

SECO PRESENTS ITS FIRST PRODUCT BUILT UPON THE LATEST INTEL ATOM x6000E SERIES AND INTEL PENTIUM AND CELERON N AND J SERIES PROCESSORS

Arezzo, Italy - September 23rd 2020 - SECO's goal has always been to be at the forefront of innovation, providing its customers with the latest technologies available on the market.

Today SECO is pleased to unveil its latest product: the **SM-C93**, a SMARC® Rel 2.1.1 compliant module with the **Intel Atom x6000E Series and Intel Pentium and Celeron N and J Series processors**.

Thanks to the close partnership with Intel and being part of the early access program for this platform, SECO was able to develop a solution that would encompass its great potential.

The **Intel Atom x6000E Series and Intel Pentium and Celeron N and J Series processors** are Intel 's first enhanced for IoT platforms, with CPU and GPU performance to support IoT applications requirements: with up to 4 cores and excellent performance/watt ratio (4.5W - 12W TDP), it boosts up to 40% faster CPU and 2x 3D graphics performance when compared to Intel Apollo Lake.

Additional improvements are Intel UHD Graphics and integrated Gigabit Ethernet: up to 3 Ethernet ports at 2.5 Gb with Time Sensitive Network (TSN) capabilities, a technology aiming at standardizing the transmission of time-sensitive data over Ethernet networks. Software optimized tools such as Intel System Studio and Intel Distribution of OpenVINO Toolkit simplify and accelerate IoT application development.

The Intel Atom x6000E Series and Intel Pentium and Celeron N and J Series processors are also extremely flexible supporting multiple operating system options and addressing a variety of needs for embedded and industrial devices such as reliability, safety and low power consumption. From industrial to healthcare, through visual and transaction retail and gaming, their features target many applications, providing a unique value proposition for all vertical markets addressed.

One of the main strengths of this platform is to be designed for integration in application requiring **Functional Safety** (FuSa), aiming at detecting, monitoring and preventing systematic failures – bugs in software, hardware, design and tools - and random hardware failures occurring while using the system. The **Intel Atom x6000E processors** are among Intel 's first products designed with Functional Safety capabilities, which makes them well suited for those applications where growing complexity of hardware and software systems increases the risk of failures. This platform is **SIL2/ Cat. 3 PL d certified¹** and **SIL3/Cat.4 PL e capable** when implemented in a dual-channel system.

To exploit this great potential in a standard form factor, SECO developed the **SM-C93**, a SMARC® Rel. 2.1.1 compliant module with the **Intel Atom x6000E Series processors for FuSa applications**. It is the first SMARC module specifically made for Functional Safety (FuSa) of safety-related systems, thus being designed in compliance with IEC 61508 and ISO 13849 FuSa standards.

¹ Certification in process.





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It comes with the Integrated Intel UHD Graphics engine, supporting up to three independent displays through various video interfaces (e.DP 1.3 or Dual Channel LVDS, DP++, HDMI 1.4), and up to 16 GB of Quad Channel LPDDR4 Soldered Down memory with IB ECC (In-Band Error Correction Code, Safety Related feature). Above all, this module stands out for its wide connectivity: 2x GbE PHY with precision time protocol IEEE 1588 optional SERDES Interface for additional third Gigabit Ethernet, 6x USB 2.0 host ports and 2x USB 3.1 Gen2 ports, up to four PCI-e Gen3 lanes, up to 14x GPIO, 2x CAN bus, SM bus and I2C bus.

Available in industrial temperature, the **SM-C93** is the right solution for all those applications that require high levels of reliability and excellent fault tolerance, from healthcare to industrial automation, through robotics and HMI.

Designing a new product, SECO always adopts the latest and most innovative technologies available on the market, and it does so by looking first and foremost at the needs of its customers, in order to offer the best solution, tailored to the exact requirements of even the most complex scenarios.

SECO CTO, Davide Catani, stated: “Artificial Intelligence is dramatically boosting human-machine collaboration in the industrial space. Embedded applications need to increase safety level to prevent harmful situations to occur in such a mixed robot/people environment. SECO SMARC SM-C93 modular solution is a robust approach to cut customer development effort and IEC 61508 certification process for industrial safety related applications. The presence of the integrated Intel Safety Island allowed us to reduce Bill Of Material cost removing the needs of an external component acting as a kind of intelligent watchdog/ monitor. In addition, qualified Functional Safety software components and a complete set of technical documentation reduced development costs and Time to Market. This is the confirmation that Intel Atom x6000E Series processors can simplify the integration of this innovative technology also in a very small and compact design”.

“SECO's approach to Functional Safety (FuSa) fully delivers Intel Atom x6000E Series processors' value proposition, accelerating development and certification process. SM-C93 will quickly enable the next generation of industrial applications mandating Functional Safety and requiring high compute performance to drive workload consolidation”– said **Monia Chiavacci, Functional Safety Director IOTG, Intel Corporation**.

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About SECO

SECO Group excels in the electronic embedded field, offering cutting-edge solutions for the widest range of applications through standard modules, SBCs, systems and full-custom services, with a strong focus on IoT. Understanding that a project goes beyond the embedded board, SECO is able to provide project management services supporting customers at every stage, from development to mass production and distribution, to achieve the best solution for their needs, whether the project requires complete custom design services, component sourcing, hardware and software development, custom enclosures, system integration, validation & verification services and product certifications. This can be achieved thanks to the experience of SECO's R&D departments in both ARM and X86 architectures and strategic partnerships with several major scientific Universities and world-leading companies. With 40+ years of experience, SECO is constantly growing and operates globally with offices in Italy, Germany, USA, India, Russia and Taiwan.
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SECO PRESENTS ITS FIRST COM-HPC® MODULE WITH THE 11TH GENERATION INTEL CORE PROCESSORS

Arezzo, Italy - September 23rd 2020 - COM-HPC® is the coming standard for high-end embedded computing; it is developed by PICMG®, with the active contribution of SECO, to bring next generation computing solutions into the embedded space. Most modern applications demand high performance due to the amount of data that need to be processed, usually requiring video stream and up to 8K resolution. Just to cite some examples: IoT devices, edge-computing, 5G traffic, robotics, smart factory, and safety/mission critical applications.

SECO, always at the forefront of the latest technologies, has developed its first COM-HPC® / Client module Size A (95 x 120 mm), with the **11th Generation Intel Core processors**, aligned with the current pre-release version of the COM-HPC® specification: the [CHPC-C77-CSA](#).

The 11th Generation Intel Core processors combine high performance, low power consumption and IoT-centric features. With up to 4 Processor Cores delivering high-level computing performance, this brand-new family of Processors supports up to 64 GB of memory, also featuring IB ECC (In-Band Error Correction Code) to provide ECC protection without additional devices and data pins. Intel Iris Xe graphics with up to 96 execution units, along with improved display capabilities – up to 4 simultaneous 4K displays – greatly enhance graphic and media performance. The platform's combination of speed, high powered Graphics, AI/Deep Learning Instruction Sets, including hardware support for real time computing, make it ideal for applications that demand vision, voice, or text recognition alongside processing power.

Featuring the 11th Generation Intel Core processors, with up to 4 cores, SECO **CHPC-C77-CSA** comes in the COM-HPC® / Client standard form factor in Size A. Memory-wise, it supports up to 64 GB of DDR4-3200 on two DDR4 SO-DIMM Slots with IB ECC. This module has integrated Intel Iris Xe graphics with up to 96 execution units, and a range of video interfaces such as 3x DDI, eDP and 2x MIPI-CSI, which can manage up to four separate high-resolution displays and up two cameras, as well as integrated Soundwire Audio interface. Coming to connectivity, this board is plentiful: 4x USB 4.0 / USB 3.2; 4x USB 2.0; 8x PCI-e Gen3; 4x PCI-e Gen4; up to 2x 2.5GbE. Finally, when it comes to OS this solution supports Windows 10 IoT Enterprise, Wind River VxWorks 7.0, Wind River Linux, Ubuntu Linux, Yocto, and Android (post launch).

Also available in industrial temperature range, the **CHPC-C77-CSA** mainly target high-end industrial applications, but it is also suitable for Healthcare and Medical applications, Digital Signage and Infotainment, HMI, Edge Computing, Gaming, Robotics, and Transportation.

SECO CTO, Davide Catani, said: "11th Generation Intel Core Processors provides a big leap with respect earlier generation. SECO CHPC-C77-CSA COM-HPC® client module fully exploits improved graphics and video pipes as well as cutting-edge high-speed interfaces such as PCIe gen 4 and USB 4. SECO CHPC-C77-CSA and 11th Generation Intel Core Processors are the opportunity for edge applications developers to take a dramatic step ahead and connect with the future of embedded computing."

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“SECO CHPC-C77-CSA client module is a consistent solution to fully utilize 11th Generation Intel Core processors which brings a power efficient platform to IoT-centric applications. CHPC-C77-CSA SOM unleashes 11th Generation Intel Core Processors’ high-speed interfaces and providing an enhanced security, AI/computer vision and industrial grade platform for next generation of edge products” – stated **Andrea Toigo, Intel Corporation, EMEA Territory IoT Sales Manager.**

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SECO Group excels in the electronic embedded field, offering cutting-edge solutions for the widest range of applications through standard modules, SBCs, systems and full-custom services, with a strong focus on IoT. Understanding that a project goes beyond the embedded board, SECO is able to provide project management services supporting customers at every stage, from development to mass production and distribution, to achieve the best solution for their needs, whether the project requires complete custom design services, component sourcing, hardware and software development, custom enclosures, system integration, validation & verification services and product certifications. This can be achieved thanks to the experience of SECO’s R&D departments in both ARM and X86 architectures and strategic partnerships with several major scientific Universities and world-leading companies. With 40+ years of experience, SECO is constantly growing and operates globally with offices in Italy, Germany, USA, India, Russia and Taiwan.

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SECO PRESENTS ITS LATEST COM EXPRESS™ TYPE 7 PRODUCT LINE

SECO unveils its first **COM Express™ Type 7** product: the [COMe-C42-BT7](#), a COM Express™ Rel. 3.0 Basic Type 7 module with the **AMD EPYC™ Embedded 3000** Processor. Harnessing the benefits of the “Zen” CPU architecture and I/O integration, flexibility and security capabilities, this module provides scalable offerings with outstanding performance and more connectivity. Networking and connectivity are improved with the 4x 10GBASE-KR interfaces, 1x GbE port with NC-SI, 4x USB 3.1 and 24x PCI-e Gen 3 lanes. Moreover, the performance is enhanced by four DDR4 SO-DIMM slots supporting up to 128GB of DDR4-2666 Memory (both ECC and not-ECC). The COMe-C42-BT7 is a fitting balance between innovation, features, performance and cost, and it's the ideal high-level operating solution in contexts such as servers and HPCs, industrial automation & control and telco. Being a modular COM Express™ Type 7 solution dedicated to high-end families of processors, with high computing capability, bandwidth and low power consumption, the COMe-C42-BT7 ensures the required flexibility to design solutions such as rugged edge servers to be placed in the production lines' proximity, 5G base stations and autonomous driving systems.

Adding the COM Express™ Type 7 product line to its standard product portfolio, SECO aims at offering new high-level performing solutions to its customers. Additionally, it enables the company to enter the Networking & Communications and Storage markets and become a competitive partner in the HPC domain.

To complete its COM Express™ Type 7 offering, SECO is presenting the brand-new [COM EXP T7 DEV KIT](#), a Development kit compatible with both x86 and Arm COM Express™ Type 7 modules, embracing the cross-platform philosophy. It contains all the necessary materials to start developing applications using any COM Express™ Type 7 architecture, either x86 or Arm, with the possibility of swapping from one to the other with minimal effort and time-consumption. This COM Express™ Type 7 Development Kit is based on **CCOMe-C79**, a carrier board on ATX form factor specifically designed to work with COM Express™ Type 7 modules, offering a wide range of I/Os, networking interfaces and connectivity options (USB 3.1 host ports, PCI-e slots, 10Gbase-KR interfaces, RS-232 ports on dedicated pin header).

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ARM+ FPGA HETEROGENEOUS PROCESSING IN SMARC FORM FACTOR WITH XILINX® ZYNQ® ULTRASCALE+™ MPSoC

Among the Arm-based products from SECO's portfolio, there is the [SM-B71](#), a SMARC Rel. 2.0 compliant module with the **Xilinx® Zynq® Ultrascale+™ MPSoC**. It stands out among SMARC modules for its reduced integration complexity, its extreme flexibility, vast scalability and high-end performance.

The [SM-B71](#) is a unique solution, because of its blending of the Arm® and FPGA domains: this module is specifically designed to combine in a standard form factor Arm® and FPGA architectures, delivering flexible heterogeneous processing. All this thanks to **Xilinx® Zynq® Ultrascale+™ CG/EG/EV MPSoCs in C784 package**. The product is available in two versions, with up to four cores of Arm® Cortex®-A53 MPCore Application Processing Unit and a Dual-Core Arm® Cortex®-R5 Real-Time Processing Unit.

As for graphics, the [SM-B71](#) features an integrated Arm® Mali-400 MP2 GPU, with multi-core 2D/3D acceleration at 667MHz, support for OpenGL ES 1.1 / 2.0, OpenVG 1.0 / 1.1 as well as H.264/H.265 integrated video codec. Memory-wise, it mounts a soldered-down DDR4-24000 memory, up to 8 GB for Processing System Unit and up to 2 GB for Programmable Logic. Finally, this module is equipped with a variety of connectivity interfaces, including 4x PCI-e, 2x GbE, 2x CAN Bus, 2x SPI and 12x GPIOs. Also available in industrial temperature range, the [SM-B71](#) is suitable for use in demanding applications, such as automotive, avionics, biomedical & medical devices, industrial automation & control, IoT, robotics, telco, and visual computing.

The [SM-B71](#) is compatible with the [SMARC 2.0 DEV KIT](#), a cross platform philosophy Development Kit for SMARC Rel. 2.0 compliant modules. This complete package, containing all the necessary features to start developing on any SMARC Rel. 2.0. compliant module, is based on the **CSM-B79** carrier board, which takes advantage of a large variety of networking interfaces and connectivity options (2x RJ-45 GbE connectors, USB sockets, PCI-e slot, 2x CAN ports, 4x GPIOs dedicated connector).

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