

Extraordinary AI performance from -40 to +85 °C for rugged applications

Intel Core Ultra Series 3 Computer-on-Modules from congatec are hardened for harsh environments within the industrial temperature range

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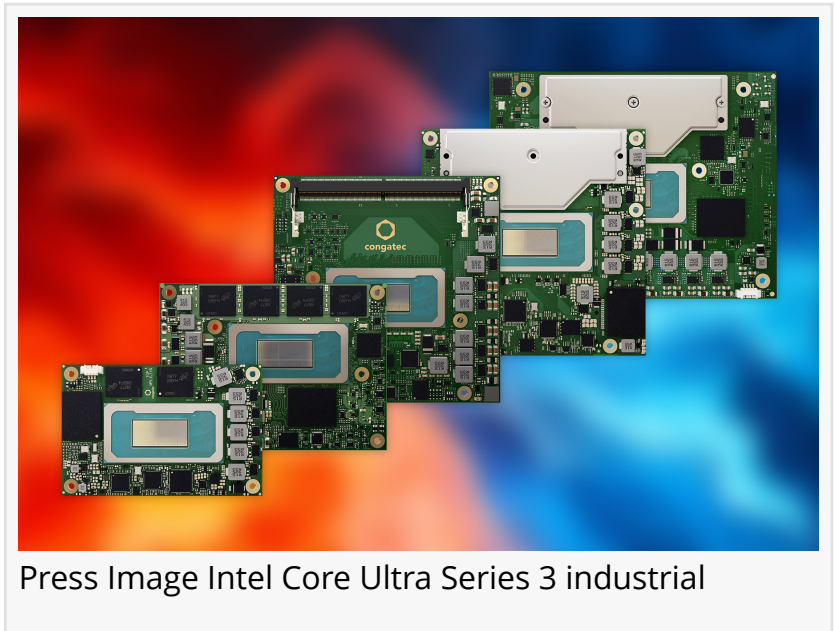
congatec – a leading vendor of embedded and edge computing building blocks – is expanding its portfolio of Computer-on-Modules (COMs) with Intel Core Ultra Series 3 processors to include variants for the extended industrial temperature range of -40 °C to +85 °C. With up to 180

TOPS of energy-efficient embedded computing performance, this high-performance module family is now also available for use in particularly demanding environments in AI-intensive markets including industrial automation, robotics, medical, and retail point-of-sales.

Industry-leading COMs for extended requirements

With the support for the industrial temperature range, the COMs – offered as application-ready aReady.COMs – can be deployed in environments characterized by extreme temperature fluctuations, weather exposure, vibrations, or continuously demanding operating conditions. For extended ruggedness congatec offers aReady.YOURS customization services for value-adds including conformal coating, special component selection or burn-in tests. Like the conventional variants, the rugged derivatives also offer up to 16 CPU cores with up to 10 TOPS and an integrated NPU5 for low-power AI inference with up to 50 TOPS. Additionally, they feature up to 4 Xe3 cores for optimized GPGPU AI performance. Developers thus receive a scalable platform for high-performance embedded and edge systems that combines local AI processing, sensor fusion, automation functions, and safety-critical workloads directly at the point of deployment with a high degree of ruggedness and energy efficiency.

The modules therefore address applications that must be designed to be particularly reliable, rugged, and available over the long term. Key applications include mission computers for



autonomous or heavy-duty vehicles, along with outdoor edge systems for smart cities, energy and renewable sectors, wayside infrastructure, and railway applications.

With the comprehensive portfolio of several module variants in different form factors, both new designs and upgrades of existing systems can be realized – from compact, energy-optimized platforms to high-performance solutions with high I/O bandwidth.

The modules in detail

For new designs requiring the highest data-throughput with PCIe Gen 5 and USB4, the COM-HPC Mini conga-HPC/mPTL and COM-HPC Client conga-HPC/cPTL modules deliver extreme performance and I/O bandwidth. For all existing COM Express Type 10-based mission-critical applications, the credit-card sized conga-MC1000 is an ideal upgrade. The conga-TC1000 COM Express Compact module targets legacy cost-sensitive systems in need of technology refresh, and the ruggedized conga-TC1000r with screw-locked LPCAMM2 memory is aimed at rugged applications.

Supported operating systems include Microsoft Windows 11, Windows 11 IoT Enterprise, ctrlX OS, Ubuntu Pro, KontronOS, Linux, and Yocto. As application-ready aReady.COMs, they can be pre-configured with licensed ctrlX OS, Ubuntu Pro, and KontronOS. The aReady.VT option with integrated conga-zones hypervisor and virtualization technologies allows developers to consolidate multiple workloads, such as real-time control, HMI, AI, and IoT gateway functions on a single module. For IIoT connectivity, congatec offers its aReady.IOT software building blocks with conga-connect to enable data exchange, maintenance/management of the module, carrier, and peripherals, as well as cloud connectivity upon request. To further simplify application development, congatec provides an extensive ecosystem including evaluation and production-ready carrier boards, cooling solutions, comprehensive documentation, design-in services, and high-speed signal integrity measurements. And with aReady.YOURS, OEMS can leverage congatec's comprehensive customization design and software integration services, to receive near turnkey embedded computing platforms – complete with advanced cooling solutions.

For more information on congatec COMs with Intel Core Ultra Series 3 processors, visit:

- conga-HPC/mPTL COM-HPC Mini module: <https://www.congatec.com/en/products/com-hpc/conga-hpcmptl>
- conga-HPC/cPTL COM-HPC Client Size A module: <https://www.congatec.com/en/products/com-hpc/conga-hpccptl/>
- conga-MC1000 COM Express Type 10 mini: <https://www.congatec.com/en/products/com-express-type-10/conga-mc1000/>
- conga-TC1000 COM Express Type 6 compact: <https://www.congatec.com/en/products/com-express-type-6/conga-tc1000/>
- conga-TC1000r COM Express Type 6 compact: <https://www.congatec.com/en/products/com-express-type-6/conga-tc1000r/>

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About congatec

congatec is a leading global provider of high-performance hardware and software building blocks for embedded and edge computing solutions based on Computer-on-Modules (COMs). These advanced computer modules drive systems and devices across industries such as industrial automation, medical technology, robotics, telecommunications, and more. congatec's high-performance aReady. ecosystems simplify and accelerate the solution development, from COM to cloud. This application-ready approach combines COMs with services and customizable technologies that enable cutting-edge advancements in system consolidation, IoT, security, and artificial intelligence. Supported by its majority shareholder, DBAG Fund VIII – a German mid-market fund focused on driving growth for industrial enterprises – congatec has the financial backing and M&A expertise to capitalize on expanding market opportunities. For more information, visit www.congatec.com or follow us on LinkedIn and YouTube.

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