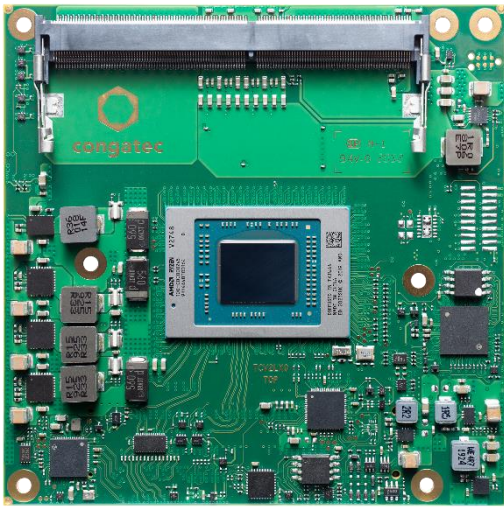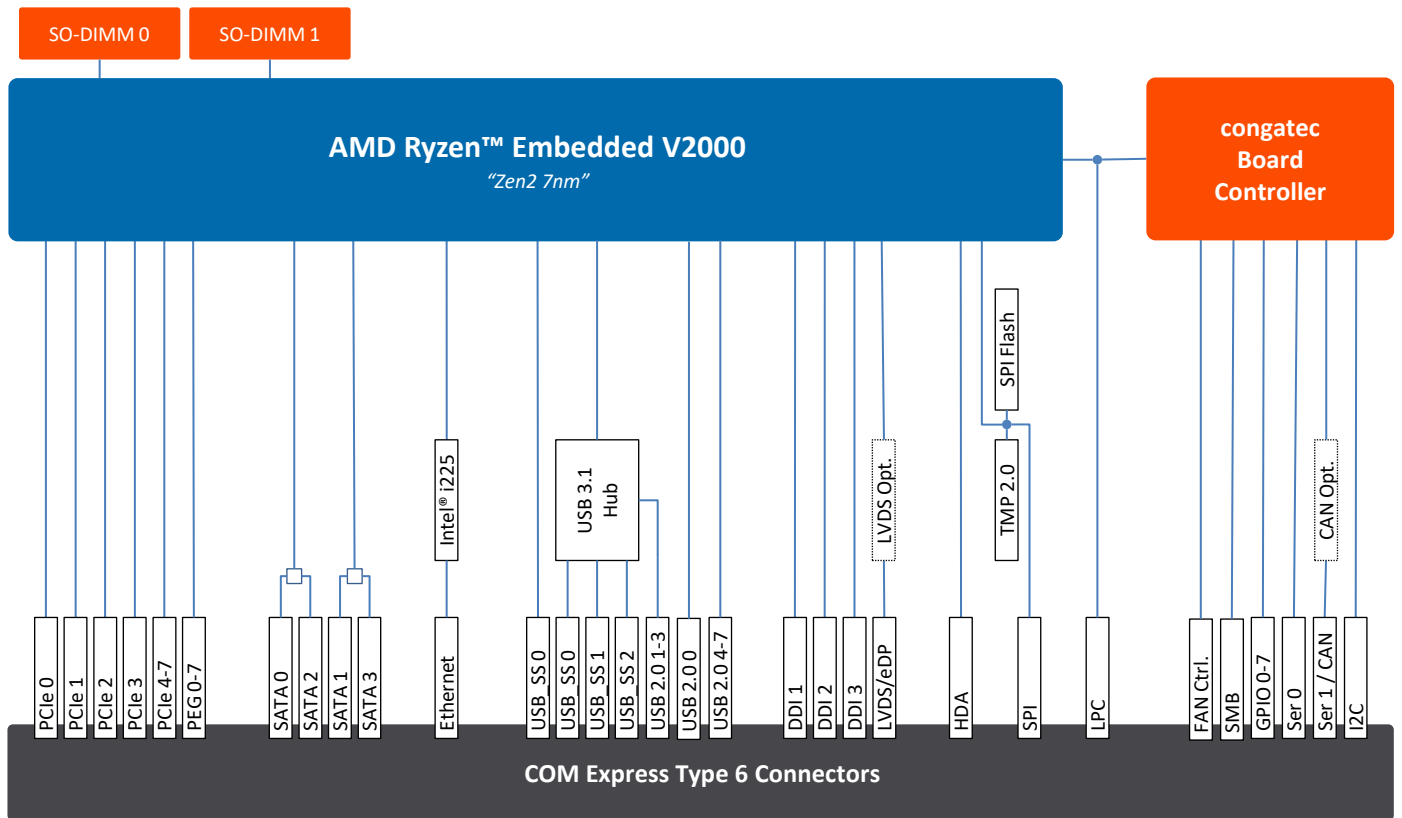# AMD RYZEN™ EMBEDDED V2000
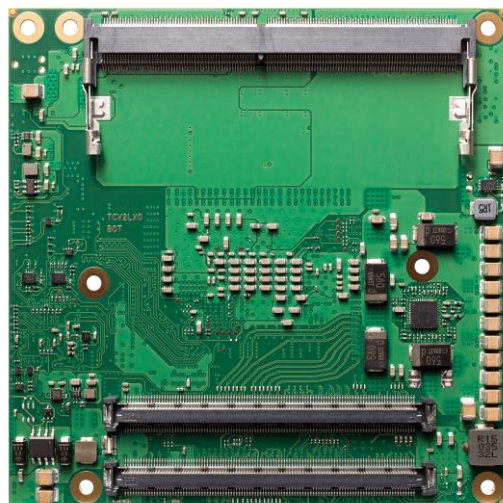# conga-TCV2

COM✦Express®

- High-performance Zen 2 CPU & VEGA GPU
- TDP Range 10-54W
- Supporting 4 simultaneous 4K displays
- Up to 64GByte dual channel DDR4 3200MT/s
- AMD Secure Processor with AMD Memory Guard

Formfactor	COM Express® Compact, (95 x 95 mm)	Type 6 connector pinout
CPU	**General Embedded Versions**

CPU	Cores/Threads	Cache	GPU CU	TDP
AMD Ryzen™ Embedded V2748	8 Cores	16 Threads	4 MB L2	8 MB L3 cache	7 GPU CU	35-54 W TDP
AMD Ryzen™ Embedded V2718	8 Cores	16 Threads	4 MB L2	8 MB L3 cache	7 GPU CU	10-25 W TDP
AMD Ryzen™ Embedded V2546	6 Cores	12 Threads	3 MB L2	8 MB L3 cache	6 GPU CU	35-54 W TDP
AMD Ryzen™ Embedded V2516	6 Cores	12 Threads	3 MB L2	8 MB L3 cache	6 GPU CU	10-25 W TDP

DRAM	Up to 2 SO-DIMM sockets for DDR4 memory modules up to 32 GByte each (64 GByte total) with 3200 MT/s and ECC support
Graphics	Integrated Radeon™ graphics engine with up to 7 Compute Units	Supporting 4 independent display units (4x 4K)	DirectX 12 support	VCN2.2 (H.264/AVC HW 8b	H.265/HEVC HW 8/10b	VP9 HW 8/10b)	DP 1.4
Display	3x DP/DP++	eDP/LVDS
Ethernet	1x Gigabit Ethernet via Intel® i225
I/O Interfaces	5x PCIe Gen3 (8 lanes)	PEG support x8 4x USB 3.1 Gen 2	8/4x USB 2.0 2x SATA III (6Gb/s)	2x UART	8x GPIO	LPC
Audio	HD-Audio over DP++ ports	HDA interface
congatec Board Controller	Multi Stage Watchdog	non-volatile User Data Storage	Manufacturing and Board Information Board Statistics	I²C bus (fast mode, 400 kHz, multi-master)	Power Loss Control Hardware Health Monitoring	POST Code redirection
Embedded BIOS Features	AMI Aptio® UEFI firmware	16 Mbyte serial SPI with congatec Embedded BIOS feature	OEM Logo OEM CMOS Defaults	LCD Control	Display Auto Detection	Backlight Control	Flash Update
Security	Trusted Platform Module (TPM 2.0)	AMD Secure Processor	AMD Memory Guard
Power Management	ACPI 5.0 with battery support
Operating Systems	Microsoft® Windows 10	Microsoft® Windows 10 IoT Enterprise Ubuntu Linux LTS	Yocto	RTS Hypervisor
Temperature Range	Commercial: Operating: 0 to +60°C Storage: -40 to +85°C
Humidity	Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.
Size	95 x 95 mm

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AMD EMBEDDED SOLUTIONS | Partner Program ELITE

conga-TCV2 | Block Diagram

SO-DIMM 0   SO-DIMM 1

AMD Ryzen™ Embedded V2000
"Zen2 7nm"

**congatec
Board
Controller**

Intel® i225

USB 3.1
Hub

LVDS Opt.

SPI Flash

TMP 2.0

CAN Opt.

PCIe 0 | PCIe 1 | PCIe 2 | PCIe 3 | PCIe 4-7 | PEG 0-7 | SATA 0 | SATA 2 | SATA 1 | SATA 3 | Ethernet | USB_SS 0 | USB_SS 0 | USB_SS 1 | USB_SS 2 | USB 2.0 1-3 | USB 2.0 0 | USB 2.0 4-7 | DDI 1 | DDI 2 | DDI 3 | LVDS/eDP | HDA | SPI | LPC | FAN Ctrl. | SMB | GPIO 0-7 | Ser 0 | Ser 1 / CAN | I2C

COM Express Type 6 Connectors

conga-TCV2 | Bottom Side View

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Article	PN	Description
conga-TCV2/V2748	050500	COM Express Type 6 Compact module based on AMD Ryzen™ Embedded V2748 8-core processor with 2.9GHz up to 4.25GHz boost freq., 4MB L2 cache, Radeon™ Vega Graphics with 7 CU and dual channel DDR4 3200 MT/s memory interface with ECC support. Commercial temperature range.
conga-TCV2/V2546	050501	COM Express Type 6 Compact module based on AMD Ryzen™ Embedded V2546 6-core processor with 3.0GHz up to 3.95GHz boost freq., 3MB L2 cache, Radeon™ Vega Graphics with 6 CU and dual channel DDR4 3200 MT/s memory interface with ECC support. Commercial temperature range.
conga-TCV2/V2718	050502	COM Express Type 6 Compact module based on AMD Ryzen™ Embedded V2718 8-core processor with 1.7GHz up to 4.15GHz boost freq., 4MB L2 cache, Radeon™ Vega Graphics with 7 CU and dual channel DDR4 3200 MT/s memory interface with ECC support. Commercial temperature range.
conga-TCV2/V2516	050503	COM Express Type 6 Compact module based on AMD Ryzen™ Embedded V2516 6-core processor with 2.1GHz up to 3.95GHz boost freq., 3MB L2 cache, Radeon™ Vega Graphics with 6 CU and dual channel DDR4 3200 MT/s memory interface with ECC support. Commercial temperature range.
conga-TCV2/CSA-HP-B	050550	Standard active cooling solution for high performance COM Express module conga-TCV2 with integrated heat pipes, 25.5mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-TCV2/CSA-HP-T	050551	Standard active cooling solution for high performance COM Express module conga-TCV2 with integrated heat pipes, 25.5mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm thread.
conga-TCV2/CSP-HP-B	050552	Standard passive cooling solution for high performance COM Express module conga-TCV2 with integrated heat pipes, 24.3mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-TCV2/CSP-HP-T	050553	Standard passive cooling solution for high performance COM Express module conga-TCV2 with integrated heat pipes, 24.3mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TCV2/HSP-HP-B	050554	Standard heatspreader for high performance COM Express module conga-TCV2 with integrated heat pipes, 11mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-TCV2/HSP-HP-T	050555	Standard heatspreader for high performance COM Express module conga-TCV2 with integrated heat pipes, 11mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TEVAL/COMe 3.0	65810	Evaluation Carrier Board for COM Express Type 6 modules.

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