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Intel® Core™ i5-1145G7E Processor

8M Cache, up to 4.10 GHz

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Essentials

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Product Collection	11th Generation Intel® Core™ i5 Processors
Code Name	Products formerly Tiger Lake
Vertical Segment	Embedded
Processor Number ❓	i5-1145G7E
Status	Launched
Launch Date ❓	Q3'20
Lithography ❓	10 nm SuperFin
Use Conditions ❓	Embedded Broad Market Commercial Temp
Recommended Customer Price ❓	

CPU Specifications

# of Cores ❓	4
# of Threads ❓	8
Processor Base Frequency ❓	1.50 GHz
Max Turbo Frequency ❓	4.10 GHz
Cache ❓	8 MB Intel® Smart Cache
Bus Speed ❓	4 GT/s
TDP ❓	15 W
Configurable TDP-up Frequency ❓	2.60 GHz
Configurable TDP-up ❓	28 W
Configurable TDP-down Frequency ❓	1.10 GHz

Configurable TDP-down ?	12 W

Supplemental Information

Embedded Options Available ?	Yes

Memory Specifications

Max Memory Size (dependent on memory type) ?	64 GB
Memory Types ?	DDR4-3200, LPDDR4x-4267
Max # of Memory Channels ?	2
ECC Memory Supported ‡ ?	No

Processor Graphics

Processor Graphics ‡ ?	Intel® Iris® Xe Graphics
Graphics Max Dynamic Frequency ?	1.30 GHz
Graphics Output ?	eDP 1.4b, MIPI-DSI 2.0, DP 1.4, HDMI 2.0b
Execution Units ?	80
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
Intel® Quick Sync Video ?	Yes
Intel® Clear Video HD Technology ?	Yes
# of Displays Supported ‡	4
Device ID	0x9A49
OpenCL* Support ?	2.0

Expansion Options

Intel® Thunderbolt™ 4 ?	Yes
Microprocessor PCIe Revision ?	Gen 4
Chipset / PCH PCIe Revision ?	Gen 3

Package Specifications

Sockets Supported ?	FCBGA1449
Max CPU Configuration	1
$T_{JUNCTION}$?	100C
Operating Temperature Range	0°C to 100°C
Operating Temperature (Maximum)	100 °C
Package Size	46.5x25

Operating Temperature (Minimum)	0 ℃

Advanced Technologies

Intel® Deep Learning Boost (Intel® DL Boost) ?	Yes
Intel® Speed Shift Technology ?	Yes
Intel® Turbo Boost Technology ‡ ?	2.0
Intel vPro® Platform Eligibility ‡ ?	Yes
Intel® Hyper-Threading Technology ‡ ?	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
Instruction Set ?	64-bit
Instruction Set Extensions ?	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2, Intel® AVX-512
Idle States ?	Yes
Thermal Monitoring Technologies ?	Yes
Intel® Volume Management Device (VMD) ?	Yes
Intel® Gaussian and Neural Accelerator 2.0 ?	Yes
Intel® Image Processing Unit ?	6.0
Intel® Smart Sound Technology ?	Yes
Intel® High Definition Audio ?	Yes
MIPI SoundWire* ?	1.1

Security & Reliability

Intel® AES New Instructions ?	Yes
Intel® Software Guard Extensions (Intel® SGX) ?	No
Intel® Trusted Execution Technology ‡ ?	Yes
Intel® OS Guard	Yes
Intel® Boot Guard ?	Yes
Mode-based Execute Control (MBE) ?	Yes
Intel® Control-Flow Enforcement Technology ?	Yes
Intel® Total Memory Encryption ?	Yes

More support options for Intel® Core™ i5-1145G7E Processor (8M Cache, up to 4.10 GHz)

Product Support

Downloads and Software

Support Community

Warranty and Replacement

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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 software, and/or operating system) for feature compatibility. Functionality, performance, and other benefits of this feature may vary depending on system configuration.

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.

System and Maximum TDP is based on worst case scenarios. Actual TDP may be lower if not all I/Os for chipsets are used.

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

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.

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.

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.