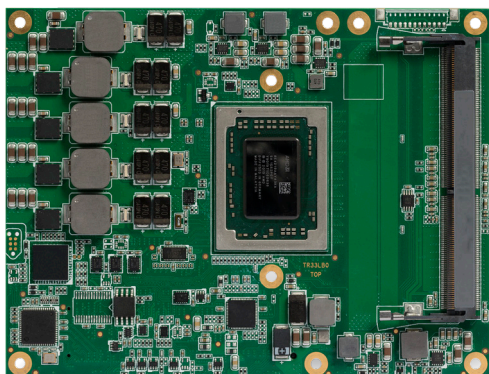


# HIGH SPEED GRAPHICS

## conga-TR3

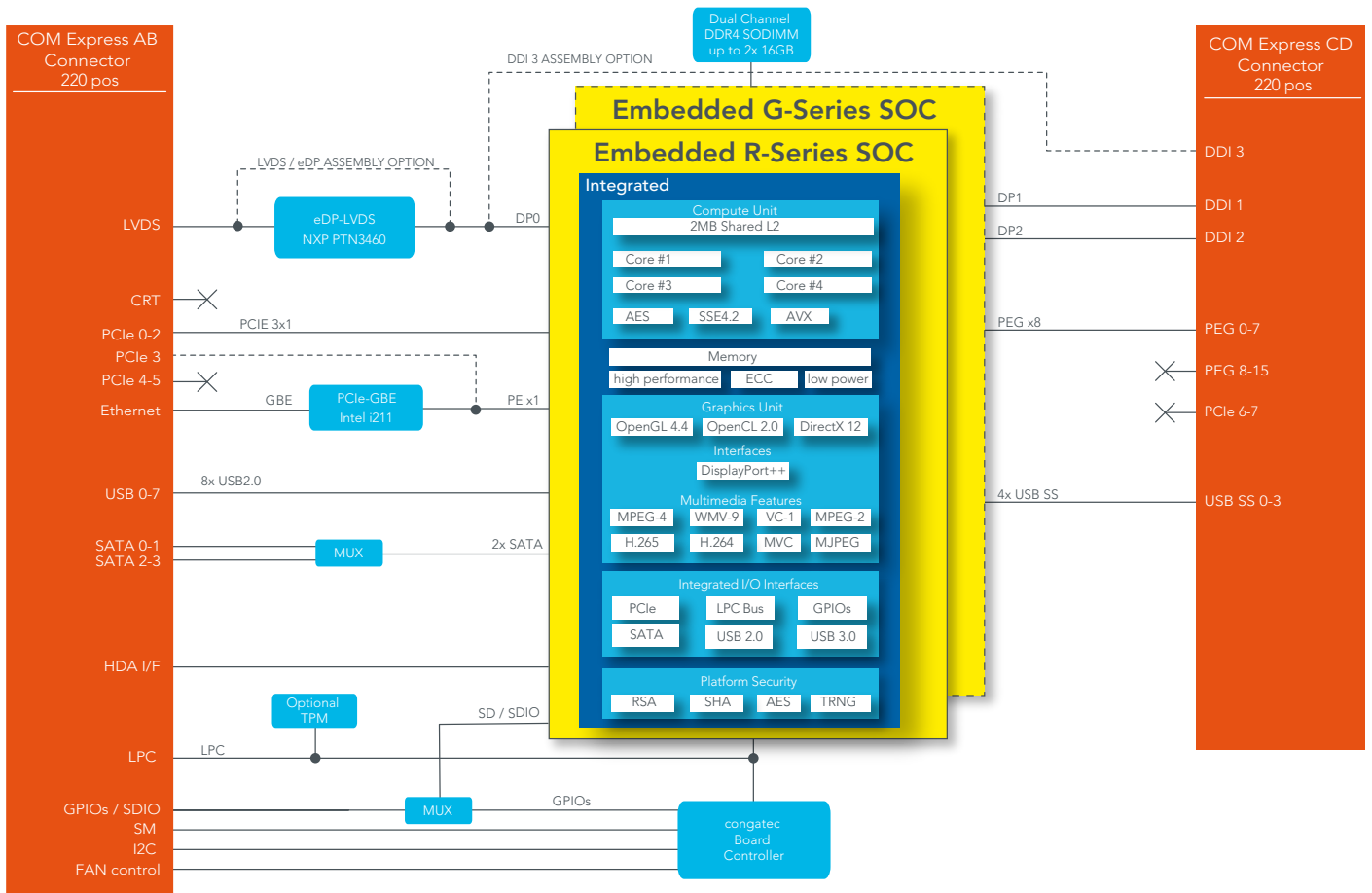


- AMD Embedded R-Series SOC and G-Series SOC
- Up to 4 "Excavator" Cores
- High performance integrated 3<sup>rd</sup> Gen. GCN graphics with up to 512 stream processors
- Unified Video Decoder (UVD 6) supporting HEVC/H.265 4K@60Hz
- ECC protected DDR4 memory up to 32 GByte
- Full HSA 2.0 compliant (Heterogenous System Architecture)
- TDP scalable down to 12W



Formfactor	COM Express® Basic   (95 x 125 mm)   Type 6 Connector Layout																									
CPU	<p>AMD Embedded R-Series SOC</p> <table border="1"> <tr> <td>AMD Embedded RX-421BD</td> <td>4x 2.1 .. 3.4 GHz</td> <td>L2 cache 2MB shared</td> <td>Radeon™ R7 Graphics</td> <td>TDP 15 W, conf. to 12/25/35 W</td> </tr> <tr> <td>AMD Embedded RX-418GD</td> <td>4x 1.8 .. 3.2 GHz</td> <td>L2 cache 2MB shared</td> <td>Radeon™ R6 Graphics</td> <td>TDP 15 W, conf. to 12/25/35 W</td> </tr> <tr> <td>AMD Embedded RX-416GD</td> <td>4x 1.6 .. 2.4 GHz</td> <td>L2 cache 2MB shared</td> <td>Radeon™ R6 Graphics</td> <td>TDP 15 W</td> </tr> <tr> <td>AMD Embedded RX-216GD</td> <td>2x 1.6 .. 3.0 GHz</td> <td>L2 cache 1MB shared</td> <td>Radeon™ R5 Graphics</td> <td>TDP 15 W, conf. to 12 W</td> </tr> <tr> <td>AMD Embedded GX-217GI</td> <td>2x 1.7 .. 2.0 GHz</td> <td>L2 cache 1MB shared</td> <td>Radeon™ 3<sup>rd</sup> Gen Graphics</td> <td>TDP 15 W, conf. to 12 W</td> </tr> </table>	AMD Embedded RX-421BD	4x 2.1 .. 3.4 GHz	L2 cache 2MB shared	Radeon™ R7 Graphics	TDP 15 W, conf. to 12/25/35 W	AMD Embedded RX-418GD	4x 1.8 .. 3.2 GHz	L2 cache 2MB shared	Radeon™ R6 Graphics	TDP 15 W, conf. to 12/25/35 W	AMD Embedded RX-416GD	4x 1.6 .. 2.4 GHz	L2 cache 2MB shared	Radeon™ R6 Graphics	TDP 15 W	AMD Embedded RX-216GD	2x 1.6 .. 3.0 GHz	L2 cache 1MB shared	Radeon™ R5 Graphics	TDP 15 W, conf. to 12 W	AMD Embedded GX-217GI	2x 1.7 .. 2.0 GHz	L2 cache 1MB shared	Radeon™ 3 <sup>rd</sup> Gen Graphics	TDP 15 W, conf. to 12 W
AMD Embedded RX-421BD	4x 2.1 .. 3.4 GHz	L2 cache 2MB shared	Radeon™ R7 Graphics	TDP 15 W, conf. to 12/25/35 W																						
AMD Embedded RX-418GD	4x 1.8 .. 3.2 GHz	L2 cache 2MB shared	Radeon™ R6 Graphics	TDP 15 W, conf. to 12/25/35 W																						
AMD Embedded RX-416GD	4x 1.6 .. 2.4 GHz	L2 cache 2MB shared	Radeon™ R6 Graphics	TDP 15 W																						
AMD Embedded RX-216GD	2x 1.6 .. 3.0 GHz	L2 cache 1MB shared	Radeon™ R5 Graphics	TDP 15 W, conf. to 12 W																						
AMD Embedded GX-217GI	2x 1.7 .. 2.0 GHz	L2 cache 1MB shared	Radeon™ 3 <sup>rd</sup> Gen Graphics	TDP 15 W, conf. to 12 W																						
DRAM	2 Sockets, SO-DIMM DDR4 up to 32 GByte with ECC																									
Chipset	Integrated in SOC (single-chip)																									
Ethernet	Gigabit Ethernet Intel® I21x family GbE controller																									
I/O Interfaces	3x PCI Express™ 2.0 lanes   1x PEG 3.0 x8   4x SATA® 6 Gb/s   4x USB 3.0/2.0   4x USB 2.0   I²C bus (fast mode, 400 kHz, multi-master)   SD   LPC Bus   SPI   SM-Bus   2x UART																									
Sound	High Definition Audio Interface   TrueAudio 2.1																									
Graphics	<p>Integrated AMD Radeon™ Graphics supports DirectX 12   OpenGL 4.4 and OpenCL™ 2.0   up to 3 Simultaneous Displays</p> <p>Unified Video Decoder 6 (H.265, H.264, MVC, MPEG4, MPEG2, VC-1, WMV and MJPEG)</p> <p>Video Compression Engine 3.1 (dual, H.264, SVC)</p>																									
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	2x DDI supporting 4K @60Hz																									
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 AptioV® UEFI 2.x firmware   8 MByte serial SPI firmware flash																									
Security	The conga-TR3 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 5.0 with battery support																									
Operating Systems	Microsoft® Windows 10   Microsoft® Windows 8.1   Microsoft® Windows® 8 Embedded Standard   Linux   optional Microsoft® Windows 7																									
Temperature	Commercial : Operating: 0 to +60°C   Storage: -20 to +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-TR3 | Block diagram



# conga-TR3 | Order Information

Article	PN	Description
conga-TR3/RX421BD	041300	COM Express Basic Type 6 module   AMD Embedded RX-421BD SOC   AMD Radeon™ R7 Graphics   TDP 15/12-35W   Quad-core   CPU freq. 2.1/3.4 GHz   8 GPU-CU   GPU freq. 800 MHz
conga-TR3/RX418GD	041301	COM Express Basic Type 6 module   AMD Embedded RX-418GD SOC   AMD Radeon™ R6 Graphics   TDP 15/12-35W   Quad-core   CPU freq. 1.8/3.2 GHz   6 GPU-CU   GPU freq. 800 MHz
conga-TR3/i-RX-416GD	041310	COM Express Basic Type 6 module   AMD embedded RX-416GD SOC   AMD Radeon™ R6 Graphics   TDP 15W   Quad-core   CPU freq. 1.6/2.4 GHz   6 GPU-CU   GPU freq. 800 MHz
conga-TR3/RX216GD	041302	COM Express Basic Type 6 module   AMD Embedded RX-216GD SOC   AMD Radeon™ R5 Graphics   TDP 15/12-15W   Dual-core   CPU freq. 1.6/3.0 GHz   4 GPU-CU   GPU freq. 800 MHz
conga-TR3/GX217GI	041320	COM Express Basic Type 6 module   AMD embedded GX-217GI SOC   AMD Radeon™ R5 Graphics   TDP 15/12-15W   Dual-core   CPU freq. 1.7/2.0 GHz   4 GPU-CU   GPU freq. 800 MHz
conga-TR3/HSP-HP-B	041351	Standard heatspreader for high performance COM Express module conga-TR3 with integrated heat pipes. All standoffs are with 2.7mm bore hole.
conga-TR3/HSP-HP-T	041352	Standard heatspreader for high performance COM Express module conga-TR3 with integrated heat pipes. All standoffs are M2.5mm thread.
conga-TR3/CSP-HP-B	041355	Standard passive cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins and 20mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-TR3/CSP-HP-T	041356	Standard passive cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins and 20mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TR3/CSA-HP-B	041357	Standard active cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins, 20mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-TR3/CSA-HP-T	041358	Standard active cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins, 20mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm thread.
DDR4-SODIMM-2400 (4GB)	068790	4 GByte DDR4 SODIMM memory module   2400 MT/s
DDR4-SODIMM-2400 (8GB)	068791	8 GByte DDR4 SODIMM memory module   2400 MT/s
DDR4-SODIMM-2400 (16GB)	068792	16 GByte DDR4 SODIMM memory module   2400 MT/s
DDR4-SODIMM-2400 ECC (4GB) TR3	068800	4 GByte ECC DDR4 SODIMM memory module   2400 MT/s (PC4-2400)   260 pin   supply voltage 1,2V
DDR4-SODIMM-2400 ECC (8GB) TR3	068801	8 GByte ECC DDR4 SODIMM memory module   2400 MT/s (PC4-2400)   260 pin   supply voltage 1,2V
DDR4-SODIMM-2400 ECC (16GB) TR3	068802	16 GByte ECC DDR4 SODIMM memory module   2400 MT/s (PC4-2400)   260 pin   supply voltage 1,2V

## Accessories

conga-TEVAL	065810	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