

TQMx120UC / -PC / -HC

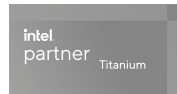
x86 Family



**COM Express® Compact Module with
12th Generation Intel® Core™ Processors.**

Based on

COM Express



HIGHLIGHTS

- ▶ 12th Generation Intel Core Processors Codename Alder Lake-P
- ▶ Inspiring Multi-Thread-Performance based on new Intel Performance-Hybrid-Technology with a mix of Performance-Cores and Efficient-Cores
- ▶ Flexible DDR5-4800 SO-DIMM memory configuration with up to 64 GB
- ▶ AI-Boost with VNNI + DP4a (new instruction sets for optimized inferencing and deep learning)
- ▶ Four simultaneous 4K high-resolution display outputs (or 2x 8K support) with brilliant graphics performance
- ▶ 2.5 Gigabit ETH
- ▶ PCIe Gen4 for NVMe and high-speed interconnect
- ▶ USB-4 and MIPI-CSI x4 support
- ▶ COM Express Rev. 3.1 (PICMG COM.0)

HIGHLIGHTS UC

- ▶ U15 Ultra-Low-Power Series with 12/15/28 W TDP*
- ▶ Up to 2 Performance-Cores + 8 Efficient-Cores + 96 GPU Execution Units
- ▶ Down to highly cost-optimized Intel® Celeron®

HIGHLIGHTS PC

- ▶ P28 Performance Series with 20/28 W TDP*
- ▶ Up to 4 Performance-Cores + 8 Efficient-Cores + 96 GPU Execution Units
- ▶ Extended Graphics capabilities with up to 4 simultaneous outputs

HIGHLIGHTS HC

- ▶ H45 High-Performance Series with 35/45 W TDP*
- ▶ Up to 6 Performance-Cores + 8 Efficient-Cores + 96 GPU Execution Units
- ▶ Up to 24 MB cache
- ▶ Extended Graphics capabilities with up to 4 simultaneous outputs
- ▶ Additional PCIe Gen4 Lanes

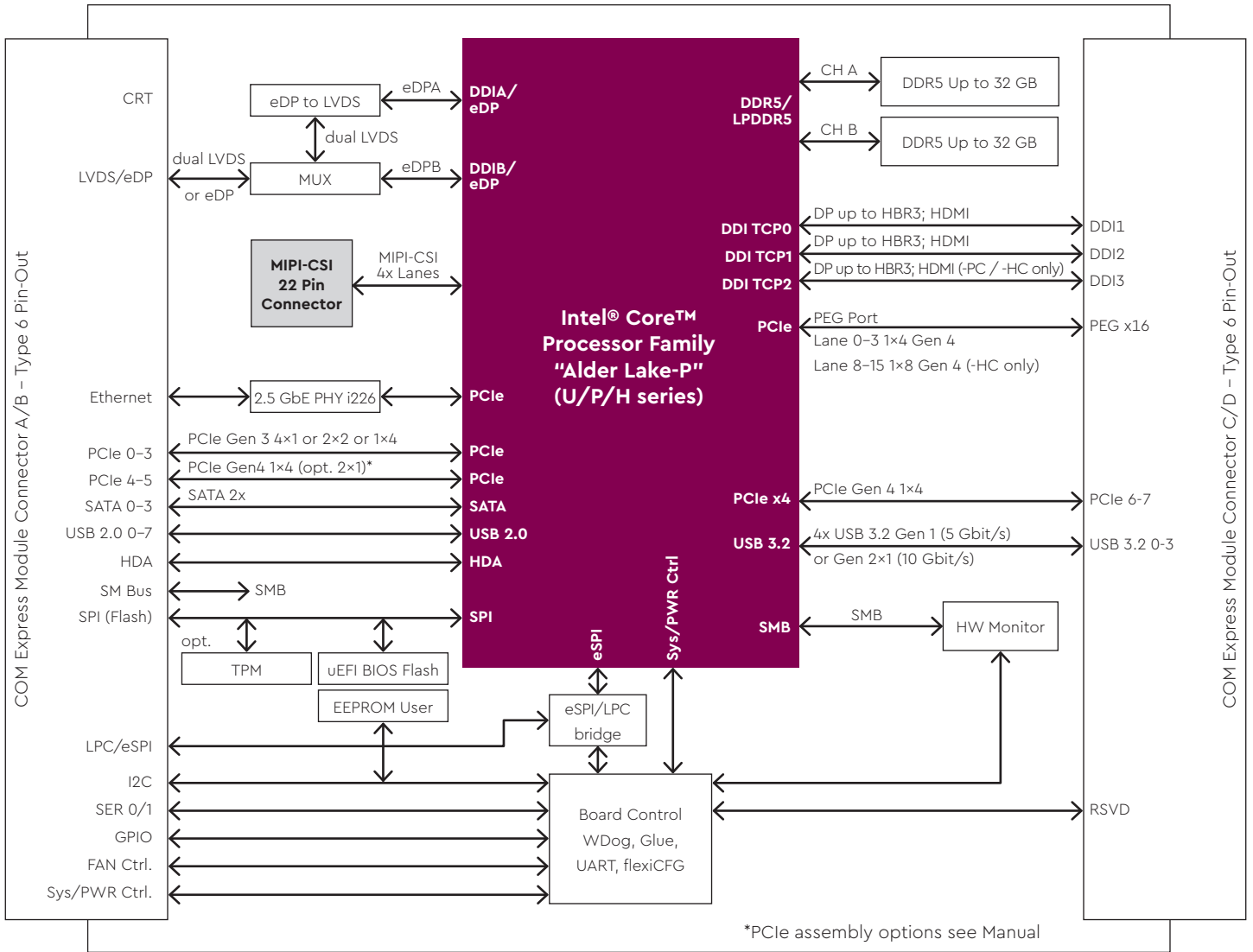
* TDP = Thermal Design Power. Information based on Processor Base Power (no Turbo)



TECHNICAL SPECIFICATION

	TQMX120UC	TQMX120PC	TQMX120HC
CPU	Intel Core i7-1265UE (10-Core) 2P+8E / 96 EU / 12 MB, up to 4.7 GHz Intel Core i5-1245UE (10-Core) 2P+8E / 80 EU / 12 MB, up to 4.4 GHz Intel Core i3-1215UE (6-Core) 2P+4E / 64 EU / 10 MB, up to 4.4 GHz Celeron 7305E (5-Core) 1P+4E / 48 EU / 8 MB, 1 GHz	Intel Core i7-1270PE (12-Core) 4P+8E / 96 EU / 18 MB, up to 4.5 GHz Intel Core i5-1250PE (12-Core) 4P+8E / 80 EU / 12 MB, up to 4.4 GHz Intel Core i3-1220PE (8-Core) 4P+4E / 48 EU / 12 MB, up to 4.2 GHz	Intel Core i7-12800HE (14-Core) 6P+8E / 96 EU / 24 MB, up to 4.6 GHz Intel Core i5-12600HE (12-Core) 4P+8E / 80 EU / 18 MB, up to 4.5 GHz Intel Core i3-12300HE (8-Core) 4P+4E / 48 EU / 12 MB, up to 4.3 GHz
Memory	DDR5-4800: up to 64 GB (2 SO-DIMMs) EEPROM 32 kbit		
Graphics	Up to 3 independent 4K display outputs: 2x DP/DP++ 1.4a with up to 8K / HDMI 1x eDP 1.4b or dual channel LVDS interface	Up to 4 independent 4K display outputs: 3x DP/DP++ 1.4a with up to 8K / HDMI 1x eDP 1.4b or dual channel LVDS interface	
Additional components and controller	1x TPM 2.0 (SLM9670) (opt.) TQMX86 board controller (WD and TQ-flexiCFG) Hardware monitor for thermal management		
Interfaces	8x PCIe Gen4 (up to 16 Gb/s per Lane) (x4 + x4)		16x PCIe Gen4 (up to 16 Gb/s per Lane) (x4 + x4 + x8)
	1x 2.5 Gigabit Ethernet (Intel® i226) 4x USB 3.2 Gen2 (up to 10 Gb/s) with USB 3.0 compatibility 8x USB 2.0 Up to 5x PCIe Gen3 (up to 8 Gb/s per Lane) (div. configurations) 2x SATA Gen3 (up to 6 Gb/s) 1x LPC or eSPI 1x I2C (master/slave capable) 1x SMBus 1x SPI (for external UEFI BIOS flash) 2x UART (Rx/Tx) (4-wire optional) 8x GPIO through TQ flexiCFG MIPI-CSI (4 lanes) on extra 22-pin connector		
Power supply	8.5 V ... 20 V , 5 V Standby (opt.), 3 V battery Power: typ. 15 W* / max. TBD	8.5 V ... 20 V , 5 V Standby (opt.), 3 V battery Power: typ. 28 W* / max. TBD	12 V , 5 V Standby (opt.), 3 V battery Power: typ. 45 W* / max. TBD
Environment	Standard temperature: 0°C ... +60°C		
Form factor/ dimensions	COM Express Compact, Type 6, 95 mm x 95 mm		

BLOCK DIAGRAM TQMx120UC / -PC / -HC



ORDERING INFORMATION

TQMx120UC-AA	Intel® Core™ i7-1265UE (2P+8E / 96 EU), TPM 2.0
TQMx120UC-AB	Intel® Core™ i5-1245UE (2P+8E / 80 EU), TPM 2.0
TQMx120UC-AC	Intel® Core™ i3-1215UE (2P+4E / 64 EU), TPM 2.0
TQMx120UC-AD	Intel® Celeron® 7305E (1P+4E / 48 EU)
TQMx120PC-AA	Intel® Core™ i7-1270PE (4P+8E / 96 EU), TPM 2.0
TQMx120PC-AB	Intel® Core™ i5-1250PE (4P+8E / 80 EU), TPM 2.0
TQMx120PC-AC	Intel® Core™ i3-1220PE (4P+4E / 48 EU), TPM 2.0
TQMx120HC-AA	Intel® Core™ i7-12800HE (6P+8E / 96 EU), TPM 2.0
TQMx120HC-AB	Intel® Core™ i5-12600HE (4P+8E / 80 EU), TPM 2.0
TQMx120HC-AC	Intel® Core™ i3-12300HE (4P+4E / 48 EU), TPM 2.0

Other configurations on request

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