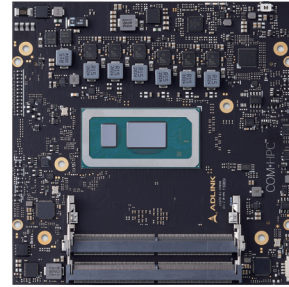


# COM-HPC-cADP

Client Type COM-HPC Size B Module  
 based on Intel® Alder Lake-P platform

Preliminary



## Features

- Performance hybrid architecture (P-core, E-core)
- Up to 14 cores, 20 threads at 45W TDP and lower
- Up to 64GB DDR5 SO-DIMM at max. 4800MT/s
- AI inference (AVX-512 VNNI, Iris Xe GPU 96EUs)
- 4 displays via DDI/eDP and USB4/Thunderbolt 4
- 16x PCIe Gen4, dual Ethernet
- Extreme Rugged operating temperature (optional, selected SKUs)

## Specifications

Core System	SoC	12th Gen Intel® Core™ processors (formerly Alder Lake-P)																				
		<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores/Threads</th> <th>Cache</th> <th>TDP</th> <th>Graphics</th> </tr> </thead> <tbody> <tr> <td>Core™ i7-12800HE</td> <td>6P+8E/20T</td> <td>24MB</td> <td>45W(35W cTDP)</td> <td>Iris Xe GPU</td> </tr> <tr> <td>Core™ i5-12600HE</td> <td>4P+8E/16T</td> <td>18MB</td> <td>45W(35W cTDP)</td> <td>Iris Xe GPU</td> </tr> <tr> <td>Core™ i3-12300HE</td> <td>4P+4E/12T</td> <td>12MB</td> <td>45W(35W cTDP)</td> <td>UHD GPU</td> </tr> </tbody> </table>	Processor	Cores/Threads	Cache	TDP	Graphics	Core™ i7-12800HE	6P+8E/20T	24MB	45W(35W cTDP)	Iris Xe GPU	Core™ i5-12600HE	4P+8E/16T	18MB	45W(35W cTDP)	Iris Xe GPU	Core™ i3-12300HE	4P+4E/12T	12MB	45W(35W cTDP)	UHD GPU
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		Note: More processor SKUs available soon. Some SKUs are supported by project basis only. Please consult your ADLINK representative.																				
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		Supports: Intel® VT (including VT-x, VT-d, VT-x with Extended Page Tables), Intel® HT Technology, Intel® SSE4.2, Intel® 64 Architecture, Intel® Turbo Boost Technology 2.0, Intel® AVX512-VNNI, Intel® TXT, Execute Disable Bit, Intel® Data Protection Technology with Intel® Secure Key, Intel® AES-NI																				
		Note: Availability of features may vary between processor SKUs.																				
	Memory	Up to 64GB (2x 32GB) DDR5 non-ECC SO-DIMM memory, max. 4800MT/s 2 memory channels with 1DPC design																				
	Embedded BIOS	AMI UEFI with CMOS backup in 32 or 16MB (TBC) SPI BIOS																				
	Cache	Refer to processor specifications above																				
	Expansion Busses	16x PCI Express Gen4, 8x PCI Express Gen3 <ul style="list-style-type: none"> <li>• 4x PCI Express Gen3 lanes 0-3 (J1): configurable to x4, x2, x1</li> <li>• 4x PCI Express Gen3 lanes 4-7 (J1): configurable to x4, x2, x1</li> <li>• 4x PCI Express Gen4 lanes 8-11 (J1): configurable to x4</li> <li>• 4x PCI Express Gen4 lanes 12-15 (J1): configurable to x4</li> <li>• 8x PCI Express Gen4 lanes 16-23 (J2): configurable to x8</li> </ul> Note: PCIe lanes 0-7, NBASE-T 0-1 source from HSIO, max. 6 devices (TBC) • SMBus (system), 2x I <sup>2</sup> C (user), GP_SPI																				

## Specifications

	SEMA Board Controller	Supports: Voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, genral purpose I2C, UART, GPIO, watchdog timer, fan control
	Debug Headers	40-pin multipurpose flat cable connector for use with DB40-HPC debug module providing BIOS POST code LED, SEMA Board Controller access, SPI BIOS flashing, power testpoints, debug LEDs
Video	GPU Feature Support	Intel® Iris Xe or UHD Graphics Core Architecture, max. 96EUs, supporting 4 concurrent display combinations of DisplayPort/HDMI, Thunderbolt 4/USB4, eDP/DSI outputs (4x 4K60 or 1x 8K60) Hardware video encode/decode, up to 8K60 HEVC DirectX 12, OpenGL 4.6, Vulkan 1.2, Mesa 3D support OneVPL HDCP 2.3 Graphics Hardware Virtualization (SRIOV)
	Digital Display Interface	DDI 0/1/2 supporting DP 1.4a, HDMI 2.0b, DVI
	eDP	4 lanes, eDP 1.4b
	MIPI-DSI	Build option: MIPI-DSI 2.0, in place of eDP (TBC)
	USB4	USB4_0, USB4_1 supporting DP 1.4a by DP alternative mode, Thunderbolt 4 capable (TBC)
Audio	Chipset	Integrated on SoC
	Interface	1x HDA or 1x I2S or 2x Soundwire (2,3) (TBC) 2x Soundwire (0,1) or 2x DMIC (TBC)
	Codec	On COM-HPC Client Base (TBC)
Camera	MIPI-CSI	2x MIPI-CSI, 4 lanes each (TBC) Features may vary dependent on OS
NBASE-T Ethernet	Intel® MAC/PHY	Intel® Ethernet Connection I225 series (I225-IT supports TSN by build option, TBC), 2pcs
	Interface	2x NBASE-T (0,1) 2.5GbE and 1000/100/10 Mbit/s Ethernet connection NBASET_SDP if TSN support enabled
Multi I/O and Storage	USB	2x USB4/3.x/2.0, 2x USB 3.x/2.0 and 4x USB 2.0 Thunderbolt 4 capable on USB4 port USB4/Thunderbolt 4 support dependent on carrier design
	On-board Storage	NVMe SSD, in place of PCIe lanes 12-15 (build option, project basis)
	Serial	2x UART ports with console redirection
	GPIO	12x GPIO (GPI with interrupt, TBC)
Super I/O	Supported on carrier if needed (standard support TBC, other Super I/O supported by project basis)	
TPM	Chipset	Infineon
	Type	TPM 2.0 (SPI based)
Power	Standard Input	ATX: 12V±5% / 5Vsb ±5%; or AT: 12V±5%
	Wide Input	ATX: 8.5-20V / 5Vsb ±5%; or AT: 8.5-20V
	Management	ACPI 5.0 compliant, Smart Battery support (TBC)
	Power States	C1-C6, S0, S1, S3, S4, S5, S5 ECO mode (Wake on USB S3/S4, WOL S3/S4/S5) (TBC)
	ECO Mode	Supports deep S5 mode for power saving
Mechanical and	Form Factor	PICMG COM-HPC: Rev 1.0 Client Type
Environmental	Dimension	Size B: 120 mm x 120 mm
	Operating Temperature	Standard: 0°C to 60°C (storage: -20°C to 80°C) Extreme Rugged: -40°C to 85°C (storage: -40°C to 85°C, TBC, build option, selected SKUs)
	Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)

## Specifications

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 (TBC)
HALT	Thermal Stress, Vibration Stress, Thermal Shock and Combined Test
Operating Systems Standard Support	Windows 10 IOT Enterprise LTSC, Yocto project based Linux 64-bit, Ubuntu 64-bit (TBC), VxWorks (TBC)

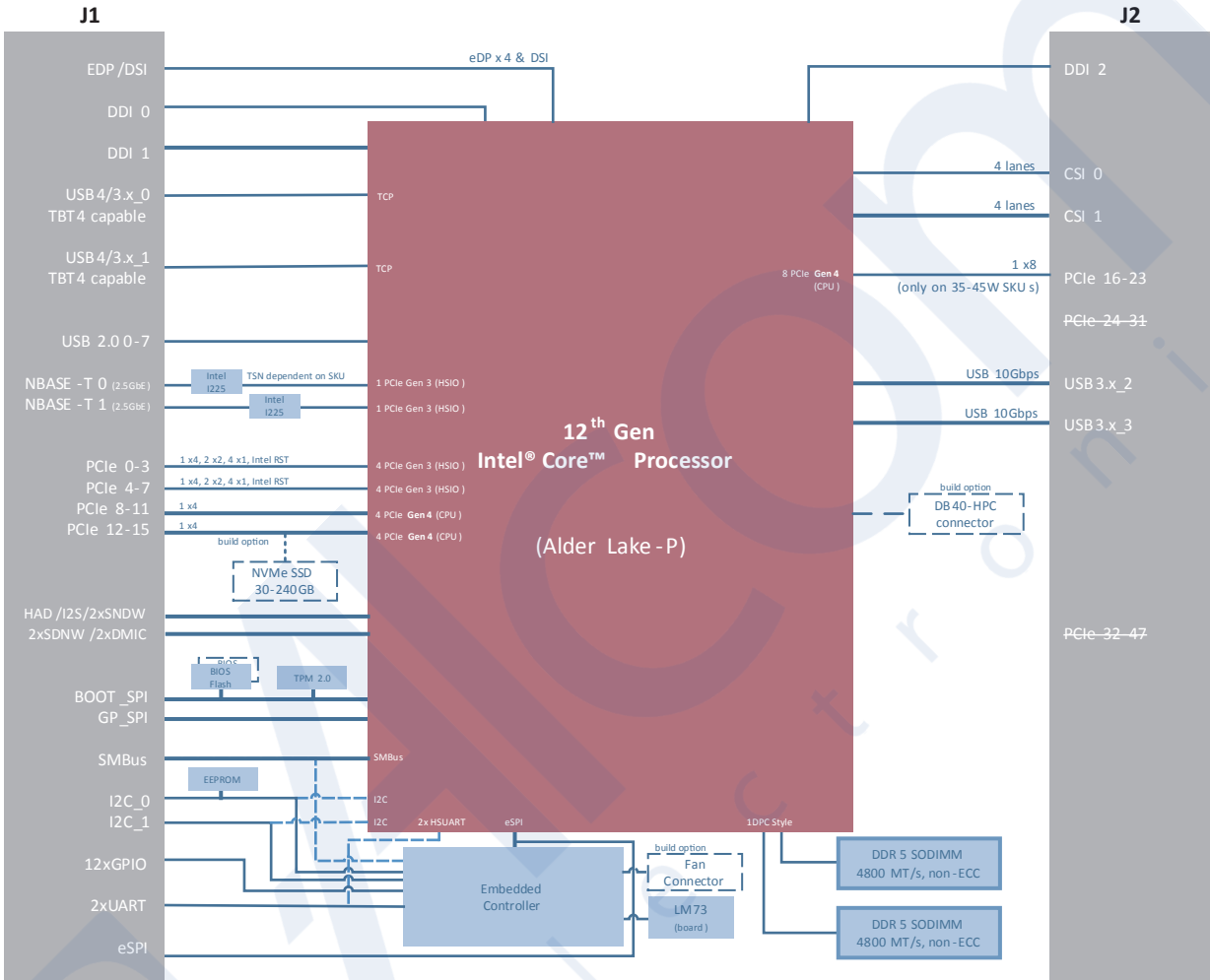
## Ordering Information

### Starter Kit

COM-HPC Client Type Starter Kit	Starter kit for COM-HPC Client Type
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# Block diagram



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