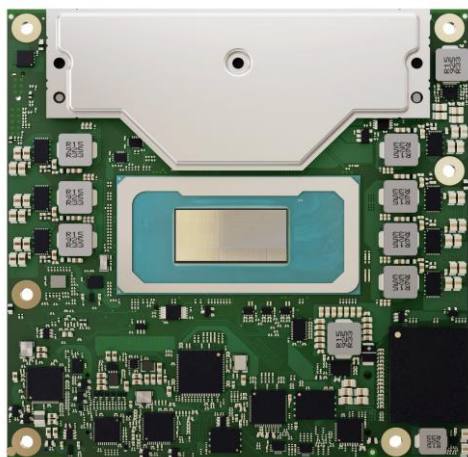# Intel® Core™ Ultra Processors Series 3
conga-TC1000r

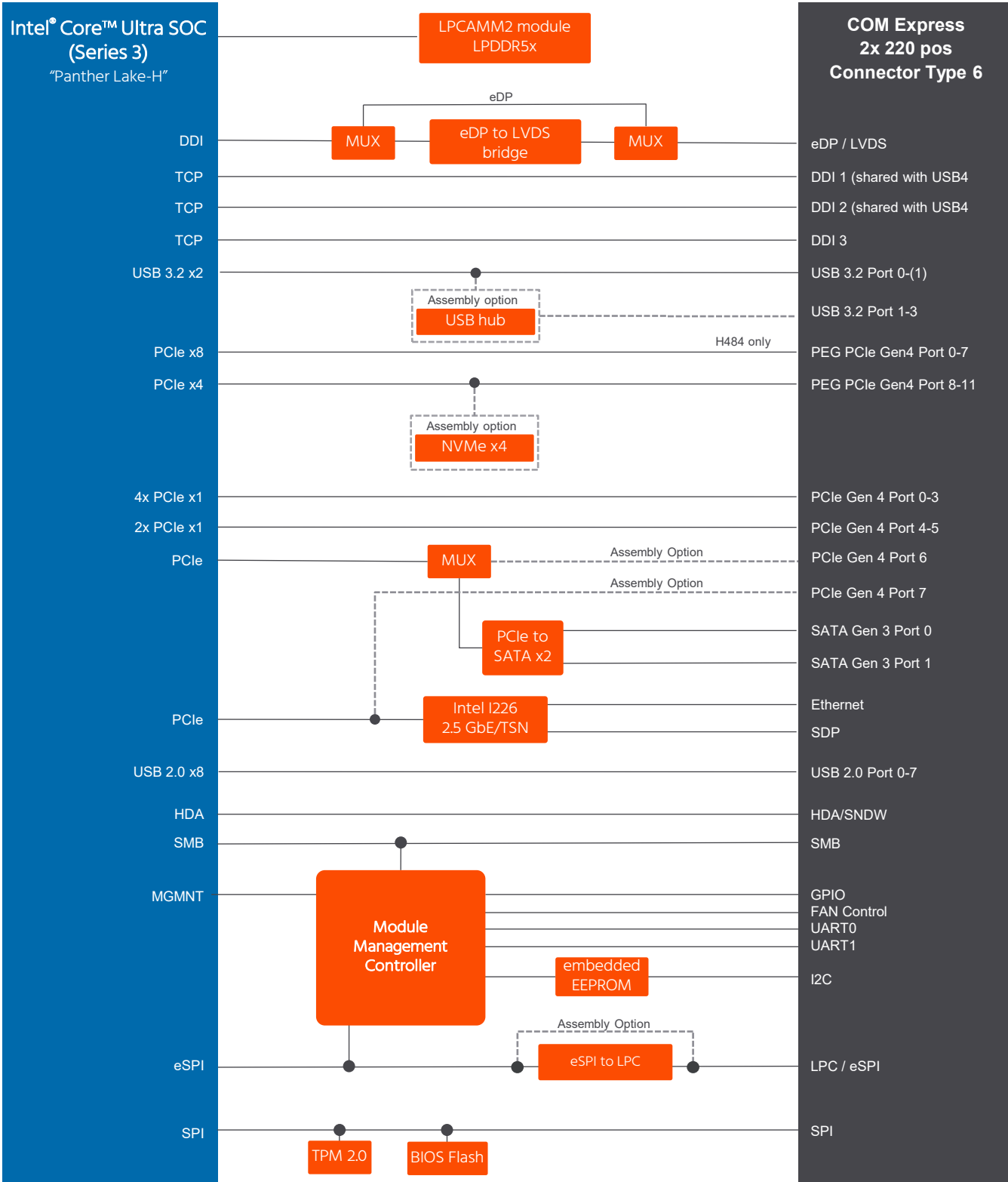**aReady.**COM

- ⬡ Intel® performance hybrid architecture with up to 16 cores
- ⬡ Intel® Arc™ Graphics or Intel Graphics
- ⬡ Integrated NPU with up to 50 TOPS and up to 180 TOPS total platform performance
- ⬡ LPCAMM2 LPDDR5 memory with up to 96 GB RAM system capacity

COM ✦ Express®

Form factor	COM Express® Compact | Type 6 connector pinout
CPUs	Intel® Core™ Ultra Processors Series 3 (Panther Lake-H)
DRAM	Up to 96GB LPCAMM2 memory based on LPDDR5x with up 8533 MT/s | In-band ECC (only on selected product variants)
Mass Storage	NVMe x4 up to 1 TB capacity SSD (optional)
Graphics	Intel® Arc Graphics with up to 12 X^e cores or Intel Graphics with up to 4 X^e cores | Intel® Xe Matrix Extensions
AI Acceleration	Integrated NPU accelerator up to 50 TOPS | Up to 180 TOPS platform total
Display	Up to 3x DDI (2x shared with USB4) | LVDS or eDP | 4x independent displays up to 8k
Ethernet	2.5 GbE via Intel® i226 Ethernet controller series | supporting TSN – Time Sensitive Networking (only on selected product variants) | Software Definable Pin (SDP) to be used for IEEE 1588
I/O Interfaces	Up to 12x PCIe Gen4 PEG (H484) or up to 4x PCIe Gen4 PEG (H12Xe, H404) | up to 8x PCIe Gen4 Up to 2x USB4 | 3x USB 3.2 Gen2 | 8x USB 2.0 | 2x SATA | 2x UART (RX/TX only) | GPIOs | GP SPI | LPC | SM Bus | I2C
Audio	High Definition Audio
Module Management Controller	Module Management Controller | Multistage Watchdog | Board Information | Board Statistics | I²C bus (fast mode) | Power Loss Control | Hardware Health Monitoring | POST Code Redirection
Embedded BIOS Feature	AMI Aptio® UEFI firmware | OEM Logo | OEM CMOS default settings | LCD Control | Display Auto Detection | Backlight Control
Security	Trusted Platform Module (TPM 2.0)
Power Management	ACPI 6.0 | wide range power supply 8.5V – 20V | single supply power
Operating Systems	Microsoft® Windows 11 IoT Enterprise | Microsoft® Windows 11 | Linux
Hypervisor	RTS real-time Hypervisor
Temperature	Commercial Temp.: Operating 0°C to 60°C	Storage -20°C to 80°C
Humidity	Operating 10% to 85% r. H. non cond.	Storage 5% to 85% r. H. non cond.
Size	95 x 95 mm

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intel partner Titanium

intel CORE ULTRA 7 | intel CORE ULTRA 9 | intel CORE ULTRA 5

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conga-TC1000r | Block Diagram

Intel® Core™ Ultra SOC (Series 3) "Panther Lake-H"

- DDI
- TCP
- TCP
- TCP
- USB 3.2 x2
- PCIe x8
- PCIe x4
- 4x PCIe x1
- 2x PCIe x1
- PCIe
- PCIe
- USB 2.0 x8
- HDA
- SMB
- MGMNT
- eSPI
- SPI

LPCAMM2 module LPDDR5x

eDP

MUX

eDP to LVDS bridge

MUX

Assembly option
USB hub

H484 only

Assembly option
NVMe x4

MUX

Assembly Option

Assembly Option

PCIe to SATA x2

Intel I226 2.5 GbE/TSN

Module Management Controller

embedded EEPROM

Assembly Option
eSPI to LPC

TPM 2.0

BIOS Flash

COM Express 2x 220 pos Connector Type 6

- eDP / LVDS
- DDI 1 (shared with USB4
- DDI 2 (shared with USB4
- DDI 3
- USB 3.2 Port 0-(1)
- USB 3.2 Port 1-3
- PEG PCIe Gen4 Port 0-7
- PEG PCIe Gen4 Port 8-11
- PCIe Gen 4 Port 0-3
- PCIe Gen 4 Port 4-5
- PCIe Gen 4 Port 6
- PCIe Gen 4 Port 7
- SATA Gen 3 Port 0
- SATA Gen 3 Port 1
- Ethernet
- SDP
- USB 2.0 Port 0-7
- HDA/SNDW
- SMB
- GPIO
- FAN Control
- UART0
- UART1
- I2C
- LPC / eSPI
- SPI

Assembly Option

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conga-TC1000r | Modules Order Information

Article	PN	Description
conga-TC1000r/ultraX9-388H-32G	052100	COM Express Compact module based on Intel® Core™ Ultra X9 388H processor with 4 P-cores, 8 E-cores and 4 LPE-cores | Integrated NPU | 18MB Intel® Smart Cache LLC | Intel® Arc™ B390 Graphics with 12X^e cores | LPCAMM LPDDR5 memory module with up to 8533 MT/s and up to 32 GB system memory capacity | commercial grade temperature range from 0°C to 60°C.
conga-TC1000r/ultra9-386H-32G	052101	COM Express Compact module based on Intel® Core™ Ultra 9 386H processor with 4 P-cores, 8 E-cores and 4 LPE-cores | Integrated NPU | 18MB Intel® Smart Cache LLC | Intel Graphics with 4X^e cores | LPCAMM LPDDR5 memory module with up to 8533 MT/s and up to 32 GB system memory capacity | commercial grade temperature range from 0°C to 60°C.
conga-TC1000r/ultra7-356H-16G	052103	COM Express Compact module based on Intel® Core™ Ultra 7 356H processor with 4 P-cores, 8 E-cores and 4 LPE-cores | Integrated NPU | 18MB Intel® Smart Cache LLC | Intel Graphics with 4X^e cores | LPCAMM LPDDR5 memory module with up to 8533 MT/s and up to 16 GB system memory capacity | commercial grade temperature range from 0°C to 60°C.
conga-TC1000r/ultra5-325-16G	052106	COM Express Compact module based on Intel® Core™ Ultra 5 325 processor with 4 P-cores and 4 LPE-cores | Integrated NPU | 12MB Intel® Smart Cache LLC | Intel Graphics with 4X^e cores | LPCAMM LPDDR5 memory module with up to 8533 MT/s and up to 16 GB system memory capacity | commercial grade temperature range from 0°C to 60°C.

conga-TC1000r | Accessories Order Information

Article	PN	Description
conga-TC1000r/HSP-B	052150	Standard heatspreader for high performance COM Express module conga-TC1000r. All standoffs are with 2.7mm bore hole.
conga-TC1000r/HSP-T	052151	Standard heatspreader for high performance COM Express module conga-TC1000r. All standoffs are M2.5mm threaded.
conga-TEVAL/COMe 3.1	065820	Evaluation carrier board for COM Express Type 6 revision 3.1 modules.

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