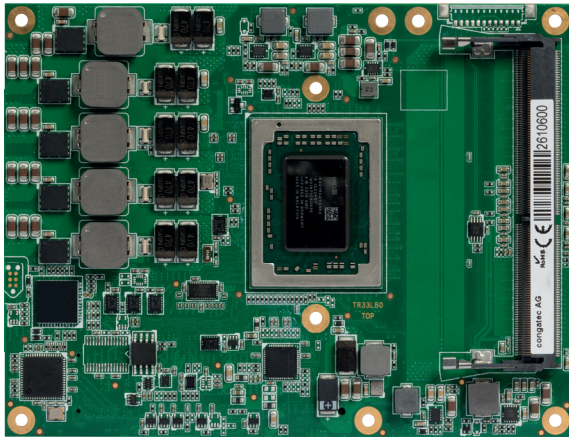


# HIGH SPEED GRAPHICS

## conga-TR3

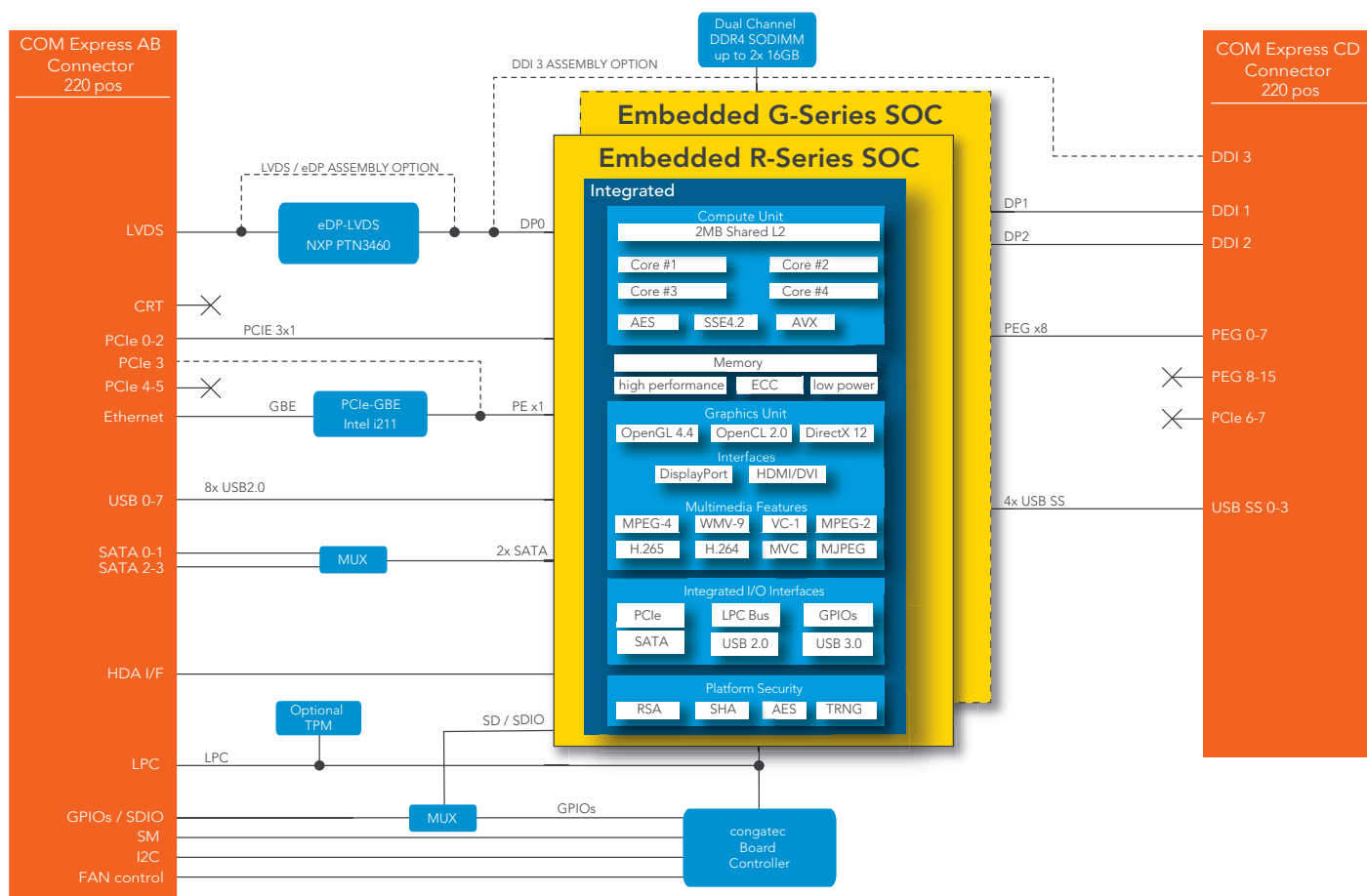


- AMD Embedded R-Series SOC and G-Series SOC
- Up to 4 "Excavator" Cores
- High performance integrated 3<sup>rd</sup> Gen. GCN graphics with up to 512 stream processors
- Unified Video Decoder (UVD 6) supporting HEVC/H.265 4K@60Hz
- ECC protected DDR4 memory up to 32 GByte
- Full HSA 2.0 compliant (Heterogenous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



|                           |                                                                                                                                                                                                                                                                                                                                                                                        |                   |                     |                                      |                               |  |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------|--------------------------------------|-------------------------------|--|
| Formfactor                | COM Express® Basic   (95 x 125 mm)   Type 6 Connector Layout                                                                                                                                                                                                                                                                                                                           |                   |                     |                                      |                               |  |
| CPU                       | AMD Embedded R-Series SOC                                                                                                                                                                                                                                                                                                                                                              |                   |                     |                                      |                               |  |
|                           | 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                                                                                                                                                                                                                                                                                                                                                                       |                   |                     |                                      |                               |  |
| 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                  | Integrated AMD Radeon™ Graphics supports DirectX 12   OpenGL 4.4 and OpenCL™ 2.0   up to 3 Simultaneous Displays<br>Unified Video Decoder 6 (H.265, H.264, MVC, MPEG4, MPEG2, VC-1, WMV and MJPEG)<br>Video Compression Engine 3.1 (dual, H.264, SVC)                                                                                                                                  |                   |                     |                                      |                               |  |
| 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 DisplayPort 1.2/ HDMI 2.0 supporting 4K @60Hz                                                                                                                                                                                                                                                                                                                                       |                   |                     |                                      |                               |  |
| congatec Board Controller | Multi Stage Watchdog   non-volatile User Data Storage   Manufacturing and Board Information   Board Statistics   BIOS Setup Data Backup<br>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       |
| COM-Express-Carrier-Socket-5 | 400007 | Connector for COM-Express carrier boards   height 5mm   packing unit 4 pieces |
| COM-Express-Carrier-Socket-8 | 400004 | Connector for COM-Express carrier boards   height 8mm   packing unit 4 pieces |

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