



Intel® Core™ i7-11850HE Processor

24M Cache, up to 4.70 GHz

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CPU Specifications	Product Collection	11th Generation Intel® Core™ i7 Processors	
Supplemental Information	Code Name	Products formerly Tiger Lake	
Memory Specifications	Vertical Segment	Embedded	
GPU Specifications	Processor Number ⓘ	i7-11850HE	
Expansion Options	Lithography ⓘ	10 nm SuperFin	
Package Specifications	Recommended Customer Price ⓘ	\$400.00	
Advanced Technologies	Use Conditions ⓘ	Embedded Broad Market Commercial Temp	
Security & Reliability			
CPU Specifications			
Total Cores ⓘ		8	
Total Threads ⓘ		16	
Max Turbo Frequency ⓘ		4.70 GHz	
Cache ⓘ		24 MB Intel® Smart Cache	
Configurable TDP-up Base Frequency ⓘ		2.60 GHz	
Configurable TDP-up ⓘ		45 W	
Configurable TDP-down Base Frequency ⓘ		2.10 GHz	
Configurable TDP-down ⓘ		35 W	
Supplemental Information			
Marketing Status		Launched	
Launch Date ⓘ		Q3'21	
Embedded Options Available ⓘ		Yes	
Memory Specifications			
Max Memory Size (dependent on memory type) ⓘ		128 GB	
Memory Types ⓘ		DDR4-3200	
Max # of Memory Channels ⓘ		2	
ECC Memory Supported [†] ⓘ		No	
GPU Specifications			
GPU Name [‡]		Intel® UHD Graphics for 11th Gen Intel® Processors	
Graphics Base Frequency ⓘ		350 MHz	
Graphics Max Dynamic Frequency ⓘ		1.35 GHz	
Graphics Output ⓘ		eDP 1.4b, MIPI-DSI 2.0, DP 1.4, HDMI 2.0b	
Execution Units ⓘ		32	
Max Resolution (HDMI) [‡] ⓘ		4096x2304@60Hz	
Max Resolution (DP) [‡] ⓘ		7680x4320@60Hz	
Max Resolution (eDP - Integrated Flat Panel) [‡] ⓘ		4096x2304@60Hz	
DirectX [®] Support ⓘ		12.1	
OpenGL [®] Support ⓘ		4.6	
OpenCL [®] Support ⓘ		3.0	
Intel® Quick Sync Video ⓘ		Yes	
# of Displays Supported [‡]		4	
Device ID		0x9A60	
Expansion Options			
Intel® Thunderbolt™ 4 ⓘ		Yes	
Microprocessor PCIe Revision ⓘ		Gen 4	
Chipset / PCH PCIe Revision ⓘ		Gen 3	
PCI Express Configurations [†] ⓘ		Up to 1x16+1x4, 2x8+1x4, 1x8+3x4	
Max # of PCI Express Lanes ⓘ		20	
Package Specifications			
Sockets Supported ⓘ		FCBGA1787	
Max CPU Configuration		1	
T _{JUNCTION} ⓘ		100°C	
Package Size		50 x 26.5	
Operating Temperature (Maximum)		100 °C	
Operating Temperature (Minimum)		0 °C	
Advanced Technologies			
Intel® Gaussian & Neural Accelerator ⓘ		2.0	
Intel® Image Processing Unit ⓘ		6.0	
Intel® Smart Sound Technology ⓘ		Yes	
Intel® High Definition Audio ⓘ		Yes	
MIPI SoundWire [®] ⓘ		1.1	
Intel® Deep Learning Boost (Intel® DL Boost) on CPU ⓘ		Yes	
Intel® Speed Shift Technology ⓘ		Yes	
Intel® Turbo Boost Technology [‡] ⓘ		2.0	
Intel® Hyper-Threading Technology [†] ⓘ		Yes	
Instruction Set ⓘ		64-bit	
Instruction Set Extensions ⓘ		Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2, Intel® AVX-512	
# of AVX-512 FMA Units ⓘ		8	
Thermal Monitoring Technologies ⓘ		Yes	
Intel® Volume Management Device (VMD) ⓘ		Yes	
Security & Reliability			
Intel vPro® Eligibility [†] ⓘ		Intel vPro® Platform	
Intel® Control-Flow Enforcement Technology ⓘ		Yes	
Intel® Total Memory Encryption ⓘ		Yes	
Intel® AES New Instructions ⓘ		Yes	
Intel® Software Guard Extensions (Intel® SGX) ⓘ		No	
Intel® OS Guard		Yes	
Intel® Trusted Execution Technology [‡] ⓘ		Yes	
Intel® Boot Guard ⓘ		Yes	
Mode-based Execute Control (MBEC) ⓘ		Yes	
Intel® Stable IT Platform Program (SIPP) ⓘ		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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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 or software, and/or operating system) for feature compatibility. Functionality, performance, and other benefits of this feature may vary depending on system configuration.

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.

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

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.

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.

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.