COM-HPC Client

MSC HCA-MLH

Intel® Core™ Ultra Processors
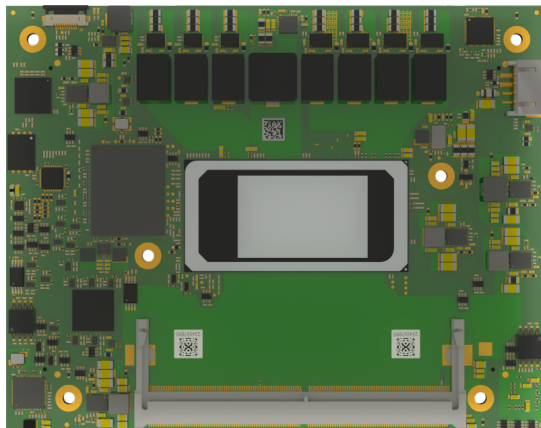
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intel.   COM•HPC®

Description

The MSC HCA-MLH COM-HPC Client module features the Intel® Core™ Ultra processor, providing developers with a powerful workhorse to boost their target applications. The module is ideal for challenging tasks in robotics, medical, public safety, and gaming that require uncompromising performance. The architecture scales up to sixteen cores and twenty-two threads at 28/15W thermal design power (TDP). Together with the integrated AI accelerator (NPU) and up to 128 GPUs, the processor greatly supports AI projects and compute intense duties.

For highest data throughput the module enables fast DDR5-5600 memory technology. Up to two SO-DIMMs can be installed for a total memory capacity from eight to ninety-six GB. Up to sixteen PCIe Gen 4 lanes and an eight lane PEG port (PCIe Gen 5) allow for accessing external accelerators, storage, and I/O at high throughput. Two Ethernet interfaces provide up to 2.5GbE bandwidth each based on the Intel i226 network controller.

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

Highlights

- COM-HPC Client, Size A module
- Intel® Core™ Ultra processors
- Up to sixteen cores, twenty-two threads
- Integrated AI accelarator (NPU) Intel® AI Boost
- Up to 96GB DDR5-5600 SDRAM, dual channel, IB-ECC
- Intel® Arc™ Graphics, up to 128 EUs
- Three DisplayPort/HDMI interfaces
- Embedded DisplayPort interface
- Four independent display streams
- Up to sixteen PCI Express® Gen 4 lanes
- PEG 1x8, PCIe Gen 4 (optional)
- Two USB4, two USB 3.2 Gen1/2 and eight USB 2.0 ports
- Two UARTs
- Optional on-board NVMe SSD, up to 1TB

- Up to 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

COM-HPC Client

Technical Data - MSC HCA-MLH

Technology	x86
Formfactor	COM-HPC Size A
CPU	Intel® Core™ Ultra 7 processor 165H 6P+8E+2LPE/22T, 1.4GHZ, 128 EUs, 24MB L3, vPRO®, 28W BP Intel® Core™ Ultra 7 processor 155H 6P+8E+2LPE/22T, 1.4GHZ, 128 EUs, 24MB L3, 28W BP Intel® Core™ Ultra 5 processor 135H 4P+8E+2LPE/18T, 1.7GHZ, 128 EUs, 18MB L3, vPRO®, 28W BP Intel® Core™ Ultra 5 processor 125H 4P+8E+2LPE/18T, 1.2GHZ, 112 EUs, 18MB L3, 28W BP Intel® Core™ Ultra 7 processor 165U 2P+8E+2LPE/14T, 1.7GHZ, 64 EUs, 12MB L3, vPRO®, 15W BP Intel® Core™ Ultra 7 processor 155U 2P+8E+2LPE/14T, 1.7GHZ, 64 EUs, 12MB L3, 15W BP Intel® Core™ Ultra 5 processor 135U 2P+8E+2LPE/14T, 1.6GHZ, 64 EUs, 12MB L3, vPRO®, 15W BP Intel® Core™ Ultra 5 processor 125U 2P+8E+2LPE/14T, 1.3GHZ, 64 EUs, 12MB L3, 15W BP Note: P core base frequency at processor base power (BP) shown, other clock frequencies at different power levels supported
Chipset	Integrated into SoC
RAM	2x 262-pin SO-DIMM socket for up to 2x 48GB DDR5 SDRAM (DDR5-5600); dual channel operation; minimum capacity 1x 8GB single channel operation; inband ECC (IB-ECC) option (OS dependent)
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 4/5 on COM-HPC PCIe[16:23][1] PCI Express® Gen 4, up to 2x4 on COM-HPC PCIe[8:15] PCI Express® Gen 4, up to 8 lanes, flexible bifurcation options on COM-HPC PCIe[0:7] [1] Available on H-series processors
Display Controller	Intel® Arc™ Graphics, up to 128 execution units (EU) H.264/AVC, H.265/HEVC, AV1, MJPEG encode/decode/transcode
Display Interfaces	Four independent display streams 3x Digital Display Interface (DP 2.1, HDMI 2.1) 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	Watchdog Timer: Initiates system reset, programmable Fan Supply: 4-pin header for CPU fan, PWM speed controlled and PWM speed control for system fan supported RTC battery: external System Monitoring: voltage, temperature, CPU fan, system fan
Feature Highlights	COM-HPC Client
Firmware	UEFI Firmware: AMI Aptio® V Security: TPM 2.0 support, TCG compliant Power Management: ACPI Active fan control USB: USB legacy support (keyboard, mouse, storage) Monitoring: System Monitoring Health Monitoring MSC Adv. Boot Device Selection: Boot device priority setting based on physical interfaces
OS Support	Windows 10 IoT Enterprise 2021 LTSC Windows 11 IoT Enterprise LTSC (future availability) BSP for Linux (Yocto)
Power Requirement	Voltage: +8V to +20V, +5V Stby optional, +3V RTC voltage Power Consumption: tbd W to tbd W (typ.)
Environment	Ambient Temperature: 0° … 60°C (operating) -25° … 85°C (storage) Humidity: 5 … 95% (operating, non-condensing), 5 … 95% (storage, non-condensing)

COM-HPC Client

Dimensions	120 x 95
Certificates	UL / CE

COM-HPC Client

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Order Reference - MSC HCA-MLH

Order Number	Description	Reference	Cat*
		MSC HCA-MLH-xxxx	OR

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

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