 and January 1, 2024, and the results of its operations and its cash flows for each of the years in the three-year period ended December 30, 2024, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 30, 2024 based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Evaluation of the sufficiency of audit evidence over net sales

As discussed in Note 1 to the consolidated financial statements, the Company recorded approximately $2,442,753 thousand of net sales during the year ended December 30, 2024. Net sales are recognized primarily from the sale of printed circuit boards, engineered systems using customer-supplied engineering and design plans as well as long-term contracts related to the design and manufacture of highly sophisticated intelligence, surveillance and communications solutions, radio frequency and microwave/microelectronics components, assemblies, and subsystems.

We identified the evaluation of the sufficiency of audit evidence over net sales as a critical audit matter. Evaluating the sufficiency of audit evidence obtained required especially subjective auditor judgment because of the geographical dispersion and decentralized nature of the Company's net sales generating activities. This included determining the Company locations at which procedures were performed. It also included the involvement of IT professionals with specialized skills and knowledge, who assisted in the performance of certain procedures.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over net sales, including determining the locations at which those procedures were to be performed. At each location where procedures were performed, we (1) evaluated the design and tested the operating effectiveness of certain internal controls over the Company's net sales processes, including the Company's controls over the accurate recording of sales amounts, (2) involved IT professionals, who assisted in testing certain IT applications used by the Company in its revenue recognition processes, and (3) tested the recorded net sales by selecting a sample of transactions and comparing the amounts recognized to underlying documentation, including contracts with customers. In addition, we evaluated the sufficiency of audit evidence obtained over net sales by assessing the results of procedures performed.

/s/ KPMG LLP

We have served as the Company's auditor since 2014.

Irvine, California
February 21, 2025

TTM TECHNOLOGIES, INC.

Consolidated Balance Sheets

	As of	
	December 30, 2024	January 1, 2024
	(In thousands, except par value)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 503,932	$ 450,208
Accounts receivable, net	448,611	413,557
Contract assets	381,382	292,050
Inventories	224,985	213,075
Receivable from sale of Shanghai E-MS (SH E-MS) property	—	6,737
Prepaid expenses and other current assets	47,834	54,060
Total current assets	1,606,744	1,429,687
Property, plant, and equipment, net	869,957	807,667
Operating lease right-of-use assets	78,252	86,286
Goodwill	670,135	702,735
Definite-lived intangibles, net	191,819	236,711
Deposits and other non-current assets	55,587	60,577
Total assets	$ 3,472,494	$ 3,323,663
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Short-term debt, including current portion of long-term debt	$ 3,795	$ 3,500
Accounts payable	406,221	334,609
Contract liabilities	170,915	126,508
Accrued salaries, wages, and benefits	108,149	98,561
Other current liabilities	119,974	140,806
Total current liabilities	809,054	703,984
Long-term debt, net of discount and issuance costs	914,359	914,336
Operating lease liabilities	77,509	80,786
Other long-term liabilities	107,748	113,518
Total long-term liabilities	1,099,616	1,108,640
Commitments and contingencies (Note 14)		
Equity:		
Common stock, $0.001 par value; 300,000 shares authorized, 113,161 and 111,282 shares issued as of December 30, 2024 and January 1, 2024, respectively; 101,997 and 102,108 shares outstanding as of December 30, 2024 and January 1, 2024, respectively	113	111
Treasury stock – common stock at cost; 11,164 and 9,174 shares as of December 30, 2024 and January 1, 2024, respectively	(157,570)	(123,091)
Additional paid-in capital	910,741	880,963
Retained earnings	838,422	782,123
Accumulated other comprehensive loss	(27,882)	(29,067)
Total stockholders’ equity	1,563,824	1,511,039
Total liabilities and stockholders' equity	$ 3,472,494	$ 3,323,663

See accompanying notes to consolidated financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Statements of Operations

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands, except per share data)		
Net sales	$ 2,442,753	$ 2,232,567	$ 2,495,046
Cost of goods sold	1,965,378	1,819,299	2,037,081
Gross profit	477,375	413,268	457,965
Operating expenses:			
Selling and marketing	80,030	76,922	75,182
General and administrative	170,107	149,631	158,180
Research and development	31,845	27,272	24,808
Amortization of definite-lived intangibles	35,550	48,675	37,097
Impairment of goodwill	32,600	44,100	—
Restructuring charges	11,200	24,352	4,094
Gain on sale of SH E-MS property	—	—	(51,804)
Total operating expenses	361,332	370,952	247,557
Operating income	116,043	42,316	210,408
Other (expense) income:			
Interest expense	(47,515)	(48,124)	(45,517)
Loss on extinguishment of debt	—	(1,154)	—
Gain on sale of subsidiary	—	1,270	—
Other, net	15,421	5,989	17,972
Total other expense, net	(32,094)	(42,019)	(27,545)
Income before income taxes	83,949	297	182,863
Income tax provision	(27,650)	(19,015)	(88,280)
Net income (loss)	$ 56,299	$ (18,718)	$ 94,583
Earnings (loss) per share:			
Basic earnings (loss) per share	$ 0.55	$ (0.18)	$ 0.93
Diluted earnings (loss) per share	0.54	(0.18)	0.91

See accompanying notes to consolidated financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Statements of Comprehensive Income (Loss)

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
Net income (loss)	$ 56,299	$ (18,718)	$ 94,583
Other comprehensive income (loss), net of tax:			
Pension obligation adjustments, net	1,082	1,251	1,412
Foreign currency translation adjustments, net	(897)	(249)	(2,085)
Derecognition of foreign currency translation adjustments due to sale of subsidiary	—	(6,627)	—
Net unrealized gain on cash flow hedges:			
Unrealized gain (loss) on effective cash flow hedges during the period, net	4,147	4,061	(91)
Amounts realized in the statement of operations, net	(3,147)	(2,713)	3,229
Net	1,000	1,348	3,138
Other comprehensive income (loss), net of tax	1,185	(4,277)	2,465
Comprehensive income (loss), net of tax	$ 57,484	$ (22,995)	$ 97,048

See accompanying notes to consolidated financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Statements of Stockholders' Equity

	Common Stock		Treasury Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
				(In thousands)				
Balance, January 3, 2022	108,194	$ 108	(4,661)	$ (63,807)	$ 840,113	$ 706,258	$ (27,255)	$ 1,455,417
Net income	—	—	—	—	—	94,583	—	94,583
Other comprehensive income	—	—	—	—	—	—	2,465	2,465
Issuance of common stock for performance-based restricted stock units	182	—	—	—	—	—	—	—
Issuance of common stock for restricted stock units	1,222	2	—	—	(2)	—	—	—
Repurchases of common stock	—	—	(2,747)	(35,424)	—	—	—	(35,424)
Fair value of warrants reclassified to warrant liabilities	—	—	—	—	(987)	—	—	(987)
Issuance of stock from warrant exercises	—	—	38	572	(572)	—	—	—
Stock-based compensation	—	—	—	—	19,525	—	—	19,525
Balance, January 2, 2023	109,598	$ 110	(7,370)	$ (98,659)	$ 858,077	$ 800,841	$ (24,790)	$ 1,535,579
Net loss	—	—	—	—	—	(18,718)	—	(18,718)
Other comprehensive loss	—	—	—	—	—	—	(4,277)	(4,277)
Issuance of common stock for performance-based restricted stock units	337	—	—	—	—	—	—	—
Issuance of common stock for restricted stock units	1,347	1	—	—	(1)	—	—	—
Repurchases of common stock	—	—	(1,804)	(24,432)	—	—	—	(24,432)
Stock-based compensation	—	—	—	—	22,887	—	—	22,887
Balance, January 1, 2024	111,282	$ 111	(9,174)	$ (123,091)	$ 880,963	$ 782,123	$ (29,067)	$ 1,511,039
Net income	—	—	—	—	—	56,299	—	56,299
Other comprehensive income	—	—	—	—	—	—	1,185	1,185
Issuance of common stock for performance-based restricted stock units	227	1	—	—	(1)	—	—	—
Issuance of common stock for restricted stock units	1,652	1	—	—	(1)	—	—	—
Repurchases of common stock	—	—	(1,990)	(34,479)	—	—	—	(34,479)
Stock-based compensation	—	—	—	—	29,780	—	—	29,780
Balance, December 30, 2024	113,161	$ 113	(11,164)	$ (157,570)	$ 910,741	$ 838,422	$ (27,882)	$ 1,563,824

See accompanying notes to consolidated financial statements.

TTM TECHNOLOGIES, INC.

Consolidated Statements of Cash Flows

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
Cash flows from operating activities:			
Net income (loss)	$ 56,299	$ (18,718)	$ 94,583
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation of property, plant, and equipment	105,233	99,155	91,276
Amortization of definite-lived intangible assets	44,892	61,576	42,631
Amortization of debt discount and issuance costs	2,042	2,205	2,152
Loss on extinguishment of debt	—	1,154	—
Deferred income taxes	(1,722)	(11,347)	61,304
Stock-based compensation	29,780	22,887	19,525
Impairment of goodwill	32,600	44,100	—
Gain on sale of subsidiary	—	(1,270)	—
Gain on sale of SH E-MS property	—	—	(51,804)
Other	(1,899)	(516)	(5,179)
Changes in operating assets and liabilities:			
Accounts receivable, net	(35,054)	49,936	(35,738)
Contract assets	(89,332)	42,589	15,534
Inventories	(11,910)	(45,392)	(4,411)
Prepaid expenses and other current assets	(2,688)	(6,034)	(15,473)
Accounts payable	49,719	(34,582)	(14,804)
Contract liabilities	44,407	22,527	24,530
Accrued salaries, wages, and benefits	9,588	(16,447)	15,462
Other current liabilities	4,939	(24,539)	33,285
Net cash provided by operating activities	236,894	187,284	272,873
Cash flows from investing activities:			
Purchase of property, plant, and equipment and other assets	(185,739)	(160,242)	(102,884)
Proceeds from sale of property, plant, and equipment and other assets	32,868	505	6,010
Proceeds from sale of SH E-MS property	6,737	61,769	—
Proceeds from sale of subsidiary, net of cash disposed	—	6,039	—
Acquisition of Gritel Holding Co., Inc. and ISC Farmingdale Corp.	—	—	(298,339)
Other	(76)	(101)	(245)
Net cash used in investing activities	(146,210)	(92,030)	(395,458)
Cash flows from financing activities:			
Repurchases of common stock	(34,479)	(24,432)	(35,424)
Repayment of long-term debt borrowings	(9,596)	(291,572)	—
Proceeds from long-term debt borrowings	8,416	234,818	—
Payment of debt issuance costs	(1,162)	(5,487)	—
Proceeds from borrowings of revolving loan	—	50,000	50,000
Refund of customer deposits	—	(7,500)	—
Payment of original issue discount	—	(3,500)	—
Repayment of revolving loan	—	—	(50,000)
Customer deposits	—	—	25,000
Cash used to settle warrants	—	—	(887)
Net cash used in financing activities	(36,821)	(47,673)	(11,311)
Effect of foreign currency exchange rates on cash and cash equivalents	(139)	(122)	(1,033)
Net increase (decrease) in cash and cash equivalents	53,724	47,459	(134,929)
Cash and cash equivalents at beginning of period	450,208	402,749	537,678
Cash and cash equivalents at end of period	$ 503,932	$ 450,208	$ 402,749
Supplemental cash flow information:			
Cash paid, net for interest	$ 48,988	$ 47,884	$ 42,844
Cash paid, net for income taxes	18,766	53,751	4,574
Supplemental disclosure of non-cash investing and financing activities:			
Cashless rollover of debt	$ 340,395	$ 115,182	$ —
Property, plant, and equipment recorded in accounts payable and other current liabilities	77,403	117,299	31,670
Receivable from sale of SH E-MS property	—	—	69,240
Issuance of common stock for warrant settlement	—	—	589

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements
(Dollars and shares in thousands, except per share data)

(1) Nature of Operations and Summary of Significant Accounting Policies

Nature of Operations

TTM Technologies, Inc. (the Company or TTM) is a leading global manufacturer of technology solutions including mission systems, radio frequency (RF) components, RF microwave/microelectronic assemblies, and quick-turn and technologically advanced printed circuit boards (PCB). The Company provides time-to-market and volume production of advanced technology products and offers a one-stop design, engineering, and manufacturing solution to customers. This solution allows the Company to align technology developments with the diverse needs of the Company's customers and to enable them to reduce the time required to develop new products and bring them to market.

The Company serves a diversified customer base in various markets throughout the world, including aerospace and defense, data center computing, automotive, medical, industrial, and instrumentation, and networking. The Company's customers include original equipment manufacturers (OEMs), electronic manufacturing services (EMS) providers, original design manufacturers (ODMs), distributors, and government agencies (both domestic and allied foreign governments).

The Company operates on a 52 or 53 week fiscal calendar with the fourth quarter ending on the Monday nearest December 31. Fiscal years 2024, 2023, and 2022 consisted of 52 weeks ended on December 30, 2024, January 1, 2024, and January 2, 2023, respectively. All references to years relate to fiscal years unless otherwise noted.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reporting period. These estimates and assumptions are based on management's best estimates and judgment. Due, in part, to the conflict between Russia and Ukraine as well as other global regions, the global economy and financial markets have been volatile in recent years. As such, the Company has considered information available to it as of the date of issuance of these financial statements and is not aware of any specific events or circumstances that would require an update to its estimates or judgments, or a revision to the carrying value of its assets or liabilities. Management evaluates its estimates and assumptions on an ongoing basis using historical experience and other factors, including the economic environment, which management believes to be reasonable under the circumstances. Management adjusts such estimates and assumptions when facts and circumstances dictate. The actual results the Company experienced may differ materially and adversely from its estimates. To the extent there are material differences between the estimates and actual results, the Company's future result of operations will be affected.

Principles of Consolidation

The consolidated financial statements include the accounts of TTM and its subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Foreign Currency Translation and Transactions

The functional currency of one of the Company's subsidiaries is the Chinese Renminbi (RMB). Accordingly, assets and liabilities are translated into U.S. dollars using period-end exchange rates. Sales and expenses are translated at the average exchange rates in effect during the period. The resulting translation gains or losses are recorded as a component of accumulated other comprehensive loss in the consolidated statement of stockholders' equity and the consolidated statement of comprehensive income. Net gains and losses resulting from foreign currency re-measurements and transactions are included in income as a component of other, net in the consolidated statements of operations and totaled $1,218 gain, $4,059 loss, and $12,756 gain for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively.

Cash Equivalents

The Company considers highly liquid investments with insignificant interest rate risk and original maturities to the Company of three months or less to be cash equivalents.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are reflected at estimated net realizable value, do not bear interest and do not generally require collateral. The Company performs credit evaluations of its customers and adjusts credit limits based upon payment history and the customer's current creditworthiness. The Company maintains an allowance for doubtful accounts based upon a variety of factors. The Company considers both current and forecasted future economic conditions in determining the adequacy of its allowance for doubtful accounts.

The Company's allowance for doubtful accounts was $3,248 and $3,041 as of December 30, 2024 and January 1, 2024, respectively.

Inventories

Inventories are stated at the lower of cost (based on standard cost, which approximates first-in, first-out method) or net realizable value. Assessments to value the inventory at the lower of the actual cost to purchase and/or manufacture the inventory, or net realizable value of the inventory, are based upon assumptions about future demand and market conditions. As a result of the Company's assessments, when the net realizable value of inventory is less than the carrying value, the inventory cost is written down to the net realizable value and the write down is recorded as a charge to cost of goods sold.

Property, Plant, and Equipment, Net

Property, plant, and equipment are recorded at cost. Depreciation expense is computed using the straight-line method over the estimated useful lives of the assets. Assets recorded under leasehold improvements are amortized using the straight-line method over the lesser of their useful lives or the related lease term. The Company uses the following estimated useful lives:

Land use rights	50-99 years
Buildings and improvements	7-50 years
Machinery and equipment	3-10 years
Furniture and fixtures	3-7 years

Upon retirement or other disposition of property, plant, and equipment, the cost and related accumulated depreciation are removed from the accounts. The resulting gain or loss is included in the determination of operating income in the period incurred. Depreciation expense on property, plant, and equipment was $105,233, $99,155, and $91,276 for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively.

The Company capitalizes interest on borrowings during the active construction period of major capital projects. Capitalized interest is amortized over the average useful lives of such assets, which primarily consist of buildings and machinery and equipment. The Company capitalized interest costs of $4,006, $2,272, and $731 during the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively, in connection with various capital projects.

Major renewals and betterments are capitalized and depreciated over their estimated useful lives while minor expenditures for maintenance and repairs are included in operating income as incurred.

Goodwill

Goodwill represents the excess of purchase price of an acquisition over the fair value of net assets acquired. Goodwill is not amortized but instead is assessed for impairment, at a reporting unit level, annually and when events and circumstances warrant an evaluation. Goodwill is allocated to reporting units, which are operating segments or one level below the Company's operating segments (the component level). Reporting units are determined by the discrete financial information available for the component and whether it is regularly reviewed by segment management. Components are aggregated into a single reporting unit if they share similar economic characteristics. The Company evaluates its goodwill on an annual basis in the fourth quarter or more frequently if it believes indicators of impairment exist. The Company assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount or performs a quantitative impairment test. When tested quantitatively, the Company compares the fair value of the applicable reporting unit with its carrying value. In making this assessment, management relies on a number of factors, including expected future operating results, business plans, economic projections, anticipated future cash flows, business trends and declines in the Company's market capitalization. The Company estimates the fair values of its reporting units using a combination of the discounted cash flow (DCF) and market approaches. If the carrying amount of a reporting unit exceeds the reporting unit's fair value, the amount by which the carrying value exceeds the fair value is recognized as an impairment loss. See Note 6, *Goodwill*, for further details.

Intangible Assets

Intangible assets include customer relationships and technology, which are being amortized over their estimated useful lives on a straight-line basis. The estimated useful lives of such intangibles range from 5 years to 13 years.

Impairment of Long-lived Assets

Long-lived tangible assets, including property, plant, and equipment, assets held for sale, and definite-lived intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of the asset or asset groups may not be recoverable. The Company regularly evaluates whether events or circumstances have occurred that indicate possible impairment and relies on a number of factors, including expected future operating results, business plans, economic projections, and anticipated future cash flows. The Company uses an estimate of the future undiscounted net cash flows of the related asset or asset group over the remaining life in measuring whether the assets are recoverable. If the sum of the undiscounted cash flows is less than the carrying amount of the net assets, impairment is measured based on the difference between the net asset's carrying value and estimated fair value. Fair value is determined through various valuation techniques, including cost-based, market, and income approaches as considered necessary.

The Company classifies assets to be sold as assets held for sale when (1) Company management has approved and commits to a plan to sell the asset; (2) the asset is available for immediate sale in its present condition and is ready for sale; (3) an active program to locate a buyer and other actions required to sell the asset have been initiated; (4) the sale of the asset is probable; (5) the asset is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and (6) it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn. Assets classified as held for sale are recorded at the lower of the carrying amount or fair value less the cost to sell.

The Company classifies assets held for use when a decision to dispose of an asset or a business is made and the held for sale criteria are not met. In evaluating the recoverability of property and intangible assets subject to amortization, in a held for use business, the carrying value is first compared to the sum of the undiscounted cash flows expected to result from the use and eventual disposition. If the carrying value exceeds the undiscounted expected cash flows, then a fair value analysis is performed. An impairment charge is recognized if the carrying value exceeds the fair value.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use (ROU) assets, and lease liabilities are included in other current liabilities and operating lease liabilities on the consolidated balance sheets. Finance lease ROU assets are included in property, plant, and equipment, net and lease liabilities are included in other current liabilities and other long-term liabilities on the consolidated balance sheets.

ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating and finance lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As most of the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at the commencement date in determining the present value of lease payments. The operating and finance lease ROU assets also include any lease payments made and excludes lease incentives. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Operating lease expense is recognized on a straight-line basis over the lease term. Finance lease expense is recognized based on the effective interest method over the lease term.

The Company has lease agreements with lease and non-lease components and accounts for the lease and non-lease components as a single lease component.

Revenue Recognition

The Company derives revenues primarily from the sale of PCBs, engineered systems using customer-supplied engineering and design plans as well as long-term contracts related to the design and manufacture of highly sophisticated intelligence, surveillance, and communications solutions, RF and microwave/microelectronics components, assemblies, and subsystems. In the absence of a sales agreement, the Company's standard terms and conditions apply. Revenue is recognized when control of the promised goods or services is transferred to the Company's customers, in an amount that reflects the consideration to which it expects to be entitled in exchange for those goods or services. The Company applies a five-step approach in determining the amount and timing of revenue to be recognized: (1) identifying the contract with a customer; (2) identifying the performance obligations in the contract; (3) determining the transaction price; (4) allocating the transaction price to the performance obligations in the contract; and (5) recognizing revenue when the corresponding performance obligation is satisfied.

Revenue Streams

For PCBs and engineered systems, including pursuant to the Company's long-term contracts related to the manufacture of highly sophisticated intelligence, surveillance, and communications solutions, components, assemblies, and subsystems, orders for products generally correspond to the production schedules of the Company's customers and are supported with firm purchase orders. The Company's customers have continuous control of the work in progress and finished goods throughout the PCB and engineered systems manufacturing process, as these are built to customer specifications with no alternative use, and there is an enforceable right to payment for work performed to date. As a result, the Company recognizes revenue progressively over time based on the extent of progress towards completion of the performance obligation. Revenue recognized is based on a cost method as it best depicts the transfer of control to the customer which takes place as we incur costs. Revenues are recorded proportionally as costs are incurred. For contracts in which anticipated total costs exceed the total expected revenue, an estimated loss is recognized in the period when identifiable. A provision for the entire amount of the estimated loss is recorded on a cumulative basis. The estimated remaining costs to complete for loss contracts as of December 30, 2024 and January 1, 2024 were $36,976 and $25,213, respectively, and the provision is recorded as a reduction to gross margin on the consolidated statements of operations.

In addition, the Company manufactures components, assemblies, subsystems, and completed systems which service its RF and Specialty Components (RF&S Components) and certain aerospace and defense customers. The Company recognizes revenue at a point in time upon transfer of control of the products to the customer. Point in time recognition was determined as the customer does not simultaneously receive or consume the benefits provided by the Company's performance and the asset being manufactured has alternative uses to the Company.

Performance Obligations

Each distinct promise to transfer products is considered to be an identified performance obligation for which revenue is recognized upon transfer of control of the products to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The majority of the Company's contracts have a single performance obligation as the promise to transfer the individual good or service is not separately identifiable from other promises in the contract and is, therefore, not distinct. As of December 30, 2024, the aggregate amount of the transaction price allocated to remaining performance obligations for the Company's long-term contracts was $452,793. The Company expects to recognize revenue on approximately 54% of the remaining performance obligations for the Company's long-term contracts over the next twelve months with the remaining amount recognized thereafter. The remaining performance obligations for the Company's short-term contracts are expected to be recognized within one year.

Transaction Price

The Company provides customers a limited right of return for defective PCBs including components, assemblies, and subsystems. Estimates of returns are treated as variable consideration for purposes of determining the transaction price. The Company accrues an estimate for sales returns and allowances progressively over time based on the extent of progress towards completion of the performance obligation using the Company's judgment based on historical results and anticipated returns. To the extent actual experience varies from its historical experience, revisions to the sales returns and allowances accrual may be required. Sales returns and allowances are recorded as a reduction of revenue and included as a component of other current liabilities on the consolidated balance sheets. Shipping and handling fees and related freight costs and supplies associated with shipping products to customers are included as a component of cost of goods sold. Warranty-related services are not considered a separate performance obligation. Incremental warranty costs that are not related to sales returns are recorded in other current liabilities on the consolidated balance sheets and cost of goods sold on the consolidated statements of operations. The following summarizes the activity in the Company's sales returns and allowances:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
		(In thousands)	
Balance at beginning of year	$ 12,301	$ 12,319	$ 12,853
Addition charged as a reduction of sales	2,787	4,692	2,410
Deductions	(4,281)	(4,719)	(2,914)
Effect of foreign currency exchange rates	(30)	9	(30)
Balance at end of year	$ 10,777	$ 12,301	$ 12,319

Contract Balances

Accounts receivable represents the Company's unconditional right to receive consideration from its customer. Payments are generally due within 90 days or less of invoicing and do not include a significant financing component. To date, there have been no material credit losses on accounts receivable.

A contract asset is recognized when the Company has recognized revenue, but not issued an invoice for payment. Amounts will be invoiced when applicable contract terms, such as the achievement of specified milestones or product delivery, are met. Contract assets represent unbilled amounts for work performed to date and are transferred to receivables when the entitlement to payment becomes unconditional. As of December 30, 2024, total contract assets were $386,817, of which $381,382 are expected to be collected within one year and recorded as contract assets and $5,435 are expected to be collected after one year and included as a component of deposits and other non-current assets on the consolidated balance sheets. As of January 1, 2024, total contract assets were $303,307, of which $292,050 were expected to be collected within one year and recorded as contract assets and $11,257 were expected to be collected after one year and included as a component of deposits and other non-current assets on the consolidated balance sheets. The increase in total contract assets in 2024 is primarily due to an increase in unbilled receivables. In 2024, there were no material impairment losses on contract assets.

A contract liability is recognized when the Company has received payment in advance for the future transfer of goods or services. The Company's contract liabilities are reduced as the contract requirements are fulfilled. Contract liabilities were $170,915 and $126,508 as of December 30, 2024 and January 1, 2024, respectively, and represent customer advances for work yet to be performed. The contract liabilities increased by $44,407 due to timing of customer billings and/or payments. Revenue recognized for the year ended December 30, 2024 from amounts recorded as contract liabilities as of January 1, 2024 was $37,457.

The Company has elected to account for shipping and handling activities as a fulfillment cost as permitted by the standard. All incremental customer contract acquisition costs are expensed as they are incurred as the amortization period of the asset that the Company otherwise would have recognized is one year or less in duration.

Disaggregated Revenue

Revenue from products and services transferred to customers over time and at a point in time accounted for 96% and 4%, respectively, of the Company's revenue in both 2024 and 2023. Revenue from products and services transferred to customers over time and at a point in time accounted for 97% and 3%, respectively, of the Company's revenue in 2022.

Disaggregated revenue by principal end markets within reportable segments was as follows for the periods shown:

	For the Year Ended December 30, 2024		
	PCB	RF&S Components (In thousands)	Total
End Markets:			
Aerospace and Defense	$ 1,127,529	$ —	$ 1,127,529
Automotive	315,924	—	315,924
Data Center Computing	502,258	619	502,877
Medical/Industrial/Instrumentation	333,276	2,809	336,085
Networking	126,628	33,710	160,338
Total	$ 2,405,615	$ 37,138	$ 2,442,753

	For the Year Ended January 1, 2024		
	PCB	RF&S Components (In thousands)	Total
End Markets:			
Aerospace and Defense	$ 1,004,864	$ 18	$ 1,004,882
Automotive	359,455	—	359,455
Data Center Computing	318,769	51	318,820
Medical/Industrial/Instrumentation	365,611	3,448	369,059
Networking	145,347	35,004	180,351
Total	$ 2,194,046	$ 38,521	$ 2,232,567

	For the Year Ended January 2, 2023		
	PCB	RF&S Components (In thousands)	Total
End Markets:			
Aerospace and Defense	$ 862,367	$ —	$ 862,367
Automotive	428,022	—	428,022
Data Center Computing	378,114	34	378,148
Medical/Industrial/Instrumentation	486,088	5,708	491,796
Networking	278,911	52,414	331,325
Other	4,440	(1,052)	3,388
Total	$ 2,437,942	$ 57,104	$ 2,495,046

Value-Added and Sales Tax Collected from Customers

As a part of the Company's normal course of business, value-added and sales taxes are collected from customers. Such taxes collected are remitted, in a timely manner, to the appropriate governmental tax authority on behalf of the customer. Value-added and sales taxes are excluded from reported revenues and costs of goods sold presented in the consolidated statements of operations and comprehensive income (loss).

Stock-Based Compensation

The Company recognizes stock-based compensation expense in its consolidated financial statements for its incentive compensation plan awards. The incentive compensation plan awards include performance-based restricted stock units (PRUs), restricted stock units (RSUs), and stock options. The associated compensation expense for all awards is based on the grant date fair value of the awards. For PRUs, compensation expense also includes management's periodic assessment of annual financial performance goals to be achieved. Compensation expense for the incentive compensation plan awards is recognized on a straight-line basis over the vesting period of the awards. The fair value of PRUs is estimated on the grant date using a Monte Carlo simulation model based on the underlying common stock closing price as of the date of grant, stock price volatility, and risk-free interest rates. The fair value of RSUs is measured on the grant date based on the quoted closing market price of the Company's common stock.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred income tax assets or liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred income tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be settled or realized. The effect on deferred income tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Deferred income tax assets are reviewed for recoverability, and the Company records a valuation allowance to reduce its deferred income tax assets when it is more likely than not that all or some portion of the deferred income tax assets will not be realized.

The Company has various foreign subsidiaries formed or acquired to conduct or support its business outside the United States. The Company expects its earnings attributable to foreign subsidiaries will not be indefinitely reinvested except for certain subsidiaries, and we have established a deferred tax liability for foreign withholding taxes and the estimated federal/state tax impact. For those other companies with earnings currently being reinvested outside of the U.S., no deferred tax liabilities on undistributed earnings are recorded.

The Company recognizes the effect of income tax positions only if those positions are more likely than not to be sustained. Recognized income tax positions are measured at the largest amount that is greater than 50 percent likely to be realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. Estimated interest and penalties related to underpayment of income taxes are recorded as a component of income tax provision in the consolidated statements of operations.

Fair Value Measures

The Company measures at fair value certain of its financial and non-financial assets and liabilities by using a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, essentially an exit price, based on the highest and best use of the asset or liability. The levels of the fair value hierarchy are:

Level 1 — Quoted market prices in active markets for identical assets or liabilities;

Level 2 — Significant other observable inputs (e.g., quoted prices for similar items in active markets, quoted prices for identical or similar items in markets that are not active, inputs other than quoted prices that are observable, such as interest rate and yield curves, and market-corroborated inputs); and

Level 3 — Unobservable inputs in which there is little or no market data, which require the reporting unit to develop its own assumptions.

Earnings (Loss) Per Share

Basic earnings (loss) per common share excludes dilution and is computed by dividing net income (loss) by the weighted average number of common shares outstanding during the period. Diluted earnings (loss) per common share reflect the potential dilution that could occur if stock options, or other common stock equivalents were exercised or converted into common stock. The dilutive effect of stock options or other common stock equivalents is calculated using the treasury stock method.

Comprehensive Income (Loss)

Comprehensive income (loss) includes changes to equity accounts that were not the result of transactions with stockholders. Comprehensive income (loss) is comprised of net income (loss), changes in the cumulative foreign currency translation adjustments, pension obligation adjustments, and realized and unrealized gains or losses on hedged derivative instruments.

Loss Contingencies

The Company establishes an accrual for an estimated loss contingency when it is both probable that an asset has been impaired or that a liability has been incurred and the amount of the loss can be reasonably estimated. Any legal fees expected to be incurred in connection with a contingency are expensed as incurred.

Recently Adopted and Issued Accounting Standards

Recently Adopted Accounting Standards

In November 2023, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*, which updates reportable segment disclosure requirements primarily through enhanced disclosures about significant segment expenses. The amendments are effective for fiscal years beginning after December 15, 2023, and for interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted. The amendments should be applied retrospectively to all prior periods presented in the financial statements. The Company adopted ASU 2023-07 as of December 30, 2024 using a retrospective transition method. This ASU impacts only the Company's disclosures with no impacts to the results of operations, cash flows, and financial condition. See Note 10, *Segment Information*, for further details.

Recently Issued Accounting Standards Not Yet Adopted

In November 2024, the FASB issued ASU 2024-03, *Income Statement-Reporting Comprehensive Income-Expense Disaggregation Disclosures (Subtopic 220-40): Disaggregation of Income Statement Expenses*, which requires disclosure in the notes to the financial statements of specified information about certain costs and expenses. In January 2025, the FASB issued ASU 2025-01, *Income Statement-Reporting Comprehensive Income-Expense Disaggregation Disclosures (Subtopic 220-40): Clarifying the Effective Date*, which amends the effective date of ASU 2024-03 to clarify that all public business entities are required to adopt the guidance in annual reporting periods beginning after December 15, 2026, and interim periods within annual reporting periods beginning after December 15, 2027. Early adoption of ASU 2024-03 is permitted. ASU 2024-03 should be applied either prospectively to financial statements issued for reporting periods after the effective date or retrospectively to any or all prior periods presented in the financial statements. The Company is currently evaluating the new guidance to determine the impact it may have on its consolidated financial statements and related disclosures, but expects additional disclosures upon adoption.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*, which requires disclosure of disaggregated income taxes paid, prescribes standard categories for the components of the effective tax rate reconciliation, and modifies other income tax-related disclosures. The update will be effective for annual periods beginning after December 15, 2024. Early adoption is permitted for annual financial statements not yet issued or made available for issuance. The Company is currently evaluating the new guidance to determine the impact it may have on its consolidated financial statements and related disclosures, but expects additional disclosures upon adoption.

In October 2023, the FASB issued ASU 2023-06, *Disclosure Improvements: Codification Amendments in Response to the Securities and Exchange Commission's Disclosure Update and Simplification Initiative*, which modifies the disclosure or presentation requirements of a variety of topics in the Accounting Standards Codification (ASC) in response to the Securities and Exchange Commission's (SEC) Release No. 33-10532, *Disclosure Update and Simplification Initiative*, and align the ASC requirements with the

SEC’s regulations. For entities subject to the SEC's existing disclosure requirements, the effective date for each amendment will be the date on which the SEC's removal of that related disclosure from Regulation S-X or Regulation S-K becomes effective. However, if by June 30, 2027, the SEC has not removed the related disclosure from its regulations, the amendments will be removed from the Codification and not become effective. Early adoption is prohibited. The Company is currently evaluating the new guidance to determine the impact it may have on the presentation of its consolidated financial statements and related disclosures.

(2) Share Repurchase Program

On May 3, 2023, the Company's Board of Directors authorized and approved a share repurchase program (2023 Repurchase Program), under which the Company may repurchase up to $100,000 in value of the Company’s outstanding shares of common stock from time to time through May 3, 2025. The Company may repurchase shares through open market purchases, privately-negotiated transactions, or otherwise in accordance with applicable federal securities laws, including Rule 10b-18 of the Securities Exchange Act of 1934, as amended (Exchange Act), which sets certain restrictions on the method, timing, price, and volume of open market stock repurchases. In addition, the Company adopted one trading plan in accordance with Rule 10b5-1 of the Exchange Act to facilitate certain purchases that may be effected under the share repurchase program. The timing, manner, price, and amount of any repurchases will be determined at the Company’s discretion, and the share repurchase program may be suspended, terminated, or modified at any time for any reason. The repurchase program does not obligate the Company to acquire any specific number of shares.

During the year ended December 30, 2024, the Company repurchased 1,990 shares of common stock for a total cost of approximately $34,479 (including commissions). As of December 30, 2024, the remaining amount in value available to be repurchased under the 2023 Repurchase Program was approximately $41,088.

(3) Significant Customers and Concentration of Credit Risk

Financial instruments that are potentially subject to concentrations of credit risk are primarily cash and cash equivalents and accounts receivable.

The Company had cash and cash equivalents held by its foreign subsidiaries of $207,909 and $195,928 as of December 30, 2024 and January 1, 2024, respectively. The Company maintains its cash and cash equivalents with major financial institutions and such balances exceed Federal Deposit Insurance Corporation insurance limits. The Company has not experienced any losses in such accounts and believes it is not exposed to any significant risk on cash and cash equivalents.

In the normal course of business, the Company extends credit to its customers. Some customers to whom the Company extends credit are located outside the United States. The Company performs ongoing credit evaluations of customers, does not require collateral, and considers the credit risk profile of the entity from which the receivable is due in further evaluating collection risk. As of December 30, 2024 and January 1, 2024, there were no customers that accounted for 10% or more of the Company’s accounts receivable.

The Company’s customers include both OEMs and EMS companies. The Company’s OEM customers often direct a significant portion of their purchases through EMS companies. While the Company’s customers include both OEM and EMS providers, the Company measures customer concentration based on OEM companies, as they are the ultimate end customers.

One customer accounted for approximately 11%, 13%, and 10% of the Company’s net sales for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively.

(4) Leases

The Company leases some of its manufacturing and assembly plants, sales offices, and equipment under non-cancellable operating leases and finance leases that expire at various dates through 2043. The majority of the Company's lease arrangements are comprised of fixed payments, and certain leases consist of variable payments based on equipment usage. These variable payments are not included in the measurement of the ROU asset or lease liability due to uncertainty of the payment amount and are recorded as lease expense in the period incurred. Certain leases contain renewal provisions at the Company's option. Most of the leases require the Company to pay for certain other costs such as property taxes and maintenance. Certain leases also contain rent escalation clauses (step rents) that require additional rental amounts in the later years of the term. Rent expense for leases with step rents is recognized on a straight-line basis over the minimum lease term. The lease agreements do not contain any material residual value guarantees or material restrictive covenants.

The components of lease expense were as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
		(In thousands)	
Operating lease cost	$ 14,933	$ 9,527	$ 7,751
Variable lease cost	1,055	930	1,140
Short-term lease cost	409	311	708
Finance lease costs:			
Amortization of right-of-use assets	1,372	1,374	1,374
Interest on lease liabilities	354	373	392

Supplemental cash flow information related to leases was as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
		(In thousands)	
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows for operating leases	$ 13,926	$ 9,039	$ 7,746
Right-of-use assets obtained in exchange for new lease obligations:			
Operating leases	$ 2,796	$ 77,041	$ 7,896

Supplemental balance sheet information related to leases was as follows:

	Balance Sheet Location	As of December 30, 2024	As of January 1, 2024
		(In thousands)	
Assets:			
Operating leases	Operating lease right-of-use assets	$ 78,252	$ 86,286
Finance leases	Property, plant, and equipment, net	10,621	12,010
Total lease assets		$ 88,873	$ 98,296
Liabilities:			
Current:			
Operating leases	Other current liabilities	$ 7,556	$ 8,433
Finance leases	Other current liabilities	814	780
Long-term:			
Operating leases	Operating lease liabilities	77,509	80,786
Finance leases	Other long-term liabilities	11,985	12,799
Total lease liabilities		$ 97,864	$ 102,798

	As of December 30, 2024	As of January 1, 2024
Weighted average remaining lease term (years):		
Operating leases	12.5	12.8
Finance leases	11.6	12.6
Weighted average discount rate:		
Operating leases	6.24 %	6.13 %
Finance leases	2.69	2.69

Maturities of lease liabilities for the next five years and thereafter were as follows:

	Operating Leases (1)	Finance Leases
	(In thousands)	
2025	$ 12,542	$ 1,145
2026	10,136	1,175
2027	8,775	1,197
2028	7,964	1,228
2029	7,730	1,251
Thereafter	79,908	8,980
Total lease payments	127,055	14,976
Less: Imputed interest	(41,990)	(2,177)
Total	$ 85,065	$ 12,799

(1) Excludes $436 of legally binding minimum lease payments for leases signed but not yet commenced.

(5) Composition of Certain Consolidated Financial Statement Captions

	As of	
	December 30, 2024	January 1, 2024
	(In thousands)	
Inventories:		
Raw materials	$ 178,066	$ 165,666
Work-in-process	45,580	45,494
Finished goods	1,339	1,915
Inventories	$ 224,985	$ 213,075
Property, plant, and equipment, net:		
Land and land use rights	$ 69,788	$ 71,131
Buildings and improvements	515,773	512,148
Machinery and equipment	1,116,658	986,527
Furniture and fixtures and other	11,115	10,157
Construction-in-progress	75,502	90,940
Property, plant, and equipment, gross	1,788,836	1,670,903
Less: Accumulated depreciation	(918,879)	(863,236)
Property, plant, and equipment, net	$ 869,957	$ 807,667
Other current liabilities:		
Income taxes payable	$ 15,919	$ 5,466
Accrued capital expenditures	13,046	35,026
Sales return and allowances	10,777	12,301
Interest	9,054	9,399
Accrued facility operating costs	8,925	10,172
Housing fund	7,927	7,749
Warranty	7,685	10,557
Operating leases	7,556	8,433
Accrued professional fees	3,606	3,276
Restructuring	3,486	1,179
Derivative liabilities	667	297
Other	31,326	36,951
Other current liabilities	$ 119,974	$ 140,806
Other long-term liabilities:		
Deferred income taxes	$ 41,362	$ 44,238
Customer deposits	28,390	29,820
Finance leases	11,985	12,799
Other	26,011	26,661
Other long-term liabilities	$ 107,748	$ 113,518

(6) Goodwill

Goodwill by reportable segment was as follows:

	PCB	RF&S Components	Total
		(In thousands)	
As of January 1, 2024			
Goodwill	$ 810,235	$ 177,200	$ 987,435
Accumulated impairment losses	(171,400)	(113,300)	(284,700)
Carrying amount	638,835	63,900	702,735
Impairment loss during the year ended December 30, 2024	—	(32,600)	(32,600)
As of December 30, 2024			
Goodwill	810,235	177,200	987,435
Accumulated impairment losses	(171,400)	(145,900)	(317,300)
Carrying amount	$ 638,835	$ 31,300	$ 670,135

The Company evaluates its goodwill on an annual basis during its fourth fiscal quarter and at other times when events or changes in circumstances – such as significant adverse changes in the business climate or operating results or changes in management strategy, coupled with a decline in the market price of its stock and market capitalization – indicate that there may be a potential impairment. The Company assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount or performs a quantitative impairment test.

In the fourth quarter of 2024, the Company performed its annual goodwill impairment test qualitatively for the PCB reporting unit and concluded that it was more likely than not that there was no impairment to goodwill.

In the fourth quarter of 2024, the Company performed its annual goodwill impairment test quantitatively for the RF&S Components reporting unit. As of November 1, 2024, the Company completed a quantitative goodwill impairment analysis related to its RF&S Components reporting unit by comparing the fair value of the reporting unit with its carrying amount. In making this assessment, management relies on a number of factors, including expected future operating results, business plans, economic projections, anticipated future cash flows, and business trends. The Company determined the fair value of the reporting unit by using both a DCF and a market approach. Under the market approach, the Company used revenue and earnings multiples based on comparable industry multiples to estimate the fair value of the reporting unit. If the carrying amount of a reporting unit exceeds the reporting unit's fair value, the amount by which the carrying value exceeds the fair value is recognized as an impairment loss.

Under the DCF approach, the Company estimated the future cash flows, as well as selected a risk-adjusted discount rate to measure the present value of the anticipated cash flows. When determining future cash flow estimates, the Company considered historical results adjusted to reflect current and anticipated future operating conditions. The Company estimated cash flows for the reporting unit over a discrete period and a terminal period (considering expected long-term growth rates and trends).

Based on its analysis, the Company determined that the fair value of the RF&S Components reporting unit was less than its carrying value and recorded a non-cash goodwill impairment charge of $32,600 during the year ended December 30, 2024. If the Company's future cash flow projections and other fair value assumptions for its reporting unit change, the Company's goodwill may be subject to potential additional impairment charges in subsequent quarters. Estimating the fair value of the reporting unit requires the Company to make assumptions and estimates in such areas as future economic conditions, industry-specific conditions, product pricing, and necessary capital expenditures. The use of different assumptions or estimates for future cash flows, discount rates, or terminal growth rates, which are subject to a high degree of judgment, could produce substantially different estimates of the fair value of the reporting unit.

(7) Definite-lived Intangibles

The components of definite-lived intangibles were as follows:

	Gross Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Amortization Period
		(In thousands)		(In years)
As of December 30, 2024				
Customer relationships	$ 323,500	$ (161,710)	$ 161,790	11.8
Technology	66,650	(36,621)	30,029	8.2
Total	$ 390,150	$ (198,331)	$ 191,819	
As of January 1, 2024				
Customer relationships	$ 416,230	$ (222,766)	$ 193,464	11.2
Technology	66,650	(27,278)	39,372	8.2
Backlog	13,000	(9,750)	3,250	2.0
Trade names	2,500	(1,875)	625	2.0
Total	$ 498,380	$ (261,669)	$ 236,711	

Definite-lived intangibles are amortized using the straight-line method of amortization over the useful life. Amortization expense was $44,892, $61,576, and $42,631 for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively. For the years ended December 30, 2024, January 1, 2024, and January 2, 2023, $9,342, $12,901, and $5,534, respectively, of amortization expense is included in cost of goods sold.

In connection with the finalization of acquired identifiable intangible asset valuation during the second quarter of 2023 related to the Company's acquisition in 2022 of Telephonics, the Company recorded amortization expense of $24,877 related to the acquired identifiable intangible assets during the year ended January 1, 2024 (of which $5,627 corresponded to the year ended January 2, 2023 due to the change in amortization period). For the year ended January 1, 2024, $8,850 of amortization expense related to the acquired identifiable intangible assets was included in cost of goods sold (of which $2,950 corresponded to the year ended January 2, 2023).

Estimated aggregate amortization for definite-lived intangible assets for the next five years and thereafter is as follows:

	(In thousands)
2025	$ 36,897
2026	36,897
2027	34,543
2028	30,997
2029	22,355
Thereafter	30,130
Total	$ 191,819

(8) Long-term Debt and Letters of Credit

Long-term debt was as follows:

	As of December 30, 2024		As of January 1, 2024	
	Interest Rate	Principal Outstanding	Interest Rate	Principal Outstanding
	(In thousands, except interest rates)			
Senior Notes due March 2029	4.00 %	$ 500,000	4.00 %	$ 500,000
Term Loan due May 2030	6.59	345,634	8.10	349,125
Asia ABL Revolving Loan due June 2028	5.64	80,000	6.65	80,000
Other	5.99	2,311	—	—
Total debt		927,945		929,125
Less: Unamortized debt issuance costs		(6,951)		(8,021)
Less: Unamortized debt discount		(2,840)		(3,268)
Subtotal		918,154		917,836
Less: Current maturities		(3,795)		(3,500)
Long-term debt, less current maturities		$ 914,359		$ 914,336

The fiscal calendar maturities of debt for the next five years and thereafter are as follows:

	(In thousands)
2025	$ 3,795
2026	3,815
2027	4,735
2028	83,828
2029	503,018
Thereafter	328,754
Total	$ 927,945

Senior Notes due 2029

On March 10, 2021, the Company issued $500,000 of Senior Notes due 2029, which are included in long-term debt and bear interest at a rate of 4.0% per annum. Interest is payable semiannually in arrears on March 1 and September 1 of each year beginning September 1, 2021. The Senior Notes due 2029 will mature on March 1, 2029.

The Senior Notes due 2029 are irrevocably and unconditionally guaranteed, jointly and severally, on a senior unsecured basis by the Company's existing and future domestic subsidiaries, subject to certain exceptions. The Senior Notes due 2029 and related guarantees are senior unsecured obligations of, respectively, the Company and applicable subsidiary guarantors.

Term Loan Facility

On August 1, 2024, the Company entered into a First Amendment to its Amended and Restated Term Loan Credit Agreement, dated as of May 30, 2023, by and among the Company, as Borrower, JPMorgan Chase Bank, N.A., as Administrative Agent, and the several lenders from time to time parties thereto, pursuant to which the Company closed its $346,500 new senior secured term loan (Term Loan Facility) that bears interest at a floating rate of 1-month Chicago Mercantile Exchange (CME) Term Secured Overnight Financing Rate (SOFR) plus an applicable margin of 2.25%, 50 basis points lower than the previous term loan facility issued in May 2023. The Term Loan Facility is issued at par, maintains the same maturity of May 30, 2030 as the previous term loan facility, and the majority is a cashless rollover from the previous term loan facility. This Term Loan Facility had an outstanding balance of $345,634 as of December 30, 2024, of which $3,465 is included in short-term debt and $342,169 is included in long-term debt. The Term Loan Facility was issued with a 1.0% original issue discount. There is no provision, other than an event of default, for the interest margin to increase. The Company is required to make quarterly principal repayments in an aggregate annual amount equal to 1% of the $346,500 aggregate principal amount of the Term Loan Facility. Such principal repayment is payable quarterly on January 1, April 1, July 1, and October 1 and ending with the last such day to occur prior to May 30, 2030. The remaining principal under the Term Loan Facility is scheduled to mature on May 30, 2030. In addition, the Term Loan Credit Agreement permits the Company to add one or more senior secured incremental term loan facilities to the Term Loan Facility subject to the satisfaction of certain conditions.

The obligations under the Term Loan Facility are unconditionally guaranteed by each Subsidiary Guarantor of the Company, subject to certain exceptions (Guarantors). The Term Loan Facility is secured by (i) a perfected first priority security interest in substantially all of the assets of the Company and the Guarantors (other than the U.S. Asset-Based Lending Credit Agreement (U.S.

ABL) Priority Collateral (as defined below)), including all of the total outstanding voting capital stock held by the Company and the Guarantors (subject to a limitation of 65% on pledges of such capital stock of certain foreign subsidiaries and domestic holding companies of foreign subsidiaries) and (ii) a perfected second priority interest in all of the U.S. ABL Priority Collateral (as defined below). The Term Loan Facility is structurally senior to the Company's Senior Notes due 2029.

Based on certain parameters defined in the Term Loan Facility, including a Secured Leverage Ratio, the Company may be required to make an additional principal payment on an annual basis if its Secured Leverage Ratio is greater than 2.0.

Borrowings under the Term Loan Credit Agreement are subject to certain affirmative and negative covenants, including limitations on indebtedness, corporate transactions, investments, dispositions, and share payments.

Asset-Based Lending Agreements

The U.S. ABL is comprised of a revolving credit facility for up to $150,000 and a sublimit for letter of credit for up to $50,000, provided that at no time may amounts outstanding under the agreement exceed in the aggregate $150,000 or the applicable borrowing base, which is the sum of (i) a percentage of the principal amount of "Eligible Accounts", plus (ii) a percentage of the net orderly liquidation value of (x) "Eligible Inventory", minus (y) "Inventory Reserves" applicable thereto, minus (iii) "Reserves", each as defined in the U.S. ABL agreement. Borrowings under the U.S. ABL bear interest at a floating rate of Term SOFR plus a margin ranging from 1.25% to 1.50%. The applicable margin can vary based on the remaining availability of the facility, from 1.25% to 1.50% for Term SOFR-based loans and from 0.25% to 0.50% for JPMorgan Chase Bank's prime rate-based loans. Other than availability and an event of default, there are no other provisions for the interest margin to increase.

The U.S. ABL is scheduled to mature on May 30, 2028. The Guarantors have also fully guaranteed the full and timely payment of all obligations in respect of the U.S. ABL. Loans made under the U.S. ABL are secured by a perfected first priority security interest in certain deposit accounts, cash and cash equivalents, accounts receivable, and certain U.S. inventory (U.S. ABL Priority Collateral) as well as by a perfected second priority interest in all of the collateral securing the Term Loan Facility.

The Asia Asset-Based Lending Credit Agreement (Asia ABL) is comprised of a revolving credit facility for up to $150,000 and a sublimit for letter of credit for up to $100,000, provided that at no time may amounts outstanding under the agreement exceed in aggregate $150,000 or the applicable borrowing base, which is a percentage of the principal amount of Eligible Accounts, as defined in the Asia ABL agreement. Borrowings under the Asia ABL bear interest at a floating rate of Term SOFR plus 1.30%. There is no provision, other than an event of default, for the interest margin to increase. As of December 30, 2024, the interest rate on the outstanding borrowings under the Asia ABL was 5.64%. As of December 30, 2024, $80,000 under the Asia ABL was outstanding and classified as long-term debt, which is consistent with its maturity date.

The Asia ABL is scheduled to mature on June 13, 2028. Loans made under the Asia ABL are secured by a portion of the Company's Asia Pacific cash and receivables and are structurally senior to the Company's domestic obligations, including the Senior Notes due 2029.

As of December 30, 2024, letters of credit in the amount of $7,497 were outstanding under the U.S. ABL and $16,931 were outstanding under the Asia ABL with various maturities through December 2025. Available borrowing capacity under the U.S. ABL and the Asia ABL was $142,503 and $53,069 respectively, which considers letters of credit outstanding as of December 30, 2024.

The Company is required to pay a commitment fee of 0.25% per annum on any unused portion of the U.S. ABL and the Asia ABL (collectively, the ABL Revolving Loans). The Company incurred total commitment fees related to unused borrowing availability of $476, $620, and $661 for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively. Under the occurrence of certain events, the ABL Revolving Loans are subject to various financial covenants, including leverage and fixed charge coverage ratios.

Debt Issuance Costs and Debt Discount

Remaining unamortized debt issuance costs and debt discount were as follows:

	As of December 30, 2024			As of January 1, 2024		
	Debt Issuance Costs	Debt Discount	Effective Interest Rate	Debt Issuance Costs	Debt Discount	Effective Interest Rate
	(In thousands, except interest rates)					
Senior Notes due March 2029	$ 3,362	$ —	4.18 %	$ 4,085	$ —	4.18 %
Term Loan due May 2030	3,589	2,840	8.01	3,936	3,268	8.26
Total	$ 6,951	$ 2,840		$ 8,021	$ 3,268	

The above debt issuance costs and debt discount are recorded as a reduction of the debt and are amortized into interest expense using an effective interest rate over the duration of the debt.

Remaining unamortized debt issuance costs for the ABL Revolving Loans of $1,239 and $1,603 as of December 30, 2024 and January 1, 2024, respectively, are included in deposits and other non-current assets and are amortized to interest expense over the duration of the ABL Revolving Loans using the straight-line method of amortization.

As of December 30, 2024, the remaining weighted average amortization period for all unamortized debt issuance costs and debt discount was 4.8 years.

Debt Covenants

As of December 30, 2024, the Company was in compliance with the financial covenants under the Senior Notes due 2029, Term Loan Facility, and ABL Revolving Loans.

Loss on Extinguishment of Debt

During the year ended January 1, 2024, the Company recognized loss on extinguishment of debt of $1,154, primarily associated with the write-off of the remaining unamortized debt issuance costs and debt discount as a result of the repayment of the remaining outstanding balance of the Term Loan Facility that was due to mature September 2024.

(9) Income Taxes

The components of income before income taxes were as follows:

	For the Year Ended December 30, 2024	January 1, 2024	January 2, 2023
		(In thousands)	
United States	$ (36,745)	$ (105,101)	$ (52,468)
Foreign	120,694	105,398	235,331
Income before income taxes	$ 83,949	$ 297	$ 182,863

The Company expects its earnings attributable to foreign subsidiaries will not be indefinitely reinvested, except for certain subsidiaries, and the Company has established a deferred tax liability of approximately $3,693 and $1,267 for the foreign and U.S. federal/state impact, respectively. For those other companies with earnings currently being reinvested outside of the U.S., the undistributed earnings amounted to approximately $60,769 as of December 30, 2024. The determination of the unrecognized deferred tax liability related to these undistributed earnings is approximately $2,687.

The components of income tax provision were as follows:

	For the Year Ended December 30, 2024	January 1, 2024	January 2, 2023
		(In thousands)	
Current (provision) benefit:			
Federal	$ (2,984)	$ 445	$ (2,591)
State	(2,958)	(1,592)	(1,812)
Foreign	(22,934)	(29,094)	(23,453)
Total current	(28,876)	(30,241)	(27,856)
Deferred benefit (provision):			
Federal	340	1,321	(29,093)
State	85	271	(3,905)
Foreign	801	9,634	(27,426)
Total deferred	1,226	11,226	(60,424)
Income tax provision	$ (27,650)	$ (19,015)	$ (88,280)

The reconciliation of the provision for income taxes at the statutory federal income tax rate compared to the Company's provision for income taxes were as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
Statutory federal income tax provision	$ (17,629)	$ (62)	$ (38,401)
State income taxes, net of federal benefit and state tax credits	(672)	(1,875)	1,750
IRC Section 162(m) limitation	(1,467)	(2,121)	(791)
Stock options	453	(651)	(599)
Global Intangible Low-Taxed Income	(7,435)	(12,639)	(19,240)
Foreign tax credits	10,131	14,916	17,343
Permanently reinvested earnings assertion	(2,634)	(3,934)	(2,721)
Foreign tax differential on foreign earnings & other permanent items	6,928	3,788	1,504
Change in valuation allowance	(13,650)	(13,460)	(50,805)
Uncertain tax positions	—	957	(85)
Federal research and development credits	6,052	4,665	4,319
Goodwill impairment	(6,846)	(9,261)	—
Other	(881)	662	(554)
Income tax provision	$ (27,650)	$ (19,015)	$ (88,280)

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The significant components of the net deferred income tax assets (liabilities) were as follows:

	As of	
	December 30, 2024	January 1, 2024
	(In thousands)	
Deferred income tax assets:		
Net operating loss carryforwards	$ 29,974	$ 30,098
Reserves and accruals	57,453	60,023
Interest expense limitation	41	959
Unrealized gain on cash flow hedge	—	(1,221)
Tax credit carryforwards	33,559	35,760
Stock-based compensation	6,591	5,312
Property, plant, and equipment	3,748	4,733
Intangible and capitalized research expenditure amortization	7,601	—
Other deferred income tax assets	880	883
	139,847	136,547
Less: Valuation allowance	(95,373)	(81,779)
	44,474	54,768
Deferred income tax liabilities:		
Debt discount and issuance cost	(1,582)	—
Repatriation of foreign earnings	(4,961)	(7,137)
Property, plant, and equipment basis differences	(74,632)	(73,072)
Goodwill and intangible amortization	(1,358)	(11,551)
Unrealized gain on cash flow hedge	(1,895)	—
Other deferred income tax liabilities	(465)	(5,149)
Net deferred income tax liabilities (included in other long-term liabilities and deposits and other non-current assets)	$ (40,419)	$ (42,141)

As of December 30, 2024, the Company had the following net operating loss (NOLs) carryforwards: $78,492 in the U.S. for federal, $24,132 in various U.S. states, $33,344 in China, $23,582 in Hong Kong, and $26,008 in Malaysia. The U.S. federal NOLs expire in 2029 through 2032, the various U.S. states' NOLs expire in 2025 through 2044, the China NOLs expire in 2029 through 2034, and the Hong Kong and Malaysia NOLs carryforward indefinitely. Further, the Company's tax credits were approximately $43,752, of which $5,849 carryforward indefinitely.

In connection with the Company’s acquisition of Viasystems during 2015, there was more than a 50% change in ownership under Section 382 of the Internal Revenue Code of 1986, as amended, and regulations issued there under. As a consequence, the utilization of the remaining Viasystems U.S. NOLs is limited to approximately $9,826 per year and total $78,492.

A valuation allowance is provided when it is more likely than not that all or some portion of the deferred income tax assets will not be realized. The Company established a valuation allowance on its U.S. net deferred tax assets in the current year mainly due to cumulative book losses in the U.S. In addition, certain subsidiaries in various tax jurisdictions continue to have NOL carryforwards, which the Company has determined are not more likely than not to be utilized. As a result, a full valuation allowance has been recorded for these subsidiaries as of December 30, 2024. For the remaining net deferred income tax assets, management has determined that it is more likely than not that the results of future operations will generate sufficient income to realize the net deferred tax assets.

A summary of the activity in the Company’s valuation allowance was as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
Balance at beginning of year	$ 81,779	$ 67,173	$ 16,541
Additions charged to expense	13,743	13,811	51,748
Addition related to acquisition	—	1,187	—
Other reduction charged to expense	(149)	(392)	(1,116)
Balance at end of year	$ 95,373	$ 81,779	$ 67,173

Certain entities within China qualified for the high and new technology enterprise (HNTE) status enabling those entities to enjoy certain benefits, which were effective for the years ended December 30, 2024, January 1, 2024, and January 2, 2023. The HNTE status as well as enhanced research and development (R&D) deductions decreased Chinese taxes. HNTE and R&D benefit and effect on earnings per share were as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands, except per share data)		
HNTE and R&D benefits	$ 5,187	$ 6,056	$ 13,480
Basic shares	101,781	102,744	102,074
Diluted shares	104,098	102,744	103,866
Increases earnings per share:			
Basic	$ 0.05	$ 0.06	$ 0.13
Diluted	0.05	0.06	0.13

HNTE status expired for certain subsidiaries in 2024, but the Company expects to continue to file for renewal of such HNTE status for the foreseeable future.

With respect to its Malaysian operations, the Company received official notification from Malaysia Investment Development Authority (MIDA) in December 2023 that the Company's application for an incentive was approved. The incentive provided by MIDA is for a special tax rate of 0% for three, five-year periods (totaling 15 years) as long as the Malaysian operations meet specific requirements outlined in the notice. Starting in 2024, the Company's Malaysian operations will be subject to a 0% tax rate (absent any applicable impact from the global minimum tax of 15% under the Organization for Economic Co-operation and Development’s (OECD) Pillar Two). No tax benefit was recognized for the year ended December 30, 2024.

A reconciliation of the beginning and ending amount of unrecognized tax benefits, exclusive of accrued interest and penalties, were as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
Balance at beginning of year	$ 10,363	$ 9,778	$ 9,442
Additions based on tax positions related to the current year	1,220	934	820
Additions for tax positions of prior years	—	13	—
Reductions for tax positions of prior years	(3)	—	(72)
Lapse of statute of limitations	(941)	(362)	(412)
Balance at end of year	$ 10,639	$ 10,363	$ 9,778

During the year ended December 30, 2024, the Company increased uncertain tax positions by $276 due to U.S. R&D credit generation in 2024, offset by the release of uncertain tax positions due to the statute of limitations expiration.

As of December 30, 2024 and January 1, 2024, the Company recorded unrecognized tax benefits of $446 and $449, respectively, as well as interest and penalties of $475 and $434, respectively, to other current liabilities and other long-term liabilities. The Company has also recorded unrecognized tax benefits of $10,193 and $9,914 against certain deferred tax assets as of December 30, 2024 and January 1, 2024, respectively. The amount of unrecognized tax benefits that would, if recognized, reduce the Company's effective income tax rate in any future periods is $921 including interest and penalties. The Company expects its unrecognized tax benefits to decrease by $244 along with related interest of $445 over the next twelve months due to expiring statutes.

As of December 30, 2024, the Company is open for (1) U.S. federal income tax examination for the period from 2021 to 2024 and NOL and credit carryforwards are subject to adjustment for three years post utilization; (2) state and local income tax examination for tax years 2020 to 2024 and NOL and credit carryforwards are subject to adjustment for four years post utilization; and (3) foreign income tax examinations generally for tax years from 2014 to 2024.

(10) Segment Information

The reportable segments shown below are the Company's segments for which separate financial information is available and upon which operating results are evaluated by the chief operating decision maker (CODM), who is the President and Chief Executive Officer, to assess performance and to allocate resources. They are managed separately because each business manufactures at different stages in the electrical equipment manufacturing value chain and has different margins. The CODM uses segment operating income to allocate resources such as employees and capital resources for each segment during the Company's annual budgeting and forecasting process. On a quarterly basis, the CODM considers variances in forecast to actual, prior quarter actual to current quarter actual, prior year quarter actual to current quarter actual, and the next quarter forecast to current quarter actual for segment operating income when making decisions about deploying personnel and capital resources to the segments. Separate segment asset measures are not used as a basis for the CODM to evaluate the performance of or to allocate resources to the segments.

The PCB reportable segment consists of PCBs, engineered systems using customer-supplied engineering and design plans as well as long-term contracts related to the design and manufacture of highly sophisticated intelligence, surveillance, and communications solutions, components, assemblies, and subsystems. The RF&S Components reportable segment consists of components, assemblies, subsystems, and completed systems which service its RF&S Components and certain aerospace and defense customers.

Effective January 1, 2025, the Company changed its organization structure to enhance clarity in sector performance, accountability, and operating costs by clearly allocating resources to either Aerospace and Defense, Commercial, or RF&S Components. To align the new operating model and business structure, the Company is making management organizational changes and implementing new reporting and processes to provide discrete information to manage the business. Management is currently evaluating the impact of this change in organization structure on its assessment of operating segments.

Reconciliations of net sales and segment operating income were as follows:

	For the Year Ended December 30, 2024		
	PCB	RF&S Components (In thousands)	Total
Reconciliation of net sales			
Gross sales	$ 2,414,983	$ 37,317	$ 2,452,300
Less: Inter-segment sales	(9,368)	(179)	(9,547)
Net sales	2,405,615	37,138	2,442,753
Less:			
Cost of goods sold	(1,918,001)	(19,139)	(1,937,140)
Operating expenses	(139,223)	(9,511)	(148,734)
Segment operating income	$ 348,391	$ 8,488	356,879
Reconciliation of segment operating income			
Other profit or (loss) [1]			(33,479)
Unallocated amounts:			
Stock-based compensation			(29,780)
Other corporate expenses			(132,685)
Amortization of definite-lived intangibles [2]			(44,892)
Interest expense			(47,515)
Other, net			15,421
Income before income taxes			$ 83,949

	For the Year Ended January 1, 2024		
	PCB	RF&S Components	Total
	(In thousands)		
Reconciliation of net sales			
Gross sales	$ 2,199,547	$ 38,619	$ 2,238,166
Less: Inter-segment sales	(5,501)	(98)	(5,599)
Net sales	2,194,046	38,521	2,232,567
Less:			
Cost of goods sold	(1,771,811)	(17,540)	(1,789,351)
Operating expenses	(127,565)	(10,124)	(137,689)
Segment operating income	$ 294,670	$ 10,857	305,527
Reconciliation of segment operating income			
Other profit or (loss) (1)			(65,994)
Unallocated amounts:			
Stock-based compensation			(22,887)
Other corporate expenses			(112,754)
Amortization of definite-lived intangibles (2)			(61,576)
Interest expense			(48,124)
Loss on extinguishment of debt			(1,154)
Gain on sale of subsidiary			1,270
Other, net			5,989
Income before income taxes			$ 297

	For the Year Ended January 2, 2023		
	PCB	RF&S Components	Total
	(In thousands)		
Reconciliation of net sales			
Gross sales	$ 2,446,572	$ 57,104	$ 2,503,676
Less: Inter-segment sales	(8,630)	—	(8,630)
Net sales	2,437,942	57,104	2,495,046
Less:			
Cost of goods sold	(2,001,348)	(21,509)	(2,022,857)
Operating expenses	(123,655)	(12,060)	(135,715)
Segment operating income	$ 312,939	$ 23,535	336,474
Reconciliation of segment operating income			
Other profit or (loss) (1)			46,306
Unallocated amounts:			
Stock-based compensation			(19,525)
Other corporate expenses			(110,216)
Amortization of definite-lived intangibles (2)			(42,631)
Interest expense			(45,517)
Other, net			17,972
Income before income taxes			$ 182,863

(1) Represents elimination of inter-segment sales, accelerated depreciation associated with plant closures, gain on sale of assets, unrealized gain/loss on commodity hedge, acquisition costs, non-cash goodwill impairment charge, restructuring, and purchase accounting related inventory markup.

(2) Amortization of definite-lived intangibles relates to the PCB and RF&S Components reportable segments, but is not reviewed separately by the CODM. For the years ended December 30, 2024, January 1, 2024, and January 2, 2023, amortization expense of $9,342, $12,292, and $3,442, respectively, is included in cost of goods sold for the PCB reportable segment. For the years ended January 1, 2024 and January 2, 2023, amortization expense of $609 and $2,092, respectively, is included in cost of goods sold for the RF&S Components reportable segment.

Depreciation expense by reportable segment was as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
PCB	$ 95,232	$ 90,957	$ 82,760
RF&S Components	1,693	1,833	1,798
Segment total	96,925	92,790	84,558
Corporate	8,308	6,365	6,718
Total	$ 105,233	$ 99,155	$ 91,276

The Company markets and sells its products in approximately 60 countries. Other than in the United States and Taiwan, the Company does not conduct business in any country in which its net sales in that country exceed 10% of the Company's total net sales. Net sales are attributed to countries by country invoiced and were as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands)		
United States	$ 1,232,288	$ 1,263,065	$ 1,224,334
Taiwan	274,345	177,042	127,657
Other	936,120	792,460	1,143,055
Total	$ 2,442,753	$ 2,232,567	$ 2,495,046

Long-lived assets include property, plant, and equipment, goodwill, and definite-lived intangibles and were as follows:

	As of	
	December 30, 2024	January 1, 2024
	(In thousands)	
United States	$ 1,171,611	$ 1,235,255
China	357,159	346,602
Other	203,141	165,256
Total	$ 1,731,911	$ 1,747,113

(11) Accumulated Other Comprehensive Loss

A summary of the components of accumulated other comprehensive loss, net of tax is as follows:

	Foreign Currency Translation	Pension Obligation	Cash Flow Hedges	Total
	(In thousands)			
Balance as of January 2, 2023	$ (25,984)	$ 1,279	$ (85)	$ (24,790)
Other comprehensive (loss) income before reclassifications	(6,876)	1,251	4,061	(1,564)
Amounts reclassified from accumulated other comprehensive loss	—	—	(2,713)	(2,713)
Net year to date other comprehensive (loss) income	(6,876)	1,251	1,348	(4,277)
Balance as of January 1, 2024	(32,860)	2,530	1,263	(29,067)
Other comprehensive (loss) income before reclassifications	(897)	1,082	4,147	4,332
Amounts reclassified from accumulated other comprehensive loss	—	—	(3,147)	(3,147)
Net year to date other comprehensive (loss) income	(897)	1,082	1,000	1,185
Balance as of December 30, 2024	$ (33,757)	$ 3,612	$ 2,263	$ (27,882)

(12) Stock-Based Compensation

Incentive Compensation Plan

The Company maintains a 2023 Incentive Compensation Plan (the Plan), which allows for issuance of up to 5,100 shares through its latest possible expiration date in May 2033.

The Plan provides for the grant of PRUs, RSUs, and stock appreciation rights. The exercise price for awards is determined by the Compensation Committee of the Board of Directors. Each award shall vest and expire as determined by the Compensation Committee of the Board of Directors, with PRUs and RSUs generally vesting over three years for employees and one year for non-employee directors. PRUs and RSUs do not have voting rights. All grants provide for accelerated vesting if there is a change in control, as defined in the Plan.

As of December 30, 2024, 740 PRUs, 4,106 RSUs, and 60 stock options were outstanding under the Plan. Included in the 740 PRUs outstanding as of December 30, 2024 are 411 vested but not yet released. Included in the 4,106 RSUs outstanding as of December 30, 2024 are 641 vested but not yet released RSUs associated with non-employee directors. These RSUs vest over one year with release of the underlying shares of common stock deferred until retirement from the Board of Directors (or until one year after retirement in the case of certain prior grants).

Performance-based Restricted Stock Units

The Company maintains a long-term incentive program for executives that provides for the issuance of PRUs, representing hypothetical shares of the Company’s common stock that may be issued. Under the PRU program, a target number of PRUs is awarded at the beginning of each three-year performance period. The number of shares of common stock released at the end of the performance period depends on performance during the period and may range from zero to 2.4 times the target number for PRUs awarded before 2023 and zero to 2.0 times the target number for PRUs awarded in 2023 and thereafter. For PRUs awarded before 2023, the performance metrics of the PRU program are based on (1) annual financial targets, which are based on revenue and earnings before interest, tax, depreciation, and amortization expense (EBITDA), each equally weighted, and (2) an overall modifier based on the Company’s total stockholder return (TSR) relative to a group of peer companies selected by the Company’s Compensation Committee, over the three year performance period. For PRUs awarded in 2023 and thereafter, the performance metrics of the PRU program are based on (1) annual financial targets, which are based on revenue and EBITDA, each equally weighted, and (2) the three-year TSR performance result, which will be an additive component to the Company’s financial results of the aggregated three-year measurement period.

Under the PRU program, financial goals with respect to one or more target milestones are set at the beginning of each year and performance is reviewed at the end of that year. The percentage to be applied to each participant’s target award ranges from zero to 160% for PRUs awarded before 2023 and zero to 200% for PRUs awarded in 2023 and thereafter, based upon the extent to which the target milestones are achieved. If specific performance threshold levels for the target milestones are met, the amount earned for that element over the three-year performance period will be applied equally for PRUs awarded before 2023 and 80% for PRUs awarded in 2023 and thereafter, of the participants’ PRU award to determine the number of units earned.

At the end of the three-year performance period, the total units earned, if any, are adjusted by the TSR calculation. The TSR calculation is a percentage ranging from zero to 150% for PRUs awarded before 2023 and zero to 200% for PRUs awarded in 2023 and thereafter, determined on the Company’s TSR based on stock price changes relative to a group of peer companies selected by the Company’s Compensation Committee for the same three-year period. For outstanding PRU awards granted before 2023, the TSR is used as an overall modifier of the three-year performance period such that the base calculations are multiplied by the TSR modifier, ranging from zero to 200%, based on the relative performance of the Company’s stock price as compared to its TSR peer group. For PRUs awarded in 2023 and thereafter, the TSR calculation will be applied to 20% of the participants’ PRU award to determine the number of additional units earned.

Recipients of PRU awards generally must remain employed by the Company on a continuous basis through the end of the three-year performance period in order to receive any amount of the PRUs covered by that award. In events such as death, disability, or retirement, the recipient may be entitled to pro-rata amounts of PRUs as defined in the Plan. Target shares subject to PRU awards do not have voting rights of common stock until earned and issued following the end of the three-year performance period.

The Company records stock-based compensation expense for PRU awards granted based on management's periodic assessment of the annual financial performance goals to be achieved. As of December 30, 2024, management determined that vesting of the PRU awards was probable. PRU activity for the year ended December 30, 2024 was as follows:

	Shares (In thousands)	Weighted Average Fair Value
Outstanding shares as of January 1, 2024	342	$ 15.64
Granted	351	19.51
Vested	(411)	15.23
Forfeited / cancelled	(15)	15.23
Change in units due to annual performance achievement	62	14.81
Outstanding shares as of December 30, 2024	329	$ 20.14

The fair value of PRUs granted is calculated using a Monte Carlo simulation model, as the TSR modifier contains a market condition. The following assumptions were used in determining the fair value:

	For the Year Ended		
	December 30, 2024 (1)	January 1, 2024 (2)	January 2, 2023 (3)
Weighted-average fair value	$ 19.51	$ 16.36	$ 15.02
Risk-free interest rate	4.42 %	4.46 %	1.44 %
Dividend yield	—	—	—
Expected volatility	41 %	42 %	30 %

(1) Reflects the weighted-averages for the third year of the three-year performance period applicable to PRUs granted in 2022, the second year of the three-year performance period applicable to PRUs granted in 2023, and the first year of the three-year performance period applicable to PRUs granted in 2024.

(2) Reflects the weighted-averages for the third year of the three-year performance period applicable to PRUs granted in 2021, the second year of the three-year performance period applicable to PRUs granted in 2022, and the first year of the three-year performance period applicable to PRUs granted in 2023.

(3) Reflects the weighted-averages for the third year of the three-year performance period applicable to PRUs granted in 2020, the second year of the three-year performance period applicable to PRUs granted in 2021, and the first year of the three-year performance period applicable to PRUs granted in 2022.

The risk-free interest rate for the expected term of PRUs is based on the U.S. Treasury yield curve in effect at the time of grant. Expected volatility is calculated using the Company's historical stock price.

Restricted Stock Units

RSU activity for the year ended December 30, 2024 was as follows:

	Shares (In thousands)	Weighted Average Grant-Date Fair Value
Non-vested RSUs outstanding as of January 1, 2024	3,453	$ 13.52
Granted	1,794	19.32
Vested	(1,615)	18.93
Cancelled	(167)	14.89
Non-vested RSUs outstanding as of December 30, 2024	3,465	$ 16.47
Vested and expected to vest through 2027 as of December 30, 2024	4,106	$ 15.78

The fair value of the Company's RSUs is determined based upon the closing common stock price on the grant date. The weighted average fair value per unit of RSUs granted was $19.32, $13.85, and $12.72 for the years ended December 30, 2024, January 1, 2024, and January 2, 2023, respectively. The total fair value of RSUs vested for the years ended December 30, 2024, January 1, 2024, and January 2, 2023 was $30,575, $19,928, and $15,510, respectively.

Stock Options

As of December 30, 2024, stock options outstanding was 60. This is not material to the consolidated financial statements of the Company.

Stock-based Compensation Expense and Unrecognized Compensation Costs

Stock-based compensation expense recognized in the accompanying consolidated statements of operations was as follows:

	For the Year Ended December 30, 2024	For the Year Ended January 1, 2024	For the Year Ended January 2, 2023
	(In thousands)		
Cost of goods sold	$ 9,342	$ 7,455	$ 5,846
Selling and marketing	3,845	3,205	2,749
General and administrative	15,322	11,088	9,808
Research and development	1,271	1,139	1,122
Total	$ 29,780	$ 22,887	$ 19,525

A summary of total unrecognized compensation costs as of December 30, 2024 was as follows:

	Unrecognized Stock-Based Compensation Cost (In thousands)	Remaining Weighted Average Recognition Period (In years)
RSU awards	$ 42,838	4.9
PRU awards	12,418	1.6
Total	$ 55,256	

(13) Fair Value Measures

The Company measures at fair value its financial and non-financial assets by using a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, essentially an exit price, based on the highest and best use of the asset or liability.

The carrying amount and estimated fair value of the Company's financial instruments were as follows:

	As of December 30, 2024		As of January 1, 2024	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	(In thousands)			
Derivative assets, current	$ 1,765	$ 1,765	$ 3,282	$ 3,282
Derivative assets, non-current	1,326	1,326	—	—
Derivative liabilities, current	667	667	297	297
Derivative liabilities, non-current	—	—	1,476	1,476
Senior Notes due March 2029	496,638	464,325	495,915	455,035
Term Loan due May 2030	339,205	346,930	341,921	351,743
ABL Revolving Loans	80,000	80,000	80,000	80,000
Other loan	2,311	2,311	—	—

The fair value of the derivative instruments was determined using pricing models developed based on the 1-month CME Term SOFR swap rate, foreign currency exchange rates, and other observable market data, including quoted market prices, as appropriate using Level 2 inputs. The values were adjusted to reflect non-performance risk of both the counterparty and the Company, as necessary.

The fair value of the long-term debt was estimated based on quoted market prices or discounting the debt over its life using current market rates for similar debt as of December 30, 2024 and January 1, 2024, which are considered Level 2 inputs.

The fair value of plan assets in the defined benefit plan of $23,297 and $23,249 as of December 30, 2024 and January 1, 2024, respectively, were not included in the table above and was estimated based on quoted market prices of the securities that are actively traded and price quotes that are readily available, which are considered Level 1 inputs.

As of December 30, 2024 and January 1, 2024, the Company's other financial instruments included cash and cash equivalents, accounts receivable, contract assets, accounts payable, and contract liabilities. The carrying amount of these instruments approximates fair value.

The majority of the Company’s non-financial assets and liabilities, which include goodwill, intangible assets, inventories, and property, plant, and equipment, are not required to be carried at fair value on a recurring basis. However, if certain triggering events occur (or are tested at least annually in the case of goodwill) such that a non-financial instrument is required to be evaluated for impairment, based upon a comparison of the non-financial instrument’s fair value to its carrying value, an impairment is recorded to reduce the carrying value to the fair value, if the carrying value exceeds the fair value.

As of December 30, 2024 and January 1, 2024, the Company’s goodwill balance related to its RF&S Components reporting unit of $31,300 and $63,900, respectively, was measured at fair value on a nonrecurring basis. The Company recorded a non-cash goodwill impairment charge of $32,600 and $44,100 related to its RF&S Components reporting unit during the years ended December 30, 2024 and January 1, 2024, respectively. The fair value of goodwill was determined using both a DCF and a market approach, which are considered Level 3 inputs. The Company used risk adjusted discount rate of 12% to discount the expected future cash flows in both 2024 and 2023. There was no impairment of long-lived assets recognized for the years ended December 30, 2024, January 1, 2024, and January 2, 2023.

(14) Commitments and Contingencies

Legal Matters

The Company is subject to various legal matters, which it considers normal for its business activities. While the Company currently believes that the amount of any reasonably possible loss for known matters would not be material to the Company’s financial condition, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate potential loss could have a material adverse effect on the Company’s financial condition or results of operations in a particular period. The Company has accrued amounts for its loss contingencies which are probable and estimable as of December 30, 2024 and January 1, 2024 and included as a component of other current liabilities. However, these amounts are not material to the consolidated financial statements of the Company.

Offset Agreements

The Company has and may continue to enter into industrial cooperation agreements, sometimes referred to as offset agreements, as a condition to obtaining orders for products and services from customers in foreign countries. These agreements are intended to promote investment in the applicable country, and the Company’s obligations under these agreements may be satisfied through activities that do not require the Company to use cash, including transferring technology or providing manufacturing and other consulting support. The obligations under these agreements may also be satisfied through the use of cash for activities such as purchasing supplies from in-country vendors, setting up support centers, research and development investments, acquisitions, and building or leasing facilities for in-country operations. The amount of the offset requirement is determined by contract value awarded and negotiated percentages with customers. As of December 30, 2024, the Company had outstanding offset agreements of approximately $27,268, some of which extend through 2028. Offset programs usually extend over several years and in some cases provide for penalties in the event the Company fails to perform in accordance with contract requirements. To date, the Company has not been obligated to pay any such penalties.

Supplier Finance Program Obligations

The Company has agreements with financial institutions to facilitate payments to certain suppliers. Under the terms of the agreements, the Company confirms the validity of each supplier invoice to the respective financial institution upon receipt. The supplier receives payment from the financial institution, and the Company pays the financial institution based on the terms negotiated, which generally range from 160 days to 360 days. Liabilities associated with these agreements are recorded in accounts payable on the consolidated balance sheets and amounted to $17,218 and $18,832 as of December 30, 2024 and January 1, 2024, respectively.

The details of the outstanding obligations confirmed as valid under the Company’s supplier finance program are as follows:

	For the Year Ended December 30, 2024 (In thousands)
Confirmed obligations outstanding at beginning of year	$ 18,832
Invoices confirmed during the year	22,887
Confirmed invoices paid during the year	(24,983)
Effect of foreign currency exchange rates	482
Confirmed obligations outstanding at end of year	$ 17,218

(15) Earnings (Loss) Per Share

The reconciliation of the numerator and denominator used to calculate basic earnings (loss) per share and diluted earnings (loss) per share is as follows:

	For the Year Ended		
	December 30, 2024	January 1, 2024	January 2, 2023
	(In thousands, except per share amounts)		
Net income (loss)	$ 56,299	$ (18,718)	$ 94,583
Basic weighted average shares	101,781	102,744	102,074
Dilutive effect of PRUs, RSUs, and stock options	2,317	—	1,791
Dilutive effect of outstanding warrants	—	—	1
Diluted shares	104,098	102,744	103,866
Earnings (loss) per share:			
Basic earnings (loss) per share	$ 0.55	$ (0.18)	$ 0.93
Diluted earnings (loss) per share	0.54	(0.18)	0.91

For the years ended December 30, 2024 and January 2, 2023, PRUs, RSUs, and stock options to purchase 158 and 535 shares of common stock, respectively, were not included in the computation of diluted earnings per share. The PRUs were not included in the computation of diluted earnings per share because the performance conditions had not been met, and for the RSUs and stock options, the options' exercise prices or the total expected proceeds under the treasury stock method was greater than the average market price of common stock during the applicable year and, as a result, the impact would be anti-dilutive.

For the year ended January 1, 2024, potential shares of common stock, consisting of stock options to purchase 60 shares of common stock at exercise prices ranging from $11.83 to $16.60 per share, 3,527 RSUs, and 668 PRUs were not included in the computation of diluted earnings per share because the Company incurred a net loss and as a result, the impact would be anti-dilutive.

(16) Restructuring Charges

On February 8, 2023, the Company announced a consolidation plan, pursuant to which the Company ceased operations at three of its manufacturing facilities during the year ended January 1, 2024 and consolidated the operations of those facilities into other Company facilities. The three manufacturing facilities are PCB operations located in Anaheim and Santa Clara, California, and Hong Kong. The Company recorded $27,439 of restructuring charges and $6,032 of accelerated depreciation since the February 8, 2023 announcement.

In addition to this consolidation plan, the Company recognized employee separation, contract termination, and other costs during the year ended December 30, 2024 in connection with other global realignment restructuring efforts. Contract termination and other costs primarily represented plant closure costs.

Restructuring costs by reportable segment were as follows:

	For the Year Ended								
	December 30, 2024			January 1, 2024			January 2, 2023		
	Employee Separation/ Severance	Contract Termination and Other Costs	Total	Employee Separation/ Severance	Contract Termination and Other Costs	Total	Employee Separation/ Severance	Contract Termination and Other Costs	Total
	(In thousands)								
PCB	$ 466	$ 7,640	$ 8,106	$ 13,780	$ 9,877	$ 23,657	$ 2,510	$ 1,036	$ 3,546
RF&S Components	—	—	—	14	—	14	—	—	—
Corporate and Other	2,411	683	3,094	305	376	681	31	517	548
Total	$ 2,877	$ 8,323	$ 11,200	$ 14,099	$ 10,253	$ 24,352	$ 2,541	$ 1,553	$ 4,094

Accrued restructuring costs are included as a component of other current liabilities in the consolidated balance sheet. The utilization of the accrued restructuring costs was as follows:

	Employee Separation/ Severance	Contract Termination and Other Costs	Total
		(In thousands)	
Accrued as of January 2, 2023	$ 2,510	$ 3	$ 2,513
Charged to expense	14,099	10,253	24,352
Amount paid, net of government contributions eligible for offsetting	(15,615)	(10,071)	(25,686)
Accrued as of January 1, 2024	994	185	1,179
Charged to expense	2,877	8,323	11,200
Amount paid	(794)	(8,099)	(8,893)
Accrued as of December 30, 2024	$ 3,077	$ 409	$ 3,486

(17) Preferred Stock

The Board of Directors has the authority, without action by stockholders, to designate and issue preferred stock in one or more series. The Board of Directors may also designate the rights, preferences, and privileges of each series of preferred stock, any or all of which may be superior to the rights of the common stock. As of December 30, 2024, no shares of preferred stock were outstanding.

Exhibit 4.2

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

TTM Technologies, Inc. ("we," "us" or "our") has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: our common stock, par value $0.001 per share.

DESCRIPTION OF COMMON STOCK

The following description of our common stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our amended and restated certificate of incorporation (our "certificate of incorporation") and our sixth amended and restated bylaws (our "bylaws"), each of which are incorporated by reference as an exhibit to our Annual Report on Form 10-K. We encourage you to read our certificate of incorporation, our bylaws, and the applicable provisions of the Delaware General Corporation Law for additional information.

We are authorized to issue, under our certificate of incorporation, 300,000,000 shares of common stock and 15,000,000 shares of preferred stock, par value $0.001 per share. No shares of preferred stock are currently outstanding.

Voting Rights

Each outstanding share of our common stock is entitled to one vote per share of record on all matters submitted to a vote of stockholders.

Dividends

Holders of our common stock are entitled to receive dividends or other distributions when, as, and if declared by our board of directors in its sole discretion. The right of our board of directors to declare dividends, however, is subject to any rights of the holders of other classes of our capital stock, any indebtedness outstanding from time to time, and the availability of sufficient funds under Delaware law to pay dividends.

No Redemption, Conversion or Preemptive Rights; No Sinking Fund Provisions

Holders of our common stock have no redemption rights, conversion rights or preemptive rights to purchase or subscribe for our securities. There are no redemption provisions or sinking fund provisions applicable to our common stock.

Liquidation Rights

In the event of any liquidation, dissolution, or winding up of our company, after the payment or provisions for payment of all debts and liabilities of the corporation and all preferential amounts to which the holders of our preferred stock are entitled with respect to the distribution of assets in liquidation, the holders of shares of our common stock are entitled to receive any of our assets available for distribution to our stockholders ratably in proportion to the number of shares held by them.

Anti-takeover Effects of Certain Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws

Some provisions of Delaware law and our certificate of incorporation and our bylaws contain provisions that could be deemed to have an anti-takeover effect and could delay, defer or prevent a takeover attempt that a stockholder might consider to be in the stockholders' best interests.

Delaware Anti-Takeover Statute

We are subject to Section 203 of Delaware law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested holder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the person's affiliates and associates, beneficially owns, (or, in certain cases, within the preceding three years, did own), 15% or more of the outstanding voting stock of the corporation.

Certificate of Incorporation and Bylaw Provisions

In addition, our certificate of incorporation and bylaws provide for staggered terms for our board of directors and limitations on persons authorized to call a special meeting of shareholders.

Additionally, our certificate of incorporation and bylaws provide that any vacancy on our board of directors may be filled only by the affirmative vote of a majority of the remaining directors then in office and not by the shareholders and establish advance notice requirements for shareholders to nominate candidates for election as directors at any meeting of shareholders.

Holders of shares of common stock do not have cumulative voting rights with respect to the election of directors or any other matter.

Exhibit 10.14

TTM TECHNOLOGIES, INC.
2023 INCENTIVE COMPENSATION PLAN

«Grant_Year» RESTRICTED STOCK UNIT AWARD GRANT NOTICE

NON-EMPLOYEE DIRECTOR

TTM Technologies, Inc. (the "Company"), pursuant to the TTM Technologies, Inc. 2023 Incentive Compensation Plan, as may be amended from time to time (the "Plan"), hereby grants to Participant a right to receive the number of shares of the common stock of the Company (the "Shares") set forth below. This Restricted Stock Unit award (the "RSUs") is subject to all of the terms and conditions as set forth herein, in the Restricted Stock Unit Award Agreement (the "Award Agreement") and in the Plan, all of which are attached hereto and incorporated herein in their entirety.

Participant:	«First_Name» «Middle_Initial» «Last_Name»
Date of Grant:	«Grant_Date», «Grant_Year»
Vesting Commencement Date:	«Vest Date»
Number of Shares subject to the RSUs:	«RSU_Shares_Granted»

Expiration Date: Subject to termination as provided in Section 3(c) of the Award Agreement.

Vesting Schedule: The RSUs subject to this award vest on the first anniversary of the Vesting Commencement Date.

In addition, the RSUs are subject to vesting acceleration pursuant to Section 3(b) of the Award Agreement. All vesting is subject to Participant's Continuous Service.

Delivery Schedule: Delivery schedule to be set forth in Section 4(b) of the Award Agreement.

Additional Terms/Acknowledgements: The Participant acknowledges receipt of, and understands and agrees to, this Restricted Stock Unit Award Grant Notice, the Award Agreement and the Plan. Participant further acknowledges that as of the Date of Grant, this Restricted Stock Unit Award Grant Notice, the Award Agreement and the Plan set forth the entire understanding between Participant and the Company regarding the acquisition of Shares of the Company and supersede all prior oral and written agreements on that subject, with the exception of RSUs or options previously granted and delivered to Participant under the Plan or under the Company's previous incentive compensation plans.

Thomas T. Edman
President and Chief Executive Officer
TTM Technologies, Inc.

ATTACHMENTS: «Grant_Year» Restricted Stock Unit Award Agreement to the 2023 Incentive Compensation Plan.

TTM TECHNOLOGIES, INC.
2023 INCENTIVE COMPENSATION PLAN

«Grant_Year» RESTRICTED STOCK UNIT AWARD AGREEMENT

NON-EMPLOYEE DIRECTOR

TTM Technologies, Inc. (the "Company") wishes to grant to the person (the "Participant") named in the Notice of Grant of Restricted Stock Unit Award (the "Notice of Grant") a Restricted Stock Unit award (the "Award") pursuant to the provisions of the TTM Technologies, Inc. 2023 Incentive Compensation Plan, as may be amended from time to time (the "Plan"). The Award will entitle Participant to shares of common stock of the Company (the "Shares") if Participant meets the vesting requirements described herein. Therefore, pursuant to the terms of the attached Notice of Grant and this Restricted Stock Unit Award Agreement (the "Agreement"), the Company grants Participant the number of Restricted Stock Units ("RSUs") listed in the Notice of Grant.

The details of the Award are as follows:

1. Grant Pursuant to Plan. This Award is granted pursuant to the Plan, which is incorporated herein for all purposes. Participant hereby acknowledges receipt of a copy of the Plan and agrees to be bound by all of the terms and conditions of this Agreement and of the Plan. All capitalized terms in this Agreement shall have the meaning assigned to them in this Agreement, or, if such term is not defined in this Agreement, such term shall have the meaning assigned to it under the Plan.

2. Restricted Stock Unit Award. The Company hereby grants to Participant the RSUs listed in the Notice of Grant as of the grant date specified in the Notice of Grant (the "Grant Date"). Such number of RSUs may be adjusted from time to time pursuant to Section 10(c) of the Plan.

3. Vesting and Forfeiture of Restricted Stock Units.

(a) Vesting. Participant shall become vested in the RSUs in accordance with the vesting schedule in the Notice of Grant, except as otherwise accelerated pursuant to Section 3(b) hereof.

(b) Acceleration of Vesting.

(i) Upon the consummation of a Change in Control during Participant's Continuous Service with the Company and its Related Entities, the RSUs shall become fully vested.

(ii) Upon the termination of Participant's Continuous Service by reason of Participant's death, Disability, resignation, or Retirement from the Board, or failure to be re-elected to the Board, in each case prior to the first anniversary date of the Grant Date specified in the Notice of Grant, Participant shall become vested in the number of RSUs equal to the product of (x) the number of RSUs subject to this Agreement multiplied by (y) a fraction equal to the number of whole months elapsed from the Grant Date until such termination of Continuous Service, divided by 12, rounded down to the nearest whole Share.

(c) Forfeiture. Participant shall forfeit any unvested RSUs, if any, in the event that Participant's Continuous Service is terminated for any reason, including a layoff or termination with or without Cause, except (i) as otherwise provided in this Agreement or the Plan or (ii) as otherwise determined by the Committee in its sole discretion, which determination need not be uniform as to all Participants. The Committee shall have the power and authority to enforce on behalf of the Company any rights of the Company under this Agreement in the event of Participant's forfeiture of the RSUs pursuant to this Section 3(c).

4. Settlement of Restricted Stock Unit Award.

(a) Settlement of Units for Shares. The Company shall deliver to Participant one share of common stock of the Company for each vested RSU subject of this Award on the appropriate Delivery Date (as defined in Section 4(b)). The Company shall not have any obligation to settle this Award for cash.

(b) Delivery Date. Subject to Section 4(c) below, Shares of common stock shall be delivered within thirty (30) days following Participant's Retirement from the Board.

(c) Deferral of Delivery. Notwithstanding the foregoing, Participant may elect, in writing received by the Committee at least twelve (12) months prior to a Delivery Date, to defer that date until any later date specified in such writing (which such date is at least five years after the original Delivery Date).

5. No Rights as Shareholder until Delivery. Participant shall not have any rights, benefits or entitlements with respect to any Shares subject to this Agreement unless and until the Shares has been delivered to Participant. On or after delivery of the Shares, Participant shall have, with respect to the Shares delivered, all of the rights of an equity interest holder of the Company, including the right to vote the Shares and the right to receive all dividends, if any, as may be declared on the Shares from time to time.

6. Tax Provisions.

(a) Tax Consequences. Participant has reviewed with Participant's own tax advisors the federal, state, local and foreign tax consequences of this investment and the transactions contemplated by this Agreement. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Participant understands that Participant (and not the Company) shall be responsible for any tax liability that may arise as a result of the transactions contemplated by this Agreement.

(b) Withholding Obligations. At the time the Award is granted, or at any time thereafter as requested by the Company, Participant hereby authorizes withholding from payroll and any other amounts payable to Participant, including Shares deliverable pursuant to this Award, and otherwise agrees to make adequate provision for, any sums required to satisfy the minimum federal, state, local and foreign tax withholding obligations of the Company or a Related Entity, if any, which arise in connection with the Award.

The Company, in its sole discretion, and in compliance with any applicable legal conditions or restrictions, may withhold from fully vested Shares otherwise deliverable to Participant upon the vesting of the Award a number of whole Shares having a Fair Market Value, as determined by the Company as of the date Participant recognizes income with respect to those Shares, not in excess of the amount of minimum tax required to be withheld by law (or such lower amount as may be necessary to avoid adverse financial accounting treatment). Any adverse consequences to Participant arising in connection with such Share withholding procedure shall be Participant's sole responsibility.

In addition, the Company, in its sole discretion, may establish a procedure whereby Participant may make an irrevocable election to direct a broker (determined by the Company) to sell sufficient Shares subject to the Award to cover the tax withholding obligations of the Company or any Related Entity and deliver such proceeds to the Company.

Unless the tax withholding obligations of the Company or any Related Entity are satisfied, the Company shall have no obligation to issue a certificate for such Shares.

(c) Compliance with Section 409A.

(i) It is the intention of both the Company and Participant that the benefits and rights to which Participant could be entitled pursuant to this Agreement comply with Section 409A of the Code and the Treasury Regulations and other guidance promulgated or issued thereunder ("Section 409A"), to the extent that the requirements of Section 409A are applicable thereto, and the provisions of this Agreement shall be construed in a manner consistent with that intention. If Participant or the Company believes, at any time, that any such benefit or right that is subject to Section 409A does not so comply, it shall promptly advise the other and shall negotiate reasonably and in good faith to amend the terms of such benefits and rights such that they comply with Section 409A (with the most limited possible economic effect on Participant and on the Company).

(ii) Neither the Company nor Participant, individually or in combination, may accelerate any payment or benefit that is subject to Section 409A, except in compliance with Section 409A and the provisions of this Agreement, and no amount that is subject to Section 409A shall be paid prior to the earliest date on which it may be paid without violating Section 409A.

(iii) For purposes of applying the provisions of Section 409A to this Agreement, each separately identified amount to which Participant is entitled under this Agreement shall be treated as a separate payment. In addition, to the extent permissible under Section 409A, any series of installment payments under this Agreement shall be treated as a right to a series of separate payments.

7. Consideration. With respect to the value of the Shares to be delivered pursuant to the Award, such Shares are granted in consideration for the services Participant shall provide to the Company during the vesting period.

8. Transferability. The RSUs granted under this Agreement are not transferable otherwise than by will or under the applicable laws of descent and distribution. In addition, the RSUs shall not be assigned, negotiated, pledged or hypothecated in any way (whether by operation of law or otherwise), and the RSUs shall not be subject to execution, attachment or similar process.

9. General Provisions.

(a) Employment At Will. Nothing in this Agreement or in the Plan shall confer upon Participant any right to Continuous Service with the Company or any Related Entity for any period of specific duration or interfere with or otherwise restrict in any way the rights of the Company (or any Related Entity employing or retaining Participant) or of Participant, which rights are hereby expressly reserved by each, to terminate Participant's Continuous Service at any time for any reason, with or without Cause.

(b) Notices. Any notice required to be given under this Agreement shall be in writing and shall be deemed effective upon personal delivery or upon deposit in the U.S. mail, registered or certified, postage prepaid and properly addressed to the party entitled to such notice at the address on file with the Company or at such other address as such party may designate by ten (10) days' advance written notice under this paragraph to all other parties to this Agreement.

(c) No Limit on Other Compensation Arrangements. Nothing contained in this Agreement shall preclude the Company from adopting or continuing in effect other or additional compensation arrangements, and those arrangements may be either generally applicable or applicable only in specific cases.

(d) Severability. If any provision of this Agreement is or becomes or is deemed to be invalid, illegal, or unenforceable in any jurisdiction or would disqualify this Agreement or the Award under any applicable law, that provision shall be construed or deemed amended to conform to applicable law (or if that provision cannot be so construed or deemed amended without materially altering the purpose or intent of this Agreement and the Award, that provision shall be stricken as to that jurisdiction and the remainder of this Agreement and the Award shall remain in full force and effect).

(e) No Trust or Fund Created. Neither this Agreement nor the grant of the Award shall create or be construed to create a trust or separate fund of any kind or a fiduciary relationship between the Company and Participant or any other person. The RSUs subject to this Agreement represent only the Company's unfunded and unsecured promise to issue Shares to Participant in the future. To the extent that Participant or any other person acquires a right to receive Shares from the Company pursuant to this Agreement, that right shall be no greater than the right of any unsecured general creditor of the Company.

(f) Cancellation of Award. If any RSUs subject to this Agreement are forfeited, then from and after such time, Participant (and any other person from whom such RSUs are forfeited) shall no longer have any rights to such RSUs or the corresponding Shares. Such RSUs shall be deemed forfeited in accordance with the applicable provisions hereof.

(g) Participant Undertaking. Participant hereby agrees to take whatever additional action and execute whatever additional documents the Company may deem necessary or advisable in order to carry out or effect one or more of the obligations or restrictions imposed on either Participant or the Shares deliverable pursuant to the provisions of this Agreement.

(h) Amendment, Modification, and Entire Agreement. No provision of this Agreement may be modified, waived or discharged unless that waiver, modification or discharge is agreed to in writing and signed by Participant and the Committee. This Agreement constitutes the entire contract between the parties hereto with regard to the subject matter hereof. This Agreement is made pursuant to the provisions of the Plan and shall in all respects be construed in conformity with the terms of the Plan. In the event of a conflict between the Plan and this Agreement, the terms of the Plan shall govern. Participant further acknowledges that as of the Grant Date, this Agreement and the Plan set forth the entire understanding between Participant and the Company regarding the acquisition of Shares pursuant to this Award and supersede all prior oral and written agreements on that subject with the exception of awards from the Company previously granted and delivered to Participant. No agreements or representations, oral or otherwise, express or implied, with respect to the subject matter hereof have been made by either party which are not set forth expressly in this Agreement.

(i) Governing Law. This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware without regard to the conflict-of-laws rules thereof or of any other jurisdiction.

(j) Interpretation. Participant accepts this Award subject to all the terms and provisions of this Agreement and the terms and conditions of the Plan. Participant hereby accepts as binding, conclusive and final all decisions or interpretations of the Committee upon any questions arising under this Agreement.

(k) Successors and Assigns. The provisions of this Agreement shall inure to the benefit of, and be binding upon, the Company and its successors and assigns and upon Participant, Participant's assigns and the legal representatives, heirs and legatees of Participant's estate, whether or not any such person shall have become a party to this Agreement and have agreed in writing to join herein and be bound by the terms hereof. The Company may assign its rights and obligations under this Agreement, including, but not limited to, the forfeiture provision of Section 3(c), to any person or entity selected by the Board.

(l) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

(m) Headings. Headings are given to the Paragraphs and Subparagraphs of this Agreement solely as a convenience to facilitate reference. The headings shall not be deemed in any way material or relevant to the construction or interpretation of this Agreement or any provision thereof.

10. Clawback of Benefits. The Company may (i) cause the cancellation of the RSUs, (ii) require reimbursement of any benefit conferred under the RSUs to Participant or Beneficiary, and (iii) effect any other right of recoupment of equity or other compensation provided under the Plan or otherwise in accordance with any Company policies that currently exist or that may from time to time be adopted or modified in the future by the Company and/or applicable law (each, a "Clawback Policy"). In addition, Participant may be required to repay to the Company certain previously paid compensation, whether provided under the Plan or an Award Agreement or otherwise, in accordance with any Clawback Policy. By accepting this Award, Participant agrees to be bound by any existing or future Clawback Policy adopted by the Company, or any amendments that may from time to time be made to the Clawback Policy in the future by the Company in its discretion (including without limitation any Clawback Policy adopted or amended to comply with applicable laws or stock exchange requirements) and further agrees that all of Participant's Award Agreements may be unilaterally amended by the Company, without Participant's consent, to the extent that the Company in its discretion determines to be necessary or appropriate to comply with any Clawback Policy.

11. Representations. Participant acknowledges and agrees that Participant has reviewed the Agreement in its entirety, has had an opportunity to obtain the advice of counsel prior to executing and accepting the Award and fully understands all provisions of the Award.

[Remainder of page is intentionally blank]

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first indicated above.

TTM TECHNOLOGIES, INC.

By: ______________________________

Thomas T. Edman
President and Chief Executive Officer

PARTICIPANT

By: ______________________________

«First_Name» «Middle_Initial» «Last_Name»

Exhibit 19

Insider Trading Policy

This Policy Statement applies to all officer and employees of TTM Technologies, Inc. (“TTM”) and all members of the Board of Directors of TTM. In the course of your employment or association with TTM, you are likely to use or have access to information about TTM that is not generally available to the public. Because of your relationship with TTM, you have certain responsibilities under the federal securities laws with respect to inside information. The purpose of this Policy Statement is to outline TTM’s policies regarding the protection of material, non- public information and trading and tipping, as well as the expected standards of conduct of TTM officers, directors, restricted employees and non-restricted employees with respect to these highly sensitive matters. This Policy Statement explains your obligations under the law and TTM’s policies. You should read this Policy Statement carefully and comply with the policy at all times.

This Policy Statement is organized as follows:

- Section I is a summary of this Policy Statement.
- Section II explains what inside information is and provides an overview of the penalties involved for insider trading.
- Section III contains our complete Policy Statement.
- Section IV is a certification you must complete.
- Annex A is a Memorandum that describes “Approved 10b5-1 Plans.”
- A list of FAQs on insider trading.

I. SUMMARY OF POLICY STATEMENT

To avoid the appearance of impropriety, all rules set forth in this Policy Statement will apply not only to you, but also to all members of your family who reside in the same household and any family members who do not live in your household but whose transactions regarding TTM securities are directed by you or are subject to your influence or control (referred to herein as “family members”).

TTM’s policy regarding securities trading can be summarized by the following important rules:

- You may not effect any transactions (sell, buy or exercise) in securities of TTM (or any other entity, such as a customer, supplier, possible acquisition target, or competitor of TTM) at any time that you possess material, non- public (what is described below as “inside”) information about TTM (or about such other entity), except as expressly permitted in this Policy Statement.

- You may not convey to any other person (“tip”) inside information regarding TTM (or any other entity).

- Assuming that you do not possess inside information concerning TTM, if you are an officer of TTM, a member of the Board of Directors of TTM, or a restricted employee (as defined below), you may effect transactions in securities of TTM *only* (a) during the period beginning 48 hours after the public release of TTM’s quarterly and annual earnings and ending four weeks before the end of TTM’s quarter (the “trading window”), and (b) after you have obtained prior approval from TTM’s Chief Financial Officer (“CFO”) or General Counsel (TTM’s CFO and the General Counsel must obtain approval from the Chief Executive Officer (“CEO”) for his or her own trades). However, such trading windows and pre-clearance will not be required with respect to transactions pursuant to a pre-existing plan or arrangement meeting the requirements described in Annex A (an “Approved 10b5-1 Plan”).

- The term “restricted employees” is defined to include TTM’s executive officers, senior vice presidents, treasurer, and corporate controller, as well as any other key employees designated by the CFO because such employees have access to inside or other information about TTM.

- You may not trade in any call or put option involving TTM securities or other derivative securities and you may not engage in any “short sales” of TTM securities, on an exchange, in any other organized market or otherwise. Standing orders in TTM securities should be used only for a very brief period of time.

- Because a margin or foreclosure sale may occur at a time when you are aware of inside information or otherwise not permitted to trade in TTM securities, which may, under some circumstances, result in unlawful insider trading, if you are an officer, a director or a restricted employee, you are prohibited from pledging TTM securities as collateral for a loan or otherwise holding TTM securities in such a manner that subjects such securities to a margin call or other involuntary sale of such securities by a broker or other person.

- If you are an officer, a director or a restricted employee, you must promptly report to the CFO any transaction in any of TTM's securities by you or any of your family members (other than transactions made pursuant to an Approved 10b5-1 Plan), using the form attached to this Policy Statement.

- You must promptly report to the CFO any transaction in TTM's securities by TTM personnel or disclosure of inside information by TTM personnel that you have reason to believe may violate this Policy Statement or securities laws.

- You must observe the foregoing policies and procedures at all times. Your failure to do so will be grounds for disciplinary action, up to and including dismissal.

In summary, every employee of TTM is subject to transactions restrictions when in possession of inside information regarding the Company. In addition, officers, directors, and restricted employees also are subject to the third bullet point above restricting their trading to window periods and requiring pre-clearance. The foregoing rules are only a summary of this Policy Statement. Attached to this Policy Statement is a list of Frequently Asked Questions on Insider Trading for your convenience. You must comply with all of the policies set forth below in <u>Section III</u>, which contains TTM's complete Policy Statement on inside information and insider trading.

II. <u>INSIDE INFORMATION; PENALTY FOR INSIDER TRADING</u>

A. What is Inside Information?

"Inside" information is material information about TTM that is not available to the public. Information generally becomes available to the public when it has been disclosed by TTM or third parties in a press release or other public statement, including any filing with the Securities and Exchange Commission (the "SEC"). In general, information is considered to have been made available to the public48 hours after the formal release of the information. In other words, there is a presumption that the public needs 48 hours to receive and absorb such information.

B. What is Material Information?

As a general rule, information about TTM is material if it could reasonably be expected to affect someone's decision to buy, hold, or sell TTM's securities. For example, information generally is considered to be "material" if its disclosure to the public would be reasonably likely to affect (1) an investor's decision to buy or sell the securities of the company to which the information relates, or (2) the market price of that company's securities. While it is not possible to identify in advance all information that will be deemed to be material, some examples of such information would include the following: earnings; dividend actions; mergers and acquisitions; major dispositions; major new customers, projects or products; significant advances in research; major personnel changes; labor negotiations; unusual gains or losses in major operations; and major marketing changes.

It can sometimes be difficult to know whether information would be considered "material." The determination of whether information is material is almost always clearer after the fact, when the effect of that information on the market can be quantified. Although you may have information about TTM that you do not consider to be material, federal regulators and others may conclude (with the benefit of hindsight) that such information was material. Therefore, trading in TTM securities when you possess non-public information about TTM (even if you think it is not material) can be risky. When doubt exists, the information should be presumed to be material. If you are unsure whether information of which you are aware is inside information, you should consult with TTM's CFO.

C. What are the Penalties for Insider Trading?

Trading on inside information is a crime. The seriousness of insider trading is reflected in the penalties that it carries. TTM and its officers, directors or employees may be liable. If an individual officer's, director's or employee's insider trading is found to be a violation of SEC insider trading rules, he or she may be subject to severe consequences, including the possibility of multi-million dollar penalties and multi-year imprisonment.

The SEC also has the authority to seek a civil monetary penalty of up to three times the amount of the profit gained or loss avoided as a result of an individual's insider trading. The SEC may also impose control person liability on TTM that can result in millions in damages (for instance, damages can be based on a multiple of the amount of profit gained or loss avoided by insider trading). "Profit gained" or "loss avoided" is defined as the difference between the purchase or sale price of the security and its value as measured by the trading information. The SEC is authorized to pay awards based on a significant percentage of the amounts imposed on violators as a penalty to persons who provided the information leading to the imposition of such penalty. In addition to civil penalties, the SEC may seek other relief such as an injunction against future violations and disgorgement of profits resulting from illegal trading. Finally, private parties may bring actions against any person purchasing or selling a security while in the possession of inside information.

Any officer, director, or employee who violates the prohibitions against insider trading or knows of such violation by any other persons must report the violation immediately to the CFO. Upon learning of any such violations, TTM will determine whether it should publicly release any inside information or whether TTM should report the violation to the appropriate governmental authority.

The SEC, the Department of Justice and the Financial Industry Regulatory Authority have committed large staffs, computer investigative techniques, and other resources to the detection and prosecution of insider trading cases. Criminal prosecution and the imposition of fines and/or imprisonment is commonplace.

In addition to the legal penalties summarized above, if you violate this Policy Statement, you may be subject to disciplinary action by TTM, up to and including dismissal.

For all of these reasons, both you and TTM have a significant interest in ensuring that insider trading is scrupulously avoided.

D. How Should Material Information be Safe Guarded?

Before material information relating to TTM or its business has been disclosed to the general public, it must be kept in strict confidence. Such information should be discussed only with persons who are employed by or represent TTM who have a "need to know" and should be confined to as small a group as possible. The utmost care and circumspection must be exercised at all times. Therefore, conversations in public places, such as elevators, restaurants, and airplanes, as well as conversations on mobile phones, should be limited to matters that do not involve information of a sensitive or confidential nature. In addition, you should not transmit confidential information through the Internet or any electronic mail system that is not secure.

To ensure TTM's confidences are protected to the maximum extent possible, no individuals other than specifically authorized personnel may release material information to the public or respond to inquiries from the media, analysts, or others outside TTM. If you are contacted by the media or by an analyst seeking information about TTM and if you have not been expressly authorized by TTM's CEO or CFO to provide information to the media or to analysts, you should refer the call to one of these senior officers.

In addition, to avoid improper conduct or the appearance of impropriety, officers, directors and restricted employees will be prohibited by TTM from transacting in TTM's securities during times when TTM is most likely to have inside information available (i.e., outside of TTM's trading windows). - - These blackout periods are imposed because these persons generally have access to a range of financial and other sensitive information about TTM. Finally, as and when circumstances require, the CFO will implement additional blackout periods applicable to other employees who are asked to work on sensitive projects or transactions, or who gain access to inside information in connection with a specific project or transaction. These trading windows and blackout periods will not apply to transactions under Approved 10b5-1 Plans.

On occasion, it may be necessary for legitimate business reasons to disclose inside information to persons outside of TTM. Such persons might include commercial bankers, investment bankers, or other companies seeking to engage in a joint venture with TTM, or a merger, or a common investment or other joint goal. In such circumstances, the information should not be conveyed until an express understanding has been reached that such information is not to be used for trading purposes and may not be further disclosed other than for legitimate business reasons.

III. STATEMENT OF POLICY

1. For purposes of this Policy Statement, all references to “you” shall mean you, as well as any family members who reside in the same household as you and any family members who do not live in your household but whose transactions regarding TTM securities are directed by you or are subject to your influence or control.

2. You may not transact in the securities of TTM (or any other company, such as a customer, supplier, possible acquisition target, or competitor) when you are in possession of inside information concerning TTM (or such other company) or during a blackout period (as defined below). The insider trading rules apply both to securities purchases (to make a profit based on good news) and securities sales (to avoid a loss based on bad news) regardless of how or from whom the inside information has been obtained.

3. If you are an officer, a director or a restricted employee, you may trade in securities of TTM only (a) during the trading window, and (b) after you have obtained prior approval from the CFO or his designee for such transaction (the CFO must obtain approval from the CEO for his or her own trades). A form of Request for Approval to Transact in the Securities of TTM is attached for your convenience. Of course, even if you receive approval, you may make such transactions only so long as you are not trading in violation of the policy set forth in paragraph 2 above.

4. TTM from time to time may impose a trading freeze on all officers, directors, and restricted employees due to significant unannounced corporate developments. These trading freezes, known as “blackout periods,” may vary in length.

5. The prohibitions on transacting in securities of TTM and the prior approval requirements set forth above shall not apply to transactions made pursuant to an Approved 10b5-1 Plan (although such prohibitions and requirements are applicable to the adoption of the plan itself). In addition and for purposes of clarification, such prohibitions and requirements shall not apply to:

- The vesting of restricted stock units (“RSUs”), performance shares, or other similar equity instruments, or the related forfeiture of shares of stock to satisfy tax withholding or other regulatory requirements upon the vesting of any such equity instruments (provided, however, that such prohibitions and requirements do apply to any market sale of the shares of TTM common stock (for tax reasons or otherwise) that are issued upon the vesting of such RSUs, performance shares, or other similar equity instruments often referred to as “sell to cover” taxes).

- The exercise for cash of an employee stock option acquired pursuant to TTM’s plans (provided, however, that such prohibitions and requirements do apply to any sale of stock as part of a broker-assisted cashless exercise of an option, any other market sale for the purpose of generating the cash needed to pay the exercise price of an option, or any sale of shares acquired upon the exercise of an option).

6. You may not convey (or “tip”) inside information to any other person by providing them with inside information regarding TTM or assisting them in any way. The concept of unlawful tipping includes passing on such information to friends, family members or acquaintances under circumstances that suggest that you were trying to help them make a profit or avoid a loss. You may, of course, provide such information to other TTM employees or representatives on a “need to know” basis in the course of performing your job with TTM.

7. All inquiries for information about TTM from any representative of the press or other media, an analyst, or other persons outside of TTM (other than routine customer and vendor inquiries) must be directed to the CEO or CFO.

8. Because of the complexity of reporting puts, calls, derivatives, and short sales as well as the difficulty of ensuring that these types of transactions are managed in accordance with applicable securities laws and this Policy Statement, you may not engage in these types of transactions involving TTM’s securities.

9. Standing orders should be used only for a very brief period of time. A standing order placed with a broker to sell or purchase stock at a specified price leaves you with no control over the timing of the transaction.

A standing order transaction executed by the broker when you are aware of inside information may result in unlawful insider trading.

10. Securities held in a margin account or pledged as collateral for a loan may be sold without your consent by the broker if you fail to meet a margin call or by the lender in a foreclosure sale if you default on the loan. A margin or foreclosure sale that occurs when you are aware of inside information or otherwise are not permitted to trade in TTM securities may, under some circumstances, result in unlawful insider trading. Therefore, if you are an officer, a director, or a restricted employee, you are prohibited from pledging TTM securities as collateral for a loan or otherwise holding TTM securities in such a manner that subjects such securities to a margin call or other involuntary sale of such securities by a broker or other person.

11. Certain forms of hedging or monetization transactions, such as zero-cost collars and forward sale contracts, involve the establishment of a short position in TTM's securities and limit or eliminate your ability to profit from an increase in the value of TTM's securities. Therefore, you are prohibited from engaging in any hedging or monetization transactions involving TTM securities.

12. This Policy Statement continues to apply to your transactions in TTM securities even after you have terminated employment or other services to TTM or a subsidiary for a period of 6 months following the termination of services for TTM.

13. If you are an officer, a director or a restricted employee, you must promptly report to the CFO any transaction in any of TTM's securities by you or any of your family members (other than transactions made pursuant to an Approved 10b5-1 Plan), using the form attached to this Policy Statement.

14. You must promptly report to the CFO any transactions in TTM's securities by TTM personnel or disclosure of inside information by TTM personnel that you have reason to believe may violate this Policy Statement or the securities laws of the United States.

15. You must observe the foregoing policies and procedures at all times. Your failure to do so will be grounds for disciplinary action, up to and including dismissal.

IV. CERTIFICATION

You must sign, date, and return the attached Certification stating that you received TTM's Policy Statement regarding insider trading and the preservation of the confidentiality of inside information and related procedures, and you agree to comply with it. Please note that you are bound by the Policy Statement whether or not you sign the Certification.

CERTIFICATION

I hereby certify that I:

a. have read and understand the Policy Statement on Inside Information and Insider Trading for Officers, Directors, Restricted Employees and Non-Restricted Employees and related procedures, a copy of which was distributed with this Certificate;

b. have complied with the foregoing policy and procedures;

c. will continue to comply with the policy and procedures set forth in the Policy Statement;

d. will request prior approval of all proposed transactions of securities of TTM as required by the Policy Statement (whether through the attached request for approval to trade form or an Approved 10b5-1 Plan); and

e. if I am an officer, a director, or a restricted employee, I will report all transactions in securities of TTM by me or any of my family members in writing (using the form attached to this Policy Statement); provided that I understand that I am not required to report any transaction made pursuant to my Approved 10b5-1 Plan).

Signature: ______________________________

Name: ______________________________
(Please print)

Title: ______________________________

Date: ______________________________

Request for Approval to Transact
In the Securities of TTM Technologies, Inc.

To: Chief Financial Officer

From: ______________________________
(Print Name)

I hereby request approval for myself (or a member of my immediate family or household or a family member whose transactions regarding TTM securities are directed by me or are subject to my influence or control) to execute the following transaction relating to the securities of TTM Technologies, Inc.

Type of transaction (check one):

- ☐ PURCHASE
- ☐ SALE
- ☐ EXERCISE OPTION (AND SELL SHARES)
- ☐ OTHER (INCLUDING GIFTS)

Securities involved in transaction: ______________________________

Number of shares: ______________________________

Other (please explain): ______________________________

Name of beneficial owner if other than yourself: ______________________________

Relationship of beneficial owner to yourself: ______________________________

Signature: ______________________________ Date: ______________________________

This Authorization is valid until the earlier of thirty (30) calendar days after the date of this Approval or until the commencement of a “blackout” period.

Approved by: ______________________________

Name: ______________________________

Date: ______________________________ Time: ______________________________

Notice of Completed Transaction
in the Securities of TTM Technologies,

(To be submitted promptly and in no event later than 7 days after completion of the transaction)

To: Chief Financial Officer

From: ______________________________
(Print Name)

I hereby inform you of the following completed transaction relating to the securities of TTM Technologies, Inc.

Type of transaction (check one):

- ☐ PURCHASE
- ☐ SALE
- ☐ EXERCISE OPTION (AND SELL SHARES)
- ☐ OTHER (INCLUDING GIFTS)

Securities involved in transaction: ______________________________

Date of transaction: ______________________________

Number of shares: ______________________________

Other (please explain): ______________________________

Name of beneficial owner if other than yourself: ______________________________

Relationship of beneficial owner to yourself: ______________________________

Signature: ______________________ Date: ______________________

<u>**ANNEX A**</u>

MEMORANDUM

TO: Officers, Directors and Restricted Employees subject to the Company's Insider Trading Policy Re:SEC Rule 10b5-1 Trading Arrangements

SEC Rule 10b5-1 protects officers and directors from insider trading liability under Rule 10b-5 for transactions under a previously established contract, plan or instruction. The rule presents an opportunity for insiders to establish arrangements to transact in (sell, buy or exercise) company stock without the sometimes arbitrary restrictions imposed by windows and blackout periods—even when there is undisclosed material information. Such 10b5-1 arrangements may include blind trusts, other trusts, pre- scheduled stock option exercises and sales, pre-arranged trading instructions, and other brokerage and third party arrangements. A well-conceived program might also help reduce negative publicity that can result when key executives sell. But there can be pitfalls.

Potential Pitfalls

First, the arrangement must satisfy the requirements of Rule 10b5-1. See the "Approved 10b5-1 Plans" Section below for details.

Secondly, Rule 10b5-1 only provides an "affirmative defense" (which must be proven) in the event there is an insider trading lawsuit. It does not prevent someone from bringing a lawsuit. And, it does not prevent the media from writing about the sales.

The Company's Insider Trading Policy permits transactions that comply with Rule 10b5-1. The company does not want to impede your ability to engage in sales of company stock (e.g., for financial and estate planning purposes). However, in order to reduce the risk of litigation and bad press, and to preserve the hard-earned good name of our company and our people, we have adopted procedural requirements that are essentially an extension of the company's current pre-clearance procedure for transactions in company stock:

The company must pre-approve any plan, arrangement or trading instructions, etc. involving potential sales (or purchases) of stock or option exercises and sales, etc. (including, but not limited to, blind trusts, discretionary accounts with banks or brokers, limit orders, hedging strategies, etc.). You must still adhere to this prior approval procedure even when, for example, you are assured that a major law firm has blessed the trading arrangement that a brokerage firm or bank may be suggesting. (Note that the actual transactions effected pursuant to a pre-approved plan will <u>not</u> be subject to the company's blackout periods or pre- clearance procedures for transactions in company stock.)

We will want to:

1. <u>Review Proposed Arrangement</u>. We must satisfy ourselves that the arrangement will not place the company's good name or yours in jeopardy.

2. <u>Add Additional Safeguards</u>. To reduce exposure, we will need to make sure, for example, that at the time you enter into an arrangement (or at any time that you wish to terminate or modify a prior instruction or plan), there is no material information about the company that has not been publicly disclosed. If there is undisclosed information (even if you aren't aware of it), you would need to wait until that information has been disclosed. It may also be advisable that there be an interval between establishment of the plan and the first transaction. In general, the plans should also be established only during the company's released trading window periods (the period beginning 48 hours after the public release of the company's earnings and ending four weeks before the end of each quarter).

3. <u>Consider a Public Announcement</u>. We will consider in each case whether public announcement of a trading plan should be made (via press release, web site, etc.). In addition, when applicable, a statement should be included in your Forms 4 and 144 indicating that sales are pursuant to a pre-existing plan.

4. <u>Establish Section 16, Rule 144, etc. Procedures with Parties</u>. Also, we will need to establish a procedure with whomever is handling your transactions to ensure:

a. Prompt filings of SEC Form 4 after transactions take place. Failure to file on time results in unwanted proxy statement disclosure of filing violations by the selling executive or director;

b. Compliance with SEC Rule 144 at the time of any sale; and

c. Cessation of any sales during the pendency of material transactions or any other period when a lock-up is imposed on insiders.

Some of the Opportunities

A pre-arranged trading program (in which your instructions are irrevocable), properly structured, can be a safer way to insulate officers and directors from potential insider trading liability than our current system of trading windows and blackout periods.

An Ongoing Periodic Sale Program

With a trading plan, for example, it becomes clearer to the investing public (and potential plaintiffs) that your sales are simply part of a pre-established plan and are not being prompted by your knowledge of current developments within the company, or your feelings about the company's prospects. Indeed, for some executives who may have been reluctant to sell any stock for fear of the message it might send to the market, Rule 10b5-1 may well present an opportunity to establish an acceptable diversification program. Pre-arranged sales over a period of time would also reduce any argument by a plaintiff's attorney that there was incentive at a particular time for the company to manipulate earnings or disclosures in connection with a key executive's sale.

Stock Option Exercises and Sales

A program could include instructions for periodic exercise/same-day sales of your stock options, which could be conditioned on a minimum stock price established in your instructions. For example, you could specify that sales be limited to the number of shares necessary to cover the option exercise price and taxes dues.

Discretionary Accounts

A true discretionary account (like a blind trust where the trustee has complete discretion) should satisfy Rule 10b5-1. While discretionary accounts might work in theory, the company would not be inclined to approve such an arrangement where the broker has a close relationship with the executive/client that could undermine the affirmative defense in the event of litigation.

Pledging Company Stock to Secure Margin or Other Loans

Problems often arise when there is a margin maintenance call and the broker seeks to liquidate the collateral, or there is a default on a loan and the lender seeks to foreclose on collateral. Because a margin or foreclosure sale may occur at a time when you are aware of inside information or otherwise not permitted to trade in TTM securities, if you are an officer, a director, or a restricted employee, you are

prohibited from pledging TTM securities as collateral for a loan or otherwise holding TTM securities in such a manner that subjects such securities to a margin call or other involuntary sale of such securities by a broker or other person.

Put and Call Options and Other Hedging Transactions

Engaging in put and call options and other hedging instructions involving company stock is prohibited. Those types of transactions can send a poor message to the marketplace about your belief in, and commitment to, the company's future.

Approved 10b5-1 Plans

A trading plan established by an officer, director or restricted employee (a "Plan Eligible Person") shall be deemed to be an "Approved 10b5-1 Plan" for purposes of the Policy Statement only if it is pre-approved by the CFO and it further meets the requirements and restrictions set forth below:

1. The plan document must specify the number of shares to be purchased or sold, the price(s) at which the transaction(s) are to take place, and the date(s) on which transaction(s) are to take place (alternatively, the plan may establish an objective formula for any or all of these criteria (e.g., the number of shares could be specified as a percentage of the holdings of the Plan Eligible Person).

2. The plan must be established at a time when the Plan Eligible Person is not aware of any Material Nonpublic Information.

3. A Plan Eligible Person may not adopt overlapping plans absent limited circumstances and the prior approval of the CFO.

4. Each Plan Eligible Person must represent that any plan was entered into in good faith and not as part of a plan or scheme to evade the prohibitions of the securities laws, including, without limitation, Rule 10b5-1 promulgated under the Securities Exchange Act of 1934, as amended, and that such Plan Eligible Person will act in good faith with respect to the plan at all times during the effectiveness of such plan.

5. Once a plan is established, transactions may not be affected under the plan until the expiration of a 30-day period after adoption of the plan; provided, however, directors and officers may not effect transactions pursuant to a plan until the expiration of a period consisting of the later of (i) 90 days after the adoption of the plan or (ii) two (2) business days following disclosure of the Company's financial results relating to the quarter in which the plan was adopted, not to exceed 120 days; provided, further, in addition to the requirements in clause (7) below, any modification to an existing plan shall be treated as a cancellation of such plan and the adoption of a new plan which is subject to the restricted periods set forth in this clause (5).

6. Once a plan is established, the Plan Eligible Person may not engage in any separate transaction which directly or indirectly alters or offsets an authorized transaction made under the plan (e.g., a hedging transaction).

7. Once a plan is established, any change or deviation to, or termination of, the plan shall (i) require approval of the CFO, (ii) be made only during an open trading window, and (iii) be effective thirty (30) calendar days from the date of the modification and, in the case of a proposed change or deviation to any one or more of (x) the amount of shares covered by the plan, (y) the price at which shares are proposed to be traded under the plan, or (z) the date or dates on which trades are to be executed under the plan, will be treated as a new plan and be subject to the requirements of clause (5) above, before such changes or deviations may take effect.

8. A plan may be terminated prior to the stated termination date of the plan only with the prior approval of the CFO. Any replacement plan shall be put into effect in accordance with the provisions of this policy, subject to the restricted periods prescribed in clause (5) above.

A Final Word

There will be ongoing interpretations of what can and cannot be done. Needless to say, some brokers, investment bankers and advisors may approach you suggesting a variety of arrangements. Please do not forget: Our prior approval is essential. If you have any questions, please contact our CFO.

Frequently Asked Questions on Insider Trading

Transactions Subject to the Policy

Does the policy apply only to trades in TTM common stock?

No. The policy also applies to any “equity equivalent” for TTM common stock. This includes traded options (puts or calls) and any other security whose market value is tied to the value of TTM common stock, such as convertible notes. In addition, this policy applies to the securities of TTM's customers, suppliers, possible acquisition targets, and competitors.

Does the policy apply to the exercise of employee stock options?

The exercise of employee stock options is exempt from the insider trading policy, because the exercise price of an option is fixed at the time of grant and does not fluctuate with the market. As a result, you may always adopt an “exercise and hold” strategy. However, the sale of the underlying stock is subject to the policy. Thus, the use of TTM stock to pay the exercise price of an option and a “cashless exercise” of an option are also subject to the policy,

Can I trade in options or other derivative securities involving TTM securities, or “sell short” TTM securities?

No. Trading in options or other derivative securities involving TTM securities is prohibited. The options we are referring to are “put” and “call” options, whether or not market-traded, and any similar instruments, and not the employee stock options granted to you by TTM. In addition, you may not engage in any “short sales” of TTM securities.

Tipping

What is tipping?

Tipping refers to the transmission of inside information from an insider to another person. Sometimes this involves a deliberate conspiracy in which the tipper passes on information in exchange for a portion of the “tippee’s” illegal trading profits. Even if there is no expectation of profit, however, a tipper can have liability if he or she has reason to know that the information may be misused. Tipping inside information to another person is like putting your life in that person’s hands. The safest choice is: Don’t.

Materiality

I know all sorts of things about TTM. How do I know what’s “material”?

The Supreme Court says that information is material if a reasonable investor would consider it important in deciding whether to buy or sell a security. At TTM, we have determined that our quarterly earnings information is generally material. Other information -- acquisitions, new product announcements, etc. -- is evaluated by management on a case-by-case basis but could include the following:

- Significant changes in financial results and/or financial condition and financial projections;
- News of major new contracts, technological breakthroughs or possible loss of business;
- Dividends or stock splits or changes in business;
- Changes in management or control;
- Significant mergers, acquisitions, reorganizations, dispositions of assets or joint ventures;
- Changes in research and development funding or policy;
- Significant litigation developments;
- Significant increases or decreases in the amount of outstanding securities or indebtedness;
- Transactions with officers, directors, or principal security holders; and
- The granting of stock options or units or payment of other compensation to officers or directors.

Both positive and negative information can be material. If you are at all unsure about whether you have material information, the safe approach is to not disclose such information and first discuss it with TTM's CFO.

Other Considerations

The Policy prohibits trading in the securities of TTM’s customers, suppliers, potential acquisition targets, competitors and other companies while in possession of inside information about TTM or such other company. Will I be asked to sell shares I hold in these companies?

No. This is a trading restriction, not an ownership restriction. The Policy only prohibits <u>transactions</u> in the securities of TTM’s customers, suppliers, potential acquisition targets, and competitors. If you are privy to information and such information is not public knowledge, you should not transact in the securities of the other company until 48 hours after the information has been announced.

You will not be required to sell securities of a corporation that you hold at any time simply because TTM establishes a relationship or otherwise commences negotiations with that company.

My spouse is employed by a publicly-traded corporation and we own stock in my spouse’s employer. Does the Policy prohibit us from trading in stock of my spouse’s employer?

The Policy would not prohibit you or your spouse from trading in securities of your spouse’s employer, unless TTM is at that time engaged in negotiations with your spouse’s employer to which you or your spouse are privy. However, you should carefully review the insider trading policy of your spouse’s employer to be sure that you are complying with both policies in all of your trades. Furthermore, you should <u>never</u> trade in the securities of any company while in possession of inside information about such company.

Enforcement Practices

I only own a few hundred shares. The SEC doesn’t go after small fish like me, right?

Wrong. The SEC has prosecuted numerous cases involving relatively small amounts of money.

If I pass information to others but don’t trade myself, no one will be able to figure it out, right?

Wrong again. The SEC has sophisticated and ingenious methods for identifying unusual trading patterns and tracing them to their source. They have the ability to subpoena telephone records, bank and brokerage statements, personal files, electronic mail files, and anything else that may help them to make a case. Whether it’s your second cousin in New Jersey or your college roommate’s stepfather, the SEC has the resources to establish the connection to you.

Further Information

Who should I contact if I have questions regarding our insider trading policy?

Please contact TTM’s CFO.

Where do I go for the most current version of the insider trading policy?

The insider trading policy can be found on TTM’s intranet site.

Exhibit 21.1

LIST OF SUBSIDIARIES OF
TTM TECHNOLOGIES, INC.

Name of Subsidiary	State/Country of Incorporation
TTM Technologies (Asia Pacific) Limited	Hong Kong
TTM Technologies Cayman Limited	Cayman Islands
TTM Technologies International Limited	Cayman Islands
Meadville Aspocomp (BVI) Holdings Limited	British Virgin Islands
Asia Rich Enterprises Limited	British Virgin Islands
Aspocomp Electronics India Private Limited	India
TTM Technologies China Limited	Hong Kong
OPC Manufacturing Limited	Hong Kong
TTM Technologies Trading (Guangzhou) Co., Ltd.	China
Dongguan Meadville Circuits Limited	China
TTM Technologies North America, LLC	Delaware
Wirekraft Industries, LLC	Delaware
TTM Technologies Europe Limited	United Kingdom
TTM Technologies Toronto, Inc.	Ontario
TTM Technologies Trading (Asia) Company Limited	Hong Kong
TTM Services (Singapore) PTE Ltd.	Singapore
Merix Printed Circuits Technology Limited	China
TTM Technologies Services (BVI) Limited	British Virgin Islands
Viasystems Asia Pacific Company Limited	Hong Kong
TTM Technologies (Hong Kong) Co., Ltd.	Hong Kong
TTM Technologies Shared Services (Guangzhou) Co. Ltd.	China
TTM Technologies International (Switzerland) GmbH	Switzerland
Viasystems EMS (Shenzhen) Co. Ltd.	China
Shanghai Viasystems EMS Co. Ltd.	China
Guangzhou Termbray Electronics Technologies Company Limited	China
Kalex Multilayer Circuit Board (Zhongshan) Ltd.	China
Metropole A Limited	Hong Kong
Metropole B Limited	Hong Kong
Anaren, LLC	Delaware
Anaren Ceramics, Inc.	New Hampshire
Anaren Communication (Suzhou) Co. Ltd.	China
Anaren GP, Inc.	New York
Anaren Microwave, Inc.	Delaware
Unicircuit, Inc.	Colorado
TTM Technologies Japan Kabushiki Kaisha	Japan
TTM Printed Circuit Group, LLC	Delaware
TTM Technologies Malaysia SDN. BHD.	Malaysia
Telephonics Corporation	Delaware
ISC Farmingdale Corporation	New York
TTM Technologies Tel Aviv Ltd.	Israel
TTM RF & Specialty Components, LLC	Delaware

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the registration statements (Nos. 333-46454, 333-138219, 333-198117, 333-211744, and 333-272490) on Form S-8 of our report dated February 21, 2025, with respect to the consolidated financial statements of TTM Technologies, Inc. and the effectiveness of internal control over financial reporting.

/s/ KPMG LLP

Irvine, California
February 21, 2025

Exhibit 31.1

CERTIFICATION

I, Thomas T. Edman, certify that:

1. I have reviewed this annual report on Form 10-K of TTM Technologies, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Thomas T. Edman

Thomas T. Edman
President and Chief Executive Officer
(Principal Executive Officer)

February 21, 2025

Exhibit 31.2

CERTIFICATION

I, Daniel L. Boehle, certify that:

1. I have reviewed this annual report on Form 10-K of TTM Technologies, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Daniel L. Boehle

Daniel L. Boehle
Executive Vice President and Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

February 21, 2025

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of TTM Technologies, Inc. (the “Company”) for the year ended December 30, 2024, as filed with the Securities and Exchange Commission (the “Report”), I, Thomas T. Edman, President and Chief Executive Officer of the Company, certify, to the best of my knowledge, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o(d)); and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Thomas T. Edman

Thomas T. Edman
President and Chief Executive Officer
(Principal Executive Officer)

February 21, 2025

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of TTM Technologies, Inc. (the "Company") for the year ended December 30, 2024, as filed with the Securities and Exchange Commission (the "Report"), I, Daniel L. Boehle, Executive Vice President and Chief Financial Officer of the Company, certify, to the best of my knowledge, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o(d)); and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Daniel L. Boehle

Daniel L. Boehle
Executive Vice President and Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

February 21, 2025