**SERVER-CLASS EMBEDDED PERFORMANCE**

**conga-TS175**

- 7th Generation Intel® Core™ processor
- Intel® Xeon® processors for data center applications
- Intel® Optane™ memory can be connected via PCI Express Gen 3.0
- ECC memory support
- Up to 32 GByte dual channel DDR4 memory

**Formfactor**

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

**CPU**

<table>
<thead>
<tr>
<th>Model</th>
<th>Clock Speed (Burst)</th>
<th>Clock Speed (Base)</th>
<th>Cache</th>
<th>TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Xeon® E3-1505M v6</td>
<td>4.0 GHz</td>
<td>3.0 GHz</td>
<td>8MB</td>
<td>45W / 35W TDP</td>
</tr>
<tr>
<td>Intel® Xeon® E3-1505L v6</td>
<td>3.0 GHz</td>
<td>2.2 GHz</td>
<td>8MB</td>
<td>25W TDP</td>
</tr>
<tr>
<td>Intel® Core™ i7-7820EQ</td>
<td>3.7 GHz</td>
<td>3.0 GHz</td>
<td>6MB</td>
<td>45W / 35W TDP</td>
</tr>
<tr>
<td>Intel® Core™ i5-7440EQ</td>
<td>2.9 GHz</td>
<td>2.1 GHz</td>
<td>6MB</td>
<td>25W TDP</td>
</tr>
<tr>
<td>Intel® Core™ i3-7100E</td>
<td>2.9 GHz</td>
<td>2.6 GHz</td>
<td>3MB</td>
<td>35W TDP</td>
</tr>
<tr>
<td>Intel® Core™ i3-7102E</td>
<td>2.1 GHz</td>
<td>2.1 GHz</td>
<td>3MB</td>
<td>25W TDP</td>
</tr>
</tbody>
</table>

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 (0 xHCI) | 8x USB 2.0 (0xHCI) | 1x PEG x16 Gen 3 | LPC bus | PC bus (fast mode, 400 MHz, multi-master) | 2x UART

**Sound**

Digital High Definition Audio Interface with support for multiple audio codecs

**Graphics**

OpenCL 2.0/2.1, OpenGL 4.4/4.5 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 | HEVC, VP9 and VDENC encoding | High performance hardware MPEG-2 decoding | WMV9 (VC-1) and H.265 (HEVC) support | HEVC, VP9 and VDENC encoding

**LVDS**

Dual channel LVDS transmitter, Supports flat panels 2x24 Bit interface | VESA and openLDI colour mappings | resolutions up to 1920x1200 | Automatic Panel Detection via EDID/EPID

**Digital Display Interface (DDI)**

3x TMDS (HDMI) / 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 | PC bus (fast mode, 400 MHz, 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 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 (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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Downloaded from Arrow.com.
congatec | Block diagram

**7th Gen. Intel® Core™ processor**
- CPU Platform
  - VT
  - HT Technology
  - AMT 11.0
  - AES-256
  - Turbo Boost 2.0 Technology
  - TXT
  - AVX2
  - SSE 4.2
  - TSX
  - AES-NI
  - AVX2
  - SSE 4.2
  - TSX
  - Hardware Graphics Accelerators
  - 2D
  - 3D
  - Vector Graphics
  - DXVA2
  - 3D
  - 2D
  - Multimedia Features
  - ASRC

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

**Mobile Intel® 100 Series PCH-H**
- I/O Interfaces
  - PCIe
  - LPC Bus
  - HDA

**COM Express Type 6**
- A-B Connector
  - DP to VGA
  - eDP to LVDS Bridge
  - LVDS/eDP
  - eDP
  - CRTC
  - HDA I/F
  - USB Port 0..7
  - PCIe lane 0..5
  - Ethernet
  - SPI
  - SATA Port 0..3
  - LPC Bus
  - SM Bus
  - SER0/1
  - SPIFlash
  - SPI
  - SATA6G
  - LPC
  - TPM
  - Ethernet 10/100/1000
  - Intel 219VLM

**congatec System Management Controller**
- Ethernet 10/100/1000
- Intel i219LMEthernet

**DDI port D supports only HDMI if VGA is enabled.**
## Article PN Description

<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
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<tbody>
<tr>
<td>conga-TS170/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>
<tr>
<td>conga-TS170/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-TS170/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 3GHz 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>
</tr>
<tr>
<td>DDR4-SODIMM-2400 (4GB)</td>
<td>068790</td>
<td>4 GByte DDR4 SODIMM memory module with 2400 MT/s</td>
</tr>
<tr>
<td>DDR4-SODIMM-2400 (8GB)</td>
<td>068791</td>
<td>8 GByte DDR4 SODIMM memory module with 2400 MT/s</td>
</tr>
<tr>
<td>DDR4-SODIMM-2400 (16GB)</td>
<td>068792</td>
<td>16 GByte DDR4 SODIMM memory module with 2400 MT/s</td>
</tr>
<tr>
<td>DDR4-SODIMM-2400 ECC (4GB)</td>
<td>068795</td>
<td>4 GByte DDR4 ECC SODIMM memory module with 2400 MT/s</td>
</tr>
<tr>
<td>DDR4-SODIMM-2400 ECC (8GB)</td>
<td>068796</td>
<td>8 GByte DDR4 ECC SODIMM memory module with 2400 MT/s</td>
</tr>
<tr>
<td>DDR4-SODIMM-2400 ECC (16GB)</td>
<td>068797</td>
<td>16 GByte DDR4 ECC SODIMM memory module with 2400 MT/s</td>
</tr>
<tr>
<td>conga-TEVAL</td>
<td>065800</td>
<td>Evaluation carrier board for Type 6 COM-Express modules</td>
</tr>
<tr>
<td>conga-LDV/EPI</td>
<td>011115</td>
<td>LVDS to DVI converter board for digital flat panels with onboard EEPROM</td>
</tr>
<tr>
<td>COMe-carrier-board-Socket-5</td>
<td>400007</td>
<td>Connector for COM-Express carrier boards, height 5mm, packing unit 4 pieces</td>
</tr>
<tr>
<td>COMe-carrier-board-Socket-8</td>
<td>400004</td>
<td>Connector for COM-Express carrier boards, height 8mm, packing unit 4 pieces</td>
</tr>
</tbody>
</table>

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