January 4, 2022

# Intel Engineers Fastest Mobile Processor Ever with 12th Gen Intel Core Mobile

**Twenty-eight new 12th Gen Intel Core mobile and 22 desktop processors drive powerful gaming and creator-focused laptops and desktops, enterprise-ready systems and IoT applications**

## NEWS HIGHLIGHTS

- Intel announces the 12th Gen Intel® Core™ family of mobile processors led by the launch of new H-series mobile processors featuring the flagship Intel® Core™ i9-12900HK – the fastest mobile processor ever[1] and the world's best mobile gaming platform[2] – built on the Intel 7 process.
- Intel introduces the new 65- and 35-watt 12th Gen Intel Core desktop processors with ultimate scalable power and performance for gaming, creation and productivity. The processors are available now.
- Intel discloses specifications for the forthcoming 12th Gen Intel Core U- and P-series mobile processors that will power the latest ultra-thin-and-light laptop designs.
- Intel shares updates to the Intel® Evo™ platform that incorporate new specification technologies and key experience indicators (KEI), including intelligent collaboration.
- Intel announces new Intel vPro® platform offerings – Intel vPro® Essentials and Intel vPro® Enterprise – for expanded commercial support ranging from small businesses to large-scale enterprises.

LAS VEGAS--(BUSINESS WIRE)-- Today at CES 2022, Intel announced the world's fastest mobile processor, bringing its performance hybrid architecture to mobile platforms for the first time with new 12th Gen Intel Core mobile processors that are up to 40 percent faster than the previous generation mobile processor. Intel introduced 28 new 12th Gen Intel Core mobile processors that deliver a feature-rich suite of capabilities to create laptops for people to compute whenever and wherever they need – without compromise.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20220104005390/en/

Intel unveils the 12th Gen Intel Core mobile processor family with the launch of eight new mobile H-series processors, based on Intel's performance hybrid architecture. The eight new mobile processors were introduced Jan. 4, 2022. (Credit: Intel Corporation)

- **More:** Intel at CES 2022 (Press Kit) | 12th Gen Intel Core (Press Kit) | Intel Achieves Major Milestones across Automotive, PCs and Graphics (News) | 12th Gen Intel Core Processor for IoT Announced (News) | 12th Gen Intel Core Mobile Processors (Product Brief) | Client Computing Group Press and Industry Analyst Presentation (Press Deck)

With the introduction of the full 12th Gen Intel Core desktop processor lineup, the 12th Gen Intel Core processor family also represents the company's most scalable lineup to date, powering designs across consumer, enterprise, the Internet of Things (IoT) and other applications.

"Intel's new performance hybrid architecture is helping to accelerate the pace of innovation and the future of compute," said Gregory Bryant, executive vice president and general manager of Intel's Client Computing Group. "And, with the introduction of 12th Gen Intel Core mobile processors, we are unlocking new experiences and setting the standard of performance with the fastest processor for a laptop – ever."

**Introducing 12th Gen Intel Core Mobile Processors**

Intel continues its introduction of industry-leading mobile performance with the launch of all-new 12th Gen Intel Core H-series mobile processors led by the Intel Core i9-12900HK – not only the world's best mobile gaming platform, but also the fastest mobile processor ever created.

By pairing Performance-cores (P-cores) and Efficient-cores (E-cores) with intelligent workload prioritization and management distribution through Intel® Thread Director[3], the new Intel Core i9-12900HK improves system performance across single and multi-threaded applications.

Based on the Intel 7 process, new 12th Gen H-series processors offer:

- Up to 5 GHz frequencies, 14 cores (6 P-cores and 8 E-cores) and 20 threads that give the 12th Gen Intel Core i9-12900HK the crown as the fastest mobile processor. It delivers performance leadership over Intel's previous generation and the competition.
- The performance extends for unparalleled gaming experiences across top gaming titles and content creation tools. The new 12th Gen Intel Core H-series is the world's best mobile gaming platform, delivering up to 28% faster gaming than the previous mobile gaming leader in the market: the Intel Core i9-11980HK. 12th Gen Intel Core H-series is more than up to the task for content creators. For example, users may see up to 43% higher performance in 3D rendering gen-over-gen.
- Broad memory support for DDR5/LPDDR5 and DDR4/LPDDR4 modules up to 4800 MT/s – a first in the industry for H-series mobile processors.
- Nearly three times faster connectivity[4] on exclusive high-speed channels without legacy Wi-Fi interference. Using integrated Intel® Wi-Fi 6E (Gig+)[5] gives users the freedom to work and learn from home and relax with smooth, high-quality streaming.
- Thunderbolt™ 4 support that delivers transfer speeds up to 40Gbps and PC connectivity to multiple 4K monitors and accessories.

Designed for enthusiast gamers, creators and engineering professionals who want to push their laptop performance to the next level, the new 12th Gen Intel Core H-series mobile processors deliver desktop-caliber performance on the go. They will power systems available starting in February 2022.

The expansive 12th Gen Intel Core mobile family also includes the new U- and P-series mobile processors. With up to 14 cores and 20 threads and featuring Intel® Iris® X$^{e}$

integrated graphics, the new P-series processors operate at 28W base power and are designed for performance thin-and-light laptops, while the U-series processors operate at 9 to 15W and are designed for form factor optimized thin-and-light laptops. These mobile processors are tailor-made for the performance needed in the variety of thin-and-light laptops and cutting-edge form factors that OEMs will deliver in 2022, including foldables, 2 and 1s, detachables and others.

Built to take on simultaneous everyday workloads, business productivity and even gaming in full high definition (FHD), these 12th Gen Intel Core U- and P-series mobile processors will be available in the first quarter of 2022, including devices designed for both Windows and Chrome operating systems.

**12th Gen Intel Core Desktop Processor Family Additions and New Platform Options**

Today, 22 new processors join the 12th Gen Intel Core desktop processor family and range from Intel Core i9 to Pentium and Celeron. These processors (65-watt and 35-watt) deliver scalable power and great performance for gaming, creation and productivity. Intel also introduced new Intel® Laminar Coolers that accompany the new 65-watt processors.

In addition, Intel introduced the new Intel® H670, H610 and B660 chipsets that will support broad consumer processors. The new chipset options deliver many of the great Z-series platform capabilities, like PCIe 4.0 lanes, integrated Intel Wi-Fi 6E (Gig+) and Intel® Volume Management Device (VMD) – as well as support for memory overclocking.

**New Experiences for a Mobile World with Intel Evo**

The launch of 12th Gen Intel Core mobile processors also ushers in updates to the IntelEvo platform for laptops and other on-the-go form factors, verified to the third-edition specification and key experience indicators of Intel's Project Athena innovation program. More than 100 co-engineered designs with 12th Gen Intel Core mobile processors – including new foldable displays and, for the first time, H-series in addition to U- and P-series – are expected to start passing Intel Evo verification, and most will be available for purchase in the first half of 2022.

In addition to the responsiveness, real world battery life, instant wake and fast charge, an additional set of system requirements and tests called "intelligent collaboration" are added to the third-edition specifications. Intelligent collaboration ensures an enhanced experience when collaborating though videoconferencing apps on a PC thanks to technologies like AI-based background noise cancellation, integrated Intel Wi-Fi 6E (Gig+), Intel® Connectivity Performance Suite[6] and optional AI-accelerated camera imaging effects.

To extend the experience through accessories, Intel announced the Engineered for Intel® Evo™ and Intel® Evo™ vPro® program to build end-to-end experiences backed by Intel co-engineering and testing for Thunderbolt™ and Bluetooth accessories.

**Intel vPro Platform: Built for All Businesses**

With over 15 years of raising the bar for hardware-based security and performance in the industry, Intel is introducing new versions of the Intel vPro® platform to offer businesses a tailored approach that takes advantage of the enterprise-grade performance of 12th Gen

Intel Core processors for business.

- **Intel vPro Enterprise:** The full-featured platform with enterprise-grade computing, premium security, modern manageability and stability for managed businesses of all sizes. It now supports the Chrome operating system with Intel vPro® Enterprise for Chrome.
- **Intel vPro and Intel Evo Design:** Combines the benefits of Evo and vPro together for mobile professionals who need next-level user experiences.
- **Intel vPro Essentials:** Meets small-business foundational computing needs with built-in security features and performance, including basic PC management features.

**Supporting Quotes**

**Microsoft**

“Microsoft and Intel have a long history of partnering together to deliver incredible performance and seamless experiences to people all over the world,” said Panos Panay, chief product officer at Microsoft. "Whether playing the latest AAA title, encoding 8K video or developing complex geological models, the combination of Windows 11 and the new 12th Gen Intel Core mobile processors means you’re getting a powerhouse experience."

**IO Interactive**

"Tuning games to achieve maximum performance can be daunting,” says Maurizio de Pascale, chief technology officer at IO Interactive. "But partnering with Intel and leveraging their decades of expertise has yielded fantastic results – especially optimizing for the powerful 12th Gen Intel Core processors. As an example, anyone who plays on a laptop powered by Intel's 12th Gen Intel Core Mobile H-series processors is going to experience Hitman 3 in the best way possible.”

**About Intel**

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore’s Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers’ greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel’s innovations, go to newsroom.intel.com and intel.com.

Performance hybrid architecture is not available on certain 12th Gen Intel Core processors. Intel® Thread Director is available on select SKUs only; requires OS enablement. Performance varies by use, configuration and other factors. More details at www.intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See www.intel.com/12thgen for configuration details. No product or component can be absolutely secure.

Your costs and results may vary.

[1] Based on superior performance of 12th Gen Intel Core i9 12900HK against Intel Core i9

11980HK, AMD Ryzen 9 5900HX, and Apple M1 Max. Intel processor performance is estimated based on measurements with Intel Reference Validation Platforms. AMD processor performance is estimated based on measurements on a Lenovo Legion R9000K with RTX 3080. Apple M1 Max performance is estimated based on public statement made by Apple on 10/18/2021 and measurements on Apple M1 Max 16" 64GB RAM Model A2485. Best available compilers selected for all processors. Binaries compiled with ICC for Intel/AMD, binaries compiled with Xcode 13.1 for Apple. The metric used is the geometric mean of an n-copy SPECrate run of the C/C++ integer benchmarks in SPEC CPU 2017. See www.intel.com/PerformanceIndex for additional workload and configuration details. Results may vary. Other names and brands may be claimed as the property of others.

[2] The 12th Generation Intel® Core™ i9-12900HK is the world's best mobile gaming platform based on:

Unique features, including

- Board Memory Support
- First to industry to enable DDR2005-4800, DDR4-3200, LPDDR5 5200, LPDDR4x-4267
- Best in class connectivity - Wi-Fi 6E (Gig+) , Thunderbolt 4
- Intel® Killer™ Wi-Fi 6E : Low Latency Gameplay
- Intel® Killer™ Wi-Fi 6E (Gig+): Intel® Double Connect
- Thunderbolt™ 4: 40Gbps
- Thunderbolt™ 4: Mandatory Certification
- Industry-pioneering PCIE Gen 4 (best in class)

Superior in-game benchmark mode performance of 12th Gen Intel Core i9-12900HK with NVIDIA RTX 3080 GPU vs 11th Gen Intel Core i9-11980HK with same GPU and vs AMD R9-5900HX with same GPU.

Performance results are based on testing as of 12/10/2021. Full Configurations available at intel.com/PerformanceIndex.

[3] On select SKUs only; requires OS enablement. See backup for more details.

[4] See www.intel.com/PerformanceIndex (connectivity) for additional workload and configuration details.

[5] See www.intel.com/PerformanceIndex (connectivity) for additional workload and configuration details.

[6] Windows only.

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