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Press release

congatec launches COM Express Type 6 module with AMD Ryzen™ Embedded V1000 processors

New AMD Ryzen Embedded Processors deliver up to 3X more GPU performance than competitive solutionsⁱ

Deggendorf, Germany, 21 February, 2018 * * * congatec – a leading vendor of standardized and customized embedded computer boards and modules – introduces the conga-TR4 COM Express Type 6 module based on the new AMD Ryzen™ Embedded V1000 processors. Setting a new benchmark for high-end embedded computer modules, AMD Ryzen Embedded V1000 processors deliver up to 3X more GPU performance than competitive solutions, and up to 2X increase in performance over previous generationsⁱⁱ. With a TDP that is scalable from 12W to 54W, congatec products based on these new processors can benefit from multiple performance leaps across the TDP range and enormous optimization potential with regards to size, weight, power and costs (SWaP-C) at high graphics performance.

The new congatec COM Express basic modules are designed for the development of embedded computing systems with impressive graphics performance for applications such as medical imaging; professional broadcasting, infotainment and gambling; digital signage; control rooms and video surveillance; optical quality control; and 3D simulators. Other applications include smart robotics and autonomous vehicles that use deep learning to optimize their situational awareness.

“High performance 4k UHD system designs, which previously ran at 54W, now require less than half the TDP without loss of graphics performance. As a result, active cooling solutions can be replaced by passive ones, with all the corresponding SWaP-C benefits,” explains Martin Danzer, Director of Product Management at congatec. “The new 15W mobile system designs can deliver truly impressive user experiences with brilliant 4k displays and outstanding 3D graphics quality.”

“We are very pleased to partner with congatec in rolling out our most powerful x86 architecture for the embedded market to date,” said Stephen Turnbull, director of product marketing, Datacenter and Embedded Business Group, AMD. “Computer-on-Module form factors are a key foundation for embedded products, and congatec is helping to expand our reach by delivering OEMs with flexible COM Express Type 6 designs that offer cutting-edge graphics and outstanding CPU performance based on our new AMD Ryzen Embedded V1000 processors.”

The feature set in detail

The new conga-TR4 high-performance modules with COM Express Type 6 pinout are based on the latest AMD Ryzen™ Embedded V1000 multi-core processors. These modules offer up to 52 per cent more processor performance, reaching up to 3.75 GHz. Thanks to symmetrical multiprocessing, they also provide particularly high parallel processing performance. They support up to 32GB energy-efficient and fast dual-channel DDR4 memory with up to 3200 MT/s and optional ECC for maximum data security.

The new integrated AMD Radeon™ Vega graphics with up to 11 compute units marks the cutting edge of embedded graphics. It supports up to four independent displays with up to 4k UHD resolution and 10-bit HDR, as well as DirectX 12 and OpenGL 4.4 for 3D graphics. The integrated video engine enables hardware-accelerated streaming of HEVC (H.265) videoⁱⁱⁱ in both directions. Thanks to HSA and OpenCL 2.0 support, deep learning workloads can be assigned to the GPU. In safety-critical applications, the integrated AMD Secure Processor helps with hardware-accelerated encryption and decryption of RSA, SHA and AES.

The new conga-TR4 is also the first congatec COM Express Type 6 module to allow a complete USB-C implementation on the carrier board including USB 3.1 Gen 2 with 10 Gbit/s, Power Delivery and DisplayPort 1.4, for example to connect external touchscreens with a single cable. Further performance-oriented interfaces offered, includes 1x PEG 3.0 x8, 4x PCIe Gen 3 and 4x PCIe Gen 2, 3x USB 3.1 Gen 2, 1x USB 3.1 Gen 1, 8x USB

2.0, 2x SATA Gen 3, 1x Gbit Ethernet. I/Os for SD, SPI, LPC, I²C as well as 2x legacy UART from the CPU and High Definition Audio round off the range of interfaces.

The supported operating systems include Linux, Yocto 2.0 and Microsoft Windows 10, or optionally Windows 7. congatec provides an extensive range of passive and active cooling solutions for workstation designs up to 54W performance, application-ready carrier boards as well as best practice carrier board layouts and circuit diagrams, e.g. for USB-C implementations, to help simplify the design-in of the modules. To bring new designs to market even faster, congatec also offers the development of custom carrier boards and module variants.

The new conga-TR4 COM Express Type 6 Computer-on-Modules can be ordered in the following standard configurations:

Processor	Cores/ Threads	Clock [GHz] (Base/Boost)	L2/L3 Cache (MB)	GPU Compute Units	TDP [W]
AMD Ryzen Embedded V1807B	4 / 8	3.35 / 3.75	2 / 4	11	35 – 54
AMD Ryzen Embedded V1756B	4 / 8	3.25 / 3.60	2 / 4	8	35 – 54
AMD Ryzen Embedded V1605B	4 / 8	2.0 / 3.6	2 / 4	8	12 – 25
AMD Ryzen Embedded V1202B	2 / 4	2.5 / 3.4	1 / 2	3	12 – 25
AMD Ryzen Embedded V1404i	4 / 4	TBD	2 / 4	6	15

More information about the new conga-TR4 high-performance COM Express Type 6 module is available at: <http://www.congatec.com/en/products/com-express-type6/conga-tr4.html>

About congatec

congatec is a leading supplier of industrial computer modules using the standard form factors COM Express, Qseven and SMARC as well as single board computers and customizing services. congatec's products can be used in a variety of industries and applications, such as industrial automation, medical, entertainment, transportation, telecommunication, test & measurement and point-of-sale. Core knowledge and technical know-how includes unique extended BIOS features as well as comprehensive driver and board support packages. Following the design-in phase, customers are given support via extensive product lifecycle management. The company's products are manufactured by specialist service providers in accordance with modern quality standards. Headquartered in Deggendorf, Germany, currently congatec has entities in USA, Taiwan, China, Japan and Australia as well as United Kingdom, France, and the Czech Republic. More information is available on our website at www.congatec.com or via [Facebook](#), [Twitter](#) and [YouTube](#).

About AMD

For more than 45 years AMD has driven innovation in high-performance computing, graphics and visualization technologies — the building blocks for gaming, immersive platforms, and the datacenter. Hundreds of millions of consumers, leading Fortune 500 businesses and cutting-edge scientific research facilities around the world rely on AMD technology daily to improve how they live, work and play. AMD employees around the world are focused on building great products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit the AMD (NASDAQ: AMD) [website](#), [blog](#), and [Facebook](#) and [Twitter](#) pages.

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ⁱ Comparison is based on performance measured using the 3dMark® 11P benchmark. The AMD V-series V1807B scored 5618; the Intel Core i7-7700HQ scored 1783. The score for the Intel Core i7-7700HQ was measured using HP Omen with 8GB, Intel® HD 630 Graphics, 1x8GB DDR4 2400 RAM, 1TB 7200rpm HD, Microsoft Windows 10 Pro, Graphics Driver 21.20.16.4627, BIOS F.24. The score for AMD Ryzen Embedded V-Series V1807B was measured using the AMD "Dibbler" Platform, 2x8GB DDR4 3200 RAM, 250GB SSD Drive (non-rotating), TDP 45W, STAPM Enabled, ECC Disabled, , Microsoft Windows 10 Pro, Graphics Driver 17.40-171114a-320676E-AES-2-wRV-E9171, BIOS TDB1100EA. EMB-146.

ⁱⁱ Testing done at AMD Embedded Software Engineering Lab. The AMD R-series Embedded SOC formerly codenamed "Merlin Falcon" scored 2399 and the AMD V-series V1807 scored 4978, when running 3dMark® 11P benchmark which measures GPU performance. ($4978/2399=2.075$) The AMD R-series Embedded SOC formerly called "Merlin Falcon" scored 273 and the AMD V-series V1807 scored 665 on Cinebench R15 nT which measures multi-threaded CPU performance. ($665/273=2.435$). AMD Embedded R-Series RX-421BD used a AMD "Betong" Platform, with a 2x8GB DDR4-2400 RAM, 250GB SSD Drive (non-rotating), TDP 35W, STAPM and ECC Disabled, Graphics Driver 17.40.2011-171026a-320350C-AES, BIOS RBE1306A. AMD Ryzen Embedded V-Series V1807B used the AMD "Dibbler" Platform with 2x8GB DDR4 3200 RAM, 250GB SSD Drive (non-rotating), TDP 35W, STAPM and ECC Disabled, Graphics Driver 17.40-171114a-320676E-AES-2-wRV-E9171, BIOS TDB1100EA. Both systems ran Microsoft Windows® 10 Pro. EMB-144.

ⁱⁱⁱ VP9 acceleration are subject to and not operable without inclusion/installation of compatible HEVC players. GD-81.