

# HIGH END PERFORMANCE

## conga-TS87

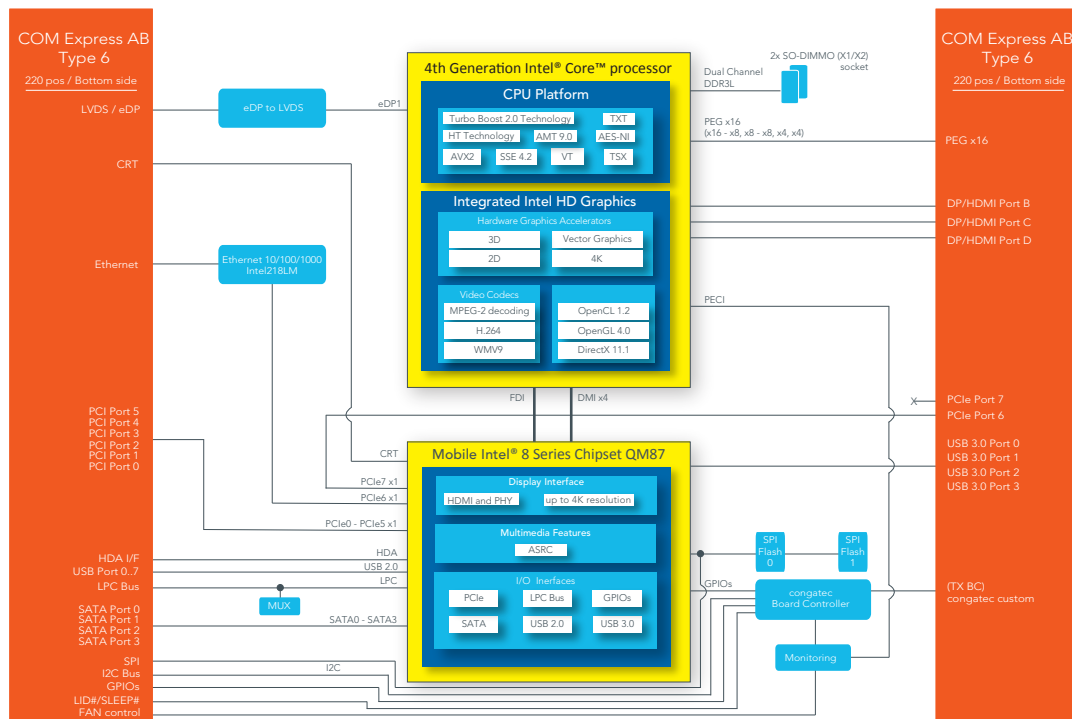


- 4<sup>th</sup> Gen. Intel® Core™ i7 quad core processor
- 3x DisplayPort 1.2, up to 4k resolution
- COM Express Basic Type 6 module
- Intel® AES-NI for hardware accelerated encryption and decryption

**COM**  **Express®**

|                           |  |           |          |                     |              |         |                               |
|---------------------------|--|-----------|----------|---------------------|--------------|---------|-------------------------------|
| Formfactor                | Formfactor COM Express™ Basic   (95 x 125 mm)   Type 6 Connector Layout  |           |          |                     |              |         |                               |
| CPU                       | Intel® Core™ i7-4700EQ   | Quad Core | 2.4 GHz  | Turbo Boost 3.4 GHz | 6M Cache     | TDP 47W | AVX2   AES-NI   AMT 9.0   TXT |
|                           | Intel® Core™ i5-4400E  | Dual Core | 2.7 GHz  | Turbo Boost 3.3 GHz | 3M Cache     | TDP 37W | AVX2   AES-NI   AMT 9.0   TXT |
|                           | Intel® Core™ i5-4402E  | Dual Core | 1.6 GHz  | Turbo Boost 2.7 GHz | 3M Cache     | TDP 25W | AVX2   AES-NI   AMT 9.0   TXT |
|                           | Intel® Core™ i3-4100E  | Dual Core | 2.4 GHz  |                     | 3M Cache     | TDP 37W | AES-NI                        |
|                           | Intel® Core™ i3-4102E  | Dual Core | 1.6 GHz  |                     | 3M Cache     | TDP 25W | AES-NI                        |
|                           | Intel® Celeron™ 2000E  | Dual Core | 2.2 GHz  |                     | 2MB L3 cache | TDP 37W |                               |
|                           | Intel® Celeron™ 2002E  | Dual Core | 1.56 GHz |                     | 2MB L3 cache | TDP 25W |                               |
|                           | 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 25.6 GByte/sec. memory bandwidth   Intel® HD graphics with dynamic frequency up to 1GHz   Intel® Clear Video HD Technology   Intel® Virtualization Technology (Intel® VT)   Intel® Trusted Execution Technology (Intel® TXT)   Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2)   PCLMULQDQ Instruction   Intel® Secure Key   Intel® Transactional Synchronization Extensions (Intel® TSX) |           |          |                     |              |         |                               |
| DRAM                      | 2 Sockets   SO-DIMM DDR3L@1.35V up to 1600MT/s and 16GByte   |           |          |                     |              |         |                               |
| Chipset                   | Mobile Intel® 8 Series Chipset: Intel® QM87 for Intel® Core™ processors / HM86 @ planned Celeron variants  |           |          |                     |              |         |                               |
| Ethernet                  | Intel® I218-LM GbE LAN Controller with AMT 9.0 support   |           |          |                     |              |         |                               |
| I/O Interfaces            | 7x PCI Express™ GEN. 2.0 lanes   1x PEG GEN 3.0 (8GT/s)   4x Serial ATA® 6 Gb/s   RAID 0/1/5/10 support   2x ExpressCard®   4x USB 3.0 (XHCI)   8x USB 2.0 (EHCI)   LPC bus   I²C bus (fast mode, 400 kHz, multi-master)   |           |          |                     |              |         |                               |
| Sound                     | Digital High Definition Audio Interface with support for multiple audio codecs   |           |          |                     |              |         |                               |
| Graphics                  | Next Generation Intel® HD Graphics with OpenCL 1.2   OpenGL 4.0 and DirectX11.1 support; up to three independent displays: HDMI 1.4, DVI, DP, VGA; High performance hardware MPEG-2 decoding   WMV9 (VC-1) and H.264 (AVC) support Blu-ray support @ 40 MBit/s   |           |          |                     |              |         |                               |
| LVDS (eDP optional)       | Dual channel LVDS transmitter   Supports flat panels 2x24 Bit interface   VESA mappings   resolutions up to 1920x1200   Automatic Panel Detection via EDID/EPI   |           |          |                     |              |         |                               |
| Digital Display Interface | 3x DS (DVI   HDMI) / DisplayPort 1.2a with daisy chaining   resolutions up to 4k   |           |          |                     |              |         |                               |
| CRT Interface             | 350 MHz RAMDAC   resolutions up to QXGA (2048x1536 @75Hz)  |           |          |                     |              |         |                               |
| 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 MByte serial SPI firmware flash   |           |          |                     |              |         |                               |
| Security                  | The conga-TS87 can be optionally equipped with a discrete "Trusted Platform Module" (TPM). 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 8   Microsoft® Windows 7   Linux   Microsoft® Windows® embedded Standard  |           |          |                     |              |         |                               |
| Power Consumption         | Typ. application: tbd.   see manual for full details   CMOS Battery Backup   |           |          |                     |              |         |                               |
| 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-TS87 | Block diagram



# conga-TS87 | Order Information

| Article                            | PN     | Description   |
|------------------------------------|--------|---|
| conga-TS87/i7-4700EQ               | 046804 | Intel® Core™ i7-4700EQ quad core processor with 2.4GHz   6MB L2 cache and 1600MT/s dual channel DDR3L memory interface  |
| conga-TS87/i5-4402E                | 046805 | Intel® Core™ i5-4402E dual core processor with 1.6GHz   3MB L2 cache and 1600MT/s dual channel DDR3L memory interface   |
| conga-TS87/i5-4400E                | 046806 | Intel® Core™ i5-4400E dual core processor with 2.7GHz   3MB L2 cache and 1600MT/s dual channel DDR3L memory interface   |
| conga-TS87/i3-4102E                | 046807 | Intel® Core™ i3-4102E dual core processor with 1.6GHz   3MB L2 cache and 1600MT/s dual channel DDR3L memory interface   |
| conga-TS87/i3-4100E                | 046808 | Intel® Core™ i3-4100E dual core processor with 2.4GHz   3MB L2 cache and 1600MT/s dual channel DDR3L memory interface   |
| conga-TS87/2000E                   | 046810 | Intel® Celeron™ 2000E dual core processor with 2.2GHz   2MB L3 cache and 1600MT/s dual channel DDR3L memory interface   |
| conga-TS87/2002E                   | 046811 | Intel® Celeron™ 2002E dual core processor with 1.56GHz   2MB L3 cache and 1600MT/s dual channel DDR3L memory interface  |
| conga-TS87/HSP-FP-B                | 046851 | Standard heatspreader for high performance COM Express module conga-TS87 with flat heat pipes. All standoffs are with 2.7mm bore hole   |
| conga-TS87/HSP-FP-T                | 046852 | Standard heatspreader for high performance COM Express module conga-TS87 with flat heat pipes. All standoffs are M2.5mm threaded  |
| conga-TS87/CSA-FP-B                | 046853 | Standard active cooling solution for high performance COM Express module conga-TS87 with flat heat pipes   15mm fins   20mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole |
| conga-TS87/CSA-FP-T                | 046854 | Standard active cooling solution for high performance COM Express module conga-TS87 with flat heat pipes   15mm fins   20mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm threaded      |
| conga-TS87/CSP-FP-B                | 046855 | Standard passive cooling solution for high performance COM Express module conga-TS87 with flat heat pipes   15mm fins and 20mm overall heat sink height. All standoffs are with 2.7 mm bore hole                    |
| conga-TS87/CSP-FP-T                | 046856 | Standard passive cooling solution for high performance COM Express module conga-TS87 with flat heat pipes   15mm fins and 20mm overall heat sink height. All standoffs are M2.5mm threaded                          |
| DDR3L-SODIMM-1600 (2GB)            | 068755 | DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 2GB RAM   |
| DDR3L-SODIMM-1600 (4GB)            | 068756 | DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 4GB RAM   |
| DDR3L-SODIMM-1600 (8GB)            | 068757 | DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 8GB RAM   |
| <b>Accessories</b>                 |        |   |
| 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   |
| COM-Express-carrier-board-Socket-5 | 400007 | Connector for COM-Express carrier boards   height 5mm   packing unit 4 pieces   |
| COM-Express-carrier-board-Socket-8 | 400004 | Connector for COM-Express carrier boards   height 8mm   packing unit 4 pieces   |

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