**Press release **

congatec SMARC 2.1 modules with NXP i.MX 8M Plus processor

**Low power flagship for embedded vision and AI**



**Deggendorf, Germany, 2 March 2021 \* \* \*** congatec – a leading vendor of embedded and edge computing technology – presents its brand new low power SMARC 2.1 Computer-on-Modules with NXP i.MX 8M Plus processor for industrial edge analytics, embedded vision and artificial intelligence (AI) at embedded world 2021 DIGITAL. With its machine and deep learning capabilities, the new ultra low power conga-SMX8-Plus module allows industrial embedded systems to see and analyze their surroundings for situational awareness, visual inspection, identification, surveillance and tracking as well as gesture-based contactless machine operation and augmented reality.

Technical highlights of the Arm Cortex-A53 based quad-core processor platform include the integrated neural processing unit (NPU) for AI computational power, and the image signal processor (ISP) for parallel real-time processing of high resolution images and video streams from the two integrated MIPI-CSI camera interfaces. The extensive ecosystem of this new SMARC module – such as application-ready 3.5-inch carrier boards as well as Basler camera and AI software stack support – complements the product launch for a fast proof of concept. Vertical markets for these credit card sized low power vision and AI modules can be found anywhere from smart farming and industrial manufacturing to retail, and from transportation to smart cities and smart buildings.

“If engineers leverage the rich and highly efficient feature set of the new SMARC modules along with our extensive ecosystem and implement further application-specific functions via PCIe Gen 3 as well as 2x USB 3.0 and 2x SDIO, they have a highly reliable and robust 2-6 Watt low power platform for vision and AI. Depending on the variant, the new modules can even be used in the extended temperature range of -40°C to 85°C,” explains Martin Danzer, Director Product Management at congatec.

With its various specialized processing units, the new i.MX 8M Plus processor based SMARC module from congatec enables impressively responsive embedded vision and AI applications with an extremely low power envelope. Advantages include:

* The NPU adds 2.3 TOPS of dedicated AI computational power to the four powerful multi-purpose Arm Cortex-A53 processor cores.
* The integrated ISP processes full HD video streams with up to 3x 60 frames per second for video enhancement.
* The high-quality DSP enables local speech recognition without any cloud connection.
* The Cortex-M7, which can also be used as a fail-safe unit, provides real-time control together with a time synchronized networking capable Ethernet port.
* Next to an encryption module (CAAM) for hardware-accelerated ECC and RSA encryption, the Arm TrustZone also integrates the Resource Domain Controller (RDC) for isolated execution of critical software, and the secure High Assurance Boot mode to prevent the execution of unauthorized software during boot.

**The feature set in detail**

The new SMARC 2.1 modules for vision and AI applications feature four quad-core Arm Cortex-A53 based NXP i.MX 8M Plus processors for the industrial (0°C to +60°C) or extended temperature ranges (-40°C to +85°C) as well as in-line ECC for up to 6 GB LPDDR4 memory. The modules can drive up to three independent displays and provide hardware accelerated video decoding and encoding including H.265 so that high resolution camera streams delivered by two integrated MIPI-CSI interfaces can be sent directly to the network. For data storage, engineers will find onboard up to 128 GB eMMC, which can also operate in safe pSLC mode. Peripheral interfaces include 1x PCIe Gen 3, 2x USB 3.0, 3x USB 2.0, 4x UART as well as 2x CAN FD and 14x GPIO. For real-time networking, the module offers 1x Gbit with TSN support plus conventional Gbit Ethernet. An optional M.2 WiFi and Bluetooth LE card soldered on the module adds wireless connectivity. 2x I2S for sound rounds off the feature set. The supported operating systems include Linux, Yocto 2.0 and Android.

Further information on the new congatec SMARC Computer-on-Module conga-SMX8-Plus can be found at: https://www.congatec.com/en/products/smarc/conga-smx8-plus/

To see congatec’s complete i.MX 8 portfolio, please visit [www.congatec.com/imx8](http://www.congatec.com/imx8)

Text and photograph available at: <https://www.congatec.com/en/congatec/press-releases.html>

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**About congatec**

congatec is a rapidly growing technology company focusing on embedded and edge computing products. The high-performance computer modules are used in a wide range of applications and devices in industrial automation, medical technology, transportation, telecommunications, and many other verticals. Backed by controlling shareholder DBAG Fund VIII, a German midmarket fund focusing on growing industrial businesses, congatec has the financing and M&A experience to take advantage of these expanding market opportunities. congatec is the global market leader in the computer-on-modules segment with an excellent customer base from start-ups to international blue chip companies. Founded in 2004 and headquartered in Deggendorf, Germany, the company reached sales of 126 million US dollars in 2019. More information is available on our website at [www.congatec.com](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.congatec.com%2F&data=04%7C01%7C%7Cd6654884cfee4283460108d87b43e959%7C1b738660126645879d5454e9ad89e4cb%7C0%7C0%7C637394878932424857%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=M6r1ukH%2B1yMwc0gunbmVRuBaaijO315wnAy2ocS4xvM%3D&reserved=0) or via [LinkedIn](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.linkedin.com%2Fcompany%2F455449&data=04%7C01%7C%7Cd6654884cfee4283460108d87b43e959%7C1b738660126645879d5454e9ad89e4cb%7C0%7C0%7C637394878932434848%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=FMg3YUv0q09oP%2BW7%2FXJLHYdiBdwZeZbi5jJ7p%2B99RSE%3D&reserved=0), [Twitter](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fmobile.twitter.com%2FcongatecAG&data=04%7C01%7C%7Cd6654884cfee4283460108d87b43e959%7C1b738660126645879d5454e9ad89e4cb%7C0%7C0%7C637394878932444843%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=Fp9Z0BnXIz0%2FlzJYotRWqmFrCf6949cCxX%2BbVDRBErs%3D&reserved=0) and [YouTube](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.youtube.com%2FcongatecAE&data=04%7C01%7C%7Cd6654884cfee4283460108d87b43e959%7C1b738660126645879d5454e9ad89e4cb%7C0%7C0%7C637394878932444843%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=5jW4UF3e6O1zetb%2FFdq3Sq1R6T09OuPadNWqu6Fc%2FnY%3D&reserved=0).