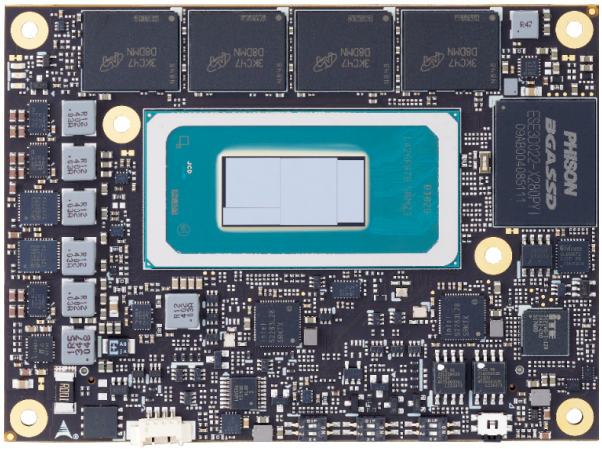
ADLINK
LEADING EDGE COMPUTING

COM-HPC-mMTL

COM-HPC Mini Module Based on Intel® Meteor Lake Platform



Features

- Smallest COM module with Intel® Core™ Ultra processors and rich I/O
- Up to 16 CPU cores, 8 Xe GPU, and 8.2 TOPS VPU
- Up to 64GB LPDDR5x memory at max. 7467MT/s
- Up to 16 PCIe lanes, 2x 2.5GbE LAN
- Multiple DDI/USB4, USB3.2/2.0, and SATA3.0 (optional)
- 2x MIPI-CSI and onboard SSD (optional)

Specifications

Core System	SoC	Intel® Core™ Ultra 7/5 Processors at 28W/15W			
		Processor	Cores/Threads	Cache	TDP
		Core Ultra 7 155H	6P+8E+2LP-E/22T	24MB	28W
		Core Ultra 5 135H	4P+8E+2LP-E/18T	18MB	28W
		Core Ultra 5 125H	4P+8E+2LP-E/18T	18MB	28W
		Core Ultra 5 135U	2P+8E+2LP-E/14T	12MB	15W
		Core Ultra 5 125U	2P+8E+2LP-E/14T	12MB	15W
	NPU	Integrated, up to 8.2 TOPS			
	Memory	Up to 64GB (4x 16GB) LPDDR5x soldered-down memory at max. 7467MT/s			
	Embedded BIOS	AMI UEFI with CMOS backup in 32MB SPI BIOS (dual BIOS opt.)			

Note: "Build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that these "build option" part numbers will need to be newly created and this will result in production lead times.

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Specifications

Core System	Expansion Busses	Up to 16 PCIe Gen4 lanes • 4 PCIe at lanes 8-11: x4 configuration • 4 PCIe at lanes 12-15: x4 configuration • 4 PCIe at lanes 0-3: x1, x2, x4 configurable • Up to 4 PCIe at lanes 4-7: x1, x2, x4 configurable Note: PCIe lane 6 muxed with SATA port 1; PCIe lane 7 muxed with SATA port 0 and NBASE-T port 1; defaults are PCIe lane 6 and NBASE-T port 1. • SMBus (system), 2x I2C (user), 1x GP_SPI, 1x Boot_SPI and eSPI
	SEMA Board Controller	Voltage/current monitoring, power sequence debug support, logistics and forensic information, general purpose I2C, UART, GPIO, watchdog timer, and fan control
	Debug Headers	40-pin multipurpose flat cable connector for use with DB40-HPC debug module providing BIOS POST code LED, EC access, SPI BIOS flashing, power testpoints, debug LEDs
Video	GPU Feature Support	Intel® Xe Low-power Graphic Architecture, max. 8 Xe-cores, supporting 4 concurrent display combinations of DisplayPort/HDMI/eDP and DP Alt mode through USB4, outputting 4x 4K60Hz. Hardware encode/decode DirectX 12, Open GL 4.6, Vulkan 1.2, oneVPL, HDCP 2.3 Graphics Hardware Virtualization (SRIOV
	Digital Display Interface	DDI 0/1 supporting DP1.4a, HDMI2.0b, DVI (Default DDI 0)
	USB	Up to 3x USB4, supporting DP alt mode (Default USB4 0/1) Note: 3x USB4 ports muxed with DDI 0/1 and USB3 port 2; Custom BIOS and re-timer/PD required (by project support)
	eDP	eDP 1.4b, 4 lanes
Audio	Chipset	Integrated on SoC
	Interface	HDA
	Audio Codec	On COM-HPC mini Base Carrier (Realtek solution on carrier)
Camera	MIPI-CSI	2x MIPI-CSI on-board FFC connector
NBASE-T Ethernet	Intel® MAC/PHY	Up to 2x Intel® Ethernet Connection I226 Series (I226 supports TSN by build option)
	Interface	2x 2.5GbE and 1000/100/10 Mbit/s Ethernet connection Note: NBASE-T_1 muxed with PCIe lane7/SATA port 0; default is NBASE-T_1.

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Specifications

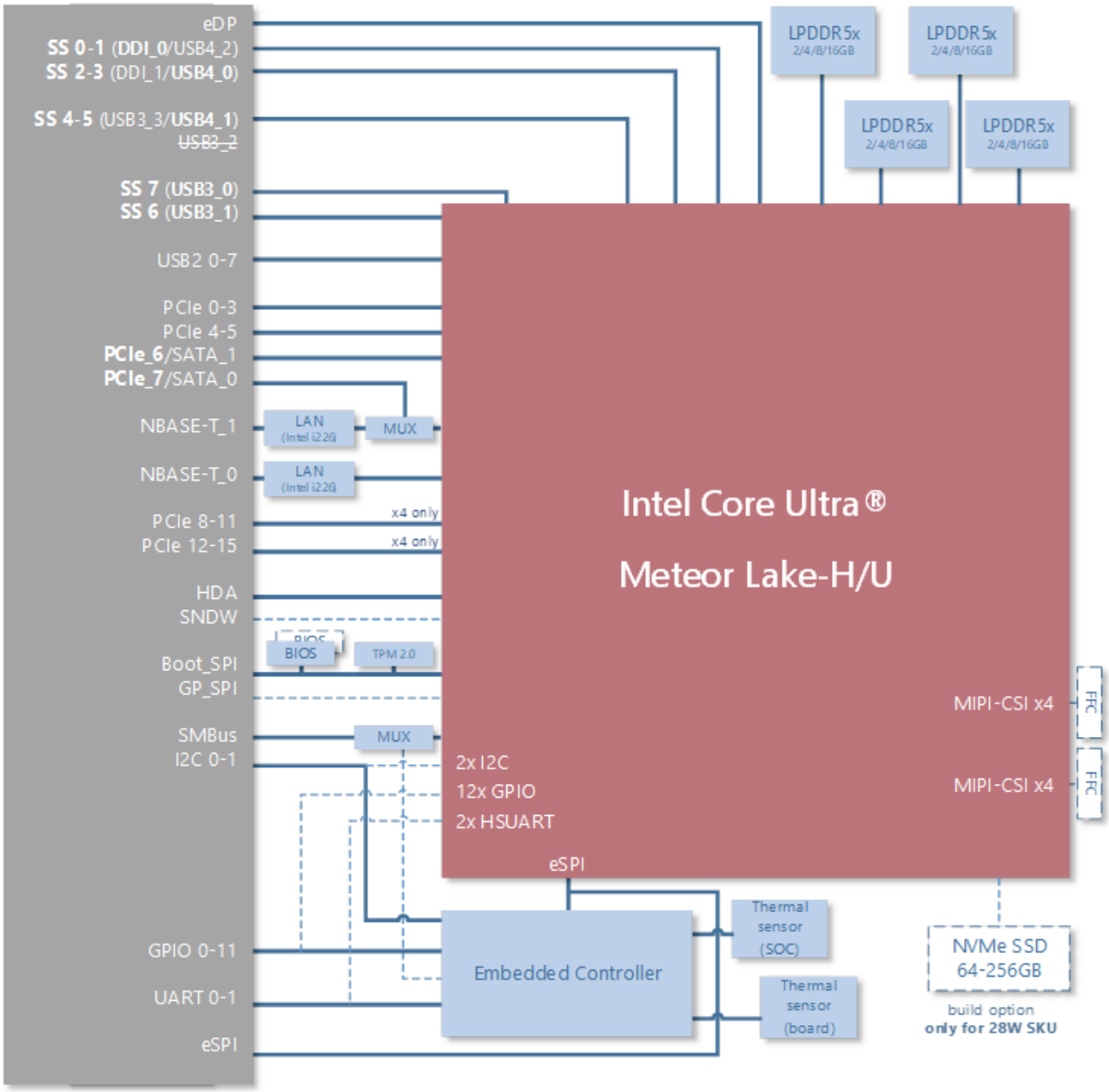
Multi I/O and Storage	USB	3x USB3.2 (port 0,1,2) 4x USB2.0 (port 4,5,6,7) Note: USB port 2 muxed with USB4(by project support)
	SATA	Up to 2x SATA3.0 (SATA 0, 1) (optional) Note: SATA_1 muxed with PCIe_6; SATA_0 muxed with NBASE-T port 1/PCIe_7 (by project support)
	Serial	2x UART ports with console redirection (UART from SoC by project basis)
	GPIO	12x GPIO (GPI with interrupt) (GPIO from SoC by project basis)
	On-board Storage	NVMe SSD by project basis for 28W SoC SKU only
TPM	Chipset	Infineon
	Type	TPM 2.0 (SPI based)
Power	Standard Input	AT mode 12V±5%; Vin 8-20V (single power rail)
	Wide Input	AT: 8.5-20V
	Power States	C0-C6, S0, S3, S5; ECO mode (Wake-on-USB S3/S4, WoL S3/S4/S5)
Mechanical and Environmental	Form Factor	PICMG COM-HPC: Rev 1.2 mini Type
	Dimensions Operating	95 x 70 mm
	Temperature	Standard: 0°C to 60°C (storage: -20°C to 80°C)
	Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)
	Shock and Vibration	IEC 60068-2-64 and IEC-60068-2-27 MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
Operating Systems	Standard Support	Windows 11 IoT Enterprise LTSC, Windows 10 IoT Enterprise LTSC Ubuntu 24.04 LTS VxWorks (by project)

Note: "Build option""indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that these "build option" part numbers will need to be newly created and this will result in production lead times.

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Block diagram

SS means Super Speed Lane, used for implementation of DDI or USB4 or USB3.x and defined by PICMG specification



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Ordering Information

Module	
COM-HPC-mMTL-155H-64G	COM-HPC mini module with Intel Meteor Lake Core Ultra 7 155H, 64GB LPDDR5 memory
COM-HPC-mMTL-155H-32G	COM-HPC mini module with Intel Meteor Lake Core Ultra 7 155H, 32GB LPDDR5 memory
COM-HPC-mMTL-125U-64G	COM-HPC mini module with Intel Meteor Lake Core Ultra 5 125U, 64GB LPDDR5 memory
COM-HPC-mMTL-125H-16G	COM-HPC mini module with Intel Meteor Lake Core Ultra 5 125H, 16GB LPDDR5 memory
COM-HPC-mMTL-125U-16G	COM-HPC mini module with Intel Meteor Lake Core Ultra 5 125U, 16GB LPDDR5 memory

Note: For certain processor or memory capacity SKUs not listed, please contact our ADLINK representative.

Accessories

Heat Spreaders	
HTS-mMTL-B	Heatspreader for COM-HPC-mMTL with threaded standoffs for bottom mounting
Active Heatsinks	
THSF-mMTL-B	High-profile Heatsink with Fan for COM-HPC-mMTL with threaded standoffs for bottom mounting

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