

COM Express® Type 6 Compact Module

High graphics performance with low power consumption

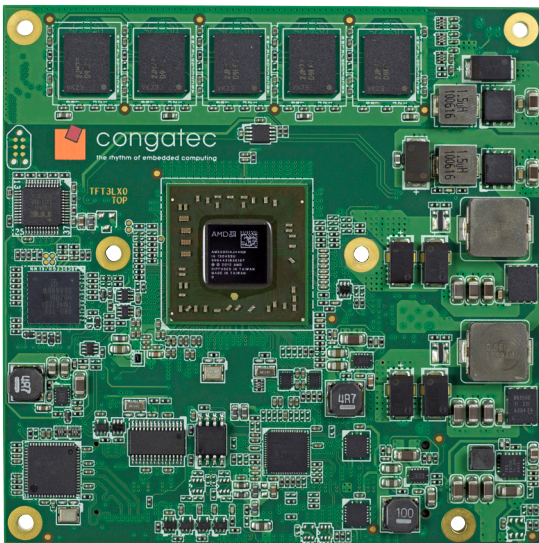
conga-TCG

First Quad Core single-chip module

2nd Generation AMD Embedded G-Series

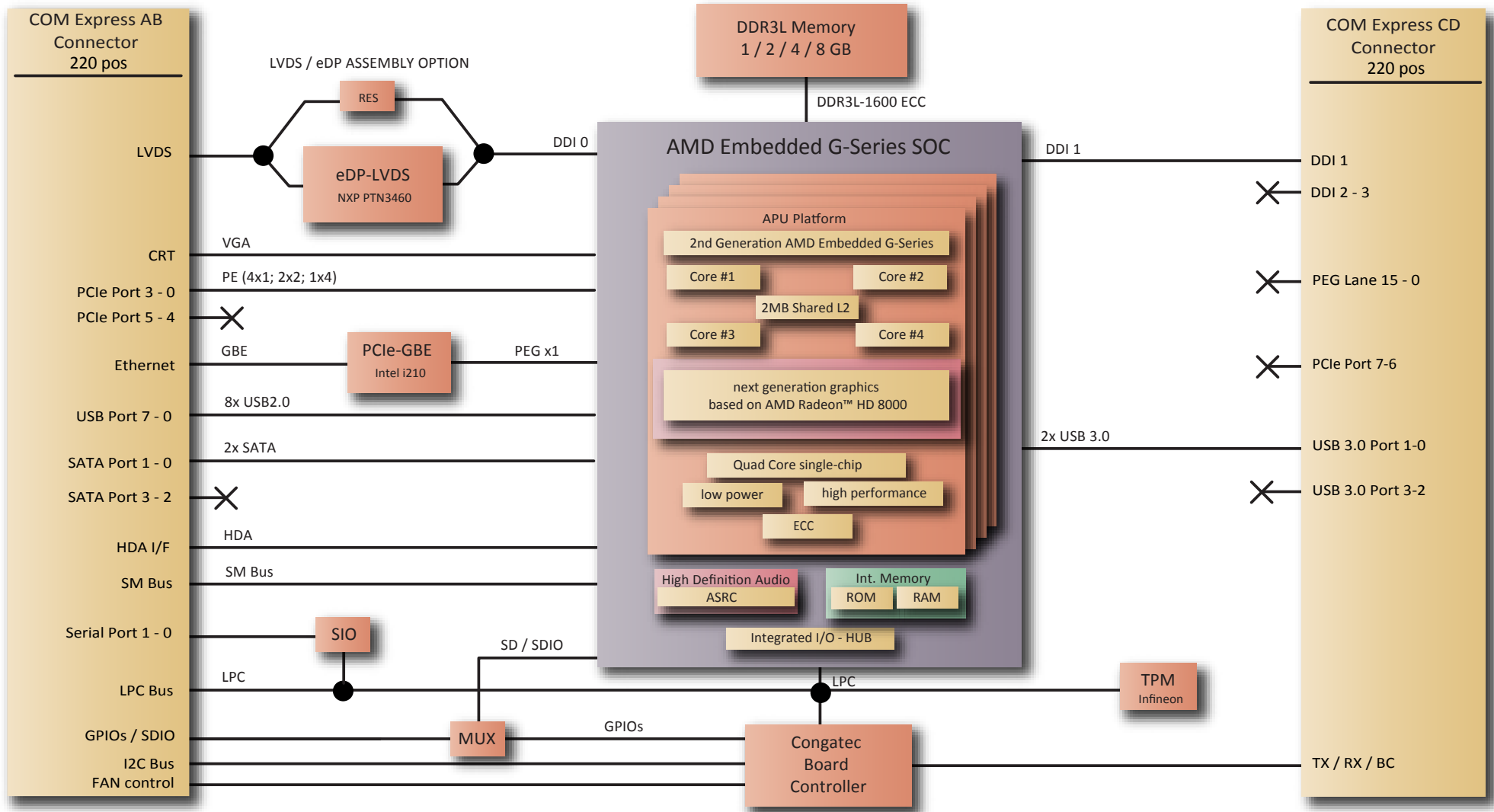
Compact design to be optimized for visual performance and power efficiencies

ECC protected on module memory up to 8 GByte



Formfactor	COM Express® Compact, (95 x 95 mm), Type 6 Connector Layout
CPU	AMD Embedded G-Series SOC (System on Chip) AMD Embedded GX-420CA 2.0 GHz Quad-core (L2 cache 2MB shared, 25W) with AMD Radeon™ HD 8400E Graphics 600 MHz AMD Embedded GX-415GA 1.5 GHz Quad-core (L2 cache 2MB shared, 15W) with AMD Radeon™ HD 8330E Graphics 500 MHz AMD Embedded GX-217GA 1.65 GHz Dual-core (L2 cache 1MB shared, 15W) with AMD Radeon™ HD 8280E Graphics 450 MHz AMD Embedded GX-210HA 1.0 GHz Dual-core (L2 cache 1MB shared, 9W) with AMD Radeon™ HD 8210E Graphics 300 MHz
DRAM	Up to 8 GByte DDR3L-1600 with ECC protection
Chipset	Integrated in APU (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, I²C bus (fast mode, 400 kHz, multi-master), SD, SPI, SM-Bus
Sound	High Definition Audio Interface
Graphics	Integrated AMD Radeon™ HD 8000E Graphics, High Performance Video, DirectX 11.1 GPU supports two simultaneous displays, Unified Video Decoder 4.2 (H.264, MPEG-2, VC-1, MPEG4 and WMV), 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	Dual channel LVDS transmitter, Supports flat panels 2x24 Bit interface, VESA mappings, resolutions up to 1920x1200 Automatic Panel Detection via EDID/EPI
Digital Display Interface (DDI)	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, I²C 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:	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 - Block diagram



conga-TCG - Order information

Article	PN	Description
conga-TCG/GX-420CA-2G ECC	042000	COM Express Type 6 Compact module based on AMD Embedded G-Series GX-420CA quad core processor with 2.0 GHz, 2 MByte L2 cache and 2 GByte 1600MT/s ECC DDR3L onboard memory. Features AMD Radeon™ HD 8400E Graphics with 600 MHz GPU frequency.
conga-TCG/GX-415GA-2G ECC	042001	COM Express Type 6 Compact module based on AMD Embedded G-Series GX-415GA quad core processor with 1.5 GHz, 2 MByte L2 cache and 2 GByte 1600MT/s ECC DDR3L onboard memory. Features AMD Radeon™ HD 8330E Graphics with 500 MHz GPU frequency.
conga-TCG/GX-217GA-2G ECC	042002	COM Express Type 6 Compact module based on AMD Embedded G-Series GX-217GA dual core processor with 1.65 GHz, 1 MByte L2 cache and 2 GByte 1600MT/s ECC DDR3L onboard memory. Features AMD Radeon™ HD 8280E Graphics with 450 MHz GPU frequency.
conga-TCG/GX-210HA-2G ECC	042003	COM Express Type 6 Compact module based on AMD Embedded G-Series GX-210HA quad core processor with 1.0 GHz, 1 MB L2 cache and 2 GByte 1600MT/s ECC DDR3L onboard memory. Features AMD Radeon™ HD 8210E Graphics with 300 MHz GPU frequency.
conga-TCG/HSP-B	042051	Standard heatspreader for COM Express module conga-TCG. All standoffs are 2.7mm bore hole.
conga-TCG/HSP-T	042052	Standard heatspreader for COM Express module conga-TCG. All standoffs are M2.5 thread.
conga-TCG/CSP-B	042053	Standard passive cooling solution for COM Express module conga-TCG with 20mm fins. All standoffs are 2.7mm bore hole.
conga-TCG/CSP-T	042054	Standard passive cooling solution for COM Express module conga-TCG with 20mm fins. All standoffs are M2.5mm thread.

Engineering Tools / Accessories for COM Express®

conga-TEVAL	065800	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
COM-Express-carrierboard-Socket-5	400007	Connector for COM-Express carrier boards, height 5mm, packing unit 4 pieces
COM-Express-carrierboard-Socket-8	400004	Connector for COM-Express carrier boards, height 8mm, packing unit 4 pieces

© 2013 congatec AG. All rights reserved. All data is for information purposes only. Although all the information contained within this document is carefully checked, no guarantee of correctness is implied or expressed. The products may include software. Use of the software is subject to the terms and conditions set out in the respective owner's license agreements, which are available at www.congatec.com and/or upon request. Product names, logos, brands, and other trademarks featured or referred to within this datasheet, or the congatec website, are the property of their respective trademark holders. These trademark holders are not affiliated with congatec AG, our products, or our website.
Rev. Oct 21, 2013 CE