

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 | Thunderbolt
- 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 with TSN support via Intel® i226 Ethernet controller series

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 | I²C 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

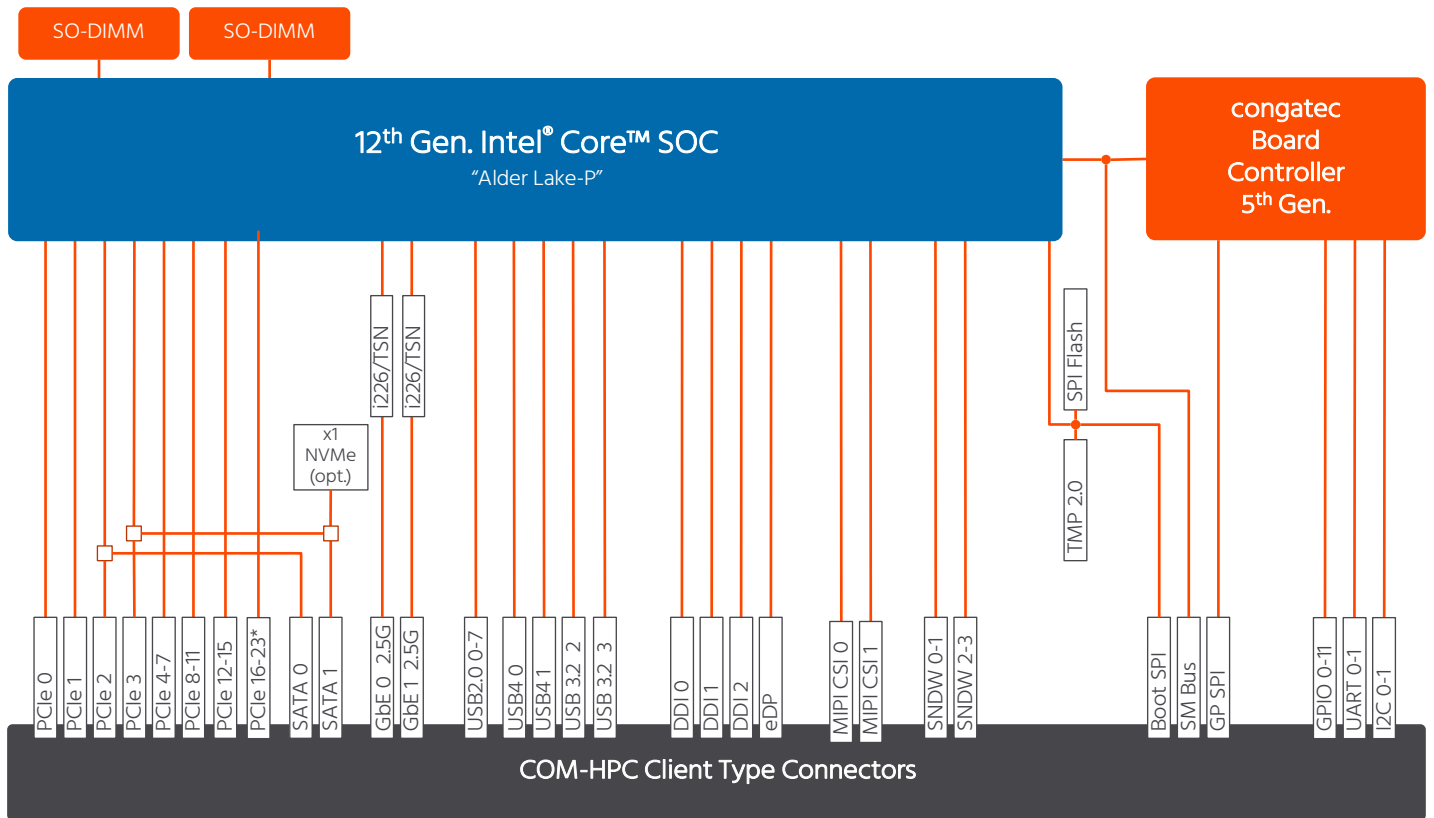
Operating Systems Microsoft® Windows 10 | Microsoft® Windows 10 IoT Enterprise | Linux | Yocto | Real Time Systems Hypervisor

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.

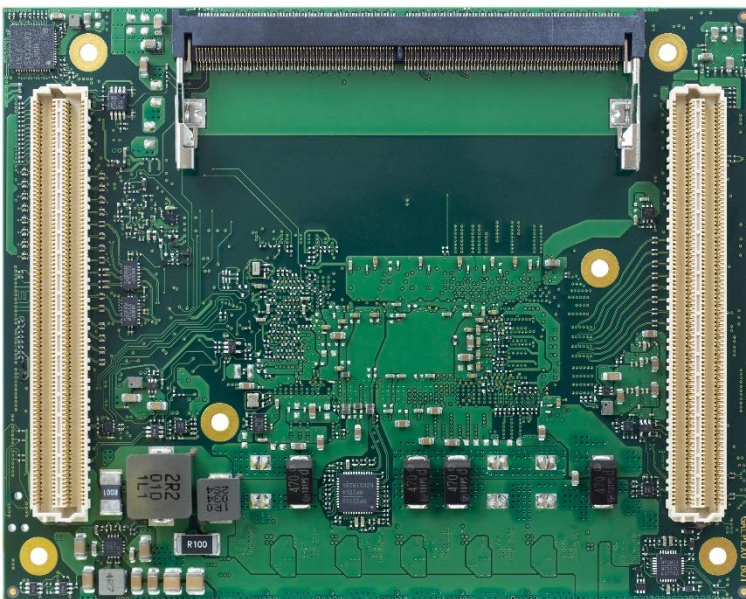
Size 120 x 95 mm

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.