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Understanding Embedded - Microprocessors

Embedded microprocessors are specialized computing chips designed to perform specific tasks within an embedded system. Unlike general-purpose microprocessors found in personal computers, embedded microprocessors are tailored for dedicated functions within larger systems, offering optimized performance, efficiency, and reliability. These microprocessors are integral to the operation of countless electronic devices, providing the computational power necessary for controlling processes, handling data, and managing communications.

Applications of **Embedded - Microprocessors**

Embedded microprocessors are utilized across a broad spectrum of applications, making them indispensable in

Details

Product Status	Discontinued at Digi-Key
Core Processor	Xeon Gold 5120T
Number of Cores/Bus Width	14 Core, 64-Bit
Speed	2.2GHz
Co-Processors/DSP	-
RAM Controllers	DDR4
Graphics Acceleration	No
Display & Interface Controllers	-
Ethernet	-
SATA	-
USB	-
Voltage - I/O	-
Operating Temperature	-
Security Features	-
Package / Case	3647-LGA Module
Supplier Device Package	3647-FCLGA (76x56.5)
Purchase URL	https://www.e-xfl.com/product-detail/advantech/96mpxe-2-2-19m36

Email: info@E-XFL.COM

Address: Room A, 16/F, Full Win Commercial Centre, 573 Nathan Road, Mongkok, Hong Kong



Intel® Xeon® Gold 5120T Processor

19.25M Cache, 2.20 GHz

Spec Code

SR3GC

Ordering Code

CD8067303535700

Intel® Xeon® Gold 5120T Processor (19.25M Cache, 2.20 GHz)

Code Name	Skylake		
Essentials			
Vertical Segment	Server		
Processor Number	5120T		
Status	Launched		
Launch Date	Q3'17		
Lithography	14 nm		
Recommended Customer Price	\$1,727.00		
Performance			
# of Cores	14		
# of Threads	28		
Processor Base Frequency	2.20 GHz		
Max Turbo Frequency	3.20 GHz		
Cache	19.25 MB L3		
# of UPI Links	2		
TDP	<u>105 W</u>		
Supplemental Information			
Embedded Options Available	Yes		
Conflict Free	Yes		
Datasheet	Link		
Product Brief	<u>Link</u>		
Memory Specifications			
Max Memory Size (dependent on mem	nory typ 768 GB		

Maximum Memory Speed 2.40 GHz Max # of Memory Channels 6 ECC Memory Supported ± Yes Expansion Options 3 Scalability S4S PCI Express Revision 3 Max # of PCI Express Lanes 48 Package Specifications Sockets Supported Sockets Supported FCLGA3647 T _{CASE 89°C Package Size 76.0mm x 56.5mm Low Halogen Options Available See MDDS Advanced Technologies Intel® Optians [™] Memory Supported ‡ Intel® Optians [™] Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Virtualization Technology 1 Yes Intel® Trachanology 1 Yes Intel® TSX-NI Yes Intel® SE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® Rescurition Technology 1 Yes Intel® New Instructions Yes Intel® New Instructions Yes Intel® Rescurition Technology 1 Yes}					
Max # of Memory Channels 6 ECC Memory Supported ± Yes Expansion Options S4S Scalability S4S PCI Express Revision 3 Max # of PCI Express Lanes 48 Package Specifications Sockets Supported Sockets Supported FCLGA3647 T _{CASE 89°C Package Size 76.0mm x 56.5mm Low Halogen Options Available See MDDS Advanced Technologies No Intel® Optane™ Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 1 Yes Intel® Virtualization Technology 1 Yes Intel® TSX-NI Yes Intel® SE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Res New Instructions Yes Intel® Run Sure Technology 1 Yes}	Memory Types	DDR4-2400			
ECC Memory Supported ± Yes Expansion Options Scalability S4S PCI Express Revision 3 Max # of PCI Express Lanes 48 Package Specifications Sockets Supported FCLGA3647 Sockets Supported FCLGA3647 See MDDS Package Size 76.0mm x 56.5mm See MDDS Advanced Technologies See MDDS See MDDS Intel® Optione ™ Memory Supported ‡ No No Intel® Optione ™ Memory Supported ‡ No No Intel® Speed Shift Technology Yes Yes Intel® Urbo Boost Technology 3.0 ‡ No No Intel® VPro ™ Technology ‡ Yes Yes Intel® TX-NI Yes Yes Intel® 64 ‡ Yes Yes Intel® Virtualization Technology (VT-x) ‡ Yes Yes Intel® 64 ‡ Yes Yes Yes Security & Reliability 1 Intel® SE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Vers Management Device (VMD) Security & Reliability Yes Security & Reliability	Maximum Memory Speed	2.40 GHz			
Expansion Options Scalability S4S PCI Express Revision 3 Max # of PCI Express Lanes 48 Package Specifications Sockets Supported Sockets Supported FCLGA3647 T _{CASE} 89°C Package Size 76.0mm x 56.5mm Low Halogen Options Available See MDDS Advanced Technologies No Intel® Optane™ Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Speed Shift Technology 3.0 ‡ No Intel® VPro™ Technology 1.0 ‡ Yes Intel® VPro™ Technology 1.0 ‡ Yes Intel® VPro™ Technology 1.0 ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Intel® 64 ‡ Yes Intel® Volume Management Device (VMD) Yes Security & Reliability 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Run Sure Technology ‡ Yes Intel® Run Sure Technology ‡ Yes <td>Max # of Memory Channels</td> <td>6</td>	Max # of Memory Channels	6			
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PCI Express Revision 3 Max # of PCI Express Lanes 48 Package Specifications FCLGA3647 Sockets Supported FCLGA3647 T _{CASE} 89°C Package Size 76.0mm x 56.5mm Low Halogen Options Available See MDDS Advanced Technologies Intel® Optane™ Memory Supported ‡ Intel® Optane™ Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® Turbo Boost Technology 1 Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® TSX-NI Yes Intel® TSX-NI Yes Intel® Optame Management Device (VMD) Yes Security & Reliability Intel® Velonume Management Device (VMD) Yes Security & Reliability Intel® Trusted Execution Technology ‡ Yes Intel® Trusted Execution Technology Yes Yes	Expansion Options				
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Sockets Supported FCLGA3647 T _{CASE} 89°C Package Size 76.0mm x 56.5mm Low Halogen Options Available See MDDS Advanced Technologies Intel® Optane™ Memory Supported ‡ No Intel® Optane™ Memory Supported ‡ No Intel® Speed Shift Technology Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® Turbo Boost Technology ‡ Yes Yes Intel® Turbo Boost Technology ‡ Yes Intel® Turbo Boost Technology ‡ Intel® Turbo Boost Technology ‡ Yes Intel® Turbo Boost Technology ‡ Intel® Turbo Boost Technology ‡ Yes Intel® TSX-NI Intel® Virtualization Technology (VT-x) ‡ Yes Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 Intel® 64 ‡ Yes Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Yes Intel® Run Sure Technology Yes Intel® Run Sure Technology	Max # of PCI Express Lanes	<u>48</u>			
T _{CASE} 89°C Package Size 76.0mm x 56.5mm Low Halogen Options Available See MDDS Advanced Technologies Intel® Optane™ Memory Supported ‡ Intel® Optane™ Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® Turbo Boost Technology ‡ Yes Intel® Typer-Threading Technology ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Intel® SE4.2, Intel® AVX2, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® Trusted Execution Technology ‡ Yes	Package Specifications				
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Advanced Technologies Intel® Optane™ Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® VPo™ Technology ‡ Yes Intel® VPo™ Technology ‡ Yes Intel® VPo™ Technology ‡ Yes Intel® Vpor™ Technology ‡ Yes Intel® Vpor™ Technology (VT-x) ‡ Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology ‡ Yes	Package Size	76.0mm x 56.5mm			
Intel® Optane ™ Memory Supported ‡ No Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® vPro™ Technology ‡ Yes Intel® Virualization Technology ‡ Yes Intel® Virualization Technology ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Velume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology ‡ Yes	Low Halogen Options Available	See MDDS			
Intel® Speed Shift Technology Yes Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® VPro™ Technology ‡ Yes Intel® VPro™ Technology ‡ Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® AES New Instructions Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes	Advanced Technologies				
Intel® Turbo Boost Max Technology 3.0 ‡ No Intel® Turbo Boost Technology 2 Intel® Turbo T [™] Technology ‡ Yes Intel® Hyper-Threading Technology ‡ Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Intel® Optane™ Memory Supported ‡	No			
Intel® Turbo Boost Technology 2 Intel® Turbo Boost Technology ‡ Yes Intel® vPro™ Technology ‡ Yes Intel® Hyper-Threading Technology ‡ Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Run Sure Technology ‡ Yes	Intel® Speed Shift Technology	Yes			
Intel® vPro™ Technology ‡ Yes Intel® Hyper-Threading Technology ‡ Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology 4 Yes	Intel® Turbo Boost Max Technology 3.0 ‡	No			
Intel® Hyper-Threading Technology ‡ Yes Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology # Yes	Intel® Turbo Boost Technology	2			
Intel® Virtualization Technology (VT-x) ‡ Yes Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Intel® vPro™ Technology ‡	Yes			
Intel® TSX-NI Yes Intel® 64 ‡ Yes Instruction Set Extensions Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512 # of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Yes Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Intel® Hyper-Threading Technology ‡	Yes			
Intel® 64 ‡YesInstruction Set ExtensionsIntel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512# of AVX-512 FMA Units1Intel® Volume Management Device (VMD)YesSecurity & ReliabilityYesIntel® AES New InstructionsYesIntel® Trusted Execution Technology ‡YesIntel® Run Sure TechnologyYes	Intel® Virtualization Technology (VT-x) ‡	Yes			
Instruction Set ExtensionsIntel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512# of AVX-512 FMA Units1Intel® Volume Management Device (VMD)YesSecurity & ReliabilityYesIntel® AES New InstructionsYesIntel® Trusted Execution Technology ‡YesIntel® Run Sure TechnologyYes	Intel® TSX-NI	Yes			
# of AVX-512 FMA Units 1 Intel® Volume Management Device (VMD) Yes Security & Reliability Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Intel® 64 ‡	Yes			
Intel® Volume Management Device (VMD) Yes Security & Reliability Intel® AES New Instructions Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Instruction Set Extensions	Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512			
Security & Reliability Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	# of AVX-512 FMA Units	1			
Intel® AES New Instructions Yes Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Intel® Volume Management Device (VMD) Yes				
Intel® Trusted Execution Technology ‡ Yes Intel® Run Sure Technology Yes	Security & Reliability				
Intel® Run Sure Technology Yes	Intel® AES New Instructions	Yes			
	Intel® Trusted Execution Technology ‡	Yes			
Mode-based Execute Control (MBE) Yes	Intel® Run Sure Technology	Yes			
	Mode-based Execute Control (MBE)	Yes			