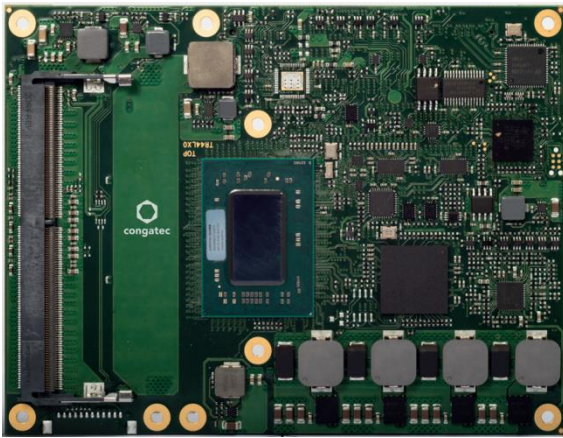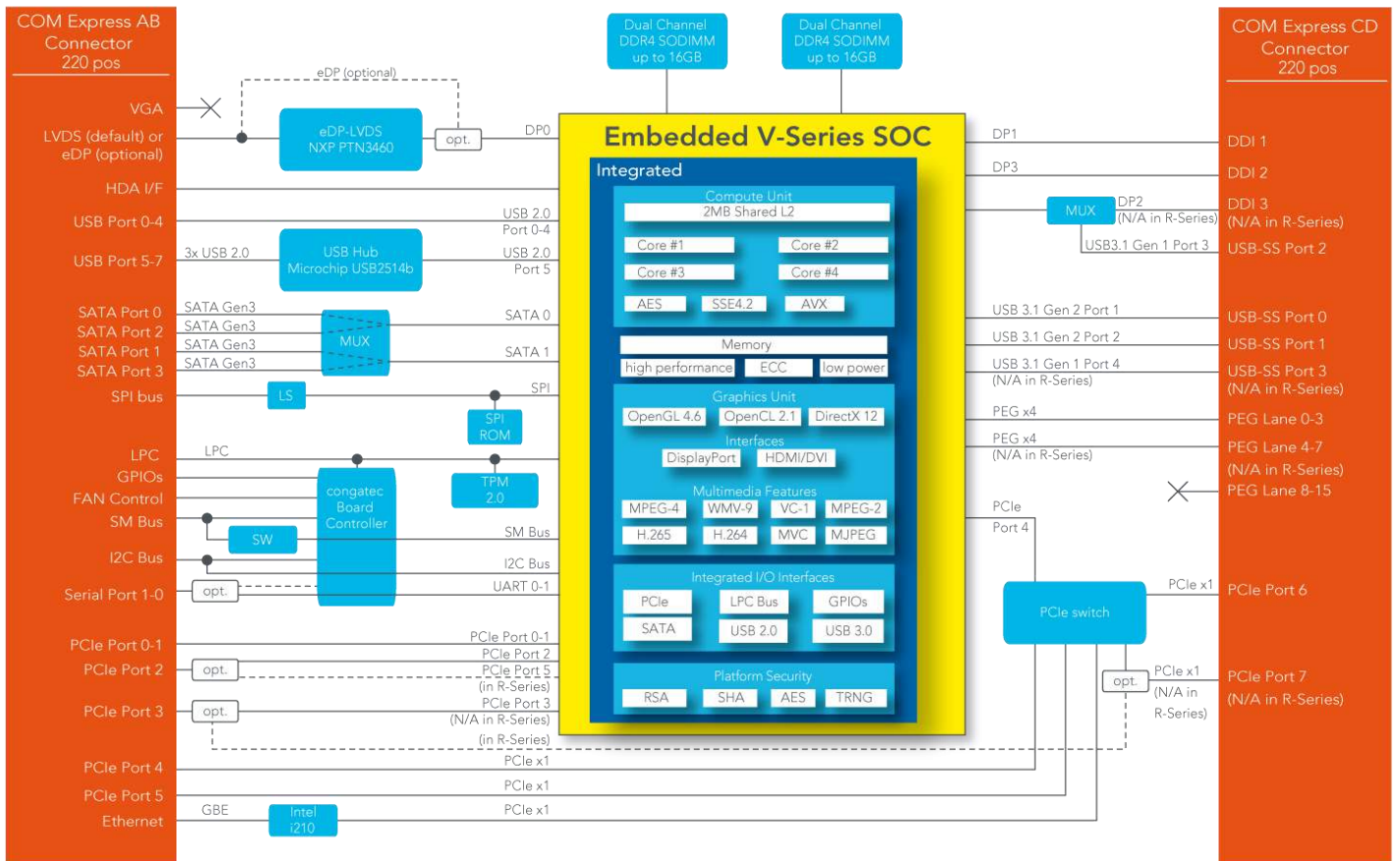# HIGH SPEED GRAPHICS

conga-TR4

- AMD's Next Gen V1000 processor Series

- "Zen" core architecture with up to 4 cores

- Improved graphic performance with "Vega" GPU

- Up to 32GByte dual channel DDR4 3200MT/s memory

- TDP scalable down to 12W

- up to 4 x 4K DP / eDP

COM Express®

Formfactor	COM Express® Basic, (95 x 125 mm)	Type 6 connector pinout				
CPU	**Commercial Versions**					
	AMD V1807B	4 Cores | 8 Threads	3.35 | 3.8 GHz (boost)	2 MB cache	11 GPU CU	35-54W TDP
	AMD V1756B	4 Cores | 8 Threads	3.25 | 3.6 GHz (boost)	2 MB cache	8 GPU CU	35-54W TDP
	AMD V1605B	4 Cores | 8 Threads	2.0 | 3.6 GHz (boost)	2 MB cache	8 GPU CU	12-25W TDP
	AMD V1202B	2 Cores | 4 Threads	2.3 | 3.2 GHz (boost)	1 MB cache	3 GPU CU	12-25W TDP
	AMD R1606G	2 Cores | 4 Threads	2.6 | 3.5 GHz (boost)	1 MB cache	3 GPU CU	12-25W TDP
	AMD R1505G	2 Cores | 4 Threads	2.4 | 3.3 GHz (boost)	1 MB cache	3 GPU CU	12-25W TDP
	Industrial Versions					
	AMD V1404I	4 Cores | 8 Threads	1.6*/2.0 | 2.8*/3.6 GHz (boost)	2 MB cache	8 GPU CU	12-25W TDP
			* Performance in the -40 to 0°C temp range			
DRAM	Dual channel DDR4 up to 3200 MT/s | 2x SO-DIMM | up to 2x 16 GByte (optionally with ECC support)					
Chipset	Integrated in SoC					
Ethernet	1x Gigabit Ethernet					
I/O Interfaces	4x PCI Express™ 3.0 lanes | 4x PCI Express™ 2.0 lanes | 1x PEG 3.0 x8 | 2x USB 3.1 Gen2 | 2x USB 3.1 Gen1 | 8x USB 2.0 2x SATA® 6 Gb/s | I²C bus (fast mode, 400 kHz, multi-master) |SD | LPC Bus | SPI | SM-Bus | 2x UART					
Sound	High Definition Audio Interface					
Graphics	Integrated AMD Radeon™ Graphics supports DirectX 12 | OpenGL 4.6 and OpenCL™ 2.1 | up to 4 simultaneous Displays Unified Video Decoder 6 (H.265, H.264, MVC, MPEG4, MPEG2, VC-1, WMV and MJPEG) Video Compression Engine 3.1 (dual, H.264, SVC)					
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					
Embedded BIOS Features	AMI AptioV® UEFI 2.x firmware | 8 MByte serial SPI firmware flash					
Security	Trusted Platform Module (TPM 2.0) | AMD Secure Processor™.					
Power Management	ACPI 5.0 with battery support					
Operating Systems	Microsoft® Windows 10 | Microsoft® Windows 10 IoT Enterprise | Linux | opt. Microsoft® Windows 7					
Power Consumption	See user's guide for full details					
Temperature	Industrial: Operating: -40 to +85°C Storage: -40 to +85°C Commercial: Operating: 0 to +60°C Storage: -40 to +85°C					
Extended Temperature	Screening service on request: -25 to +80°C (burn-in & cold-soak) -40 to +85°C (burn-in & cold-soak)					
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")					

COM Express AB Connector 220 pos

VGA	
LVDS (default) or eDP (optional)	
HDA I/F	
USB Port 0-4	
USB Port 5-7	3x USB 2.0
SATA Port 0	SATA Gen3
SATA Port 2	SATA Gen3
SATA Port 1	SATA Gen3
SATA Port 3	SATA Gen3
SPI bus	
LPC	LPC
GPIOs	
FAN Control	
SM Bus	
I2C Bus	
Serial Port 1-0	
PCIe Port 0-1	
PCIe Port 2	
PCIe Port 3	
PCIe Port 4	
PCIe Port 5	
Ethernet	GBE

eDP (optional)

eDP-LVDS NXP PTN3460

opt.

USB Hub Microchip USB2514b

MUX

LS

SPI ROM

congatec Board Controller

SW

TPM 2.0

opt.

opt.

opt.

opt.

Intel i210

DP0

USB 2.0 Port 0-4

USB 2.0 Port 5

SATA 0

SATA 1

SPI

SM Bus

I2C Bus

UART 0-1

PCIe Port 0-1
PCIe Port 2
PCIe Port 5 (in R-Series)
PCIe Port 3 (N/A in R-Series)
(in R-Series)

PCIe x1

PCIe x1

PCIe x1

Dual Channel DDR4 SODIMM up to 16GB

Dual Channel DDR4 SODIMM up to 16GB

Embedded V-Series SOC

Integrated

Compute Unit
2MB Shared L2

Core #1	Core #2
Core #3	Core #4

AES	SSE4.2	AVX

Memory

high performance	ECC	low power

Graphics Unit

OpenGL 4.6	OpenCL 2.1	DirectX 12

Interfaces

DisplayPort	HDMI/DVI

Multimedia Features

MPEG-4	WMV-9	VC-1	MPEG-2
H.265	H.264	MVC	MJPEG

Integrated I/O Interfaces

PCIe	LPC Bus	GPIOs
SATA	USB 2.0	USB 3.0

Platform Security

RSA	SHA	AES	TRNG

MUX

DP1
DP3
DP2 (N/A in R-Series)
USB3.1 Gen 1 Port 3

USB 3.1 Gen 2 Port 1
USB 3.1 Gen 2 Port 2
USB 3.1 Gen 1 Port 4 (N/A in R-Series)

PEG x4
PEG x4 (N/A in R-Series)

PCIe Port 4

PCIe switch

opt.

PCIe x1

PCIe x1 (N/A in R-Series)

COM Express CD Connector 220 pos

DDI 1
DDI 2
DDI 3 (N/A in R-Series)
USB-SS Port 2
USB-SS Port 0
USB-SS Port 1
USB-SS Port 3 (N/A in R-Series)
PEG Lane 0-3
PEG Lane 4-7 (N/A in R-Series)
PEG Lane 8-15
PCIe Port 6
PCIe Port 7 (N/A in R-Series)

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conga-TR4 | Order Information – COM Express® Module

Article	PN	Description
conga-TR4/V1807B	041600	COM Express Type 6 Basic module based on AMD embedded V-Series V1807B 4-core processor with 3.35 GHz up to 3.8 GHz turbo boost, 2MB L2 Cache and dual channel DDR4 3200MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 11 CU.
conga-TR4/V1756B	041601	COM Express Type 6 Basic module based on AMD embedded V-Series V1756B 4-core processor with 3.25 GHz up to 3.6 GHz turbo boost, 2MB L2 Cache and dual channel DDR4 3200MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 8 CU.
conga-TR4/V1605B	041602	COM Express Type 6 Basic module based on AMD embedded V-Series V1605B 4-core processor with 2.0 GHz up to 3.6 GHz turbo boost, 2MB L2 Cache and dual channel DDR4 2400MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 8 CU.
conga-TR4/V1202B	041603	COM Express Type 6 Basic module based on AMD embedded V-Series V1202B 2-core processor with 2.3 GHz up to 3.2 GHz turbo boost, 1MB L2 Cache and dual channel DDR4 2400MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 3 CU.
conga-TR4/i-V1404I	041610	COM Express Type 6 Basic module based on AMD embedded V-Series V1404B 4-core processor with 1.6* | 2.0 GHz up to 2.8* | 3.6 GHz turbo boost, 2MB L2 Cache and dual channel DDR4 2400MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 8 CU. * Performance in the -40 to 0° C temperature range
conga-TR4/R1606G	041620	COM Express Type 6 Basic module based on AMD embedded R-Series R1606G 2-core processor with 2.6 GHz up to 3.5 GHz turbo boost, 1MB L2 Cache and dual channel DDR4 2400MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 3 CU.
conga-TR4/R1505G	041621	COM Express Type 6 Basic module based on AMD embedded R-Series R1505G 2-core processor with 2.4 GHz up to 3.3 GHz turbo boost, 1MB L2 Cache and dual channel DDR4 2400MT/s memory interface (formerly Great Horned Owl). Features AMD Radeon™ Vega integrated graphics core with 3 CU.

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Article	PN	Description
conga-TR4/HSP-HP-B	041651	Standard heatspreader for high performance COM Express module conga-TR4 with integrated heat pipes. All standoffs are with 2.7mm bore hole.
conga-TR4/HSP-HP-T	041652	Standard heatspreader for high performance COM Express module conga-TR4 with integrated heat pipes. All standoffs are M2.5mm thread.
conga-TR4/CSP-HP-B	041653	Standard passive cooling solution for high performance COM Express module conga-TR4 with integrated heat pipes, 15mm fins and 20mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-TR4/CSP-HP-T	041654	Standard passive cooling solution for high performance COM Express module conga-TR4 with integrated heat pipes, 15mm fins and 20mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TR4/CSA-HP-B	041655	Standard active cooling solution for high performance COM Express module conga-TR4 with integrated heat pipes, 15mm fins, 20mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-TR4/CSA-HP-T	041656	Standard active cooling solution for high performance COM Express module conga-TR4 with integrated heat pipes, 15mm fins, 20mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm thread.
DDR4-SODIMM-3200 ECC (4GB)	068736	DDR4 ECC SODIMM memory module with 3200 MT/s and 4GB RAM
DDR4-SODIMM-3200 ECC (8GB)	068737	DDR4 ECC SODIMM memory module with 3200 MT/s and 8GB RAM
DDR4-SODIMM-3200 ECC (16GB)	068738	DDR4 ECC SODIMM memory module with 3200 MT/s and 16GB RAM
DDR4-SODIMM-3200 (4GB)	068793	DDR4 SODIMM memory module with 3200 MT/s and 4GB RAM
DDR4-SODIMM-3200 (8GB)	068794	DDR4 SODIMM memory module with 3200 MT/s and 8GB RAM
DDR4-SODIMM-3200 (16GB)	068798	DDR4 SODIMM memory module with 3200 MT/s and 16GB RAM
DDR4-SODIMM-2400 ECC (4GB)	068795	DDR4 ECC SODIMM memory module with 2400 MT/s and 4GB RAM
DDR4-SODIMM-2400 ECC (8GB)	068796	DDR4 ECC SODIMM memory module with 2400 MT/s and 8GB RAM
DDR4-SODIMM-2400 ECC (16GB)	068797	DDR4 ECC SODIMM memory module with 2400 MT/s and 16GB RAM
DDR4-SODIMM-2400 (4GB)	068790	DDR4 SODIMM memory module with 2400 MT/s and 4GB RAM
DDR4-SODIMM-2400 (8GB)	068791	DDR4 SODIMM memory module with 2400 MT/s and 8GB RAM
DDR4-SODIMM-2400 (16GB)	068792	DDR4 SODIMM memory module with 2400 MT/s and 16GB RAM
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

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