Formfactor
COM Express® Basic, (95 x 125 mm), Type 6 Connector Pinout

CPU
- Intel® Xeon® E3-1505M v6
  - 4.0 GHz (Burst)  |  3.0 GHz Clock
  - Quad Core
  - 8MB cache
  - 45W / 35W TDP
- Intel® Xeon® E3-1505L v6
  - 3.0 GHz (Burst)  |  2.2 GHz Clock
  - Quad Core
  - 8MB cache
  - 25W TDP
- Intel® Core i7-7820EQ
  - 3.7 GHz (Burst)  |  3.0 GHz Clock
  - Quad Core
  - 8MB cache
  - 45W / 35W TDP
- Intel® Core i5-7440EQ
  - 3.6 GHz (Burst)  |  2.9 GHz Clock
  - Quad Core
  - 6MB cache
  - 45W / 35W TDP
- Intel® Core i5-7442EQ
  - 2.9 GHz (Burst)  |  2.1 GHz Clock
  - Quad Core
  - 6MB cache
  - 25W TDP
- Intel® Core i3-7100E
  - 2.9 GHz Clock
  - Dual Core
  - 3MB cache
  - 35W TDP
- Intel® Core i3-7102E
  - 2.1 GHz Clock
  - Dual Core
  - 3MB cache
  - 25W TDP

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 2400 MT/s and 32GByte dual channel, optionally with ECC support

Chipset
Mobile Intel® 100 Series Chipset

Ethernet
Intel® 219-LM GbE LAN Controller with AMT 11.6 support

I/O Interfaces
8x PCI Express™ gen 3.0 lanes | 4x Serial ATA® Gen 3 | 4x USB 3.0 (HCHI) | 8x USB 2.0 (XCHI) | 1x PEG x16 Gen 3 | LPC bus | PC 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 / 4.4 and DirectX 11/12 (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

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 | PC 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-TS175 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 2248 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 (64bit only) | Microsoft® Windows 10 IoT Enterprise (64bit only) | Linux

Power Consumption
See User’s Guide for full details

Temperature
Operating: 0 ... +60°C | Storage: -40 ... +85°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”)

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conga-TS175 | Block diagram

**CPU Platform**
- 7th Gen. Intel® Core™ processor
- Turbo Boost 2.0 Technology
- HT Technology
- VT
- AMT 11.0
- AES-NI
- AVX2
- SSE 4.2
- TSX
- Turbo Boost 2.0 Technology
- TXT
- AVX-512
- SSE 4.2
- TSX

**Integrated Intel HD Graphics**
- Display Interface: up to 4K resolution
- Hardware Graphics Accelerators
  - 3D
  - Vector Graphics
  - DXVA2
  - 2D
  - MPEG-2
  - H.265
  - WMV9
  - OpenCL 2.1
  - OpenGL 4.4
  - DirectX 12

**Integrated Intel HD Graphics**
- Mobile Intel® 100 Series PCH-H
- I/O Interfaces
  - PCIe
  - LPC Bus
  - HDA
  - SAT. Port 0-3
  - USB 2.0
  - USB 3.0

**Multimedia Features**
- Hardware Accelerators
- Video Codecs APIs
- Vector Graphics
- DXVA2
- 3D
- 2D
- MPEG-2
- H.265
- WMV9
- OpenCL 2.1
- OpenGL 4.4
- DirectX 12

**I/O Interfaces**
- COM Express Type 6
  - A-B Connector
  - DMI Gen3
  - Ethernet 10/100/1000
  - Intel i219LM
  - SPI Flash 0
  - SPI
  - SATA Port 0-3
  - LPC Bus
  - SM Bus
  - SER0/1
  - GPIOs
  - LID#/SLEEP#
  - TPM

**COM Express Type 6**
- C-D Connector
- Aux Channel
- DP to VGA
- eDP to LVDS Bridge
- eDP
- DP/HDMI Port D
- DP/HDMI Port E
- PCIe Gen. 3
- PCIe lane 6 - 7
- USB 3.0 Port 0 - 3
- PCIe lane 0 - 5
- HDA I/F
  - USB 2.0
  - PCIe Gen. 3
- USB Port 0-7
- Ethernet
- Ethernet 10/100/1000
- Intel i219LM

**COM Express Type 6**
- C-D Connector
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- HDA I/F
  - USB 2.0
  - PCIe Gen. 3
- USB Port 0-7
- Ethernet
- Ethernet 10/100/1000
- Intel i219LM

**Notes:**
- DD1 port D supports only HDMI if VGA is enabled.

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conga-TS175 | Order Information

<table>
<thead>
<tr>
<th>Article</th>
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<tbody>
<tr>
<td>conga-TS175/i7-7820EQ</td>
<td>045950</td>
<td>COM Express Type 6 Basic module with Intel® Core™ i7-7820EQ quad core processor with 3GHz up to 3.7GHz, 8MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset QM175 with support for Intel® Optane™ memory.</td>
</tr>
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<td>conga-TS175/i5-7440EQ</td>
<td>045951</td>
<td>COM Express Type 6 Basic module with Intel® Core™ i5-7440EQ quad core processor with 2.9GHz up to 3.6GHz, 6MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset QM175 with support for Intel® Optane™ memory.</td>
</tr>
<tr>
<td>conga-TS175/i5-7442EQ</td>
<td>045952</td>
<td>COM Express Type 6 Basic module with Intel® Core™ i5-7442EQ quad core processor with 2.1GHz up to 2.9GHz, 6MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset QM175 with support for Intel® Optane™ memory.</td>
</tr>
<tr>
<td>conga-TS175/i3-7100E</td>
<td>045953</td>
<td>COM Express Type 6 Basic module with Intel® Core™ i3-7100E dual core processor with 2.9GHz, 3MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset HM175 with support for Intel® Optane™ memory.</td>
</tr>
<tr>
<td>conga-TS175/i3-7102E</td>
<td>045954</td>
<td>COM Express Type 6 Basic module with Intel® Core™ i3-7102E dual core processor with 2.1GHz, 3MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset HM175 with support for Intel® Optane™ memory.</td>
</tr>
<tr>
<td>conga-TS175/E3-1505MV6</td>
<td>045955</td>
<td>COM Express Type 6 Basic module with Intel® Xeon® E3-1505M V6 quad core processor with 3.6GHz up to 4GHz, 8MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset CM238 with ECC memory support.</td>
</tr>
<tr>
<td>conga-TS175/E3-1505LV6</td>
<td>045956</td>
<td>COM Express Type 6 Basic module with Intel® Xeon® E3-1505L V6 quad core processor with 2.2GHz up to 3GHz, 8MB Intel® Smart Cache, GT2 graphics and 2400MT/s dual channel DDR4 memory interface (Intel Kaby Lake-H). Chipset CM238 with ECC memory support.</td>
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<td>046450</td>
<td>Standard heatspreader for high performance COM Express modules conga-TS175, conga-TS170, conga-TS67 and TS77 with integrated heat pipes. All standoffs are with 2.7mm bore hole</td>
</tr>
<tr>
<td>conga-TS67/HSP-HP-T</td>
<td>046451</td>
<td>Standard heatspreader for high performance COM Express modules conga-TS175, conga-TS170, conga-TS67 and TS77 with integrated heat pipes. All standoffs are M2.5mm thread</td>
</tr>
<tr>
<td>conga-TS67/CSP-HP-B</td>
<td>046452</td>
<td>Standard passive cooling solution for high performance COM Express modules conga-TS175, 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</td>
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<td>Standard active cooling solution for high performance COM Express modules conga-TS175, conga-TS170, conga-TS67 and TS77 with integrated heat pipes</td>
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| DDR4-SODIMM-2400 (4GB)         | 068790| 4GB DDR4 SODIMM memory module with 2400 MT/s |
| DDR4-SODIMM-2400 (8GB)         | 068791| 8GB DDR4 SODIMM memory module with 2400 MT/s |
| DDR4-SODIMM-2400 (16GB)        | 068792| 16GB DDR4 SODIMM memory module with 2400 MT/s |
| DDR4-SODIMM-2400 ECC (4GB)     | 068793| 4GB DDR4 ECC SODIMM memory module with 2400 MT/s |
| DDR4-SODIMM-2400 ECC (8GB)     | 068796| 8GB DDR4 ECC SODIMM memory module with 2400 MT/s |
| DDR4-SODIMM-2400 ECC (16GB)    | 068797| 16GB DDR4 ECC SODIMM memory module with 2400 MT/s |
| conga-TEVAL                    | 068800| 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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