conga-TFS

- Power efficient high-performance x86 processing
- Unprecedented integrated graphics performance
- High performance parallel processing support

**Formfactor**
COM Express™ Basic | (95 x 125 mm) | Type 6 Connector Layout

**CPU**
- AMD Embedded R-464L
  - AMD Radeon™ HD 7660G Graphics
  - Quad-Core 2.3 GHz
  - TDP 35 W
  - PGA
- AMD Embedded R-460H
  - AMD Radeon™ HD 7640G Graphics
  - Quad-Core 1.9 GHz
  - TDP 35 W
  - PGA
- AMD Embedded R-272F
  - AMD Radeon™ HD 7520G Graphics
  - Dual-Core 2.7 GHz
  - TDP 35 W
  - PGA

**DRAM**
Two 1.5V/1.35V DDR3 SO-DIMMs up to 1600MT/s and 8 GByte

**Chipset**
AMD A70M Controller Hub

**Ethernet**
Realtek RTL8111E GbE LAN Controller

**I/O Interfaces**
- 7x PCI Express™ 2.0 lane
- 1x PCI Express™ 2.0 x8 link
- 4x SATA 6Gb/s with RAID 0/1
- 4x USB 3.0
- 8x USB 2.0
- 2x ExpressCard
- 4x USB 3.0
- 8x USB 2.0
- 2x ExpressCard
- 4x USB 3.0
- 8x USB 2.0
- 2x ExpressCard
- LPC bus
- SDHC
- I²C bus

**Sound**
High Definition Audio Interface

**Graphics**
High performance DirectX®11 GPU supports OpenCL™ 1.1 and OpenGL 4.2

**LVDS**
- 18/24-bit Single/Dual Channel Interface
- resolutions up to 1920x1200@60Hz
- VESA standard or JEIDA data mapping
- Automatic Panel Detection via EDID/EPI

**DisplayPort**
Three DisplayPort 1.2

**HDMI or DVI**
Two Ports support one HDMI 1.4a and two Single-Link DVI

**VGA**
One Port supports resolutions up to 1920x1200@60Hz

**congatec Board Controller**
Multi Stage Watchdog | non-volatile User Data Storage | Manufacturing and Board Information | Board Statistics | BIOS Setup Data Backup | I²C bus | Power Loss Control

**Embedded BIOS Features**
AMI Aptio® UEFI firmware

**Security**
The conga-TFS 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 3.0 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-TFS | Order Information

<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>conga-TFS/R-446L</td>
<td>041101</td>
<td>AMD embedded R-Series R-446L quad core processor with 2.3GHz</td>
</tr>
<tr>
<td>conga-TFS/R-460H</td>
<td>041102</td>
<td>AMD embedded R-Series R-460H quad core processor with 1.9GHz</td>
</tr>
<tr>
<td>conga-TFS/R-272F</td>
<td>041103</td>
<td>AMD embedded R-Series R-272F dual core processor with 2.7GHz</td>
</tr>
<tr>
<td>conga-TFS/HSP-B</td>
<td>041150</td>
<td>Standard heatspreader for high performance COM Express module conga-TFS with integrated flat heat pipe. All standoffs are with 2.7mm bore hole</td>
</tr>
<tr>
<td>conga-TFS/HSP-T</td>
<td>041151</td>
<td>Standard heatspreader for high performance COM Express module conga-TFS with integrated flat heat pipe. All standoffs are M2.5mm thread</td>
</tr>
<tr>
<td>conga-TFS/CSA-B</td>
<td>041154</td>
<td>Standard active cooling solution for high performance COM Express module conga-TFS with integrated flat heat pipe</td>
</tr>
<tr>
<td>conga-TFS/CSA-T</td>
<td>041155</td>
<td>Standard active cooling solution for high performance COM Express module conga-TFS with integrated flat heat pipe</td>
</tr>
<tr>
<td>DDR3L-SODIMM-1600 (2GB)</td>
<td>068755</td>
<td>DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 2GB RAM</td>
</tr>
<tr>
<td>DDR3L-SODIMM-1600 (4GB)</td>
<td>068756</td>
<td>DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 4GB RAM</td>
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<tr>
<td><strong>Accessories</strong></td>
<td></td>
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<tr>
<td>conga-TEVAL</td>
<td>065800</td>
<td>Evaluation carrier board for Type 6 COM-Express-modules</td>
</tr>
<tr>
<td>conga-Cdebug</td>
<td>047854</td>
<td>COM-Express debugging platform</td>
</tr>
<tr>
<td>conga-LDVI/EPI</td>
<td>011115</td>
<td>LVDS to DVI converter board for digital flat panels on onboard EEPROM</td>
</tr>
<tr>
<td>conga-HDMI/Display Port adapter 4k</td>
<td>500030</td>
<td>The conga-DP/HDMI adapter 4k is used for evaluation of the DP/HDMI graphics interface of x86 Gseeven and COM Express modules in combination with the congatec evaluation carrier boards conga-QEVAL and conga-TEVAL. It supports full 4k display resolution.</td>
</tr>
<tr>
<td>COM-Express-carrierboard-Socket-5</td>
<td>400007</td>
<td>Connector for COM-Express carrier boards</td>
</tr>
<tr>
<td>COM-Express-carrierboard-Socket-8</td>
<td>400004</td>
<td>Connector for COM-Express carrier boards</td>
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