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# TTM Technologies, Inc. (TTMI) Q2 2023 Earnings Call Transcript

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## Q2: 2023-08-02 Earnings Summary

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EPS of $0.32 beats by $0.12 | Revenue of $546.51M (-12.64% Y/Y) misses by $6.14M

TTM Technologies, Inc. (NASDAQ:TTMI) Q2 2023 Earnings Conference Call August 2, 2023 1:00 PM ET

**Company Participants**

Sameer Desai - Senior Director, Corporate Development & IR

Thomas Edman - President and CEO

Todd Schull - EVP and CFO

**Conference Call Participants**

William Stein - Truist Securities

Matt Sheerin - Stifel

Griffin Boss - B. Riley Securities

Jim Ricchiuti - Needham & Co

**Operator**

Good afternoon, ladies and gentlemen. Thank you for standing by. Welcome to the TTM Technologies Second Quarter Fiscal 2023 Financial Results Conference Call. During today's presentation, all parties will be in a listen-only mode. Following the presentation, the conference will be open for questions. [Operator Instructions] As a reminder, this conference is being recorded today, August 2, 2023.

I would now like to turn the call over to Sameer Desai, TTM's Vice President of Corporate Development and Investor Relations, to review TTM's disclosure statement. Mr. Desai, the floor is yours.

**Sameer Desai**

Thank you, Sheri. Before we get started, I would like to remind everyone that today's call contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements related to TTM's future business outlook. Actual results could differ materially from these forward-looking statements due to one or more risks and uncertainties, including the factors explained in our most recent annual report on Form 10-K and our other filings with the Securities and Exchange Commission.

These forward-looking statements are based on management's expectations and assumptions as of the date of this presentation. TTM does not undertake any obligation to publicly update or revise any of these statements, whether as a result of new information, future events or other circumstances, except as required by law.

Please refer to the disclosures regarding the risks that may affect TTM, which may be found in reports on Form 10-K, 10-Q, 8-K, the registration statement on Form S-4 and the company's other SEC filings. We will also discuss on this call certain non-GAAP financial measures such as adjusted EBITDA. Such measures should not be considered as a substitute for measures prepared and presented in accordance with GAAP, and we direct you to the reconciliation of non-GAAP to GAAP measures included in the company's press release, which was filed with the SEC and is available on TTM's website at www.ttm.com. We've also posted on our website a slide deck that we will refer to during our call.

I will now like to turn the call over to Tom Edman, TTM's Chief Executive Officer. Please go ahead, Tom.

**Thomas Edman**

Thank you, Sameer. Good afternoon. And thank you for joining us for our second quarter fiscal year 2023 conference call. First of all, I want to address the release which went out this morning announcing Todd's intent to retire from TTM. As many of you know, Todd and I have spent our career at TTM together, since 2013 driving this business forward. I could not have asked for a better partner during that time. I speak on behalf of the Board and executive team at TTM. In thanking Todd for his tremendous dedication and service to TTM. I've always been able to count on Todd to have his fingers on the pulse of our business. Well prudently managing our balance sheet and optimizing our financials. Plus, he has been a real friend to the executive team members and myself.

Todd has agreed to hold off his retirement a bit until the end of the year as we transition to Dan Bailey to be a successor. I do also want to welcome Dan Bailey to TTM. On the heels of the successful sale of Aerojet Rocketdyne to L3Harris. Dan brings tremendous CFO experience and defense industry experience expertise to TTM.

As we map our strategic direction towards building our A&D business, from 47% of our revenues, where it stood at the end of Q2, to an over 50% contribution in the future. It was critical to us that we continue to build a management team with a strong understanding of defense industry dynamics. I am confident that with Dan joining our team, we will have added yet another strong, knowledgeable and ethical leader to our executive team.

With that, let's move on to the discussion of the quarter. I'll begin with a review of our business highlights from the quarter and a discussion of our second quarter results followed by a summary of our business strategy. Todd Schull will follow with an overview of our Q2 2023 financial performance and our Q3 2023 guidance. We will then open the call to your questions. The quarter's results are also shown on Slide four of the investor presentation posted on TTMs website.

In the second quarter of 2023 revenues were within guided range due to continued strength in the aerospace and defense end market, and better than expected results from our data center computing end market. These two markets offset lower than expected results from our medical, industrial and instrumentation and automotive end markets. Non-GAAP EPS was well above the guided range as a result of improved mix and operational execution, particularly in North America PCB operations.

Demand in our aerospace and defense market remains strong with continued record backlog offset by weaker demand in some of our commercial end markets. As we look into Q3, we see a mixed picture in our commercial markets. With sequential growth in our data center computing, and MI&I markets, stability in the automotive market and a continued decline in the networking market. Demand remains strong in our A&D market, which now represents 47% of our revenues.

I would now like to provide a strategic update. TTM is on a journey to transform our business to be less cyclical and more differentiated. Over the past several years. TTM has consistently emphasized that a key part of our strategy is to add value to the product solutions that we deliver to our customers, particularly in the aerospace and defense market. In 2018, we acquired Anaren, which broadened TTMs product portfolio into highly engineered RF components and sub-assemblies, as well as adding critical RF engineering capability and resources.

In 2022, we acquired Telephonics which builds on Anaren and TTMs customer driven culture and disciplined approach to engineering and manufacturing. The addition of Telephonics expands TTMs aerospace and defense product offering vertically into higher level engineered system solutions and horizontally into the surveillance and communications markets, while strengthening our position in radar systems. As a result of these strategic moves, over 50% of A&D revenues are from engineered and integrated electronic products, with PCBs being less than 50% of the overall contribution.

Since January, our A&D sector has been operating with two business units, radar, and C4Isr + Space. Our objective with this new organization has been to align our businesses with the critical program priorities of our customer base. I'm excited to see this new organization take shape as a critical piece of our strategy.

Another important element of our differentiation strategy is the current construction of a new state-of-the art highly automated PCB manufacturing facility in Penang, Malaysia. The decision to build this new factory as a direct response to our customers increasing concerns about supply chain resiliency, and regional diversification. And in particular, the need for advanced multi layer PCB sourcing options in locations outside of China. The new facility in Malaysia will assist customers in our commercial markets, such as networking, data center computing, and medical, industrial and instrumentation.

We continue to make progress on the Malaysian facility and construction is approximately 75% complete, tracking to target. We began to move in equipment in the second quarter, and will continue this effort through the third quarter. We remain on track for first production samples in the fourth quarter.

Finally, I'd like to update you on the consolidation of our manufacturing footprint. We previously announced our plan to close three small manufacturing facilities in order to improve total plant utilization, operational performance, customer focus and profitability. PCB manufacturing operations in Anaheim and Santa Clara, California and Hong Kong are being closed and consolidated into TTMs remaining facilities. We seized production at the Hong Kong facility during the second quarter and remain on track for ending production at the two North America facilities by the end of the year. Customers have been supportive of the consolidation. And we expect to retain the majority of the business that will be transitioning from the close two facilities.

Now I'd like to review our end markets, which are referenced on Page four of the earnings presentation on our website. The aerospace and defense end market represented 47% of total second quarter sales, compared to 30% of Q2 2022 sales and 43% of sales in Q1 2023. A majority of the year on year growth was due to the inclusion of Telephonics. Excluding that impact, our Q2 A&D revenues grew 5.9% year on year organically. We continue to experience a positive defense climate with our A&D program backlog at $1.39 billion including Telephonics. The solid demand in the defense market is a result of a positive tailwind in defense budgets, our strong strategic program alignment and key bookings for ongoing franchise programs.

In terms of the defense budget backdrop, a debt ceiling agreement was reached, resulting in a fiscal 2024 increase of 3% for the DoD budget over the fiscal 2023 enacted funding, in line with the fiscal 2024 President's Budget Request, or PBR. During the quarter, we saw significant bookings for key programs, including the Javelin anti-tank guided munitions system, and the Army's Air missile defense planning and control system and integrated battle command system.

While the demand picture looks favorable, we continue to experience supply chain challenges for Integrated Electronics. Due to the complexity of the supply chain, including a number of smaller organizations that are struggling to meet the lead time requirements with TTM and our customers. We expect sales in Q3 from this end market to represent about 45% of our total sales.

Automotive sales represented 17% of total sales during the second quarter of 2023. Compared to 18% in the year ago, quarter, and 17% during the first quarter of 2023. The year over year decline for automotive was due primarily to continued inventory adjustments at several customers. We expect our automotive business to contribute 16% of total sales in Q3, as customers are expected to continue to adjust inventory levels in line with expected semiconductor and other critical material deliveries.

The medical industrial instrumentation end market contributed 16% of our total sales in the second quarter, compared to 21% in the year ago quarter and 19% in the first quarter of 2023. The sequential decline is caused primarily by inventory reductions at a number of our customers. In addition, the instrumentation segment is weighted towards the semiconductor capital equipment market, which is seeing weaker demand. For the third quarter we expect MI&I and AI to be 17% of revenues.

Sales in the data center computing end market represented 12% of total sales in the second quarter, compared to 17% in Q2 of 2022 and 10% in the first quarter of 2023. This end market performed better than expected and saw sequential growth due to strength in our data center customers building products for Generative AI applications. We expect revenues in this end market to represent approximately 15% of third quarter sales, as we continue to see sequential growth from the same customers.

Networking accounted for 8% of revenue during the second quarter of 2023. This compares to 14% in the second quarter of 2022 and 11% of revenue in the first quarter of 2023. A majority of the decline in the quarter was due to the sale of our Shanghai backplane assembly facility, which generated $8 million of revenue in Q1 and had no revenues in Q2. In addition, demand was softer as customers focus on inventory digestion. In Q3, we expect this en market to be 7% of revenues, as we see continued weakness due to software market conditions and inventory management by customers.

Next I'll cover some details from the second call order. The information is also available on page five of our earnings presentation. During the quarter, our advanced technology and engineered products business, which includes HDI rigid-flex, RF subsystems and components, and engineered systems accounted for approximately 43% of our revenue. This compares to approximately 33% in the year ago quarter and 41% in Q1. We are continuing to pursue new business opportunities and increase customer design engagement activities that will leverage our advanced technology and engineered products capabilities and new programs and new markets.

PCB capacity utilization in Asia Pacific was 46% in Q2, compared to 81%. In the year ago quarter and 52% into one. Our overall PCB capacity utilization in North America was 38% in Q2, compared to 44% in the year ago quarter and 39% in Q1. The lower rate in Asia Pacific was caused by a decline in production volumes, while the lower year-over-year rate in North America was due to additional plating capacity added as well as a greater mix of higher technology products that requires less finished plating.

Our top five customers contributed 40% of total sales in the second quarter of 2023, compared to 36% in the first quarter of 2023. We had one customer over 10% in the quarter. At the end of Q2, our 90 day backlog not including Telephonics, which is subject to cancellations was $505.7 million, compared to $635.7 million at the end of the second quarter last year. Including Telephonics, our back backlog at the end of Q2 was $556.2 million. Our book-to-bill ratio including Telephonics was 1.04 for the three months ended July 3.

As we look into Q3, we are seeing our commercial market somewhat mixed with improving trends in data center computing driven by momentum related to artificial intelligence advancements, and demand growth in the medical, industrial and instrumentation market. Stabilization in automotive and continued weakness in networking. On the A&D side of our business, we continue to focus on making incremental improvements in shipments as we work with supply chain partners to loosen bottlenecks and take advantage of an improving labor market. I am confident that with the effort of our employees, and supply chain partners, we will be able to overcome these challenges as we work our way through 2023.

In the meantime, I wish to thank our employees for continuing to contribute to TTM and our critical mission of inspiring innovation for our customers. Now Todd will review our financial performance for the second quarter. Todd?

**Todd Schull**

Thank you, Tom for your kind comments. And good afternoon, everyone. I will be reviewing our financial results for the second quarter that were included in the press release distributed today, as well as on slide six of our earnings presentation that is posted on our website.

For the second quarter, net sales were $546.5 million, compared to $625.6 million in the second quarter of 2022. The year over year decrease in revenue was due to declines in our commercial markets, partially offset by the inclusion of Telephonics as well as organic growth in our aerospace and defense end market. GAAP operating income for the second quarter of 2023 was $21.4 million and compares to operating income of $37.2 million in the second quarter of 2022.

On a GAAP basis, net income in the second quarter of 2023 was $6.8 million or $0.07 per diluted share. This compares to GAAP net income of $27.8 million or $0.27 per diluted share in the second quarter of last year. The remainder of my comments will focus on our non-GAAP financial performance. Our non-GAAP performance excludes M&A related costs, restructuring costs, certain non-cash expense items such as amortization of intangibles and stock compensation gains on the sale of property and other unusual or infrequent items. We present non-GAAP financial information to enable investors to see the company to the eyes of management and to facilitate comparisons with expectations and prior periods.

Gross margin in the second quarter was 19.2% and compares to 20% in the second quarter of 2022. The year on year decrease was due to the decline in revenue in the commercial sector, including lower premium revenue and prices, and production inefficiencies, which includes supply chain challenges in the Integrated Electronics portion of our AMD business. These were offset partially by favorable mix, the inclusion of Telephonics and favorable exchange rates.

Selling and marketing expense was $17.5 million in the second quarter or 3.2% of net sales versus $16.9 million, or 2.7% of net sales a year ago. Second quarter G&A expense was $35.1 million, or 6.4% of net sales, compared to $35.4 million, or 5.7% of net sales in the same quarter a year ago. In the second quarter of 2023 R&D expense was $6.2 million, or 1.1% of revenues, compared to $5 million, or 0.8% in the year ago quarter.

The year-over-year increases in SG&A and R&D, are due primarily to the addition of Telephonics. Our operating margin in Q2 was 8.4%. This compares to 10.8% in the same quarter last year, interest expense was $11.3 million in the second quarter, compared to $10.2 million in the same quarter last year. During the quarter, there was a positive $3.2 million foreign exchange impact below the operating line.

Government incentives and interest income of $1.9 million resulted in a net $5.1 million gain, or $0.04 positive impact to EPS. This compares to a gain of $7.6 million, or a $0.06 impact on EPS in Q2 last year. Our effective tax rate was 17% in the second quarter, resulting in tax expense of $6.8 million. This compares to a rate of 15%, our tax expense of $9.8 million in the prior year.

Second quarter net income was $33 million, or $0.32 per diluted share. This compares the second quarter 2022 net income of $55.3 million dollars, or $0.54 per diluted share. Adjusted EBITDA for the second quarter was $74.7 million, or 13.7% of revenue, compared with second quarter 2022 adjusted EBITDA of $96.9 million, or 15.5% of revenue. Depreciation for the quarter was $24.9 million. Net capital spending for the quarter was $49.4 million, which was higher than normal due to a $20 million deposit related to the new building in Penang, which we expect to be refunded in Q3 as part of the overall lease structure for the facility.

Cash flow from operations in the second quarter of 2023 was $25.9 million. The operating cash flow was lower than the first quarter due to lower collections of accounts receivable as revenue was relatively consistent with the prior quarter, partially offset by lower payments of accounts payable. Cash and cash equivalents at the end of the second quarter of 2023 were $398.7 million our net debt divided by last 12 months EBITDA was it was 1.5 times at the low end of our targeted range of 1.5 to two times.

During the quarter we completed the refinancing of our Term Loan B and U.S. and Asia ABL. The new ABL facilities mature in 2028, the senior notes mature in 2029, and the new term loan matures in 2030. Now I'd like to turn to our guidance for the third quarter. We project total revenue for the third quarter of 2023 to be in the range of $550 million to $590 million and non-GAAP earnings to be in the range of $0.25 to $0.31 per diluted share. The expected sequential decline in EPS is primarily the result of foreign exchange and other income forecasted at zero in Q3 when they were a gain of $5.1 million in Q2.

In addition, lower performance at the two North America plans scheduled for closure this year, are expected to impact gross margins in the quarter as they wind down operations. The EPS forecast is based on a diluted share count of approximately 105 million shares, which includes dilutive securities, such as options and RSUs. We expect that SG&A expense will be about 10% of revenue in the third quarter, and R&D to be about 1.2% of revenue. We expect interest expense to total approximately $11.3 million. And finally, we estimate our effective tax rate to be between 15 and 19%.

To assist you in developing your financial models, we offer the following additional information. During the third quarter, we expect to record amortization of intangibles of about $13.8 million. Stock-based compensation expense of about $6.5 million. Non-cash interest expense of approximately $0.4 million and we estimate depreciation expense will be approximately $23.9 million.

Finally, I'd like to announce that we'll be participating in the Needham Virtual Industrial Tech Robotics and Clean Tech one on one conference on August 7. The Jefferies semiconductor IT hardware and Communications Technology Summit on August 29, in Chicago, and the Jefferies industrial conference on September 6, in New York City.

That concludes our prepared remarks. Now we'd like to open the line for questions. Shiri?

**Question-and-Answer Session**

**Operator**

[Operator Instructions] Our first question will come from the line of William Stein with Truist Securities, your line is open.

**William Stein**

Great, thanks for taking my questions. Congrats on the better profitability and in the outlook. First, I'm hoping you can remind us of the timing and the magnitude of cost savings associated with the factory closures you discussed.

**Thomas Edman**

Sure. Will, this is Tom. Our expectations we are planning to incur about $25 million plus or minus a couple million dollars of costs associated with shutting down the facilities. Now that includes labor related costs such as severance, as well as contract terminations, and some equipment write offs and disposals and the sort. We expect most of that to occur during 2023. There may be a little bit that spills over, but the overwhelming majority of that net cost will take place in 2023.

And then as we go forward, we're expecting to transition most of that revenue to our other facilities. So it'd be very little leakage. And that bodes well then for the other facilities where we'll get a strong profit flow through from that revenue. And so we expect benefits, once that transition is completed, the new facilities and the products are up to speed in the new facilities to also be approximately a $25 million annual benefit.

**William Stein**

So should we think of that coming in in like Q1 of 24? Or does it take multiple quarters to have that benefit realized?

**Thomas Edman**

I think it'll be -- and certainly in the first half of the year, it should ramp up. And we should be at full speed by the second half of the year. There's just not you know, when you bring out a new product on the planet, there is some you know, yield curve, you got to climb and so forth. So I won't be all at full speed in Q1. But certainly by the middle of the year, I would expect this to be a full tilt.

**William Stein**

Great. And then my follow up is about the margin improvement that you saw in the quarter. I think the press release alluded to better efficiencies in North American operations. But, Tom, in your prepared remarks, I think you mentioned mix as well. Can you maybe give us an idea as to which factor was the predominating one, and when we talked about better efficiency of operations in North America, maybe you can give us an idea about what's changing there and how sustainable we should expect it does it does it continue to improve from here? Thank you.

**Thomas Edman**

Well, will you recall from our analysts, they back in late May that we shared some numbers on different portions of our business to give a little more insight to investors as to how we're doing. And we recall that the North America PCB operations had -- we've had some challenges over the last couple of years. COVID related has a lot to do with it. Labor costs inflation is another factor. And we've been climbing kind of out of that goal for a while.

Happy to say that we saw some great progress in several facilities. We're not 100%. There's always -- when you have when you have a portfolio of factories as we do, there's always room for improvement someplace. And we certainly still feel that way. But we had some excellent performance.

Mix has to do some of that in terms of higher margin products that we're building, but also the production levels in these plants, both the level and the ability to execute. We've been working on implementing new tools to help create better visibility to our general managers so that they can run the business more effectively. And that was paying some dividends also, so we kind of lumped it together, but both factors were important contributors in our North America operations.

**Operator**

Thank you. One moment for our next question. That will come from the line of Matt Sheerin with Stifel. Your line is open.

**Matt Sheerin**

Yes, thank you. And good afternoon. And Todd, congratulations on your retirement. Just a question regarding the gross margin guidance, you talked about some of the headwinds with the North America closures. What about any headwinds related to the ramp in Malaysia over the next couple of quarters? I know you've signalled that in the past as some margin headwind. Could you talk about that?

**Todd Schull**

Sure, Matt. We are expecting to incur additional costs as we ramp in the second half of the year here in Penang. That is factored into our forecast. And certainly our investment level from a P&L standpoint are increasing in Q3 compared to Q2. And that's reflected in our forecast. Our Asia operations have continued to perform at a very high level, even though they could use more revenue. The commercial markets that decline in those markets certainly impact that region more profoundly than North America. They don't have the ABC [ph] business that North America enjoys. And they're executing very well, and they're compensating for that.

So we've got that reflected in our forecast. It's consistent with what we talked about. There is a drag associated with it. But we also don't have -- with the progress on closing the Hong Kong facility that -- having that behind us, as Tom mentioned in his remarks, we ceased production here during the -- at the end of Q2. So we won't have the loss associated with that, that we incurred in Q2. And it will roughly offset the Penang cost investments. So we're relatively neutral quarter-to-quarter in our Asia operations as a result of those factors.

**Matt Sheerin**

Okay, and I know you haven't given guidance for Q4, and I appreciate that. But in terms of those costs headwinds, should that continue into Q4 as well, on the margin side?

**Todd Schull**

That will probably ramp a little bit. I think we've given guidance to the fact that we thought there was probably a 30 to 50 basis point impact to gross margin as a result of the ramp of the Penang facility, all things being equal. And of course, Matt, all things aren't equal. There's always stuff happening every quarter. And so you're not going to see that so much in Q3, but the drag is there. And we're able just to compensate for it by some progress in other areas and better execution.

**Matt Sheerin**

Okay, thanks for that. And Tom on your commentary regarding an uptick in in cloud and data center related to AI, could you talk about your products there? And the difference between maybe your technology with AI applications? And is there a higher content? And could you give us some outlook in terms of are we talking about multiple customers you're ramping for and the outlook as you get into next year there?

**Thomas Edman**

Sure. Yeah. I think, if you look at data center, as we call it, data center computing market overall, you think about 75% of that approximately being data center, another 25% being really semiconductor. Obviously, that 25% is acting as a bit of a drag this year. If you then start to look parse out data center, overall, about more than half of that right now is really being driven by AI, AI-designs.

And to your point, really, of course, the complexity of the boards is really being driven by the chipsets that are being used. And so as the designs for those chipsets advance, they place additional requirements on boards. And that comes out in the forms of materials that are being used, and particularly the thermals and the speeds associated with those materials.

And then the layer count. So we're continuing to increase the layer count of the boards that we're building those tend -- for AI applications, the design work tends to be done in a relatively confidential setting. And so these are proprietary designs that are released. I think the TPM footprint, as it stands today with North America and the ability to work hand in hand with our customers in North America is a real benefit down the road with Malaysia coming on. Again, that will give us a great facility for volume to move in for these applications and our existing capability in China, we're really doing some advanced technology work for those customers.

So we're positioned well. I believe it is more than certainly, a lot of activity from a small set of customers, but multiple customers there. So we are seeing that activity in at multiple customers, hoping that what we see today continues to spread here into some of the other areas of cloud and data center performance requirements as we go into next year. So the way I'd characteristic this overall is multiple customers, but still too limited for what we're hoping to see, as we go through the balance of the year, and really into next year. We're hoping to see more spread of that business volume.

So that's really what we're seeing there. It's certainly encouraging, particularly if you look at sequential growth in data center.

**Matt Sheerin**

Okay, great. Thank you very much.

**Thomas Edman**

Thank you.

**Operator**

Thank you. One moment for our next question, that will come from the line of Griffin Boss with B. Riley Securities. Please go ahead.

**Griffin Boss**

Hi, thanks for taking my questions. So apologies. I sort of missed this bit. But you talked about the $20 million deposit for the Penang facility. Do you say you expect to get that back in the third quarter? Or when is that? When should we expect that to come back in?

**Thomas Edman**

Yes, we did. Griffin, I mentioned that we put the deposit into keep progress going. But we were working on a financing arrangement for that facility. And we are expecting to complete that in the third quarter, which would then refund that $20 million. So it's kind of a temporary bridge, if you will, so that we can keep construction moving forward on our Penang facility.

**Griffin Boss**

Okay, sure that makes sense. And then also related to Penang and just CapEx going forward, I think I heard you say you're expecting increased levels of investment in the third quarter versus second quarter. So should we expect CapEx going forward to come back down closer to that 4% to 5% of revenue target that you have in maybe the fourth quarter or in 2024? Or how are we thinking about that?

**Thomas Edman**

Yeah, so our expectations for this year are going to be about $140 million in CapEx plus or minus. And in that will be above that 5% range, which we've kind of told everybody was going to happen this year. I do expect elevated CapEx spending next year also. And it'll start to wind itself down a bit. So that'll -- so those two years '23 and '24 will be the peak investment years for getting this Penang facility launched and ramped up. Then I would expect us to return to a more normal level.

Typically, on a sustaining basis, our CapEx was closer to 4% than it does to 5%. But we will pick up every now and then if we've got a new facility or a big technology launch. And so that's what we're in the middle of right now today.

**Griffin Boss**

Great, super helpful. And then just last for me, can you just give us an update on the total program value for auto [ph] in the quarter?

**Thomas Edman**

Oh, yeah, sure. So this quarter in auto, we won a lifetime program value of about $95 million. This tends to be a low quarter if you compare it to last year. Last year, we won about $60 million in the same quarter. If -- but we're tracking well for the year, just a reminder that last quarter, we were at $267 million. And total year, last year was $530 million. So if you add up that $95 million to $267 million, we're tracking really well for the year.

Looking forward to obviously additional wins here as we as we go through the balance of the year. And just a reminder, of course, that these are program wins. They translate into revenue. We really -- we'll start the program generally the following year, and then it will ramp up over a three year period generally and you'll see a three to five year program life, to give it give a feel for that.

**Griffin Boss**

All right, great. Thanks for the time.

**Operator**

Thank you. One moment for our next question, that will come from the line of Jim Ricchiuti with Needham. Your line is open.

**Jim Ricchiuti**

Thank you. So I think I heard utilization rate in Asia. But I'm curious, with the guidance you're giving and the pickup in some areas of business, are you anticipating that utilization rate to move up meaningfully in the current quarter?

**Thomas Edman**

So yeah, Jim, I think what we're seeing and as Todd mentioned, you can really tie, certainly our Asia facilities close to 100% tied to the commercial sector, business. And so, as we start to see some of these markets improve, and if you look, sequentially, certainly, we're looking for a strong improvement in data center in Q3. Also, medical, industrial instrumentation, we're looking for sequential improvement. There will be benefits there. There's going to be a little bit of a pull down networking. But overall, if you just look at where we're guiding to in terms of market improvement, we should see utilization rates climb in Asia, as a result.

Of course, we are continuing to put capital into those facilities. But that capital tends to be focused on technology versus capacity. So that should result in in some improvement in utilization.

**Jim Ricchiuti**

And provide a little bit of a tailwind with respect to gross margins. I know there's always mix issues involved in that. But I'm just curious, is that the way to think about it?

**Thomas Edman**

No, you're right, Jim. As we kind of -- you have to temper it with the Penang comments when I was answering that question earlier. But generally speaking, the revenue uptick that we've highlighted in those commercial markets is going to benefit our Asia operations and improve utilization, boost profitability. And then that's temporary just to touch by, obviously, the ramp up of our Penang operations. Good news.

**Jim Ricchiuti**

Go ahead, please.

**Thomas Edman**

No, I was just saying, it's good news. I mean, we're looking for to turn the corner and start making some progress in our commercial markets. And we're not prepared to say we've called the bottom here, but this is encouraging them to see some uptick.

**Jim Ricchiuti**

And that I guess, segues into the next question. In many of these markets, you don't have great visibility on the commercial side, things move around, but it sounds like what you're describing at data center has some legs to it. And I'm just wondering, as you look beyond the current quarter, what changes are you seeing if any in the overall environment in some of the other commercial markets?

**Thomas Edman**

Sure, yeah. I think as we head into the second half of the year, beyond data center, and certainly data center -- is there's a -- it's a reaction to critical requirements with AI, really sweeping in and that's great to see because that has impacts in other areas as well. If -- let me start with what I would see, as markets that will continue to probably struggle a bit this year. I think semiconductor capital equipment, really don't expect to see much activity there until we get into next year. Semiconductor itself probably will also remain relatively subdued.

So those two markets, we're still watching to see indications of a return to demand. Certainly AI helps there. But I think they need to see broader based recovery to really drive semiconductor demand, and therefore capital equipment. If you move into networking, there's an inventory -- certainly inventory digestion going on here. And then on the telecom side, subdued, really service provider spending.

So again, a market that at least in Q3, we're not expecting great things. May see improvement, going into Q4. We'll see. I think that's going to be really tied to service providers and what -- and where they tend, where they're going to go. Auto, automotive is holding up well. If you look overall year-on-year, yes, we're down. But the market -- but we're not down, in -- we're not down in a really large way. So auto has continued to hold up. And I would expect that to continue with auto. And really, as I said, last quarter, we're still waiting for the semiconductors, particularly analog in this case to catch up on auto.

So there is that shortage piece that makes it really hard to forecast. I think there's some optimism around Q4 coming from the automotive customer base. But they're tempering that with some continuing challenges on supply chain. And then medical industrial, that piece really looks -- we're starting to see our customers have moved beyond inventory correction and are -- we're starting to see some improved demand there. And I expect that will continue in that market as we see now that the inventory digestion is behind many of our customers. So looking for ongoing sequential improvements there.

And then finally, aerospace and defence, as I highlighted, a really strong demand profile. I think that will continue. It's really for us a matter of sequential improvements as we deal with supply chain issues and continuing to drive that, both the PCB side of the business as well as our Integrated Electronics operations. So that's pretty much what we're what we're seeing out there, Jim.

**Jim Ricchiuti**

That's helpful. Thanks for the color, Tom, and congrats on the news.

**Thomas Edman**

Thank you, Jim.

**Operator**

Thank you. One moment for our next question. And that will come from the line -- one moment, please. That will come from the line of William Stein with Truist Securities.

**William Stein**

Great, thanks for taking my follow-ups. In 2019, I think it was, the company acquired a company called i3 to help deliver some high density connectivity technology. And I wonder if that technology could be used in semiconductor packaging, considering that pretty well publicized shortages there are and things like so called Coax [ph] capacity that's persisting. There's some customers that you already have in that space that are short that and I wonder if that's a possibility. It occurred to me that these are maybe similar technologies to what to what TTM does.

**Thomas Edman**

Yeah, thanks for the question. So the Coax technologies, the node, there tends to be -- you're looking at let's just call it south of 10 micron in terms of lines and spacing requirements, and what we are doing. And since that acquisition, we have ported the equipment set over to our Chippewa Falls, Wisconsin, Advanced Technology Center. We do quite a bit of substrate and substrate like PCB work there for primarily defence customers, not exclusively, but primarily defence customers, and then our own internal requirements for our RF component line.

So as we look at opportunities going forward, Will, we're going to continue to focus that production capability combined with what we do with our microelectronics, business, targeted at our defence customer needs, and those tend to be -- they're a little bit behind. They're more on the 18 micron lines and spaces. Today we're at 25-ish, and moving down to 18. And then very durable constructions and designs. So that's where the work tends to be focused. We're seeing ongoing demand there. And really we will continue to focus that facility on those requirements. So probably will not move in the short term future into that commercial space.

**William Stein**

Helpful. Thank you. One other, if I can, in aerospace defence, for some time we've seen the backlog continue to grow and revenue not, really go up. This quarter there was an improvement there with some better results. We saw sequential and year over year growth. I wonder if you could comment on what the biggest bottlenecks are. I know, we've spoken in the past about the complex set of smaller suppliers that are either supply to you or potentially be complementary. But any update on supply chain conditions in aerospace defence, any improvement on the horizon?

**Thomas Edman**

Yeah, thank you, Will. Yeah, a couple a couple of points there. So if you look about that, I'm going to give you a rough order, but a roughly half of our aerospace and defence business is printed circuit boards, foundational capability there and then roughly half is what we call Integrated Electronics, which moves from really sub assembly work up to complete mission systems. And when -- my comments here were mainly addressed to that second half. So that 50% -- and that's where we've seen the supply chain issues.

As Todd highlighted on the PCB side, in North America, we actually saw -- second quarter was a strong performance quarter. We're looking for that to continue in Q3, though, we may see a slight move off of those highs just because we're going to be in that summer vacation period. And so labor becomes a little bit -- labor tends to take vacation. So Q3 generally, on our North America PCB side will tend to be, slightly lower for a production optimization standpoint.

Integrated Electronics is where the real focus is. And that's where we've been struggling on supply chain. What I can tell you is part of this is external. And as you highlighted, yes, we continue to struggle with particularly with some of the smaller vendors. Conditions are improving sequentially. We expect those conditions to improve again, next quarter. And the other piece of that which is internal in terms of how we address supply chain challenges, we're making progress there.

We have organized -- as you know, we've organized operationally now into an integrated electronics organization. That was a critical step. We did that in January. We have a supply chain, organization that inside of that group that has been also organized. We brought key leadership in this last quarter. So we are generating the -- we've got the kind of approach that again gives me confidence that we will continue to make those sequential improvements as we go through the course of this year and into early next year.

So that's where the real focus is. We won't solve all of the issues but we need to continue to improve there and we're starting to see certainly our vendors respond and our own organization doing a really good job in terms of focus.

**William Stein**

Great. Thank you.

**Thomas Edman**

Thank you.

**Operator**

Thank you. [Operator Instructions] I'm showing no further questions in the queue. At this time, I would now like to turn the call back over to Mr. Edmund for any closing remarks. Thank you.

**Thomas Edman**

Thank you, Sheri and terrific job. I would like to just close by summarizing some of the points I made earlier. First, we delivered revenues in line with the guidance range and non-GAAP EPS was well above the guided range. Second, we refinanced our term loan B and US and Asia ABL facilities. And that results in a maturity occurring in 2028, and a net leverage ratio of 1.5 times at the low end of our target range of 1.5 to two times. And finally, we continue to see strong demand in aerospace and defence with recoveries beginning in some of -- in a number of our commercial markets.

So in closing, I just like to thank our employees, our customers, and our investors for your continued support as we continue to move forward as a company. Thank you again. Thank you for joining us. Take care.

**Operator**

Thank you all for participating. This concludes today's program. You may now disconnect.


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