Intel® Core™ i5-12500 Processor

18M Cache, up to 4.60 GHz

Specifications

Ordering and Compliance

Drivers and Software

Support

Essentials

Export specifications

Product Collection	12th Generation Intel® Core™ i5 Processors
Code Name	Products formerly Alder Lake
Vertical Segment	Desktop
Processor Number	i5-12500
Lithography	Intel 7
Use Conditions	PC/Client/Tablet, Workstation
Recommended Customer Price	$222.00-$232.00

Sign in with your CNDA account to view additional SKU details.

CPU Specifications

Total Cores	6
# of Performance-cores	6
# of Efficient-cores	0
Total Threads	12
Max Turbo Frequency	4.60 GHz
Performance-core Max Turbo Frequency	4.60 GHz
Performance-core Base Frequency	3.00 GHz
Cache	18 MB Intel® Smart Cache
Total L2 Cache	7.5 MB
Processor Base Power	65 W
Maximum Turbo Power	117 W

Supplemental Information

Marketing Status	Launched
Launch Date	Q1'22
Embedded Options Available	Yes
Datasheet	View now

Memory Specifications

Max Memory Size (dependent on memory type)	128 GB

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Ordering and Compliance

Drivers and Software

Support

Memory Types	Up to DDR5 4800 MT/s Up to DDR4 3200 MT/s
Max # of Memory Channels	2
Max Memory Bandwidth	76.8 GB/s
ECC Memory Supported ‡	Yes

GPU Specifications

GPU Name‡	Intel® UHD Graphics 770
Graphics Base Frequency	300 MHz
Graphics Max Dynamic Frequency	1.45 GHz
Graphics Output	eDP 1.4b, DP 1.4a, HDMI 2.1
Execution Units	32
Max Resolution (HDMI)‡	4096 x 2160 @ 60Hz
Max Resolution (DP)‡	7680 x 4320 @ 60Hz
Max Resolution (eDP - Integrated Flat Panel)‡	5120 x 3200 @ 120Hz
DirectX* Support	12
OpenGL* Support	4.5
OpenCL* Support	3.0
Multi-Format Codec Engines	2
Intel® Quick Sync Video	Yes
Intel® Clear Video HD Technology	Yes
# of Displays Supported ‡	4
Device ID	0x4690

Expansion Options

Direct Media Interface (DMI) Revision	4.0
Max # of DMI Lanes	8
Scalability	1S Only
PCI Express Revision	5.0 and 4.0
PCI Express Configurations ‡	Up to 1x16+4, 2x8+4
Max # of PCI Express Lanes	20

Package Specifications

Sockets Supported	FCLGA1700
Max CPU Configuration	1
Thermal Solution Specification	PCG 2020C
$T_{JUNCTION}$	100°C
Package Size	45.0 mm x 37.5 mm

Advanced Technologies

Intel® Gaussian & Neural Accelerator	3.0
Intel® Thread Director	No
Intel® Deep Learning Boost (Intel® DL Boost) on CPU	Yes
Intel® Optane™ Memory Supported ‡	Yes
Intel® Speed Shift Technology	Yes

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Intel® Turbo Boost Max Technology 3.0 ‡	No
Intel® Turbo Boost Technology ‡	2.0
Intel® Hyper-Threading Technology ‡	Yes
Intel® 64 ‡	Yes
Instruction Set	64-bit
Instruction Set Extensions	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
Idle States	Yes
Enhanced Intel SpeedStep® Technology	Yes
Thermal Monitoring Technologies	Yes
Intel® Volume Management Device (VMD)	Yes

Security & Reliability

Intel vPro® Eligibility ‡	Intel vPro® Enterprise, Intel vPro® Essentials
Intel® Threat Detection Technology (TDT)	Yes
Intel® Active Management Technology (AMT) ‡	Yes
Intel® Standard Manageability (ISM) ‡	Yes
Intel® One-Click Recovery ‡	Yes
Intel® Hardware Shield Eligibility ‡	Yes
Intel® Control-Flow Enforcement Technology	Yes
Intel® Total Memory Encryption - Multi Key	Yes
Intel® Total Memory Encryption	Yes
Intel® AES New Instructions	Yes
Secure Key	Yes
Intel® OS Guard	Yes
Intel® Trusted Execution Technology ‡	Yes
Execute Disable Bit ‡	Yes
Intel® Boot Guard	Yes
Mode-based Execute Control (MBEC)	Yes
Intel® Stable IT Platform Program (SIPP)	Yes
Intel® Virtualization Technology with Redirect Protection (VT-rp) ‡	Yes
Intel® Virtualization Technology (VT-x) ‡	Yes
Intel® Virtualization Technology for Directed I/O (VT-d) ‡	Yes
Intel® VT-x with Extended Page Tables (EPT) ‡	Yes

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Specifications

Ordering and Compliance

Drivers and Software

Support

Refer to Datasheet for formal definitions of product properties and features.

‡ This feature may not be available on all computing systems. Please check with the system vendor to determine if your system delivers this feature, or reference the system specifications (motherboard, processor, chipset, power supply, HDD, graphics controller, memory, BIOS, drivers, virtual machine monitor-VMM, platform software, and/or operating system) for feature compatibility. Functionality, performance, and other benefits of this feature may vary depending on system configuration.

Some products can support AES New Instructions with a Processor Configuration update, in particular, i7-2630QM/i7-2635QM, i7-2670QM/i7-2675QM, i5-2430M/i5-2435M, i5-2410M/i5-2415M. Please contact OEM for the BIOS that includes the latest Processor configuration update.

“Announced” SKUs are not yet available. Please refer to the Launch Date for market availability.

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/content/www/us/en/processors/processor-numbers.html for details.

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

Intel® Arc™ graphics only available on select H-series Intel® Core™ Ultra processor powered systems with at least 16GB of system memory in a dual-channel configuration. OEM enablement required; check with OEM or retailer for system configuration details.

See http://www.intel.com/content/www/us/en/architecture-and-technology/hyper-threading/hyper-threading-technology.html?wapkw=hyper+threading for more information including details on which processors support Intel® HT Technology.

Max Turbo Frequency refers to the maximum single-core processor frequency that can be achieved with Intel® Turbo Boost Technology. See www.intel.com/technology/turboboost/ for more information and applicability of this technology.

Processors that support 64-bit computing on Intel® architecture require an Intel 64 architecture-enabled BIOS.

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Specifications

Ordering and Compliance

Drivers and Software

Support

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