

COM Express® Type 6 Compact Module

High graphics performance with low power consumption

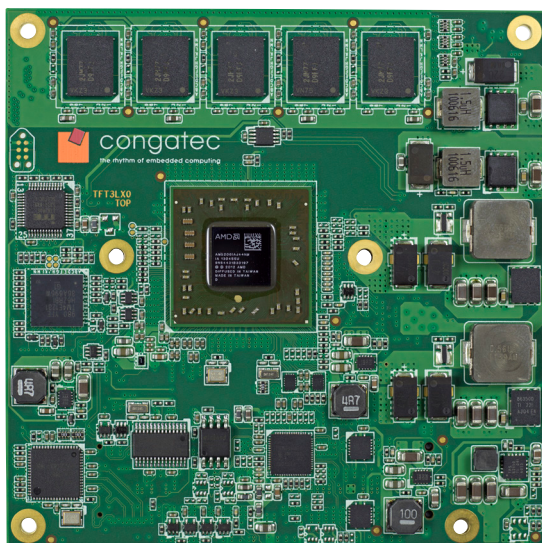
conga-TCG

First Quad Core single-chip module

2nd Generation AMD Embedded G-Series

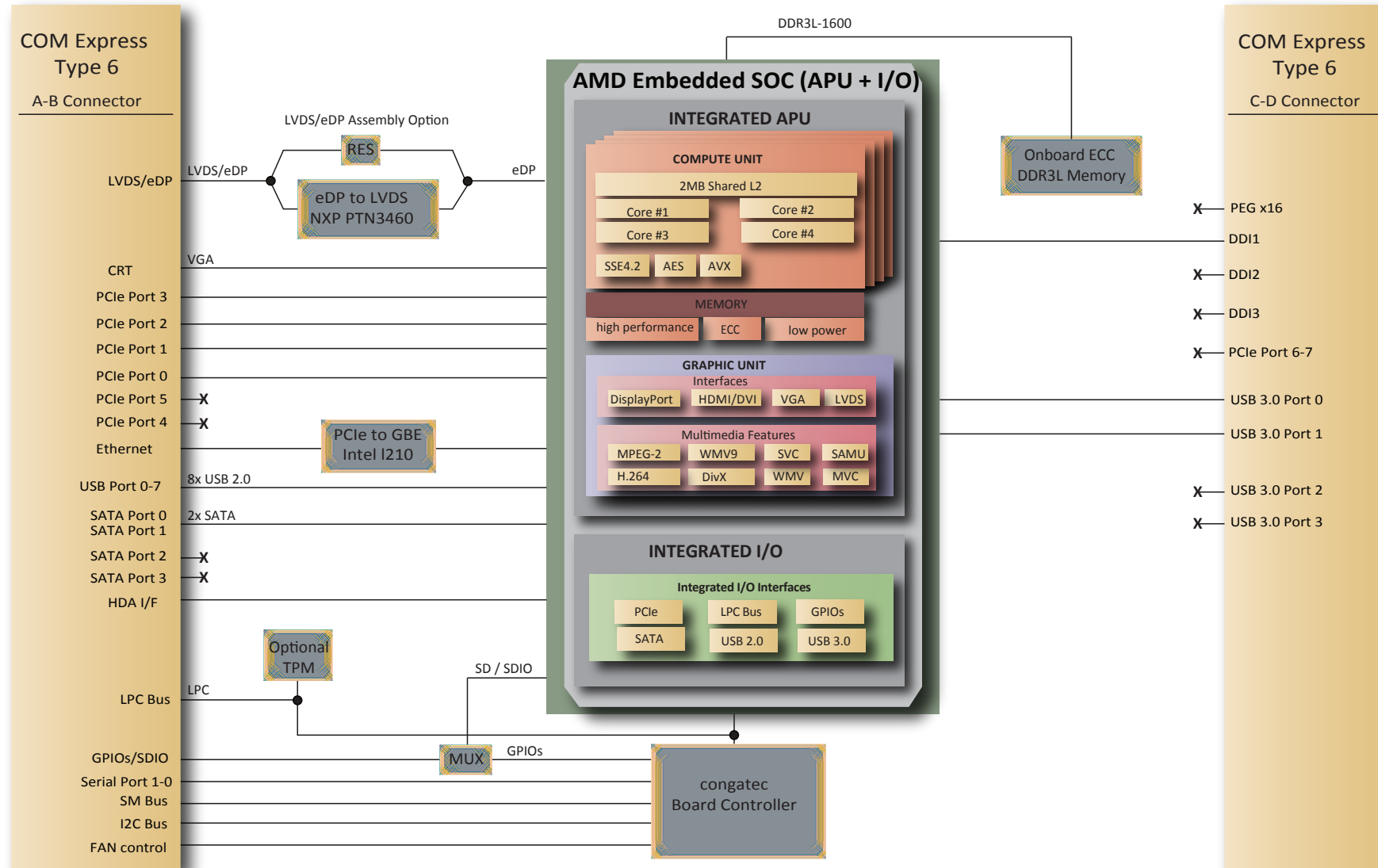
Compact design to be optimized for visual performance and power efficiencies

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 AMD Embedded GX-424CC 2.4 GHz Quad-core (L2 cache 2MB shared, 25W) with AMD Radeon™ HD 8xxxE Graphics XXX MHz AMD Embedded GX-412HC 1.2 GHz / 1.6 GHz (Boost) Quad-Core (L2 cache 2MB shared, 7W) with AMD Radeon™ HD 8xxxE Graphics xxx MHz AMD Embedded GX-212JC 1.2 GHz / 1.4 GHz (Boost) Dual-core (L2 cache 1 MB shared, 6W) with AMD Radeon™ HD 8xxxE Graphics xxx MHz
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, I²C 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, 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	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 (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 dual 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/GX-424CC-4G ECC	042020	COM Express Typ 6 Compact module based on AMD Embedded G-Series GX-424CC quad core processor with 2.4 GHz, 2 MB L2 cahce and 4 GByte 16000MT/s ECC DDR3L onboard memory. Features AMD Radeon™ HD 8xxxE Graphics with xxx MHz GPU frequency.
conga-TCG/GX-412HC-4G EEC	042021	COM Express Typ 6 Compact module based on AMD Embedded G-Series GX-412HC quad core processor with 1.2 GHz / 1.6 GHz (Boost), 2 MB L2 cache and 4GByte 1600MT/s EED DDR3L onboard memory. Features AMD Radeon™ HD 8xxxE Graphics with xxx MHz GPU frequency.
conga-TCG/GX212JC-2G EEC	042022	COM Express Typ 6 Compact module based on AMD Embedded G-Series GX-212JC dual core processor with 1.2 GHz / 1.4 GHz (Boost), 1 MB L2 cache and 2GByte 1600MT/s EED DDR3L onboard memory. Features AMD Radeon™ HD 8xxxE Graphics with xxx 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

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Rev. Dez 12, 2013 KS