13th Gen Intel® Core™ Embedded Mobile Processors

conga-TC370

- ⬡ 8th Generation Intel® Core™ SOC processor
- ⬡ Up to 4 cores at low-power TDP of 15W
- ⬡ New Intel® Gen 9 HD Graphics
- ⬡ Optional eMMC 5.1 on board mass storage
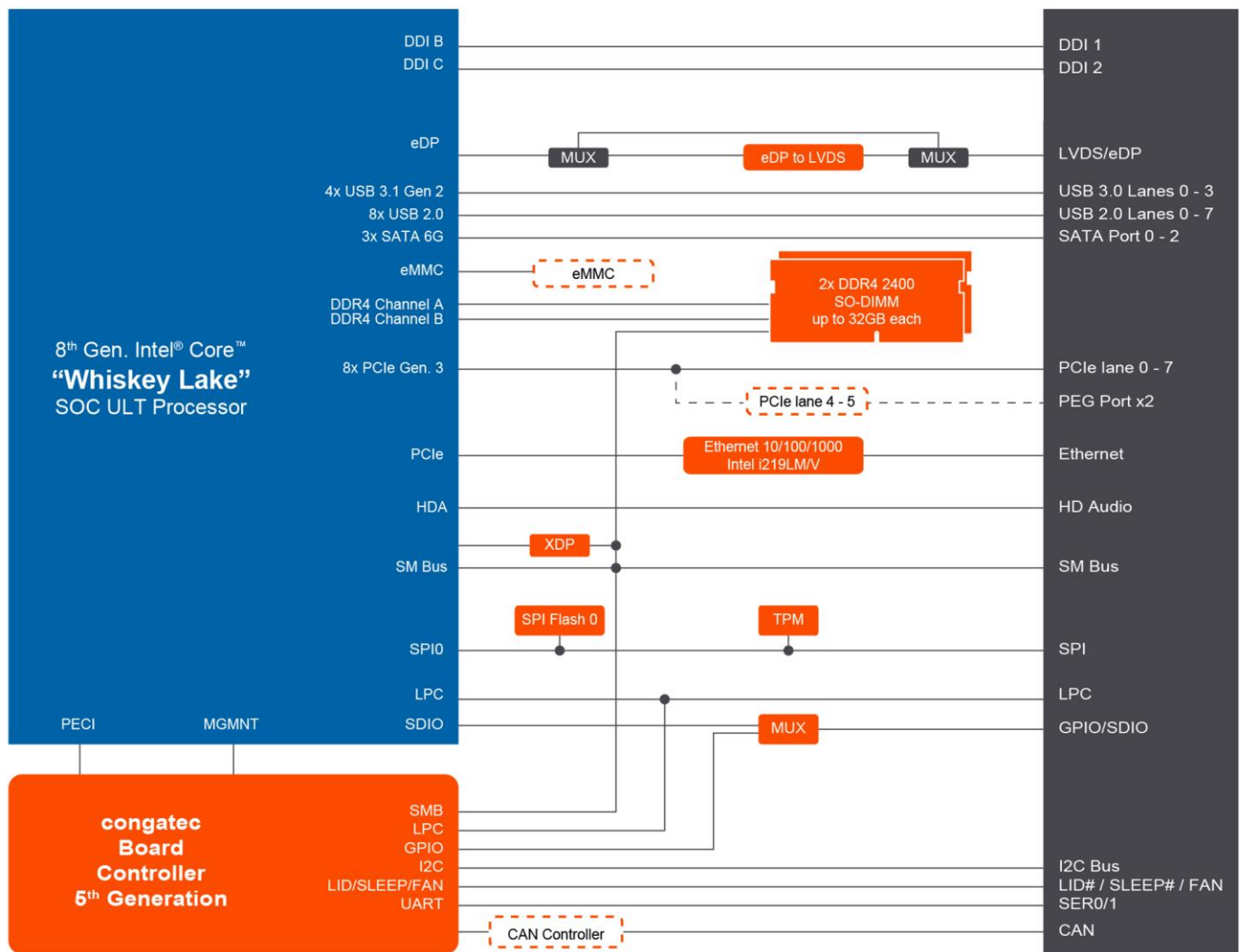- ⬡ COM Express Compact Type 6 module 95x95 mm²

Form factor	COM Express® Rev. 3.0, Compact form factor (95 x 95 mm), Type 6 Connector Pinout
CPU	Intel® Core™ i7-8665UE 4 Cores | 8 Threads 1.7 GHz | 4.4 GHz (boost) 8 MB cache 15-25 W cTDP Intel® Core™ i5-8365UE 4 Cores | 8 Threads 1.6 GHz | 4.1 GHz (boost) 6 MB cache 15-25 W cTDP Intel® Core™ i3-8145UE 2 Cores | 4 Threads 2.2 GHz | 3.9 GHz (boost) 4 MB cache 15-25 W cTDP Intel® Celeron™ 4305UE 2 Cores | 2 Threads 2.0 GHz 2 MB cache 15 W TDP
DRAM	Dual channel DDR4 up to 2400 MT/s | 2x SO-DIMM connector | up to 2x 32 GByte RAM
Chipset	Integrated in SoC
Ethernet	Intel® i219-LM/V GbE LAN controller with AMT 12.0 support
I/O Interfaces	8x PCI Express™ Gen 3.0 lanes | 3x SATA Gen 3 | 4x USB 3.1 Gen 2 @ 10 Gbit/s | 8x USB 2.0 | LPC bus | I²C bus (fast mode, 400 kHz, multi-master) | 2x UART
Sound	Digital High-Definition Audio Interface with support for multiple audio codecs
Graphics	Intel® Gen9 HD Graphics Engine with OpenCL 2.1, OpenGL 4.5 and DirectX 11/12 | up to three independent displays: HDMI 2.0a / DisplayPort 1.2 / eDP 1.4 / (VGA optional) | MPEG-2 , WMV9 (VC-1), H.265 decoding | HEVC, VP9 encoding
Storage	optional eMMC 5.1 on board mass storage
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 Features	AMI Aptio® UEFI 2.x firmware | 32 MByte serial SPI firmware flash
Security	TPM 2.0 Infineon SLB9670
Power Management	ACPI compliant with battery support | Suspend to RAM (S3) support | S5 enhanced support | Intel AMT 12.0 support
Operating Systems	Microsoft® Windows 10 (64bit only) | Microsoft® Windows 10 IoT Enterprise (64bit only) | Linux
Power Consumption	See user's guide for full details
Temperature	Operating: 0 to +60°C Storage: -20 to +80°C
Extended Temperature	Screening service on request: -25 to +80°C (burn-in & cold-soak) -40 to +85°C (burn-in & cold-soak)
Humidity	Operation 10% to 85% r. H. non cond. Storage 5% to 85% r. H. non cond.
Size	95 x 95 mm (3.74" x 3.74")

conga-TC370 | Block Diagram

8th Gen. Intel® Core™ "Whiskey Lake" SOC ULT Processor block diagram

Processor interfaces (left block):
- DDI B
- DDI C
- eDP
- 4x USB 3.1 Gen 2
- 8x USB 2.0
- 3x SATA 6G
- eMMC
- DDR4 Channel A
- DDR4 Channel B
- 8x PCIe Gen. 3
- PCIe
- HDA
- SM Bus
- SPI0
- LPC
- SDIO
- PECI
- MGMNT

congatec Board Controller 5th Generation interfaces:
- SMB
- LPC
- GPIO
- I2C
- LID/SLEEP/FAN
- UART

Center components:
- MUX — eDP to LVDS — MUX
- eMMC (Optional)
- 2x DDR4 2400 SO-DIMM up to 32GB each
- PCIe lane 4 - 5 (Optional)
- Ethernet 10/100/1000 Intel i219LM/V
- XDP
- SPI Flash 0
- TPM
- MUX
- CAN Controller (Optional)

Right block interfaces:
- DDI 1
- DDI 2
- LVDS/eDP
- USB 3.0 Lanes 0 - 3
- USB 2.0 Lanes 0 - 7
- SATA Port 0 - 2
- PCIe lane 0 - 7
- PEG Port x2
- Ethernet
- HD Audio
- SM Bus
- SPI
- LPC
- GPIO/SDIO
- I2C Bus
- LID# / SLEEP# / FAN
- SER0/1
- CAN

Legend: Optional - Not available by default

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conga-TC370 | Order Information

Article	PN	Description
conga-TC370/i7-8665UE	048800	COM Express Type 6 Compact module based on Intel® Core™ i7-8665UE 4-core processor with 1.7GHz up to 4.4GHz turbo boost, 8MB L2 cache, Intel® UHD Graphics 620 and dual channel DDR4 2400 MT/s memory interface (formerly Whiskey Lake).
conga-TC370/i5-8365UE	048801	COM Express Type 6 Compact module based on Intel® Core™ i5-8365UE 4-core processor with 1.6GHz up to 4.1GHz turbo boost, 6MB L2 cache, Intel® UHD Graphics 620 and dual channel DDR4 2400 MT/s memory interface (formerly Whiskey Lake).
conga-TC370/i3-8145UE	048802	COM Express Type 6 Compact module based on Intel® Core™ i3-8145UE 2-core processor with 2.2GHz up to 3.9GHz turbo boost, 4MB L2 cache, Intel® UHD Graphics 620 and dual channel DDR4 2400 MT/s memory interface (formerly Whiskey Lake).
conga-TC370/4305UE	048804	COM Express Type 6 Compact module based on Intel® Celeron™ 4305UE 2-core processor with 2.0GHz, 2MB L2 cache, Intel® UHD Graphics 610 and dual channel DDR4 2133 MT/s memory interface (formerly Whiskey Lake).
conga-TC370/CSA-HP-B	048850	Standard active cooling solution for COM Express Compact modules conga-TC370 with integrated heat pipes, 25.5mm overall cooling height and integrated 12V fan. Through hole mounting with bore hole standoffs Ø2.7mm.
conga-TC370/CSA-HP-T	048851	Standard active cooling solution for COM Express Compact modules conga-TC370 with integrated heat pipes, 25.5mm overall cooling height and integrated 12V fan. Threaded mounting with threaded standoffs M2.5.
conga-TC370/CSP-HP-B	048852	Standard passive cooling solution for COM Express Compact modules conga-TC370 with integrated heat pipes and 24.3mm overall cooling height. Through hole mounting with bore hole standoffs Ø2.7mm.
conga-TC370/CSP-HP-T	048853	Standard passive cooling solution for COM Express Compact modules conga-TC370 with integrated heat pipes and 24.3mm overall cooling height. Threaded mounting with threaded standoffs M2.5.
conga-TC370/HSP-HP-B	048854	Standard heatspreader for COM Express Compact modules conga-TC370 with integrated heat pipes and 11mm overall cooling height. Through hole mounting with bore hole standoffs Ø2.7mm.
conga-TC370/HSP-HP-T	048855	Standard heatspreader for COM Express Compact modules conga-TC370 with integrated heat pipes and 11mm overall cooling height. Threaded mounting with threaded standoffs M2.5.
DDR4-SODIMM-2400 (4GB)	068790	DDR4 SODIMM memory module with 2400 MT/s and 4GB RAM
DDR4-SODIMM-2400 (8GB)	068791	DDR4 SODIMM memory module with 2400 MT/s and 8GB RAM
DDR4-SODIMM-2400 (16GB)	068792	DDR4 SODIMM memory module with 2400 MT/s and 16GB RAM
DDR4-SODIMM-2666 (32GB)	068806	DDR4 SODIMM memory module with 2666 MT/s and 32GB RAM
conga-TEVAL	065810	Evaluation carrier board for Type 6 COM-Express-modules

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