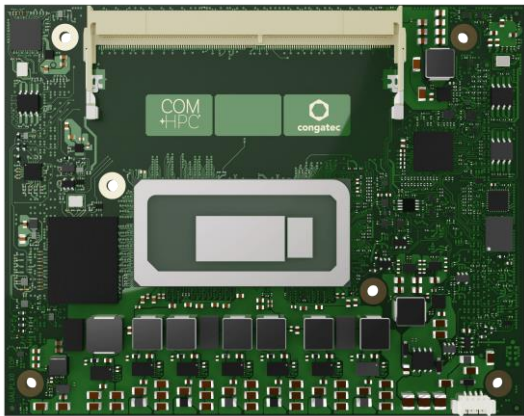


# 12<sup>th</sup> Gen Intel® Core™ Embedded mobile Processors

## conga-HPC/cALP



### COM+HPC®

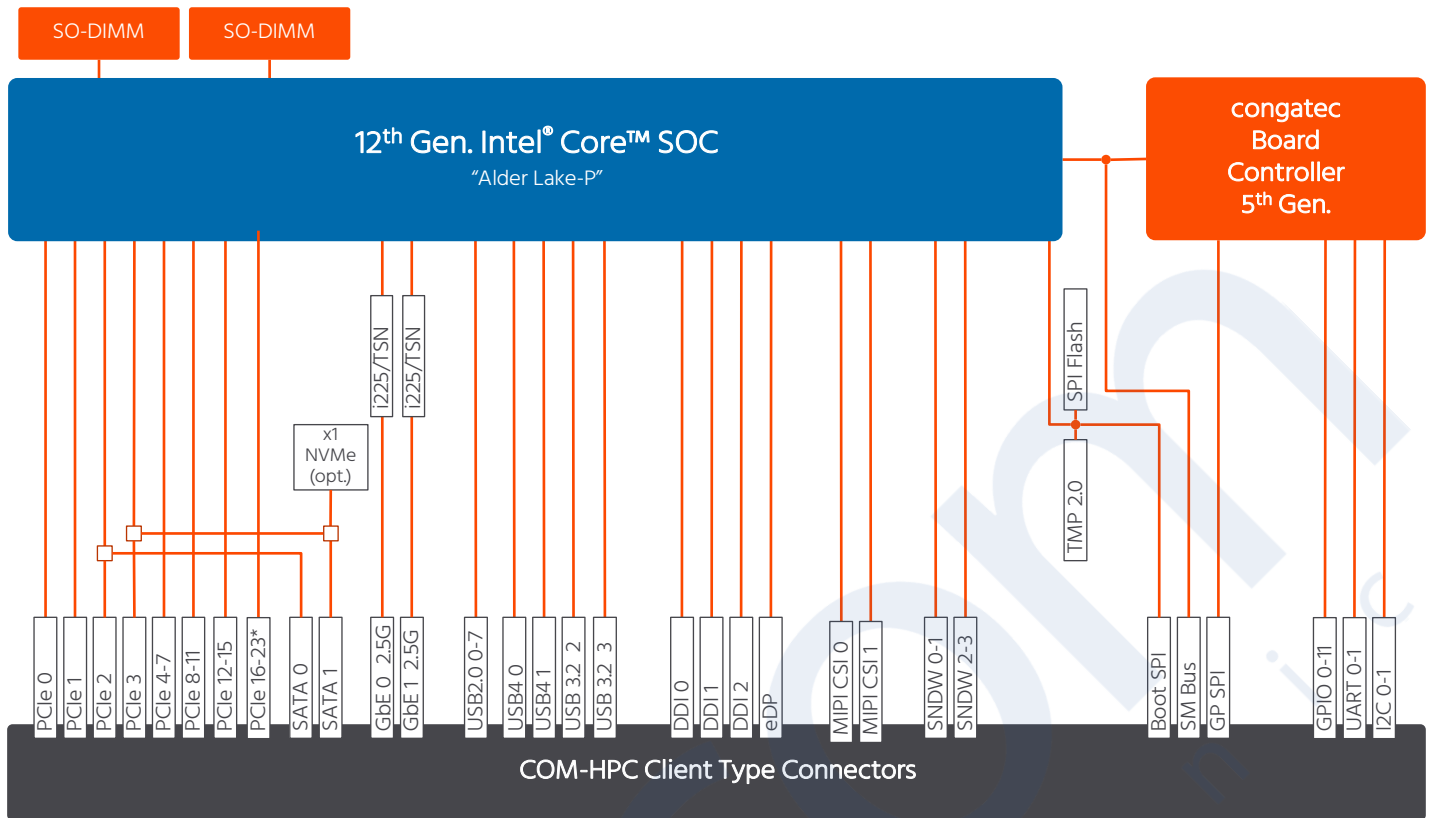
- Intel® hybrid design combines Performance-cores with Efficient-cores
- UP to Intel® Iris® Xe Graphics architecture with up to 96 EUs
- PCI Express Gen 4 | USB 4
- AI Acceleration with Intel® Deep Learning Boost (VNNI)
- Embedded Use Condition SKUs

#### Form factor

COM-HPC Client Size A | Client Connector Pinout

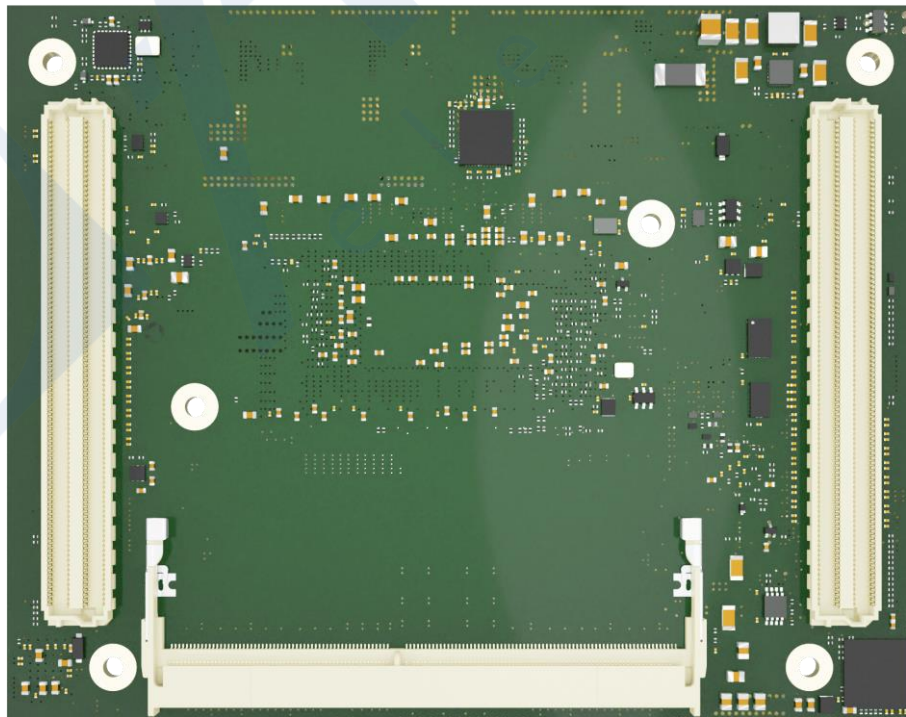
| CPU                              | CPU  | TDP Target | Cores count (P+E) | Processor Threads                    | P-cores Freq. GHz | E-cores Freq. GHz | Gfx Execution Units |
|----------------------------------|--|------------|-------------------|--------------------------------------|-------------------|-------------------|---------------------|
|                                  | 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                  |
| <b>DRAM</b>                      | 2 SO-DIMM sockets for DDR5 memory modules up to 32 GByte each (max. 64 GByte system capacity)   up to 4800 MT/s  |            |                   |                                      |                   |                   |                     |
| <b>Mass Storage</b>              | NVMe x1 SSD (optional)   |            |                   |                                      |                   |                   |                     |
| <b>Graphics</b>                  | Intel® UHD Graphics or Intel® Iris® Xe Graphics architecture   up to 96 Eus  |            |                   |                                      |                   |                   |                     |
| <b>Display</b>                   | 3x DDI (up to 8K support)   eDP  |            |                   |                                      |                   |                   |                     |
| <b>Ethernet</b>                  | 2x 2.5 GbE TSN Ethernet (via Intel® i225 LM)   |            |                   |                                      |                   |                   |                     |
| <b>I/O Interfaces</b>            | 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   |            |                   |                                      |                   |                   |                     |
| <b>Audio</b>                     | 2x Soundwire fixed   2x Soundwire or HDA or I2S (opt.)   |            |                   |                                      |                   |                   |                     |
| <b>congatec Board controller</b> | Multi Stage Watchdog   non-volatile User Data Storage   Manufacturing and Board Information   Board Statistics   I <sup>2</sup> C bus (fast mode, 400 kHz, multi-master)   Power Loss Control   Hardware Health Monitoring   POST Code Redirection |            |                   |                                      |                   |                   |                     |
| <b>Embedded BIOS Feature</b>     | 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  |            |                   |                                      |                   |                   |                     |
| <b>Security</b>                  | Trusted Platform Module (TPM 2.0)  |            |                   |                                      |                   |                   |                     |
| <b>Power Management</b>          | ACPI 6.0 with battery support  |            |                   |                                      |                   |                   |                     |
| <b>Operating Systems</b>         | Microsoft® Windows 11   Microsoft® Windows 10   Microsoft® Windows 10 IoT Enterprise   Linux   Yocto   Real Time Systems Hypervisor  |            |                   |                                      |                   |                   |                     |
| <b>Temperature</b>               | Operating.: 0°C ... +60°C  |            |                   | Storage.: -20°C ... +70°C            |                   |                   |                     |
| <b>Humidity</b>                  | Operating.: 10% ... 90% r. H. non cond.  |            |                   | Storage.: 5% ... 95% r. H. non cond. |                   |                   |                     |
| <b>Size</b>                      | 120 x 95 mm  |            |                   |                                      |                   |                   |                     |

# conga-HPC/cALP | Block Diagram



\* available on selected SKUs

# conga-HPC/cALP | Bottom Side View



Original Size

# 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 <sup>e</sup> 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 <sup>e</sup> 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 <sup>e</sup> 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 <sup>e</sup> 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 <sup>e</sup> 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 <sup>e</sup> 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.  |