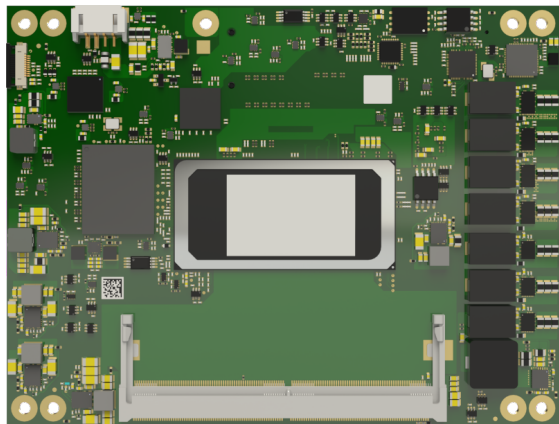


MSC C6B-MLH

Intel[®] Core™ Ultra Processors



125 x 95



tbd



0 +60

COM  Express

Description

The MSC C6B-MLH COM Express 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 4) allow for accessing external accelerators, storage, and I/O at high throughput. The Ethernet interface provides up to 2.5GbE bandwidth 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 Express Type 6, Basic module
- Intel[®] Core™ Ultra processors
- Up to sixteen cores, twenty-two threads
- Integrated AI accelerator (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
- LVDS and Embedded DisplayPort interface
- Four independent display streams
- Up to sixteen PCI Express[®] Gen 4 lanes
- PEG 1x8, PCIe Gen 4 (optional)
- Four 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
- 1 / 2.5 Gb Ethernet port (Intel[®] i226)
- Trusted Platform Module TPM 2.0
- Long-term product availability

Technical Data - MSC C6B-MLH

Technology	x86
Formfactor	COM Express Basic
CPU	<p>Intel® Core™ Ultra 7 processor 165H 6P+8E+2LPE/22T, 1.4GHZ, 128 EUs, 24MB L3, vPRO®, 28W BP</p> <p>Intel® Core™ Ultra 7 processor 155H 6P+8E+2LPE/22T, 1.4GHZ, 128 EUs, 24MB L3, 28W BP</p> <p>Intel® Core™ Ultra 5 processor 135H 4P+8E+2LPE/18T, 1.7GHZ, 128 EUs, 18MB L3, vPRO®, 28W BP</p> <p>Intel® Core™ Ultra 5 processor 125H 4P+8E+2LPE/18T, 1.2GHZ, 112 EUs, 18MB L3, 28W BP</p> <p>Intel® Core™ Ultra 7 processor 165U 2P+8E+2LPE/14T, 1.7GHZ, 64 EUs, 12MB L3, vPRO®, 15W BP</p> <p>Intel® Core™ Ultra 7 processor 155U 2P+8E+2LPE/14T, 1.7GHZ, 64 EUs, 12MB L3, 15W BP</p> <p>Intel® Core™ Ultra 5 processor 135U 2P+8E+2LPE/14T, 1.6GHZ, 64 EUs, 12MB L3, vPRO®, 15W BP</p> <p>Intel® Core™ Ultra 5 processor 125U 2P+8E+2LPE/14T, 1.3GHZ, 64 EUs, 12MB L3, 15W BP</p> <p>Note: P core base frequency at processor base power (BP) shown, other clock frequencies at different power levels supported</p>
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	Up to 2x SATA channels (up to 6Gb/s) optional on-board NVMe, 64GB to 1TB
USB	4x USB 3.2 (Gen 1 & 2), 8x USB 2.0
Serial Interfaces	2x high-speed serial ports
Bus Interfaces	<p>PCI Express® Gen 4, 1x8, on COMe PCIe[24:31], PEG port, optional ¹</p> <p>PCI Express® Gen 4, 1x4, on COMe PCIe[20:23], optional</p> <p>PCI Express® Gen 4, 1x4, on COMe PCIe[16:19]</p> <p>Up to eight PCI Express® Gen 4 lanes on COMe PCIe[0:7], flexible bifurcation options, up to 5 root ports</p> <p>LPC bus (Low Pin Count bus, no DMA support)</p> <p>¹ Available on H-series processors</p>
Display Controller	Intel® Arc™ Graphics, up to 128 execution units (EU) H.264/AVC, H.265/HEVC, AV1, MJPEG encode/decode/transcode.
Display Interfaces	<p>Four independent display streams</p> <p>3x Digital Display Interface (DP 2.1, HDMI 2.1)</p> <p>1x Embedded DisplayPort 1.4b</p> <p>1x LVDS 24bit, dual-channel;</p>
Network Interface	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	Type 6 pin-out
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	<p>Windows 10 IoT Enterprise 2021 LTSC Windows 11 IoT Enterprise LTSC (future availability) BSP for Linux (Yocto)</p>
Power Requirement	<p>Voltage: +8.5V 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	125 x 95
-------------------	----------

Certificates	UL / CE
---------------------	---------

Order Reference - MSC C6B-MLH

Order Number	Description	Reference	Cat*
		MSC C6B-MLH-xxxx	OR

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

Avnet Embedded GmbH
Industriestr. 16
76297 Stutensee

AvnetEmbedded@avnet.com
[avnet.com/embedded](https://www.avnet.com/embedded)

Copyright © 2024 Avnet. All data is for information purposes only and is subject to change without notice. No guarantee for legal purposes is implied. Information in this document has been carefully checked, however, no responsibility for inaccuracies has to be assumed. All brand or product names may be trademarks and property of their respective owners.