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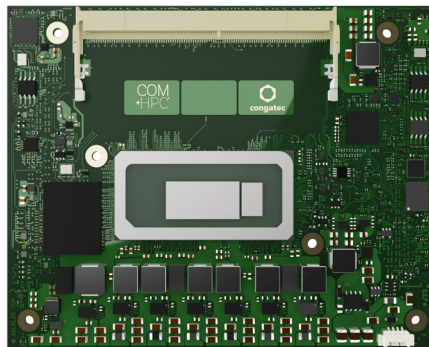


Datasheet

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conga-HPC/cALP

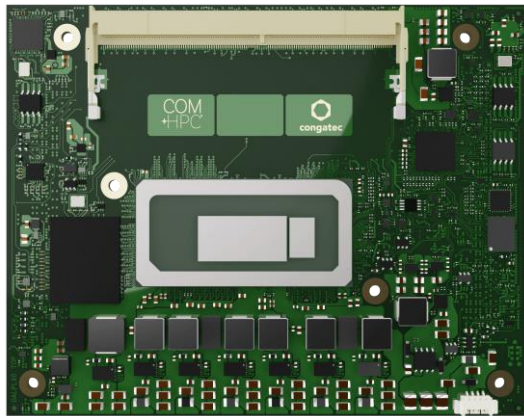
COM-HPC high performance module based on 12th Gen Alder Lake Intel® Core™ processor series



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12th Gen Intel® Core™ Embedded mobile Processors

conga-HPC/cALP



COM+HPC®

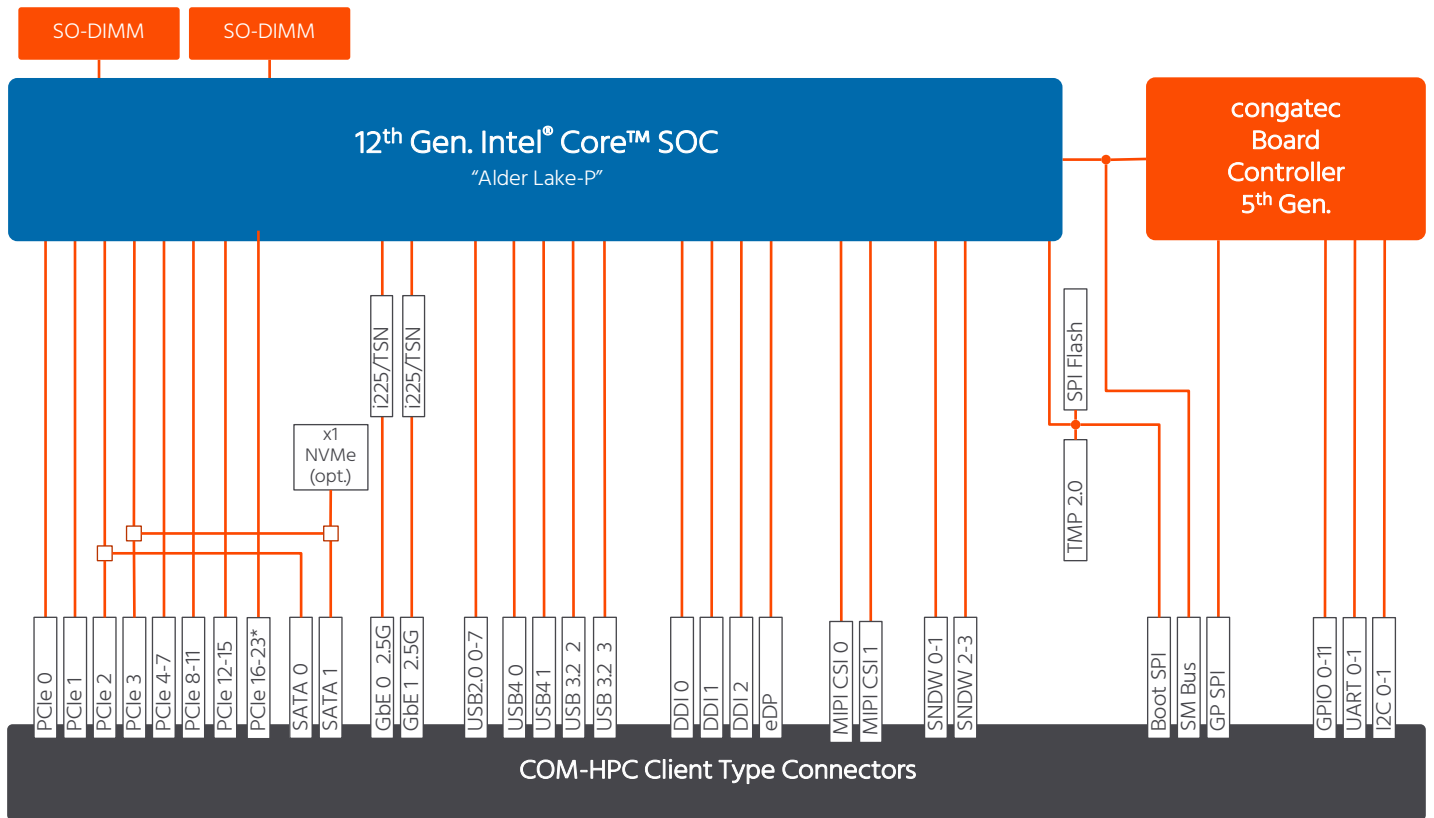
- Intel® hybrid design combines Performance-cores with Efficient-cores
- UP to Intel® Iris® Xe Graphics architecture with up to 96 EUs
- PCI Express Gen 4 | USB 4
- AI Acceleration with Intel® Deep Learning Boost (VNNI)
- Embedded Use Condition SKUs

Form factor

COM-HPC Client Size A | Client Connector Pinout

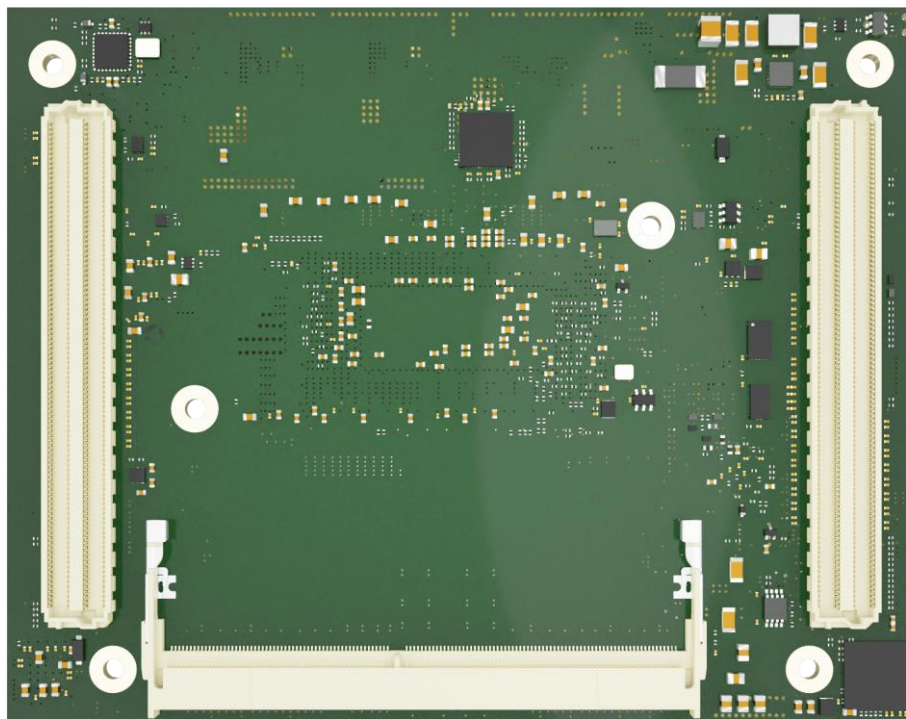
CPU	CPU	TDP Target	Cores count (P+E)	Processor Threads	P-cores Freq. GHz	E-cores Freq. GHz	Gfx Execution Units
	i7-12800HE	45W	14 (6+8)	20	2.4 / 4.6	1.8 / 3.5	96
	i7-1270PE	28W	12 (4+8)	16	1.8 / 4.5	1.2 / 3.3	96
	i7-1265UE	15W	10 (2+8)	12	1.7 / 4.7	1.2 / 3.5	96
	i5-12600HE	45W	12 (4+8)	16	2.5 / 4.5	1.8 / 3.3	80
	i5-1250PE	28W	12 (4+8)	16	1.7 / 4.4	1.2 / 3.2	80
	i5-1245UE	15W	10 (2+8)	12	1.5 / 4.4	1.1 / 3.3	80
	i3-12300HE	45W	8 (4+4)	12	1.9 / 4.3	1.5 / 3.3	48
	i3-1220PE	28W	8 (4+4)	12	1.5 / 4.2	1.1 / 3.1	48
	i3-1215UE	15W	6 (2+4)	8	1.2 / 4.4	0.9 / 3.3	64
	Celeron 7305E	15W	5 (1+4)	6	1.0 / -	0.9 / -	48
DRAM	2 SO-DIMM sockets for DDR5 memory modules up to 32 GByte each (max. 64 GByte system capacity) up to 4800 MT/s						
Mass Storage	NVMe x1 SSD (optional)						
Graphics	Intel® UHD Graphics or Intel® Iris® Xe Graphics architecture up to 96 Eus						
Display	3x DDI (up to 8K support) eDP						
Ethernet	2x 2.5 GbE TSN Ethernet (via Intel® i225 LM)						
I/O Interfaces	Up to x8 PCIe Gen4 2 x4 PCIe Gen4 up to 8 PCIe Gen3 2x Thunderbolt 2x USB 3.2 Gen2x1 8x USB2.0 up to 2x SATA 2x UART 2x MIPI-CSI 12x GPIO eSPI SM Bus I2C GSPI						
Audio	2x Soundwire fixed 2x Soundwire or HDA or I2S (opt.)						
congatec Board controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics I ² C bus (fast mode, 400 kHz, multi-master) Power Loss Control Hardware Health Monitoring POST Code Redirection						
Embedded BIOS Feature	AMI Aptio® UEFI firmware 32 Mbyte serial SPI with congatec Embedded BIOS feature OEM Logo OEM CMOS default settings LCD Control Display Auto Detection Backlight Control Flash Update						
Security	Trusted Platform Module (TPM 2.0)						
Power Management	ACPI 6.0 with battery support						
Operating Systems	Microsoft® Windows 11 Microsoft® Windows 10 Microsoft® Windows 10 IoT Enterprise Linux Yocto Real Time Systems Hypervisor						
Temperature	Operating.: 0°C ... +60°C			Storage.: -20°C ... +70°C			
Humidity	Operating.: 10% ... 90% r. H. non cond.			Storage.: 5% ... 95% r. H. non cond.			
Size	120 x 95 mm						

conga-HPC/cALP | Block Diagram



* available on selected SKUs

conga-HPC/cALP | Bottom Side View



conga-HPC/cALP | Modules Order Information

Article	PN	Description
conga-HPC/cALP-i7-12800HE	049500	COM-HPC Size A module based on Intel® Core™ i7-12800HE processor with 6 P-cores 2.4GHz up to 4.6GHz and 8 E-cores 1.8GHz up to 3.5GHz 24MB Intel® Smart Cache Intel® Iris® X ^e Graphics architecture with 96 EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (H-Series)
conga-HPC/cALP-i7-1270PE	049501	COM-HPC Size A module based on Intel® Core™ i7-1270PE processor with 4 P-cores 1.8GHz up to 4.5GHz and 8 E-cores 1.2GHz up to 3.3GHz 18MB Intel® Smart Cache Intel® Iris® X ^e Graphics architecture with 96 EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (P-Series)
conga-HPC/cALP-i7-1265UE	049502	COM-HPC Size A module based on Intel® Core™ i7-1265UE processor with 2 P-cores 1.7GHz up to 4.7GHz and 8 E-cores 1.2GHz up to 3.5GHz 12MB Intel® Smart Cache Intel® Iris® X ^e Graphics architecture with 96 EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (U-Series)
conga-HPC/cALP-i5-12600HE	049503	COM-HPC Size A module based on Intel® Core™ i5-12600HE processor with 4 P-cores 2.5GHz up to 4.5GHz and 8 E-cores 1.8GHz up to 3.3GHz 18MB Intel® Smart Cache Intel® Iris® X ^e Graphics architecture with 80EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (H-Series)
conga-HPC/cALP-i5-1250PE	049504	COM-HPC Size A module based on Intel® Core™ i5-1250PE processor with 4 P-cores 1.7GHz up to 4.4GHz and 8 E-cores 1.2GHz up to 3.2GHz 12MB Intel® Smart Cache Intel® Iris® X ^e Graphics architecture with 80EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (P-Series)
conga-HPC/cALP-i5-1245UE	049505	COM-HPC Size A module based on Intel® Core™ i5-1245UE processor with 2 P-cores 1.5GHz up to 4.4GHz and 8 E-cores 1.1GHz up to 3.3GHz 12MB Intel® Smart Cache Intel® Iris® X ^e Graphics architecture with 80 EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (U-Series)
conga-HPC/cALP-i3-12300HE	049506	COM-HPC Size A module based on Intel® Core™ i3-12300HE processor with 4 P-cores 1.9GHz up to 4.3GHz and 4 E-cores 1.5GHz up to 3.3GHz 12MB Intel® Smart Cache Intel® UHD Graphics with 48EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (H-Series)
conga-HPC/cALP-i3-1220PE	049507	COM-HPC Size A module based on Intel® Core™ i3-1220PE processor with 4 P-cores 1.5GHz up to 4.2GHz and 4 E-cores 1.1GHz up to 3.1GHz 12MB Intel® Smart Cache Intel® UHD Graphics with 48EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (P-Series)
conga-HPC/cALP-i3-1215UE	049508	COM-HPC Size A module based on Intel® Core™ i3-1215UE processor with 2 P-cores 1.2GHz up to 4.4GHz and 4 E-cores 0.9GHz up to 3.3GHz 10MB Intel® Smart Cache Intel® UHD Graphics with 64EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (U-Series)
conga-HPC/cALP-7305E	049509	COM-HPC Size A module based on Intel® Celeron® 7305E processor with 1 P-core 1.0GHz and 4 E-cores 0.9GHz 8MB Intel® Smart Cache Intel® UHD Graphics with 48EUs Dual channel DDR5 4800 MT/s memory interface Intel® code name Alder Lake-P (U-Series)

conga-HPC/cALP | Accessories Order Information

Article	PN	Description
conga-HPC/cALP-CSA-HP-B	049550	Standard active cooling solution for COM-HPC module conga-HPC/cALP with integrated heat pipes, 29mm height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-HPC/cALP-CSA-HP-T	049551	Standard active cooling solution for COM-HPC module conga-HPC/cALP with integrated heat pipes, 29mm height and integrated 12V fan. All standoffs are M2.5mm threaded.
conga-HPC/cALP-CSP-HP-B	049552	Standard passive cooling solution for COM-HPC module conga-HPC/cALP with integrated heat pipes, 28.2mm height. All standoffs are with 2.7mm bore hole.
conga-HPC/cALP-CSP-HP-T	049553	Standard passive cooling solution for COM-HPC module conga-HPC/cALP with integrated heat pipes, 28.2mm height. All standoffs are M2.5mm threaded.
conga-HPC/cALP-HSP-HP-B	049554	Standard heatspreader for COM-HPC module conga-HPC/cALP with integrated heat pipes, 13mm height. All standoffs are with 2.7mm bore hole.
conga-HPC/cALP-HSP-HP-T	049555	Standard heatspreader for COM-HPC module conga-HPC/cALP with integrated heat pipes, 13mm height. All standoffs are M2.5mm threaded.
conga-HPC/EVAL-Client	065600	Evaluation Carrier Board for COM-HPC Client type Modules.

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