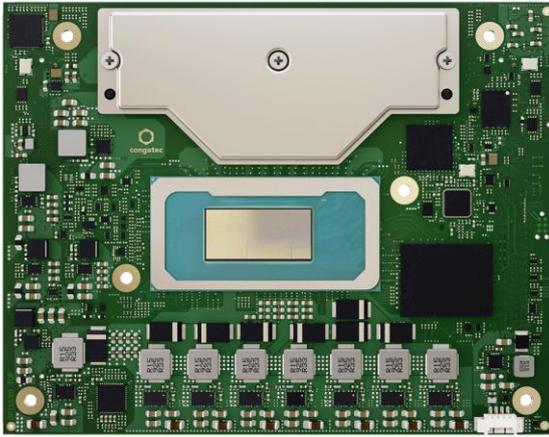


# Intel® Core™ Ultra Processors Series 3

# conga-HPC/cPTL



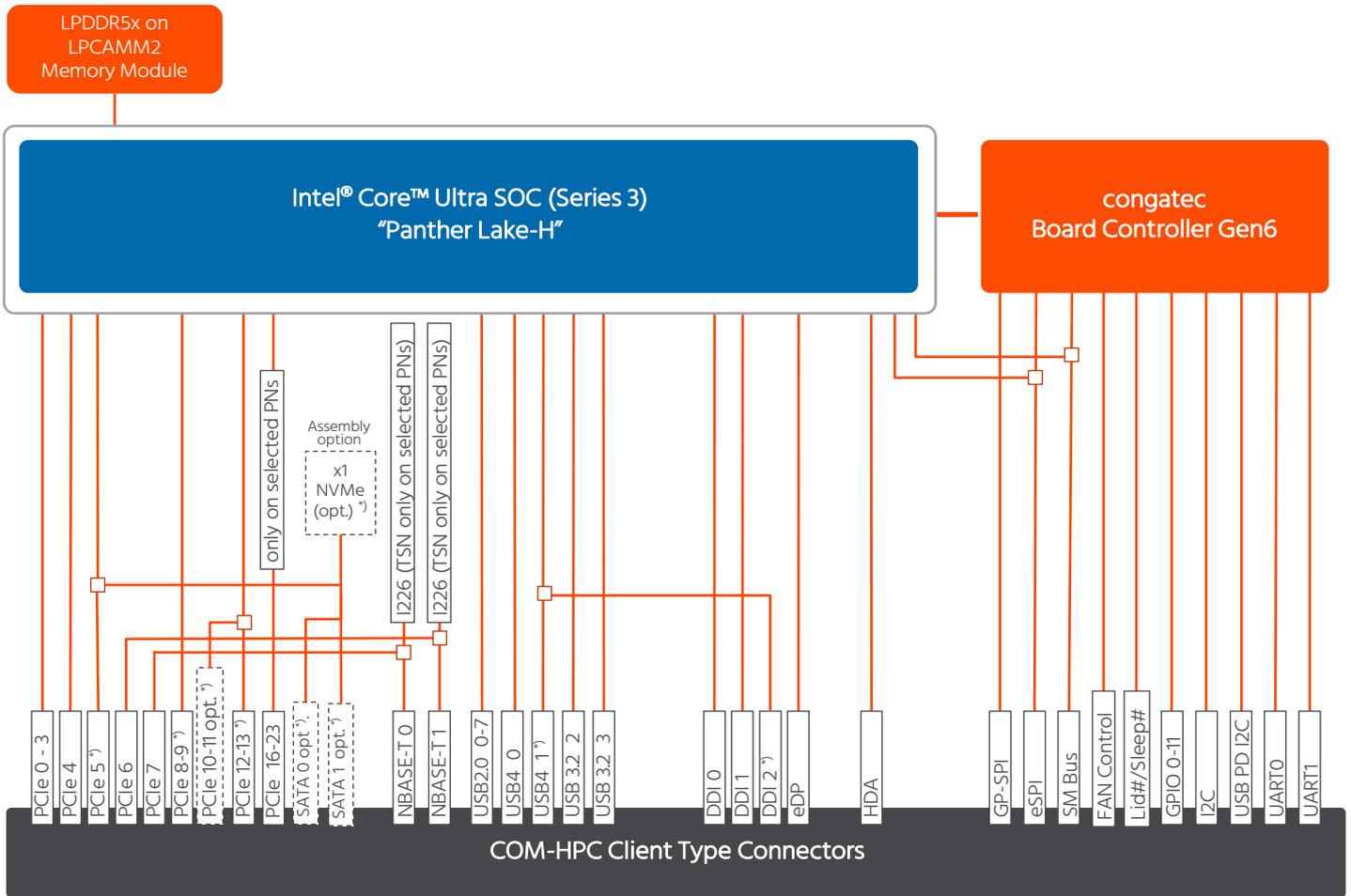
## aReady.COM

- Intel® performance hybrid design with up to 16 cores
- LPCAMM2 LPDDR5 memory
- Integrated NPU for dedicated AI acceleration
- Up to PCI Express Gen5

COM+HPC®

|                                  |   |
|----------------------------------|---|
| <b>Form factor</b>               | COM-HPC Client Size A   Client Connector Pinout   |
| <b>CPUs</b>                      | Intel® Core Ultra Processors (Series 3) Panther Lake-H  |
| <b>DRAM</b>                      | LPCAMM2 socket for LPDDR5x memories up to 32GB RAM (optional up to 96GB RAM)   up to 7466 MT/s   inband-ECC on selected product variants  |
| <b>Mass Storage</b>              | Optional NVMe x1 SSD  |
| <b>Graphics</b>                  | Intel® Arc Graphics with up to 12 Xe cores or Intel Graphics with up to 4 Xe cores   Intel® Xe Matrix Extensions  |
| <b>AI Accelerator</b>            | Integrated NPU accelerator with up to 50 TOPS   |
| <b>Display</b>                   | Up to 3x DDI   eDP  |
| <b>Ethernet</b>                  | 2x 2.5 GbE with TSN support via Intel® i226 Ethernet controller series (TSN only on selected product variants)  |
| <b>I/O Interfaces</b>            | x8 PCIe Gen5 (only available on selected PNs)   2 x2 PCIe Gen5   up to 8 PCIe Gen4   up to 2x USB4   2x USB 3.2 Gen2x1   8x USB2.0   up to 2x SATA   2x UART   12x GPIO   eSPI   SM Bus   I2C   GP-SPI                                |
| <b>Audio</b>                     | HDA   |
| <b>congatec Board controller</b> | 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 |
| <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 11 IoT Enterprise   Linux   Yocto  |
| <b>Hypervisor</b>                | RTS Real-Time Hypervisor  |
| <b>Temperature Range</b>         | Commercial Variants: Operation 0°C to 60°C      Storage -20°C to 80°C   |
| <b>Humidity</b>                  | Operation 10% to 85% r. H. non cond.<br>Storage 5% to 85% r. H. non cond.   |
| <b>Size</b>                      | 120 x 95 mm   |

# conga-HPC/cPTL | Block Diagram



- \* - DDI2/USB4 port 1 is an either-or option (the standard configuration supports USB4 port 1 only. If instead DDI2 should be supported, a customer specific variant would be required for this option).
- The x1 NVMe, SATA and PCIe 5 are either-or-options (standard configuration support PCIe 5 only. If instead SATA or NVMe should be supported, a customer specific variant would be required for this option).
- The default configuration supports PCIe on lane 8 - 9 and on lane 12 - 13 only, with no support on lane 10 - 11. There is an option to support lane 8 - 11 instead, which would mean no support on PCIe 12 - 13 (a customer specific variant would be required for this option).

 Assembly option – only available on request

# conga-HPC/cPTL | Order Information

| Article                            | PN     | Description   |
|------------------------------------|--------|---|
| conga-HPC/cPTL-X9-388H-32G NVMe128 | 055000 | COM-HPC Size A module based on Intel® Core™ Ultra X9 388H processor with 4 P-cores, 8 E-cores and 4 LPE Cores   Integrated NPU   18 MB Intel® Smart Cache LLC   Intel® Arc™ B390 Graphics with 12Xe Cores   32GB LPDDR5x on LPCAMM2 memory module   128GB onboard NVMe   Intel code name Panther Lake-H |
| conga-HPC/cPTL-9-386H-32G          | 055001 | COM-HPC Size A module based on Intel® Core™ Ultra 9 386H processor with 4 P-cores, 8 E-cores and 4 LPE Cores   Integrated NPU   18 MB Intel® Smart Cache LLC   Intel Graphics with 4Xe Cores   32GB LPDDR5x on LPCAMM2 memory module   Intel code name Panther Lake-H                                   |
| conga-HPC/cPTL-7-366H-16G          | 055002 | COM-HPC Size A module based on Intel® Core™ Ultra 7 366H processor with 4 P-cores, 8 E-cores and 4 LPE Cores   Integrated NPU   18 MB Intel® Smart Cache LLC   Intel Graphics with 4Xe Cores   16GB LPDDR5x on LPCAMM2 memory module   Intel code name Panther Lake-H                                   |
| conga-HPC/cPTL-7-356H-16G          | 055003 | COM-HPC Size A module based on Intel® Core™ Ultra 7 356H processor with 4 P-cores, 8 E-cores and 4 LPE Cores   Integrated NPU   18 MB Intel® Smart Cache LLC   Intel Graphics with 4Xe Cores   16GB LPDDR5x on LPCAMM2 memory module   Intel code name Panther Lake-H                                   |
| conga-HPC/cPTL-5-336H-16G          | 055004 | COM-HPC Size A module based on Intel® Core™ Ultra 5 336H processor with 4 P-cores, 4 E-cores and 4 LPE Cores   Integrated NPU   18 MB Intel® Smart Cache LLC   Intel Graphics with 4Xe Cores   16GB LPDDR5x on LPCAMM2 memory module   Intel code name Panther Lake-H                                   |
| conga-HPC/cPTL-5-325-16G           | 055005 | COM-HPC Size A module based on Intel® Core™ Ultra 5 325 processor with 4 P-cores and 4 LPE Cores   Integrated NPU   12 MB Intel® Smart Cache LLC   Intel Graphics with 4Xe Cores   16GB LPDDR5x on LPCAMM2 memory module   Intel code name Panther Lake-H   |
| conga-HPC/EVAL-Client              | 065600 | COM-HPC Evaluation Carrier Board for congatec COM-HPC Client type Modules.  |
| conga-HPC/uATX-Client              | 065620 | COM-HPC Client µATX Application Carrier Board suitable for congatec COM-HPC modules with Size A,B and C.  |
| conga-HPC/cPTL-CSA-HP-B            | 055050 | Standard active cooling solution for COM-HPC module conga-HPC/cPTL with integrated heat pipes, 29mm height and integrated 12V fan. All standoffs are with 2.7mm bore hole.  |
| conga-HPC/cPTL-CSA-HP-T            | 055051 | Standard active cooling solution for COM-HPC module conga-HPC/cPTL with integrated heat pipes, 29mm height and integrated 12V fan. All standoffs are M2.5mm threaded.   |
| conga-HPC/cPTL-CSP-HP-B            | 055052 | Standard passive cooling solution for COM-HPC module conga-HPC/cPTL with integrated heat pipes, 28.2mm height. All standoffs are with 2.7mm bore hole.  |
| conga-HPC/cPTL-CSP-HP-T            | 055053 | Standard passive cooling solution for COM-HPC module conga-HPC/cPTL with integrated heat pipes, 28.2mm height. All standoffs are M2.5mm threaded.   |
| conga-HPC/cPTL-HSP-HP-B            | 055054 | Standard heatspreader for COM-HPC module conga-HPC/cPTL with integrated heat pipes, 13mm height. All standoffs are with 2.7mm bore hole.  |
| conga-HPC/cPTL-HSP-HP-T            | 055055 | Standard heatspreader for COM-HPC module conga-HPC/cPTL with integrated heat pipes, 13mm height. All standoffs are M2.5mm threaded.   |