**Formfactor**
COM Express® Rev. 3.0, Basic Formfactor (95 x 125 mm), Type 7 Connector Pinout

**CPU**

<table>
<thead>
<tr>
<th>Commercial Versions</th>
<th>Industrial Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD EPYC Embedded 3000 Model 3451</td>
<td>AMD EPYC Embedded 3000 Model 3255</td>
</tr>
<tr>
<td>16 Cores / 32 Threads</td>
<td>8 Cores / 16 Threads</td>
</tr>
<tr>
<td>Dual Die</td>
<td>Single Die</td>
</tr>
<tr>
<td>2.1 / 3.00 GHz</td>
<td>2.5 / 3.10 GHz</td>
</tr>
<tr>
<td>32 MB cache</td>
<td>16 MB cache</td>
</tr>
<tr>
<td>100W TDP</td>
<td>55W TDP</td>
</tr>
</tbody>
</table>

**DRAM**
Up to 3 SO-DIMM sockets for DDR4 memory modules up to 32 GByte each (96 GByte total) with 2666 MT/s ECC and non-ECC supported

**Chipset**
Integrated in SoC

**Ethernet**
4x 10Gbe with KR interface support
1x Gigabit Ethernet

**I/O Interfaces**
32x PCIe Gen3 max.
4x USB 3.1 Gen 1 | 4x USB 2.0
2x SATA III (6Gb/s)
LPC | SPI | 2x UART | SMBus

**Storage**
Up to 1 TByte onboard NVMe storage

**congatec Board Controller**
Multi Stage Watchdog | non-volatile Data Storage | Manufacturing and Board Information | Board Statistics
PC bus (fast mode, 400 kHz, multi-master) | Power Loss Control | Hardware Health Monitoring | POST Code redirection

**Embedded BIOS Features**
OEM Customization | Flash Update | based on AMI Aptio UEFI

**Security**
Trusted Platform Module (TPM 2.0), Secure Root of Trust, Secure Memory Encryption, Secure Encrypted Virtualization

**Power Management**
ACPI 5.0 with battery support

**Operating Systems**
tbd

**Power Consumption**
See user’s guide for full details

**Temperature**
- Industrial: Operating -40 to +85°C
- Commercial: Operating 0 to +60°C
- Storage -40 to +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")
conga-B7E3 | Block diagram

AMD EPYC embedded 3000 Processor

Die 0
- PCIe 0-1
- PCIe 0-15
- PCIe 3
- PCIe 16-31

Die 1
- PCIe 16-31
- PCIe 4-5
- PCIe 8-11

3x DDR4 2666
ECC / non ECC SO-DIMM
up to 32 GB each

2x DDR4 2666
ECC / non ECC SO-DIMM
up to 32 GB each

congatec Board Controller

USB 2.0
USB 3.1
SPI
LPC
I2C

conga-B7E3 COM Express Rev. 3.0, Basic Size, Type 7 Pinout

SATA Port 0 - 1
- PCIe lane 0 - 15
- PCIe lane 16 - 31

Ethernet 10G 0 - 1
Ethernet 10G 2 - 3

Switch

TPM
SPI Flash

GPIO
I2C Bus
SERIO1
SM Bus

FAN
## Order Information

<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>conga-B7E3/3451</td>
<td>048600</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3451 (Snowy Owl) 16 core / 32 threads processor with 2.15GHz up to 3.0GHz core frequency, 32MB L3 cache and 2666MT/s DDR4 SODIMM memory interface for up to 96GB. TDP 100W</td>
</tr>
<tr>
<td>conga-B7E3/3351</td>
<td>048602</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3351 (Snowy Owl) 12 core / 24 threads processor with 1.90GHz up to 3.0GHz core frequency, 32MB L3 cache and 2666MT/s DDR4 SODIMM memory interface for up to 96GB. TDP 80W</td>
</tr>
<tr>
<td>conga-B7E3/3255</td>
<td>048604</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3255 (Snowy Owl) 8 core / 16 threads processor with 2.5GHz up to 3.1GHz core frequency, 16MB L3 cache and 2666MT/s DDR4 SODIMM memory interface for up to 64GB. TDP 55W</td>
</tr>
<tr>
<td>conga-B7E3/3251</td>
<td>048605</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3251 (Snowy Owl) 8 core / 16 threads processor with 2.5GHz up to 3.1GHz core frequency, 16MB L3 cache and 2666MT/s DDR4 SODIMM memory interface for up to 64GB. TDP 50W</td>
</tr>
<tr>
<td>conga-B7E3/3201</td>
<td>048606</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3201 (Snowy Owl) 8 core / 8 threads processor with 1.5GHz up to 3.1GHz core frequency, 16MB L3 cache and 2133MT/s DDR4 SODIMM memory interface for up to 64GB. TDP 30W</td>
</tr>
<tr>
<td>conga-B7E3/3151</td>
<td>048607</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3151 (Snowy Owl) 4 core / 8 threads processor with 2.7GHz up to 3.1GHz core frequency, 16MB L3 cache and 2666MT/s DDR4 SODIMM memory interface for up to 64GB. TDP 45W</td>
</tr>
<tr>
<td>conga-B7E3/3101</td>
<td>048608</td>
<td>COM Express Type 7 Basic module with AMD embedded EPYC 3101 (Snowy Owl) 4 core / 4 threads processor with 2.1GHz up to 2.9GHz core frequency, 8MB L3 cache and 2666MT/s DDR4 SODIMM memory interface for up to 64GB. TDP 35W</td>
</tr>
<tr>
<td>conga-B7E3/HSP</td>
<td>tbd</td>
<td>Heat Spreader</td>
</tr>
<tr>
<td>conga-B7E3/CSA</td>
<td>tbd</td>
<td>Active Cooling Solution</td>
</tr>
<tr>
<td>conga-B7E3/HFA</td>
<td>tbd</td>
<td>Heat Pipe Adapter</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 (4GB)</td>
<td>067780</td>
<td>DDR4 SODIMM memory module with 2666 MT/s and 4GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 (8GB)</td>
<td>067781</td>
<td>DDR4 SODIMM memory module with 2666 MT/s and 8GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 (16GB)</td>
<td>067782</td>
<td>DDR4 SODIMM memory module with 2666 MT/s and 16GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 (32GB)</td>
<td>068806</td>
<td>DDR4 SODIMM memory module with 2666 MT/s and 32GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 ECC (4GB)</td>
<td>067783</td>
<td>DDR4 ECC SODIMM memory module with 2666 MT/s and 4GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 ECC (8GB)</td>
<td>067784</td>
<td>DDR4 ECC SODIMM memory module with 2666 MT/s and 8GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 ECC (16GB)</td>
<td>067785</td>
<td>DDR4 ECC SODIMM memory module with 2666 MT/s and 16GB RAM</td>
</tr>
<tr>
<td>DDR4-SODIMM-2666 ECC (32GB)</td>
<td>068805</td>
<td>DDR4 ECC SODIMM memory module with 2666 MT/s and 32GB RAM</td>
</tr>
<tr>
<td>conga-X7EVAL</td>
<td>065420</td>
<td>Evaluation Carrier Board for COM Express Type 7 modules with up to four 10GbE SFP+ fiber/copper ports implemented via Intel Cortina 10GbE Phy's. The carrier features an Aspeed AST2500 Board Management Controller (BMC).</td>
</tr>
</tbody>
</table>