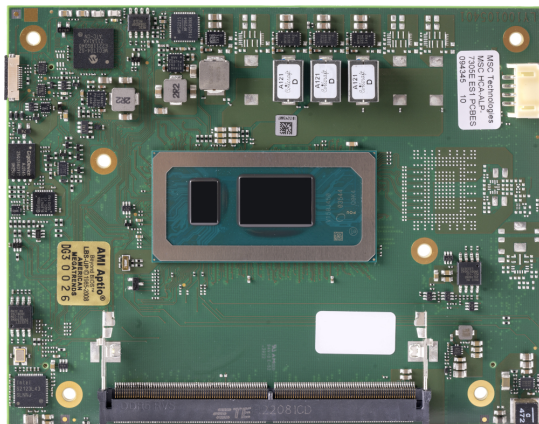


MSC HCA-ALP

Intel® Core™ 12th Generation



120 x 95



tbd



0 +60

IoT Solutions
Alliance

COM+HPC™

Description

The MSC HCA-ALP COM-HPC Client module features the 12th Gen Intel® Core™ processor, giving application designers a great variety of choices of power efficient and performant compute solutions. Offering a great scalability of performance the module is ideal for compute intense applications in instrumentation, high-end medical equipment, transportation, video surveillance and gaming. The new Intel® performance hybrid architecture combines Performance-cores and Efficient-cores with the Intel® Thread Director providing intelligent workload optimization. The architecture scales up to fourteen cores and twenty threads at 45/35W thermal design power (TDP). Applications requiring lower power dissipation can be operated with selected processor variants at 12W TDP.

For highest data throughput the module enables fast DDR5-4800 memory technology. Up to two SO-DIMMs can be installed for a total memory capacity from eight to sixty-four GB. I/O located on COM-HPC carrier designs can be connected to the module via up to eight PCIe Gen 3 lanes, up to eight PCIe Gen 4 lanes and an optional eight lane PEG port capable of PCIe Gen 4. The two Ethernet interfaces provide up to 2.5GbE bandwidth each based on the Intel i226 network controller. Further high-speed I/O can utilize USB ports featuring USB4 and USB 3.2.

System investments are well protected through long-term availability of the module, designed, and manufactured by Avnet Embedded. In addition, the COM-HPC standard enables performance scaling and migrating applications to future technology upgrades when they become available.

Highlights

- COM-HPC Client module, Size A
- 12th Gen Intel® Core™ processors
- Scalable CPU performance
- Up to fourteen cores, twenty threads
- Up to 64GB DDR5-4800 SDRAM, dual channel
- Intel® Iris® Xe architecture Graphics, up to 96 EUs
- Three DisplayPort/HDMI interfaces
- Embedded DisplayPort interface
- Up to four independent displays
- PCI Express® Gen 3, up to 8 lanes, PCI Express® Gen 4, up to 2x4
- PEG 1x8, PCIe Gen 4 (optional)
- Two USB4, two USB 3.2 Gen2, eight USB 2.0 ports
- Two UARTs
- Optional on-board NVMe SSD, up to 1TB
- Optional two SATA 6Gb/s mass storage interfaces
- Two 1 / 2.5 Gb Ethernet ports (Intel® i226)
- Trusted Platform Module TPM 2.0
- Long-term product availability

Technical Data - MSC HCA-ALP

Technology	x86
Formfactor	COM-HPC Size A
CPU	<p>12th Gen Intel® Core™ processors</p> <p>H-series</p> <p>Intel® Core™ i7-12800HE 6P+8E/20T, 2.4GHz, 96 EUs, 24MB L3, 45/35W cTDP</p> <p>Intel® Core™ i5-12600HE 4P+8E/16T, 2.5GHz, 80 EUs, 18MB L3, 45/35W cTDP</p> <p>Intel® Core™ i3-12300HE 4P+4E/12T, 1.9GHz, 48 EUs, 12MB L3, 45/35W cTDP</p> <p>P-series</p> <p>Intel® Core™ i7-1270PE 4P+8E/16T, 1.8GHz, 96 EUs, 24MB L3, 28/20W cTDP</p> <p>Intel® Core™ i5-1250PE 4P+8E/16T, 1.7GHz, 80 EUs, 12MB L3, 28/20W cTDP</p> <p>Intel® Core™ i3-1220PE 4P+4E/12T, 1.5GHz, 48 EUs, 12MB L3, 28/20W cTDP</p> <p>U-series</p> <p>Intel® Core™ i7-1265UE 2P+8E/12T, 1.7GHz, 96 EUs, 12MB L3, 15/12W cTDP</p> <p>Intel® Core™ i5-1245UE 2P+8E/12T, 1.5GHz, 80 EUs, 12MB L3, 15/12W cTDP</p> <p>Intel® Core™ i3-1215UE 2P+4E/8T, 1.2GHz, 64 EUs, 10MB L3, 15/12W cTDP</p> <p>Intel® Celeron® 7305E 1P+4E/5T, 1.0GHz, 48 EUs, 8MB L3, 15/12W cTDP</p> <p>Note: P core base frequency at nominal TDP shown, other clock frequencies supported</p>
Chipset	Integrated into SoC
RAM	2x 262-pin SO-DIMM socket for up to 2x 32GB DDR5 SDRAM (DDR5-4800); dual channel operation; minimum capacity 1x 8GB single channel operation
Storage Interfaces	2x SATA channels (up to 6Gb/s), optional optional on-board NVMe, 64GB to 1TB
USB	2x USB4 on COM-HPC USB[0:1]_SSTX/RX 2x USB 3.2 (Gen 1 & 2) on COM-HPC USB[2:3]_SSTX/RX 8x USB 2.0 on COM-HPC USB[0:7]
Serial Interfaces	2x high-speed serial ports
Bus Interfaces	PCI Express® Graphics (PEG) 1x8, PCIe Gen 4 on COM-HPC PCIe[16:23] ¹ PCI Express® Gen 4, up to 2x4 on COM-HPC PCIe[8:15] PCI Express® Gen 3, up to 8 lanes, flexible bifurcation options on COM-HPC PCIe[0:7] ¹ Available on H-series processors
Display Controller	Intel® Iris® Xe architecture Graphics, up to 96 execution units (EU) H.264/AVC, H.265/HEVC, AV1, MJPEG encode/decode/transcode
Display Interfaces	Four independent displays supported 3x Digital Display Interface (DP 1.4a, HDMI 2.0b) 1x Embedded DisplayPort 1.4b
Network Interface	Two 10/100/1000Base-TX, 2.5G ² based on Intel i226-LM ² Available bandwidths depending on carrier design
Audio Interface	High Definition Audio
Security Device	TPM 2.0

Miscellaneous	<p>Watchdog Timer: Initiates system reset, programmable</p> <p>Fan Supply: 4-pin header for CPU fan, PWM speed controlled and PWM speed control for system fan supported</p> <p>RTC battery: external</p> <p>System Monitoring: voltage, temperature, CPU fan, system fan</p>
Feature Highlights	COM-HPC Client, Size A
Firmware	<p>UEFI Firmware: AMI Aptio® V</p> <p>Security: TPM 2.0 support, TCG compliant</p> <p>Power Management: ACPI Active fan control</p> <p>USB: USB legacy support (keyboard, mouse, storage)</p> <p>Monitoring: System Monitoring Health Monitoring</p> <p>MSC Adv. Boot Device Selection: Boot device priority setting based on physical interfaces</p>
OS Support	Windows 10 IoT Enterprise 2021 LTSC BSP for Linux (Yocto)
Power Requirement	<p>Voltage: +8V to +20V, +5V Stby optional, +3V RTC voltage</p> <p>Power Consumption: tbd W to tbd W (typ.)</p>
Environment	<p>Ambient Temperature: 0° ... 60°C (operating) -25° ... 85°C (storage)</p> <p>Humidity: 5 ... 95% (operating, non-condensing), 5 ... 95% (storage, non-condensing)</p>
Dimensions	120 x 95
Certificates	UL / CE

Order Reference - MSC HCA-ALP

Order Number	Description	Reference	Cat*
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i7-12800HE 14C/20T, vPro, 2.4GHz, 45/35W cTDP; Graphics: Intel® Iris® Xe 96 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 1TB NVMe; 2x USB4, 2x USB3, 8x USB2, PEG x8 Gen 4, PCIe Gen 4 1x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-12800HE-NA0111C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i5-12600HE 12C/16T, vPro, 2.5GHz, 45/35W cTDP; Graphics: Intel® Iris® Xe 80 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PEG x8 Gen 4, PCIe Gen 4 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-12600HE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i3-12300HE 8C/12T, 1.9GHz, 45/35W cTDP; Graphics: Intel® UHD Graphics 48 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PEG x8 Gen 4, PCIe Gen 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-12300HE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i7-1270PE 14C/20T, vPro, 1.8GHz, 28/20W cTDP; Graphics: Intel® Iris® Xe 96 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PCIe Gen 4 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-1270PE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i5-1250PE 12C/16T, vPro, 1.7GHz, 28/20W cTDP; Graphics: Intel® Iris® Xe 80 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PCIe Gen 4 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-1250PE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i3-1220PE 8C/12T, 1.5GHz, 28/20W cTDP; Graphics: Intel® UHD Graphics 48 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PCIe Gen 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-1220PE-NN0131C PCBFTX	OR

*COM products are divided in two categories, „PV“ (preferred variant) and „OR“ (on request).

Order Reference - MSC HCA-ALP

Order Number	Description	Reference	Cat*
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i7-1265UE 10C/12T, vPro, 1.7GHz, 15/12W cTDP; Graphics: Intel® Iris® Xe 96 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PCIe Gen 4 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-1265UE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i5-1245UE 10C/12T, vPro, 1.5GHz, 15/12W cTDP; Graphics: Intel® Iris® Xe 80 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PCIe Gen 4 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-1245UE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel i3-1215UE 6C/8T, 1.2GHz, 15/12W cTDP; Graphics: Intel® UHD Graphics 64 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2, PCIe Gen 2x4, PCIe Gen 3 8x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-1215UE-NN0131C PCBFTX	OR
tbd	COM-HPC Client Size A module (120mm x 95mm); CPU: Intel Celeron 7305E 5C/5T, 1.0GHz, 15/12W cTDP; Graphics: Intel® UHD Graphics 48 EUs; 3x DP/HDMI; 1x eDP; HD Audio; Ethernet: 2x Intel i226-LM Gbit, TSN; TPM 2.0; 2x USB4, 2x USB3, 8x USB2; 2x SATA; PCIe Gen 2x4, PCIe Gen 3 6x; 2x socket for DDR5; 0...+60°C.	MSC HCA-ALP-7305E-NN0121C PCBFTX	OR

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Accessories

Order Number	Description	Reference
Cooling Options		
79809	Fan kit for Heatsink MSC HCA-ALP/RLP-0x HSI-xxx, MSC C6B-ALP/RLP-0x HSI-xxx, MSC C6B-TLH-0x HSI-xxx, MSC C6C-ALP/RLP-0x HSI-xxx, MSC C6C-TLU-0x HSI-xxx, MSC C6C-WLU-0x HSI-xxx, MSC C6C-ALN-0x HSI-xxx, MSC C6C-EL-0x HSI-xxx, MSC C6C-RYZ-0x HSI-xxx, PWM fan 80x80x15mm.	MSC C6C-FANKIT-01-HSF-001
94875	Passive heatsink for HCA-ALP/RLP consisting of a single-piece aluminum profile with fins, standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to CPU, chipset, NVMe.	MSC HCA-ALP-01 HSI-001
94876	Passive heatsink / heat pipe for HCA-ALP/RLP consisting of a single-piece aluminum profile with fins and embedded heatpipe, standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to CPU, chipset, NVMe.	MSC HCA-ALP-01 HSI-HP-001
94877	Heatspreader for HCA-ALP/RLP. Single-piece aluminum profile, standoffs without thread (2.7mm inner diameter), screws and thermopads for the thermal contact to CPU, chipset, NVMe.	MSC HCA-ALP-01 HSP-001
94878	Heatspreader / heat pipe for HCA-ALP/RLP. Single-piece aluminum profile with embedded heat pipe, standoffs without thread (2.7mm inner diameter), screws and thermopad for the thermal contact to CPU, chipset, NVMe.	MSC HCA-ALP-01 HSP-HP-001
94879	Heatspreader for HCA-ALP/RLP. Single-piece aluminum profile, standoffs with M2.5 thread, screws and thermopads for the thermal contact to CPU, chipset, NVMe.	MSC HCA-ALP-02 HSP-001
Memory Options		
97208	16GB DDR5-4800 SO-DIMM	MOD SODIMM DDR5 16GB PC5-38400 CL22 1B
97209	32GB DDR5-4800 SO-DIMM	MOD SODIMM DDR5 32GB PC5-38400 CL22 2B
97207	8GB DDR5-4800 SO-DIMM	MOD SODIMM DDR5 8GB PC5-38400 CL22 1B

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