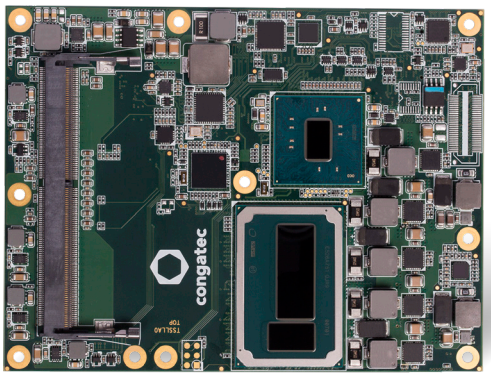
SERVER-CLASS EMBEDDED PERFORMANCE

conga-TS170

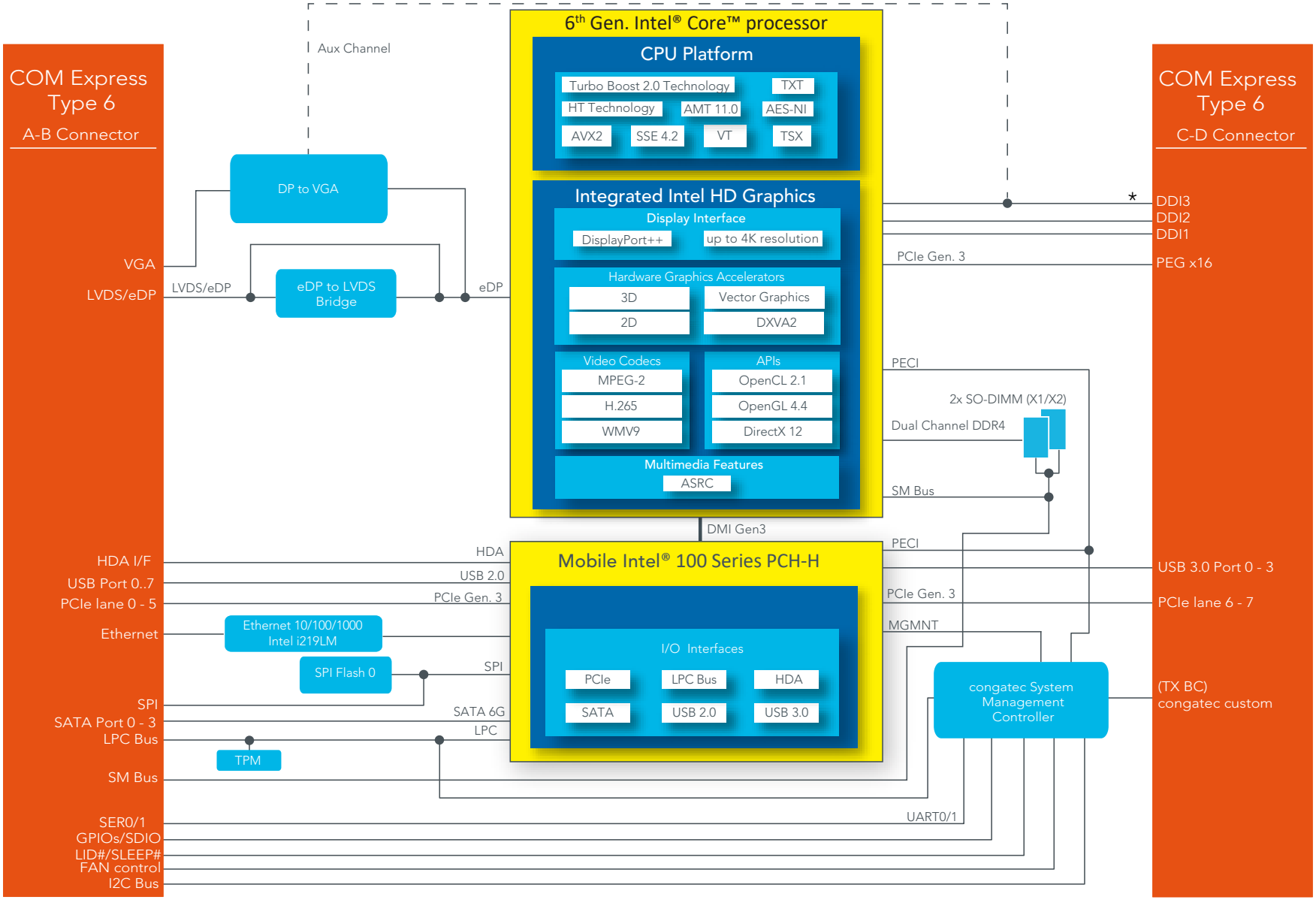


- 6th Generation Intel® Core™ processor
- Intel® Gen9 HD Graphics with HEVC (H.265) support up to Intel® Iris™ Pro Graphics P580
- ECC memory support
- Up to 32 GByte dual channel DDR4 memory
- Intel® Xeon® processors for data center applications

COM Express®

Formfactor	COM Express® Basic, (95 x 125 mm), Type 6 Connector Pinout
CPU	Intel® Xeon® E3-1578LV5 Quad Core 2.0 / 3.4 GHz 8 MB Cache 45W TDP, 35W cTDP Iris™ Pro P580 Graphics 0.35-1.0 GHz Intel® Xeon® E3-1558LV5 Quad Core 1.9 / 3.3 GHz 8 MB Cache 45W TDP, 35W cTDP Iris™ Pro P555 Graphics 0.35-1.0 GHz Intel® Xeon® E3-1515MV5 Quad Core 2.8 / 3.7 GHz 8 MB Cache 45W TDP, 35W cTDP Iris™ Pro P580 Graphics 0.35-1.0 GHz Intel® Xeon® E3-1505MV5 Quad Core 2.8 / 3.7 GHz 8 MB Cache 45W TDP, 35W cTDP HD P530 Graphics 0.35-1.05 GHz Intel® Xeon® E3-1505LV5 Quad Core 2.0 / 2.8 GHz 8 MB Cache 25W TDP HD P530 Graphics 0.35-1.0 GHz Intel® Core™ i7-6820EQ Quad Core 2.8 / 3.5 GHz 8 MB Cache 45W TDP HD 530 Graphics 0.35-1.0 GHz Intel® Core™ i7-6822EQ Quad Core 2.0 / 2.8 GHz 8 MB Cache 25W TDP HD 530 Graphics 0.35-1.0 GHz Intel® Core™ i5-6440EQ Quad Core 2.7 / 3.7 GHz 6 MB Cache 45W TDP HD 530 Graphics 0.35-1.0 GHz Intel® Core™ i5-6442EQ Quad Core 1.9 / 2.7 GHz 6 MB Cache 25W TDP HD 530 Graphics 0.35-1.0 GHz Intel® Core™ i3-6100E Dual Core 2.7 GHz 3 MB Cache 35W TDP HD 530 Graphics 0.35-0.95 GHz Intel® Core™ i3-6102E Dual Core 1.9 GHz 3 MB Cache 25W TDP HD 530 Graphics 0.35-0.95 GHz Intel® Celeron® G3900E Dual Core 2.4 GHz 2 MB Cache 35W TDP HD 530 Graphics 0.542-0.792 GHz Intel® Celeron® G3902E Dual Core 1.6 GHz 2 MB Cache 25W TDP HD 510 Graphics 0.35-0.95 GHz Intel® Turbo Boost Technology | Intel® Hyper-Threading Technology (Intel® HT Technology) | Intel® Advanced Vector Extensions 2.0 (Intel® AVX2) Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) | Integrated dual channel memory controller | up to 34,1 GByte/sec. memory bandwidth | Integrated Intel® Gen9 HD Graphics with frequency up to 1GHz | Intel® Clear Video HD Technology | Intel® Virtualization Technology (Intel® VT) | Intel® Trusted Execution Technology (Intel® TXT) | Intel® Secure Key
DRAM	2 Sockets, SO-DIMM DDR4 up to 2133 MT/s and 32GByte dual channel, Intel® Xeon® and Intel® Core® i3 with ECC support
Chipset	Mobile Intel® 100 Series Chipset
Ethernet	Intel® i219-LM GbE LAN Controller with AMT 11 support
I/O Interfaces	8x PCI Express™ gen. 3.0 lanes | 4x Serial ATA® Gen 3 | 4x USB 3.0 (XHCI) | 8x USB 2.0 (XHCI) | 1x PEG x16 Gen 3 | LPC bus (no DMA) | 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 2.0, OpenGL 4.3 and DirectX12 (for Windows 10) support | up to three independent displays High performance hardware MPEG-2 decoding | WMV9 (VC-1) and H.265 (HEVC) support Blu-ray support @ 40 MBit/s HEVC, VP8, VP9 and VDENC encoding
LVDS (eDP optional)	Dual channel LVDS transmitter, Supports flat panels 2x24 Bit interface | VESA and openLDI colour mappings | resolutions up to 1920x1200 | Automatic Panel Detection via EDID/EPI
Digital Display Interface (DDI)	3x DDI (TMDS/DisplayPort 1.2) with support for Multi-Stream Transport (MST) | resolutions up to 4k | VGA
congatec Board Controller	Multi Stage Watchdog | non-volatile User Data Storage | Manufacturing and Board Information | Board Statistics | BIOS Setup Data Backup | I²C bus (fast mode, 400 kHz, multi-master) | Power Loss Control
Embedded BIOS Features	AMI Aptio® UEFI 2.x firmware | 8/16 MByte serial SPI firmware flash
Security	The conga-TS170 can be optionally equipped with a discrete "Trusted Platform Module" (TPM 1.2 / 2.0). It is capable of calculating efficient hash and RSA algorithms with key lengths up to 2,048 bits and includes a real random number generator. Security sensitive applications such as gaming and e commerce will benefit also with improved authentication, integrity and confidence levels.
Power Management	ACPI 4.0 with battery support
Operating Systems	Microsoft® Windows 10 | Microsoft® Windows 10 IoT Enterprise | Microsoft® Windows 7 | Linux | Microsoft® Windows embedded Standard
Power Consumption	See User's Guide for full details
Temperature	Operating: 0 .. +60°C Storage: -20 .. +80°C
Humidity	Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.
Size	95 x 125 mm (3.74" x 4.92")

conga-TS170 | Block diagram



* See manual for restrictions.

conga-TS170 | Order Information

Article	PN	Description
conga-TS170/E3-1578LV5	045913	COM Express Type 6 Basic module with Skylake-H Intel® Xeon® E3-1578L V5 quad core processor with 2.0GHz up to 3.4GHz, 8MB L2 cache, GT4 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/E3-1558LV5	045914	COM Express Type 6 Basic module with Skylake-H Intel® Xeon® E3-1558L V5 quad core processor with 1.9GHz up to 3.3GHz, 8MB L2 cache, GT4 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/E3-1515MV5	045912	COM Express Type 6 Basic module with Skylake-H Intel® Xeon® E3-1515M V5 quad core processor with 2.8GHz up to 3.7GHz, 8MB L2 cache, GT4 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/E3-1505MV5	045906	COM Express Type 6 Basic module with Skylake-H Intel® Xeon® E3-1505M V5 quad core processor with 2.8GHz up to 3.7GHz, 8MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/E3-1505LV5	045907	COM Express Type 6 Basic module with Skylake-H Intel® Xeon® E3-1505L V5 quad core processor with 2.0GHz up to 2.8GHz, 8MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/i7-6820EQ	045900	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i7-6820EQ quad core processor with 2.8GHz up to 3.5GHz, 8MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset QM170
conga-TS170/i7-6822EQ	045901	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i7-6822EQ quad core processor with 2.0GHz up to 2.8GHz, 8MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset QM170
conga-TS170/i5-6440EQ	045902	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i5-6440EQ quad core processor with 2.7GHz up to 3.4GHz, 6MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset QM170
conga-TS170/i5-6442EQ	045903	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i5-6442EQ quad core processor with 1.9GHz up to 2.7GHz, 6MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset QM170
conga-TS170/i3-6100E ECC	045908	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i3-6100E dual core processor with 2.7GHz, 3MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/i3-6102E ECC	045909	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i3-6102EQ dual core processor with 1.9GHz, 3MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset CM236 with ECC memory support
conga-TS170/i3-6100E	045904	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i3-6100E dual core processor with 2.7GHz, 3MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset HM170
conga-TS170/i3-6102E	045905	COM Express Type 6 Basic module with Skylake-H Intel® Core™ i3-6102EQ dual core processor with 1.9GHz, 3MB L2 cache, GT2 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset HM170
conga-TS170/G3900E	045910	COM Express Type 6 Basic module with Skylake-H Intel® Celeron® G3900E dual core processor with 2.4GHz, 2MB L2 cache, GT1 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset HM170
conga-TS170/G3902E	045911	COM Express Type 6 Basic module with Skylake-H Intel® Celeron® G3902E dual core processor with 1.6GHz, 2MB L2 cache, GT1 graphics and 2133MT/s dual channel DDR4 memory interface, Chipset HM170

Article	PN	Description
conga-TS170/HSP-HP-B	045934	Standard heatspreader for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes. All standoffs are with 2.7mm bore hole.
conga-TS170/HSP-HP-T	045935	Standard heatspreader for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes. All standoffs are M2.5mm thread.
conga-TS170/CSP-HP-B	045932	Standard passive cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins and 21mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-TS170/CSP-HP-T	045933	Standard passive cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins and 21mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TS170/CSA-HP-B	045930	Standard active cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins, 21mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-TS170/CSA-HP-T	045931	Standard active cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins, 21mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm thread.

DDR4-SODIMM-2400 (4GB)	068790	4 GByte DDR4 SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 (8GB)	068791	8 GByte DDR4 SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 (16GB)	068792	16 GByte DDR4 SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 ECC (4GB)	068795	4 GByte DDR4 ECC SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 ECC (8GB)	068796	8 GByte DDR4 ECC SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 ECC (16GB)	068797	16 GByte DDR4 ECC SODIMM memory module with 2400 MT/s

conga-TEVAL	065800	Evaluation carrier board for Type 6 COM-Express-modules
conga-LDVI/EPI	011115	LVDS to DVI converter board for digital flat panels with onboard EEPROM

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