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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 <sub>CASE     89°C       Package Size     76.0mm x 56.5mm       Low Halogen Options Available     See MDDS       Advanced Technologies     Intel® Optians <sup>™</sup> Memory Supported ‡       Intel® Optians <sup>™</sup> 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 &amp; Reliability     Yes       Intel® Rescurition Technology 1     Yes       Intel® New Instructions     Yes       Intel® New Instructions     Yes       Intel® Rescurition Technology 1     Yes</sub>	<b></b>				
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 <sub>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 &amp; Reliability     Yes       Intel® AES New Instructions     Yes       Intel® Res New Instructions     Yes       Intel® Run Sure Technology 1     Yes</sub>	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 <sub>CASE</sub> 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			
Scalability     S4S       PCI Express Revision     3       Max # of PCI Express Lanes     48       Package Specifications     Sockets Supported       Sockets Supported     FCLGA3647       T <sub>CASE     89°C       Package Size     76.0mm x 56.5mm       Low Halogen Options Available     See MDDS       Advanced Technologies     See MDDS       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® Virtualization Technology (VT-x) ‡     Yes       Intel® TSX-NI     Yes       Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512       # of AVX-512 FMA Units     1       Intel® Vartualization Set Extensions     Intel® SSE4.2, Intel® AVX, Intel® AVX2, Intel® AVX-512       # of AVX-512 FMA Units     1       Intel® Vartualized Execution Set Extensions     Yes       Security &amp; Reliability     Yes       Intel® AES New Instructions     Yes       Intel® Trusted Execution Technology ‡     Yes</sub>	ECC Memory Supported ‡	<u>Yes</u>			
PCI Express Revision       3         Max # of PCI Express Lanes       48         Package Specifications       FCLGA3647         Sockets Supported       FCLGA3647         T <sub>CASE</sub> 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				
Max # of PCI Express Lanes       48         Package Specifications       FCLGA3647         Sockets Supported       FCLGA3647         T <sub>CASE</sub> 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 ‡       Yes         Intel® VPro™ Technology ‡       Yes         Intel® Virtualization Technology (VT-x) ‡       Yes         Intel® TSX-NI       Yes         Intel® 64 ‡       Yes         Intel® Volume Management Device (VMD)       Yes         Security & Reliability       1         Intel® Volume Management Device (VMD)       Yes         Security & Reliability       Yes         Intel® Trusted Execution Technology ‡       Yes         Intel® New Instructions       Yes         Intel® Run Sure Technology Y       Yes	Scalability	S4S			
Package Specifications         Sockets Supported       FCLGA3647         T <sub>CASE</sub> 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 1       Yes         Intel® VPro ™ Technology 2       Intel® Virtualization Technology (VT-x) ‡         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® Trusted Execution Technology ‡       Yes         Intel® Volume Management Device (VMD)       Yes         Security & Reliability       1         Intel® Trusted Execution Technology ‡       Yes         Intel® Trusted Execution Technology ±       Yes	PCI Express Revision	3			
Sockets Supported       FCLGA3647         T <sub>CASE</sub> 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 <sub>CASE</sub> 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				
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       2         Intel® VPro™ Technology ‡       Yes         Intel® VPro™ Technology ‡       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	Sockets Supported	FCLGA3647			
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® VPro™ Technology ‡       Yes         Intel® VPro™ Technology ‡       Yes         Intel® Virtualization Technology (VT-x) ‡       Yes         Intel® TSX-NI       Yes         Intel® 64 ‡       Yes         Intel® 64 ‡       Yes         Intel® VAX-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	T <sub>CASE</sub>	89°C			
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 <sup>™</sup> 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			