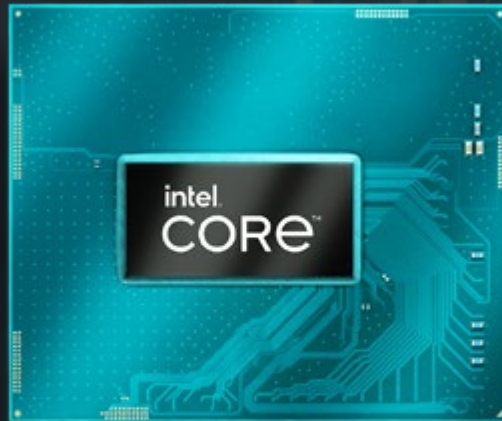


intel.



Product Brief

Intel® Core™ Processors HX-Series (14th gen)

Intel® Core™ processors HX-series (14th gen) deliver the ultimate immersive experience for intense gaming and creating with extended core technology, enhanced immersive experiences, and accelerated platform innovations.



Extended Core Technology

Intel® Core™ processors HX-series (14th gen) feature performance enhancements designed to enable the immersive experiences your customers are looking for. Intel® Core™ processors HX-series use performance hybrid architecture combining two core microarchitectures on a single die.¹

Performance-cores are optimized to handle light and single-threaded tasks such as gaming and productivity, while Efficient-cores are built for scaling highly threaded workloads and background tasks. Both microarchitectures are scheduled by Intel® Thread Director, which intelligently distributes workloads to the optimal cores.⁴

Intel® Core™ processors HX-series (14th gen) also house a suite of advanced tools and technologies to boost processor performance. Intel® Dynamic Tuning Technology intelligently adapts power policies, including a new policy called Intel® Application Optimization, to optimize resources in real time.² Intel® Turbo Boost Max Technology 3.0 identifies the processor's fastest cores and directs critical workloads to them as power, heat, and workload allow.¹⁰ Intel® Adaptive Boost intelligently boosts the processor to run faster than its rated frequency.⁷



Immersive Experiences

Intel® Core™ processors HX-series (14th gen) offer enhanced immersive experiences with overclocking tools for both experts and new users. Intel® Extreme Tuning Utility provides a friendly interface for precision tuning and overclocking, featuring hybrid processor overclocking, one-click overclocking with Intel® Speed Optimizer, DDR5 memory overclocking, memory overclocking, Intel® Speed Optimizer, VF curve, and monitor logging.³

Immersive technology continues with integrated Intel® Graphics technology with Intel® Ultra-High Definition Graphics featuring Xe Architecture, up to 8K HDR support, up to four concurrent DDI ports, and Intel® Quick Video Sync.⁵

Your customers will also have the latest connectivity features with discrete Wi-Fi 7 (5 Gig) support,¹¹ integrated Intel® Killer™ Wi-Fi 6E with Intel® Double Connect, and Intel® Bluetooth® LE Audio.



Accelerating Platform Innovation

Intel® Core™ processors HX-Series (14th gen) continue to bring industry-leading technologies with platform flexibility thanks to the support of Intel® 700 series chipset-based motherboards as well as support for DDR5 (up to 5600 MT/s) and DDR4 (up to 3200MT/s) memory.⁹

Get premium I/O options such as Thunderbolt™ 5 technology to connect accessories with up to 120 Gbps bandwidth, 16 CPU PCIe 5.0, 16 PCH PCIe 4.0, and up to 8 DMI 4.0 lanes.

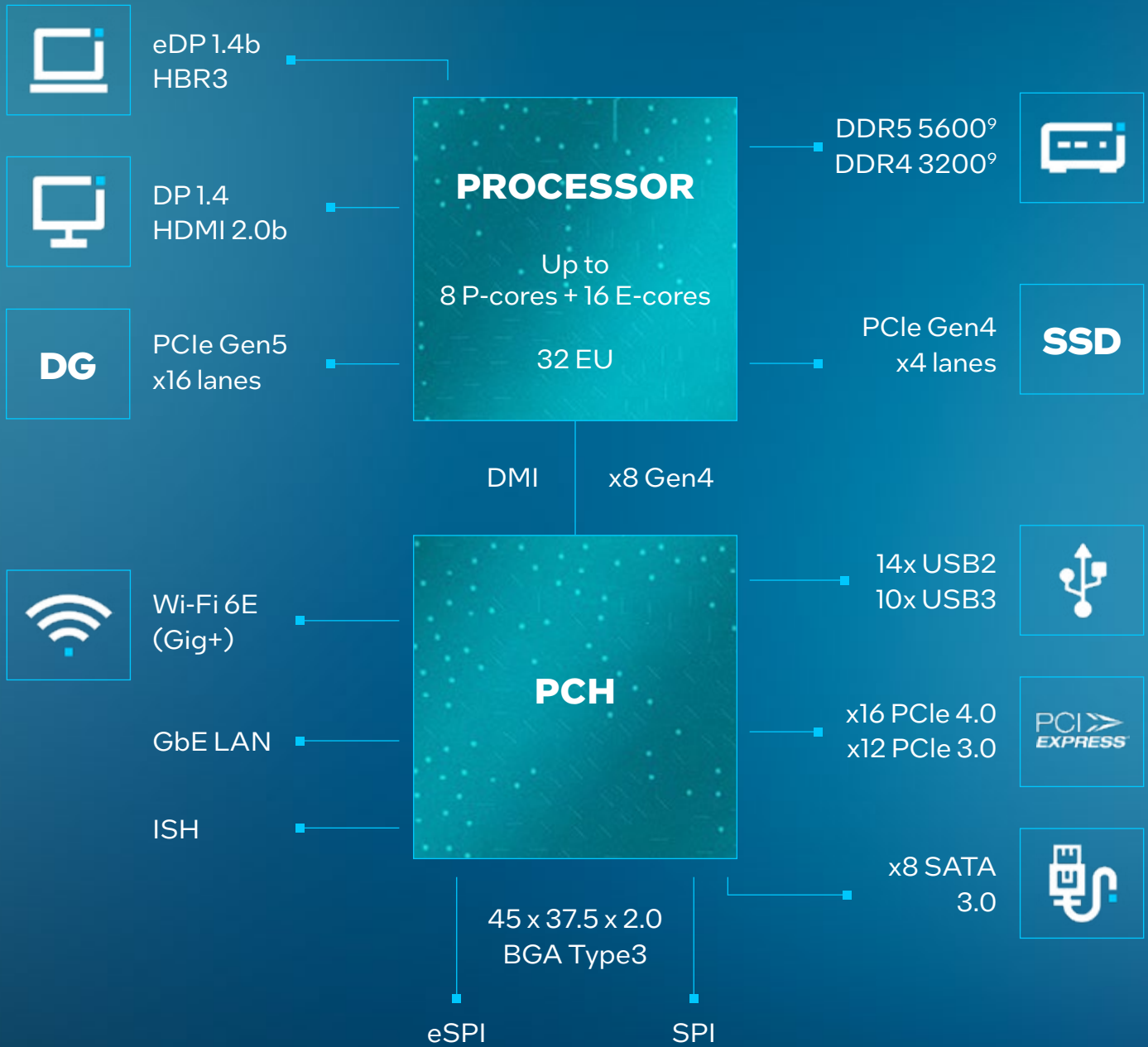
Intel® Core™ Processors HX-Series: Features at a Glance

Feature	Benefit
Performance Hybrid Architecture ¹	Integrates two all-new core microarchitectures into a single die, prioritizing and distributing workloads to optimize performance.
Intel® Thread Director ⁴	Optimizes workloads by helping the OS scheduler intelligently distribute workloads to the optimal cores.
Intel® Smart Cache	CPU memory caching method for sharing among P-cores, E-cores, and processor graphics if applicable.
Intel® Dynamic Tuning Technology	Power optimization tools that intelligently adapt power policies based on usage mode and temperature, with a new policy that determines and directs application resource optimization in real-time.
Intel® Application Optimization ²	Intel® Application Optimization is a new policy within Intel® Dynamic Tuning Technology framework that determines and directs application resource optimization in real time.
Intel® Adaptive Boost Technology ⁷	Identifies the processor's fastest cores and directs critical workloads to them as power, heat, and workload allow.
Intel® Turbo Boost Max Technology 3.0 ¹⁰	Identifies the processor's fastest cores and directs critical workloads to them as power, heat, and workload allow.
Intel® Thermal Velocity Boost ⁶	Opportunistically and automatically increases clock frequency of select Intel® Core™ processors by up to 100 MT/s if the processor is at a temperature of 70°C or lower and turbo power budget is available.
Intel® Extreme Tuning Utility	A precision toolset for tuning and overclocking, featuring memory and hybrid processor overclocking so that new and experienced users can get more from their unlocked processors.
Intel® UHD Featuring Xe Architecture ⁵	Rich media and intelligent graphics capabilities enable amplified visual complexity, enhanced 3D performance, and faster image processing.
Intel® Deep Learning Boost	Intel® Deep Learning Boost significantly accelerates inference performance for deep-learning workloads optimized to use VNNI.
Intel® Gaussian & Neural Accelerator 3.0 (GNA 3.0)	Designed to process AI speech and audio applications such as neural noise cancellation while simultaneously freeing up CPU resources for overall system performance and responsiveness.
Thunderbolt™ 5 Technology	Next-generation universal cable connectivity for a simple, reliable connection that provides incredible performance.
Intel® Killer™ Wi-Fi 6E	The Intel® Killer™ Wireless Series delivers supercharged wireless performance.
Intel® Double Connect Technology	Intel® Double Connect Technology enhances your customers' Wi-Fi gaming experience by simultaneously connecting over two Wi-Fi bands and prioritizing gaming traffic.
Discrete Wi-Fi 7 Support ¹¹	The next step in the evolution of wireless connectivity, helping provide extreme speed, responsiveness, and reliability.

Intel® Core™ Processors HX-Series (14th gen): SKU Comparison

Processor Number ¹²	Intel® Core™ i9 Processor 14900HX	Intel® Core™ i7 Processor 14700HX	Intel® Core™ i7 Processor 14650HX	Intel® Core™ i5 Processor 14500HX	Intel® Core™ i5 Processor 14450HX
Processor Cores (P-cores + E-cores) ⁸	24 (8+16)	20 (8+12)	16 (8+8)	14 (6+8)	10 (6+4)
Processor Threads	32	28	24	20	16
Intel® Smart Cache (LLC)	36 MB	33 MB	30 MB	24 MB	20 MB
P-core Max Turbo Frequency ¹⁰	Up to 5.8 GHz	Up to 5.5 GHz	Up to 5.2 GHz	Up to 4.9 GHz	Up to 4.8 GHz
E-core Max Turbo Frequency ¹⁰	Up to 4.1 GHz	Up to 3.9 GHz	Up to 3.7 GHz	Up to 3.5 GHz	Up to 3.5 GHz
CPU Overclocking ³	✓	✓	✓	✓	✓
GFX Overclocking ³	✓	✓	✓	✓	✓
Memory Overclocking ³	✓	✓	✓	✓	✓
Graphics Max Frequency	Up to 1.65 GHz	Up to 1.6 GHz	Up to 1.6 GHz	Up to 1.55 GHz	Up to 1.5 GHz
Processor Graphics	Intel® UHD Graphics				
Total PCIe Lanes	1x16 Gen5 + 1x4 Gen4 (CPU) 1x16 Gen4 + 1x12 Gen3 (PCH)				
Max Memory Speed ⁹	192 GB				
Processor Base Power	55 W				
Maximum Turbo Power	157 W				

Intel® Core™ Platform—HX Series



Notices & Disclaimers

- 1. Performance Hybrid Architecture:** Performance hybrid architecture combines two core microarchitectures, Performance-cores (P-cores) and Efficient-cores (E-cores), on a single processor die first introduced on 12th Gen Intel® Core™ processors. Select 12th Gen and newer Intel® Core™ processors do not have performance hybrid architecture, only P-cores, and have same cache size as prior generation. Intel® Core™ i3 N-series processors only have E-cores. See ark.intel.com for SKU details.
- 2. Intel® Application Optimization:** Intel® Application Optimization is a policy within Intel® Dynamic Tuning Technology that optimizes performance on select games, with the required configurations on select Intel® Core™ 14th Gen processors. See www.intel.com/PerformanceIndex. Results may vary.
- 3. Overclocking:** Unlocked features are present with select chipsets and processor combinations. Altering clock frequency or voltage may void any product warranties and reduce stability, security, performance, and life of the processor and other components. Check with system and component manufacturers for details.
- 4. Intel® Thread Director:** Built into the hardware, Intel® Thread Director is provided only in performance hybrid architecture configurations of 12th Gen or newer Intel® Core™ processors; OS enablement is required. Available features and functionality vary by OS.
- 5. Integrated Graphics:** Available only on Intel® Core™ processors featuring integrated graphics.
- 6. Intel® Thermal Velocity Boost:** Only available on Intel® Core™ i7 processors (14th gen HX-series) and Intel® Core™ i9 processors (14th gen HX-series). For more information on Intel® TVB refer to <https://www.intel.com/content/www/us/en/gaming/resources/how-intel-technologies-boost-cpu-performance.html?wapkw=thermal%20velocity%20boost>.
- 7. Intel® Adaptive Boost Technology:** Intel® Core™ i9 mobile processors HX-series (14th gen) only.
- 8. P-cores + E-cores:** Processor cores listed first are the total number of cores in the processor. The number of Performance-cores and the number of Efficient-cores are listed in parentheses (P+E).
- 9. Memory Speed:** Maximum memory speeds are associated with 1 DIMM per Channel (1DPC) configurations. Additional DIMM loading on any channel may impact maximum memory speed. Up to DDR5-5600 MT/s 1DPC UDIMM 1Rx8, 1Rx16 and DDR5-5200 1Rx8, 1Rx16, 2Rx8 on select SKUs. Maximum memory capacity is achievable with 2DPC configurations. For additional 2DPC configuration details, see ark.intel.com for SKU details.
- 10. Core Frequencies:** The frequency of cores and core types varies by workload, power consumption, and other factors. See ark.intel.com for SKU details.
- 11. Wi-Fi 7:** Subject to regional availability, operating system support, and router compatibility. Learn more at <https://www.intel.com/content/www/us/en/products/docs/wireless/wi-fi-7.html>
- 12. Processor Numbers:** Intel® processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Performance varies by use, configuration, and other factors. Learn more 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 backup for configuration details. No product or component can be absolutely secure.
Your costs and results may vary.
Intel technologies may require enabled hardware, software, or service activation.
© Intel Corporation. Intel, the Intel logo, Intel Core, and other Intel marks are trademarks of Intel Corporation or its subsidiaries. Other names and brands may be claimed as the property of others.