## Formfactor
COM Express® Compact | (95 x 95 mm) | Type 6 Connector Layout

## CPU
- **AMD Embedded G-Series SOC**
- **Power saving „Steppe Eagle“ processors**
- **ECC protected memory up to 8 GByte**
- **High performance integrated graphics**
- **Extended longevity, min. 10 years**

<table>
<thead>
<tr>
<th>CPU Model</th>
<th>Frequency</th>
<th>Core Type</th>
<th>L2 Cache</th>
<th>TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD Embedded GX-420CA</td>
<td>2.0 GHz</td>
<td>Quad Core</td>
<td>L2 cache 2MB shared</td>
<td>25W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-415GA</td>
<td>1.5 GHz</td>
<td>Quad Core</td>
<td>L2 cache 2MB shared</td>
<td>15W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-217GA</td>
<td>1.65 GHz</td>
<td>Dual Core</td>
<td>L2 cache 1MB shared</td>
<td>15W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-210HA</td>
<td>1.0 GHz</td>
<td>Dual Core</td>
<td>L2 cache 1MB shared</td>
<td>9W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-424CC</td>
<td>2.4 GHz</td>
<td>Quad Core</td>
<td>L2 cache 2MB shared</td>
<td>25W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-412HC</td>
<td>1.2 GHz</td>
<td>Quad Core</td>
<td>L2 cache 2MB shared</td>
<td>7W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-212JC</td>
<td>1.2 GHz</td>
<td>Dual Core</td>
<td>L2 cache 1MB shared</td>
<td>6W TDP</td>
</tr>
<tr>
<td>AMD Embedded GX-222GC</td>
<td>2.2 GHz</td>
<td>Dual Core</td>
<td>L2 cache 1MB shared</td>
<td>15W TDP</td>
</tr>
</tbody>
</table>

## DRAM
- Up to 8 GByte DDR3L-1600 with ECC protection

## Chipset
- Integrated in SOC (single-chip)

## Ethernet
- Gigabit Ethernet

## I/O Interfaces
- 4x PCI Express™ 2.0 lanes
- 2x SATA® 3Gb/s
- 2x USB 3.0
- 8x USB 2.0
- LPC bus
- PC bus (fast mode, 400 kHz, multi-master)
- SD
- SPI
- SM-Bus

## Sound
- High Definition Audio Interface

## Graphics
- Integrated AMD Radeon™ HD 8000E Graphics supports DirectX 11.1 / OpenGL 4.2 and OpenCL™ 1.2; up to two simultaneous displays
- Video Compression Engine 2.0 (Video conferencing, wireless display, H.264, SVC)
- Security Asset Management Unit 2.1 (DRM offloaded from CPU, HDCP2)
- VGA

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

## Digital Display Interface
- One DisplayPort 1.2 / HDMI 1.4a

## 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
- Backlight

## Embedded BIOS Features
- AMI Aptio® UEFI 2.x firmware
- 8 MByte serial SPI firmware flash

## Security
- The conga-TCG 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® 7/8 Embedded Standard
- Microsoft® Windows® 7 Embedded Compact

## Power Consumption
- Typ. application: tbd
- see manual for full details

## 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 95 mm (3.74" x 3.74")
**conga-TCG | Order Information**

<table>
<thead>
<tr>
<th>Article PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>conga-TCG/GX-420CA-2GECC</td>
<td>AMD Embedded G-Series GX-420CA quad core processor with 2.0GHz</td>
</tr>
<tr>
<td>conga-TCG/GX-217GA-2GECC</td>
<td>AMD Embedded G-Series GX-217GA dual core processor with 1.6GHz</td>
</tr>
<tr>
<td>conga-TCG/GX-210GA-2GECC</td>
<td>AMD Embedded G-Series GX-210GA dual core processor with 1.0GHz</td>
</tr>
<tr>
<td>conga-TCG/420CA-4GECC</td>
<td>AMD Embedded G-Series GX-420CA quad core processor with 2.4GHz</td>
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<tr>
<td>conga-TCG/i-217GA-2GECC</td>
<td>AMD Embedded G-Series GX-217GA dual core processor with 1.65GHz</td>
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<tr>
<td>conga-TCG/424CC-4GECC</td>
<td>AMD Embedded G-Series GX-424CC quad core processor with 2.4GHz</td>
</tr>
<tr>
<td>conga-TCG/412HC-4GECC</td>
<td>AMD Embedded G-Series GX-412HC quad core processor with 1.2GHz/1.6GHz</td>
</tr>
<tr>
<td>conga-TCG/212JC-2GECC</td>
<td>AMD Embedded G-Series GX-212JC dual core processor with 2.0GHz/4GHz</td>
</tr>
<tr>
<td>conga-TCG/222GC-4GECC</td>
<td>AMD Embedded G-Series GX-222GC quad core processor with 2.2 GHz to 2.4 GHz, 10W to 15 W TDP, 1MB L2 cache and 4GB 1600MT/s ECC DDR3L onboard memory. Features AMD Radeon™ HD 8000E Graphics with 655/800 MHz GPU frequency.</td>
</tr>
<tr>
<td>conga-TCG/HSP-B</td>
<td>Standard heatspreader for COM Express module conga-TCG. All standoffs are 2.7mm bore hole</td>
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<td>conga-TCG/HSP-T</td>
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<td>conga-TCG/CSP-B</td>
<td>Standard passive cooling solution for COM Express module conga-TCG with 20mm overall heat sink height. All standoffs are 2.7mm bore hole</td>
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