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Essentials

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Product Collection

Vertical Segment	Embedded	Desktop	Desktop	Desktop
Processor Number	i7-12700E	i7-12700	i7-12700F	i7-12700KF
Lithography	Intel 7	Intel 7	Intel 7	Intel 7
Recommended Customer Price	\$378.00	\$373.00-\$383.00	\$345.00-\$355.00	\$422.00-\$432.00

CPU Specifications

Total Cores	12	12	12	12
# of Performance-cores	8	8	8	8
# of Efficient-cores	4	4	4	4

Total Threads		20	20	20	20
Max Turbo Frequency		4.80 GHz	4.90 GHz	4.90 GHz	5.00 GHz
Intel® Turbo Boost Technology 2.0 Frequency ‡		4.80 GHz			
Performance-core Max Turbo Frequency		4.80 GHz	4.80 GHz	4.80 GHz	4.90 GHz
Efficient-core Max Turbo Frequency		3.60 GHz	3.60 GHz	3.60 GHz	3.80 GHz
Performance-core Base Frequency		2.10 GHz	2.10 GHz	2.10 GHz	3.60 GHz
Efficient-core Base Frequency		1.60 GHz	1.60 GHz	1.60 GHz	2.70 GHz
Cache		25 MB Intel® Smart Cache	25 MB Intel® Smart Cache	25 MB Intel® Smart Cache	25 MB Intel® Smart Cache
Total L2 Cache		12 MB	12 MB	12 MB	12 MB
Feedback	Processor Base Power	65 W	65 W	65 W	125 W
	Intel® Turbo Boost Max Technology 3.0 Frequency †		4.90 GHz	4.90 GHz	5.00 GHz
	Maximum Turbo Power		180 W	180 W	190 W
Supplemental Information					
Marketing Status		Launched	Launched	Launched	Launched
Launch Date		Q1'22	Q1'22	Q1'22	Q4'21
Embedded Options Available		Yes	Yes	No	No
Use Conditions		Embedded Broad Market Commercial Temp	PC/Client/Tablet, Workstation	PC/Client/Tablet	PC/Client/Tablet

Datasheet		View now	View now	View now
Memory Specifications				
Max Memory Size (dependent on memory type)	128 GB	128 GB	128 GB	128 GB
Memory Types	Up to DDR5 4800 MT/s Up to DDR4 3200 MT/s	Up to DDR5 4800 MT/s Up to DDR4 3200 MT/s	Up to DDR5 4800 MT/s Up to DDR4 3200 MT/s	Up to DDR5 4800 MT/s Up to DDR4 3200 MT/s
Max # of Memory Channels	2	2	2	2
Max Memory Bandwidth	76.8 GB/s	76.8 GB/s	76.8 GB/s	76.8 GB/s
ECC Memory Supported [†]	Yes	Yes		
GPU Specifications				
GPU Name [†]	Intel® UHD Graphics 770	Intel® UHD Graphics 770		
Graphics Base Frequency	300 MHz	300 MHz		
Graphics Max Dynamic Frequency	1.50 GHz	1.50 GHz		
Graphics Output	eDP 1.4b, DP 1.4a, HDMI 2.1	eDP 1.4b, DP 1.4a, HDMI 2.1		
Execution Units	32	32		
Max Resolution (HDMI) [†]	4096 x 2160 @ 60Hz	4096 x 2160 @ 60Hz		
Max Resolution (DP) [‡]	7680 x 4320 @ 60Hz	7680 x 4320 @ 60Hz		

Feedback

Max Resolution (eDP - Integrated Flat Panel)†‡		5120 x 3200 @ 120Hz	5120 x 3200 @ 120Hz		
DirectX* Support		12	12		
OpenGL* Support		4.5	4.5		
OpenCL* Support		2.1	3.0		
Multi-Format Codec Engines		2	2		
Intel® Quick Sync Video		Yes	Yes		
Intel® Clear Video HD Technology		Yes	Yes		
# of Displays Supported †		4	4		
Device ID		0x4680	0x4680		
Feedback					
	Expansion Options				
Direct Media Interface (DMI) Revision		4.0	4.0	4.0	4.0
Max # of DMI Lanes		8	8	8	8
Scalability		1S Only	1S Only	1S Only	1S Only
PCI Express Revision		5.0 and 4.0	5.0 and 4.0	5.0 and 4.0	5.0 and 4.0
PCI Express Configurations †		Up to 1x16+4, 2x8+4	Up to 1x16+4, 2x8+4	Up to 1x16+4, 2x8+4	Up to 1x16+4, 2x8+4
Max # of PCI Express Lanes		20	20	20	20
Package Specifications					

Sockets Supported	FCLGA1700	FCLGA1700	FCLGA1700	FCLGA1700
Max CPU Configuration	1	1	1	1
Thermal Solution Specification	PCG 2020C	PCG 2020C	PCG 2020C	PCG 2020A
T _{JUNCTION}	100°C	100°C	100°C	100°C
Package Size	45.0 mm x 37.5 mm	45.0 mm x 37.5 mm	45.0 mm x 37.5 mm	45.0 mm x 37.5 mm
Max Operating Temperature	100 °C	100 °C	100 °C	100 °C
Advanced Technologies				
Feedback	Intel® Time Coordinated Computing (Intel® TCC) [‡]	Yes		
	Intel® Volume Management Device (VMD)	Yes	Yes	Yes
	Intel® Gaussian & Neural Accelerator	3.0	3.0	3.0
	Intel® Thread Director	Yes	Yes	Yes
	Intel® Deep Learning Boost (Intel® DL Boost) on CPU	Yes	Yes	Yes
	Intel® Optane™ Memory Supported [†]	No	Yes	Yes
	Intel® Speed Shift Technology	Yes	Yes	Yes
	Intel® Turbo Boost Max Technology 3.0 [†]	No	Yes	Yes
	Intel® Turbo Boost Technology [†]	2.0	2.0	2.0
	Intel® Hyper-Threading Technology [†]	Yes	Yes	Yes
	Intel® 64 [†]	Yes	Yes	Yes

Instruction Set	64-bit	64-bit	64-bit	64-bit
Instruction Set Extensions	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
Idle States	Yes	Yes	Yes	Yes
Enhanced Intel SpeedStep® Technology	Yes	Yes	Yes	Yes
Thermal Monitoring Technologies	Yes	Yes	Yes	Yes
Security & Reliability				
Intel vPro® Eligibility †	Intel vPro® Enterprise, Intel vPro® Essentials	Intel vPro® Enterprise, Intel vPro® Essentials		
Feedback	Intel® Threat Detection Technology (TDT)	Yes	Yes	
	Intel® Active Management Technology (AMT) †	Yes	Yes	
Intel® Standard Manageability (ISM) †	Yes	Yes	Yes	Yes
Intel® One-Click Recovery †	Yes	Yes		
Intel® Hardware Shield Eligibility †	Yes	Yes		
Intel® Control-Flow Enforcement Technology	Yes	Yes	Yes	Yes
Intel® Total Memory Encryption - Multi Key	No	Yes		
Intel® Total Memory Encryption	Yes	Yes		
Intel® AES New Instructions	Yes	Yes	Yes	Yes
Secure Key	Yes	Yes	Yes	Yes
Intel® OS Guard	Yes	Yes	Yes	Yes

Intel® Trusted Execution Technology [†]	Yes	Yes		
Execute Disable Bit [†]	Yes	Yes	Yes	Yes
Intel® Boot Guard	Yes	Yes	Yes	Yes
Mode-based Execute Control (MBEC)	Yes	Yes	Yes	Yes
Intel® Stable IT Platform Program (SIPP)	Yes	Yes		
Intel® Virtualization Technology (VT-x) [†]	Yes	Yes	Yes	Yes
Intel® Virtualization Technology for Directed I/O (VT-d) [†]	Yes	Yes	Yes	Yes
Intel® VT-x with Extended Page Tables (EPT) [†]	Yes	Yes	Yes	Yes
Intel® Virtualization Technology with Redirect Protection (VT-rp) [†]		Yes		

Feedback

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