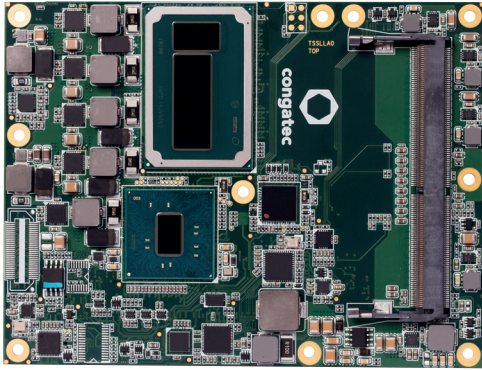


# SERVER-CLASS EMBEDDED PERFORMANCE

# conga-TS170

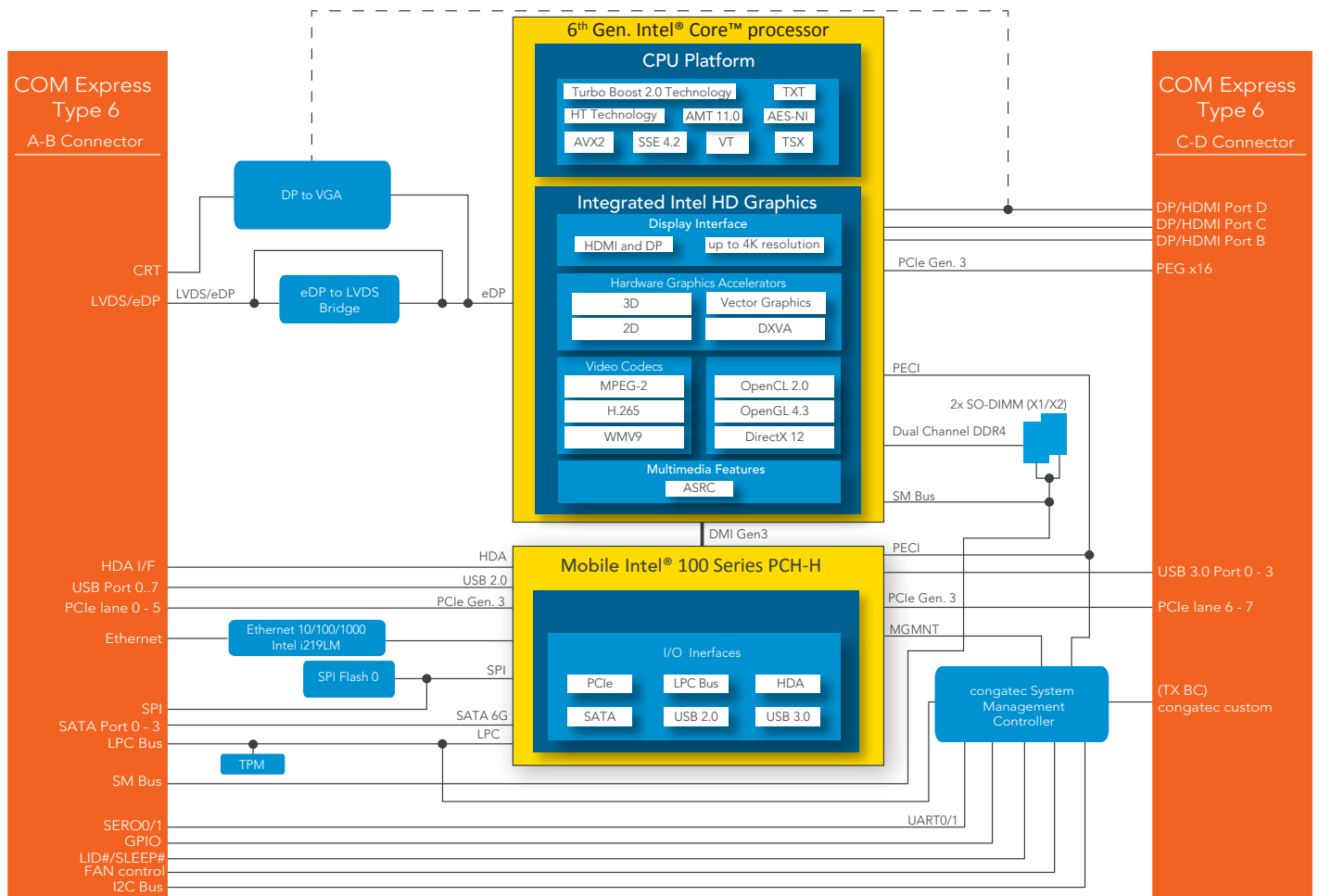


- 6<sup>th</sup> Generation Intel® Core™ processor
- Intel® Gen9 HD Graphics with HEVC (H.265) support up to Intel® Iris™ Pro Graphics P580
- ECC memory support
- Up to 32 GByte dual channel DDR4 memory
- Intel® Xeon® processors for data center applications



Formfactor	COM Express® Basic, (95 x 125 mm), Type 6 Connector Pinout					
CPU	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	35 W TDP	HD 530 Graphics 0.542-0.792 GHz
	Intel® Celeron® G3902E	Dual Core	1.6 GHz	2 MB Cache	15W 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: HDMI 1.4a / DisplayPort 1.2 / eDP 1.3   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 TMDS (HDMI) / DisplayPort 1.2 with support for Multi-Stream Transport (MST)   resolutions up to 4k   VGA (optional)					
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 8.1   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



# conga-TS170 | Order Information

Article	PN	Description
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-TS67/HSP-HP-B	046450	Standard heatspreader for high performance COM Express modules conga-TS170, conga-TS67 and TS77 with integrated heat pipes. All standoffs are with 2.7mm bore hole
conga-TS67/HSP-HP-T	046451	Standard heatspreader for high performance COM Express modules conga-TS170, conga-TS67 and TS77 with integrated heat pipes. All standoffs are M2.5mm thread
conga-TS67/CSP-HP-B	046452	Standard passive cooling solution for high performance COM Express modules conga-TS170, conga-TS67 and TS77 with integrated heat pipes 15mm silver fins and 20mm overall heat sink height. All standoffs are with 2.7mm bore hole
conga-TS67/CSP-HP-T	046453	Standard passive cooling solution for high performance COM Express modules conga-TS170, conga-TS67 and TS77 with integrated heat pipes 15mm silver fins and 20mm overall heat sink height. All standoffs are M2.5mm thread
conga-TS67/CSA-HP-B	046454	Standard active cooling solution for high performance COM Express modules conga-TS170, conga-TS67 and TS77 with integrated heat pipes   15mm silver fins   20mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole
conga-TS67/CSA-HP-T	046455	Standard active cooling solution for high performance COM Express modules conga-TS170, conga-TS67 and TS77 with integrated heat pipes   15mm silver fins   20mm 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)	068790	4 GByte DDR4 ECC SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 ECC (8GB)	068791	8 GByte DDR4 ECC SODIMM memory module with 2400 MT/s
DDR4-SODIMM-2400 ECC (16GB)	068792	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
COMe-carrier-board-Socket-5	400007	Connector for COM-Express carrier boards, height 5mm, packing unit 4 pieces
COMe-carrier-board-Socket-8	400004	Connector for COM-Express carrier boards, height 8mm, packing unit 4 pieces

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