Product Brief

12th Gen Intel® Core™ Processors for IoT Edge

Mobile Performance Meets LGA-Socket Flexibility for IoT Edge Deployments

Multichip package gives manufacturers enhanced graphics and edge AI capabilities in an LGA-socket design that delivers inventory and supply chain flexibility

What's new

- Socketed LGA multichip package (CPU+PCH) combines 12th Gen Intel® Core™ mobile processor features with the build-to-order business benefits of our desktop processors
- Intel® 7 process performance hybrid architecture with multithreaded Performance-cores (P-cores) and single-threaded Efficient-cores (E-cores)[1]
- Intel® Thread Director optimizes workloads across Performance-cores and Efficient-cores[2]
- Intel® Smart Cache—up to 24 MB shared L2 and L3 cache
- Up to DDR5-4800 memory
- Up to four concurrent 4K60 displays, with support for Pipelock video synchronization for Windows
- Supports Windows 10 IoT Enterprise 2021 Long-Term Servicing Channel (LTSC)

The best of Intel® Core™ mobile and desktop processors

12th Gen Intel® Core™ processors combine the performance profile and power ranges of our 12th Gen Intel Core mobile processors with the LGA-socket flexibility of our 12th Gen Intel Core desktop processors. This multichip package features our performance hybrid architecture[1] and integrated Intel® Iris® Xᵉ graphics with up to 96 graphics execution units (EUs) and four display pipes.

The processor lineup includes two processor base power options—the 45W PS HL series and the 15W UL series. The HL series offers a higher core count with a 35W to 65W assured power range for performance-driven tasks. The UL series has a 12W to 28W assured power range for compact form factors that can fit virtually anywhere, such as behind an interactive flat panel display. It's also ideal in sealed, fanless designs for harsh environments like commercial kitchens, manufacturing lines, and processes that involve chemical exposure. Lower power profiles also reduce electrical consumption, which can help device manufacturers meet product sustainability goals.

Breakthrough hybrid architecture

12th Gen Intel Core processors are the first Intel Core processors to feature our performance hybrid architecture,[1] which includes up to six multithreaded P-cores for primary workloads and up to eight single-threaded E-cores for additional multitasking and scalability. The new design includes Intel® Thread Director,[2] which intelligently directs the OS to assign the right workload to the right core.

Fast AI with Intel Iris Xᵉ graphics and built-in inference acceleration on the CPU

12th Gen Intel Core processors support high-performing AI for inferencing and machine vision. Up to 96 graphics EUs allow for a high degree of parallelization in AI workloads, while built-in AI acceleration on the CPU from Intel® Deep Learning Boost (Intel® DL Boost) provides additional inference processing power.

This processor generation is fully supported by the Intel® Distribution of OpenVINO™ toolkit, including the OpenVINO™ Auto-Device (AUTO) plugin. The AUTO plugin automatically detects processing resources and balances deep learning workloads across any mix of CPUs, integrated GPUs, and other accelerators for maximum inference performance.

The ability to accelerate deep learning AI at the edge delivers new levels of object detection and image segmentation for applications like healthcare imaging and defect detection, as well as natural language processing for speech recognition and automated attendants.

Four by 4K displays without a discrete graphics card

Intel Iris Xᵉ graphics, with up to 96 graphics EUs, powers up to four display pipes that can drive four concurrent 4K60 displays or a single 8K display. Pipelock video synchronization for Windows drives multipanel video walls.

Gen-over-gen performance gains[3]

12th Gen Intel® Core™ processor performance gains over 10th Gen Intel® Core™ desktop processors

- Up to **1.32x** faster single-thread performance[3]
- Up to **1.27x** faster multithread performance[3]
- Up to **4x** faster graphics performance[3]
- Up to **6.6x** faster in GPU image classification inference performance[3]

10th Gen Intel® Core™ processors are the previous generation in this series for IoT. See backup for workloads and configurations. Results may vary.

Expanded bandwidth and fast DDR5 memory

With up to 8x PCIe 4.0 lanes and 4x Thunderbolt™ 4 lanes, 12th Gen Intel Core processors offer a bigger data pipeline directly to the CPU plus up to 12 additional PCIe 3.0 lanes running through the integrated PCH. This series also supports up to DDR5-4800 memory for greater workload convergence and more-simultaneous applications.

Long-term software support and long-life availability that IoT requires[4]

Windows 10 IoT Enterprise 2021 Long-Term Servicing Channel (LTSC) and long-term Linux kernel provide longer periods between updates for industries and applications that require maximum stability. Long processor production lives help manufactures get more value out of platform validation and deliver solutions for long-term deployments.

Key features

Performance

- Intel® 7 process technology
- Performance hybrid architecture with multithreaded Performance-cores and single-threaded Efficient-cores[1]
- Intel Thread Director optimizes performance for concurrent workloads across cores[2]
- Up to 14 cores and up to 20 threads
- Up to 24 MB Intel® Smart Cache
- Up to 1.32x faster single-threaded performance and up to 1.27x faster multithreaded performance vs. 10th Gen Intel® Core™ desktop processors[3]
- 45W processor base power PS HL series with 35W to 65W assured power range
- 15W processor base power UL series with 12W to 28W assured power range

Graphics

- Intel Iris Xᵉ graphics architecture with up to 96 graphics EUs
- HDMI 2.1 with support for up to four concurrent 4K60 displays or one display at 8K resolution
- Up to two video decode boxes, support for up to 48 simultaneous 1080p streams
- Up to 4x faster graphics performance vs. 10th Gen Intel Core desktop processors[3]
- Single root I/O virtualization (SR-IOV)
- Pipelock video synchronization for Windows

Accelerated AI

- Up to 96 graphics EUs for highly parallel AI workload processing in machine vision applications
- Image Processing Unit 6 (IPU6) captures and processes high-resolution images
- Intel DL Boost with VNNI on the CPU and int8/dp4 instructions on the GPU accelerate AI inferencing workloads
- Up to 6.6x faster in GPU image classification inference performance vs. 10th Gen Intel Core desktop processors[3]
- Fully supported by the Intel Distribution of OpenVINO toolkit for optimized, cross-architecture deep learning inference

Memory and I/O

- Up to DDR5-4800 and up to DDR4-3200 memory
- Up to 8x lanes PCIe 4.0 on the CPU (2x4)
- Up to 12x lanes PCIe 3.0 on the integrated PCH

Security and manageability

- Intel vPro® platform eligible on select SKUs, with Intel® Active Management Technology (Intel® AMT) that provides hardware-enabled security and the ability to restore compromised devices remotely
- Intel® Converged Security and Management Engine Version 16

Flexible deployments

- Multichip package (CPU+PCH)
- Socketed LGA package for flexible/compact designs
- Long-life availability[4] to support ongoing validation and certification in key markets

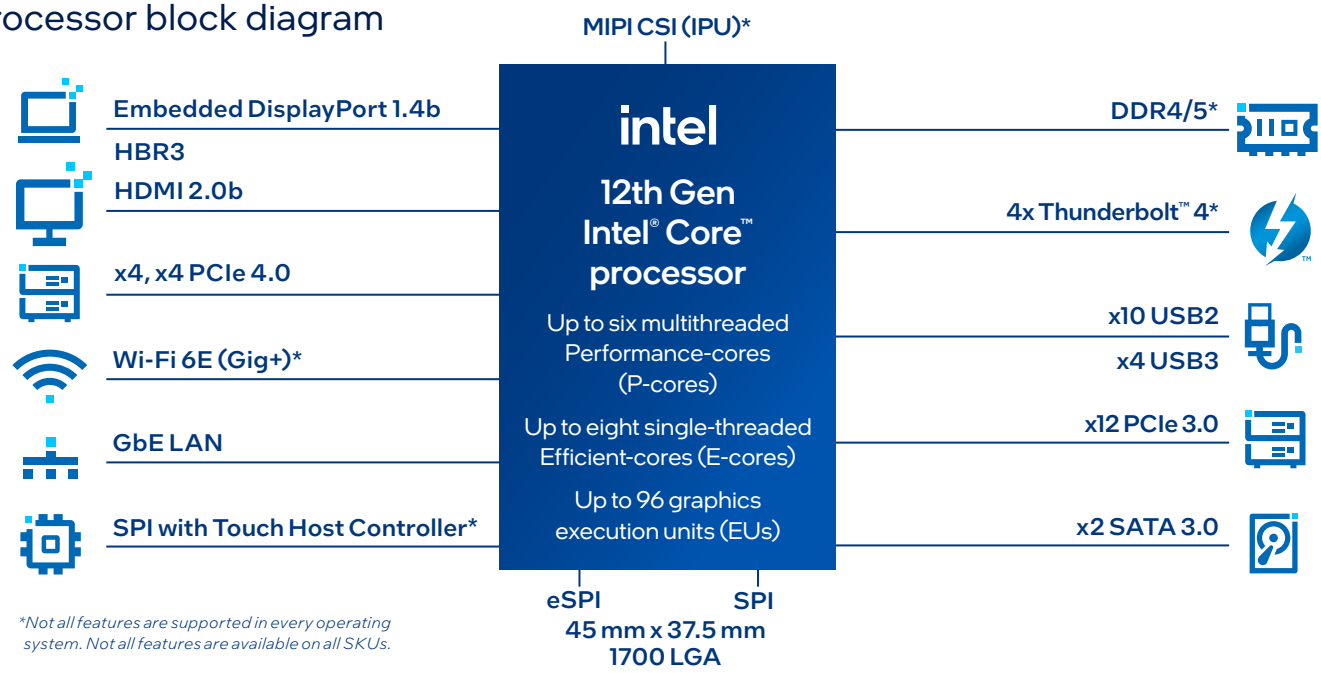
Software[5]

- Yocto Project Linux, Celadon (Android) in VM (community support)
- KVM hypervisor (community support)
- Support for Windows 10 IoT Enterprise 2021 LTSC
- Intel® oneAPI toolkit, Intel Distribution of OpenVINO toolkit, Intel® In-Band Manageability
- Intel® Slim Bootloader, UEFI BIOS

Connectivity

- Four Thunderbolt 4/USB 4.0 ports
- 2.5 Gb Ethernet discrete LAN
- Support for discrete Intel® Wi-Fi 6E with embedded-use conditions and 5G M.2 modules

Processor block diagram



*Not all features are supported in every operating system. Not all features are available on all SKUs.

Use cases

Retail: Smart registers and self-serve kiosks

Applications: All-in-one point-of-sale (POS) systems that combine self-checkout, AI analytics, and digital surveillance

- Performance hybrid architecture[1] can support multiple simultaneous workloads in small-format devices.
- Performance/efficient CPU cores plus up to 96 graphics EUs can drive graphics, media processing, and deep learning inference AI simultaneously.
- Integrated graphics virtualization and optimized Microsoft EFLOW accelerate OpenVINO-based AI inferencing running on Linux VMs.
- Low-power, high-performance processors in LGA-socket packages let you design sleek POS devices without sacrificing manufacturing and supply flexibility.

Education and hospitality: Smart displays with on-board computing

Applications: Interactive flat panel displays (IFPDs) for classrooms, wayfinding, and kiosks

- Performance hybrid architecture[1] plus up to 96 graphics EUs support powerful IFPDs with 8K graphics and deep learning inference AI.
- Four display pipes support 2x2 video walls of 4K at 60 Hz or up to four discrete digital signs/menu boards.
- Pipelock on Windows drives smooth video wall experiences.
- Graphics engine supports up to 8K resolution for high-end displays.

Healthcare: High-performance graphics and deep learning AI

Applications: Ultrasound imaging, medical carts, endoscopy machines, clinical devices

- Improved graphics performance, DDR5 memory support, and multiple PCIe 4.0 lanes to the CPU provide the bandwidth, memory, and processing power that advanced medical imaging needs.
- Intel DL Boost AI acceleration on the CPU plus up to 96 graphics EUs can power AI-based diagnostics and smart assistants for ultrasound procedures.
- Long-life availability[4] provides hardware stability so medical device manufacturers can certify hardware less often.

Vision, safety, and security: Multicamera installations with AI computer vision

Applications: Network video recorders with integrated AI box

- More cores, more threads, more graphics processing power mean NVRs can run more workloads and fulfill more functions in a single device.
- Two video decode boxes support up to 12x 4K30 or 48x 1080p at 30fps HEVC video decoding.
- Two video decode boxes support up to 64x channels of 1080p at 30fps decode H.265 (2 Mbps).
- Four display pipes support four discrete 4K displays at 60 Hz, competitive for use cases featuring 2x2 multiview video walls.
- Up to 96 graphics EUs plus performance hybrid architecture[1] with Intel DL Boost improve AI processing for object detection, classification, and other deep learning inference applications.

Software overview

CATEGORY	OPERATING SYSTEMS/SDKS/ BOOTLOADERS/HYPERVISORS	IMPLEMENTATION	DISTRIBUTION AND SUPPORT
Operating systems[a]	Windows 10 IoT Enterprise 2021 LTSC	Intel	Intel, Microsoft
	Ubuntu, Red Hat Enterprise, WR Linux[b]	Canonical Ltd., Attachmate Group, Red Hat, and Wind River Systems	Canonical Ltd., Attachmate Group, Red Hat, and Wind River Systems
	Yocto Project BSP tool-based embedded Linux distribution	Intel	Intel, Yocto Project community
	Celadon (Android) in VM	Intel	Intel, Celadon community
Hypervisors	KVM[b]	KVM	KVM community
Boot Loaders[c]	UEFI/BIOS and Intel® FSP	Intel	Intel, IBVs
	Intel® Slim Bootloader and Intel® FSP	Intel	Intel, SBL community
SDK	Intel® oneAPI Video Processing Library (Intel® oneVPL)	Intel	Intel
	Intel® Distribution of OpenVINO™ toolkit	Intel	Intel
	Intel® oneAPI toolkit	Intel	Intel
	Intel® In-band Manageability and Intel® AMT	Intel	Intel

a. Not all features are supported in every operating system. Refer to the Intel® IoT Solutions Community for partner contact information.
b. Supported by Intel via upstreaming to open source community. Adoption into individual Linux distributions/hypervisors is dependent upon the OS/HW vendors.
c. Legacy boot is not supported for Windows or Linux. Customers should work with their BIOS vendors for enabling/validating legacy BIOS features.

12th Gen Intel® Core™ processors (PS HL series, 45W base power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i7-12800HL Processor 99AXW2 FJ8071504806920	14	6	8	20	24 MB	4.8	3.7	**2.4 (@45W)** 1.6 (@35W)	1.8	1.4

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
Yes	Corp	Consumer	Intel® Iris® Xᵉ Graphics[C]	96	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	65W (Max Assured Power) **45W (Base Power)** 35W (Min Assured Power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i7-12700HL Processor 99AXW3 FJ8071504806927	14	6	8	20	24 MB	4.7	3.5	**2.3 (@45W)** 1.6 (@35W)	1.7	1.4

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp	Consumer	Intel® Iris® Xᵉ Graphics[C]	96	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	65W (Max Assured Power) **45W (Base Power)** 35W (Min Assured Power)

12th Gen Intel® Core™ processors (PS HL series, 45W base power) (continued)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i5-12600HL Processor 99AXWM FJ8071504806927	12	4	8	16	18 MB	4.5	3.3	**2.7 (@45W)** 1.7 (@35W)	2	1.4

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
Yes	Corp	Consumer	Intel® Iris® Xᵉ Graphics[C]	80	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	65W (Max Assured Power) **45W** **(Base Power)** 35W (Min Assured Power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i5-12500HL Processor 99AXWV FJ8071504806924	12	4	8	16	18 MB	4.5	3.3	**2.5 (@45W)** 1.7 (@35W)	1.8	1.3

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp	Consumer	Intel® Iris® Xᵉ Graphics[C]	80	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	65W (Max Assured Power) **45W** **(Base Power)** 35W (Min Assured Power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i3-12300HL Processor 99AXXK FJ8071504806926	8	4	4	12	12 MB	4.4	3.3	**2 (@45W)** 1.1 (@35W)	1.5	1.2

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp[D]	Consumer	Intel® UHD Graphics	48	1	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	65W (Max Assured Power) **45W** **(Base Power)** 35W (Min Assured Power)

12th Gen Intel® Core™ processors (UL series, 15W base power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i7-1265UL Processor 99C2Z1 8071504827804	10	2	8	12	12 MB	4.8	3.6	2.6 (@28W) **1.7(@15W)** 1.1 (@12W)	1.3	1.25

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
Yes	Corp	Consumer	Intel® Iris® Xᵉ Graphics[C]	96	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	28W (Max Assured Power) **15W** **(Base Power)** 12W (Min Assured Power)

12th Gen Intel® Core™ processors (UL series, 15W base power) (continued)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i7-1255UL Processor 99C357 8071504827807	10	2	8	12	12 MB	4.7	3.5	2.6 (@28W) **1.7(@15W)** 1.1 (@12W)	1.2	1.25

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp	Consumer	Intel® Iris® Xe Graphics[C]	96	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	28W (Max Assured Power) **15W** **(Base Power)** 12W (Min Assured Power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i5-1245UL Processor 99C30W 8071504828011	10	2	8	12	12 MB	4.4	3.3	2.5 (@28W) **1.5 (@15W)** 1.0 (@12W)	1.2	1.2

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
Yes	Corp	Consumer	Intel® Iris® Xe Graphics[C]	80	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	28W (Max Assured Power) **15W** **(Base Power)** 12W (Min Assured Power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i5-1235UL Processor 99C33T 8071504828015	10	2	8	12	12 MB	4.4	3.3	2.5 (@28W) **1.5 (@15W)** 1.0 (@12W)	1.1	1.2

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp	Consumer	Intel® Iris® Xe Graphics[C]	80	2	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	28W (Max Assured Power) **15W** **(Base Power)** 12W (Min Assured Power)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Core™ i3-1215UL Processor 99C310 8071504828012	6	2	4	8	10 MB	4.4	3.3	2.5 (@28W) **1.2 (@15W)** 0.8 (@12W)	0.9	1.1

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp[D]	Consumer	Intel® UHD Graphics	64	1	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	28W (Max Assured Power) **15W** **(Base Power)** 12W (Min Assured Power)

12th Gen Intel® Core™ processors (UL series, 15W base power) (continued)

Processor MM# Order Code	Processor Cores	Number of P-cores	Number of E-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz)[B]		Processor Base Frequency (GHz)		Graphics Max Freq (GHz)
						P-core	E-core	P-core	E-core	
Intel® Celeron® 7305L Processor 99C311 CM8071504828013	5	1	4	6	8 MB	–	–	– (@28W) **1.0 (@15W)** 0.8 (@12W)	0.9	1.1

Intel® Platform	Version and Type of Firmware Support		Processor Graphics	Number of Execution Units (EUs)	Video Decode Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	Processor Base Power (W)
Intel vPro® Enterprise[A]	ME16	ME16							
No	Corp[D]	Consumer	Intel® UHD Graphics	48	1	8 (CPU) 12 (PCH)	DDR5-4800 DDR4-3200	64 GB	28W (Max Assured Power) **15W** **(Base Power)** 12W (Min Assured Power)

Intel® processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.

All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards).

All processors support Intel® Virtualization Technology (Intel® VT-x, VT-d).

A. Intel vPro® Enterprise includes Intel® TXT, Intel® Hardware Shield, and Intel® AMT. Please refer to vPro brand requirements for full details (RDC #635949).

B. The frequency of cores and core types varies by workload, power consumption and other factors.
Visit intel.com/content/www/us/en/architecture-and-technology/turbo-boost/intel-turbo-boost-technology for more information.

C. To use the Intel® Iris® Xᵉ brand, the system must be populated with 128-bit (dual-channel) memory. Otherwise, use the Intel® UHD brand.

D. Validated, but Intel® Active Management and other security features not available.

Learn more about 12th Gen Intel Core processors at intel.com/12thgeniot.

1. Performance hybrid architecture combines two new core microarchitectures, Performance-cores (P-cores) and Efficient-cores (E-cores), on a single processor die. Select 12th Gen Intel® Core™ processors (certain 12th Gen Intel® Core™ i5 processors and lower) do not have performance hybrid architecture, only P-cores.
2. Built into the hardware, Intel® Thread Director is provided only in performance hybrid architecture configurations of 12th Gen Intel® Core™ processors; OS enablement is required. Available features and functionality vary by OS.
3. Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. For more complete information about performance and benchmark results, visit intel.com/PerformanceIndex.

   Performance results are based on Intel measurements as of June 2022.

   12th Gen Intel® Core™ processor
   Processor: Intel® Core™ i7-12800HL PL1=45W, (6P+8E) 14C20T turbo up to 4.8 GHz
   Graphics: Intel® Iris® Xe graphics with up to 96 EUs
   Memory: DDR5-4800 64 GB
   Storage: Samsung SSD 970 EVO Plus 1 TB
   Platform/motherboard: Intel Corporation Alder Lake-PS DDR5 RVP
   OS: Windows 10 Enterprise LTSC 21H2
   BIOS: ADLPFWI1.R00.3137.B00.2203291427 03/29/2022
   CPUz microcode: 416h

   10th Gen Intel® Core™ processor
   Processor: Intel® Core™ i7-10700 PL1=65W TDP, 8C16T turbo up to 4.8 GHz
   Graphics: Intel® UHD Graphics 630
   Memory: DDR4-2933 64 GB
   Storage: Samsung SSD 970 EVO Plus 1 TB
   Platform/motherboard: ASROCK IMB-1221-L Mini-ITX
   OS: Windows 10 Enterprise LTSC 21H2
   BIOS: AMI UEFI 03/23/2021
   CPUz microcode: CAh

   Workloads

   SPEC CPU2017 is a benchmark from the SPEC consortium (spec.org) that measures computer performance and throughput using compute-intensive application subtests.

   3DMark Fire Strike measures DirectX 11 gaming performance for PCs and includes two graphics tests, a physics test, and a combined test that stresses the CPU and GPU.

   MLPerf v1.1 Inference Edge/Mobile with Offline Scenario using OpenVINO™ 2021.4.1 framework is a benchmark suite for measuring how fast systems can process inputs and produce results using a trained model on Intel® UHD Graphics. Result not verified by MLPerf. MLPerf name and logo are trademarks. See mlperf.org for more information.
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5. Not all features are supported in every operating system. Refer to the Intel® IoT Solutions Community for partner contact information.

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Not all features are available on all SKUs.

Not all features are supported in every operating system.

Intel® technologies may require enabled hardware, software, or service activation.

No product or component can be absolutely secure.

Your costs and results may vary.

1022/BC/CMD/PDF