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Press release

TTTech Aerospace and RUAG Space join forces to deliver TTEthernet® network and computing platform for NASA's Gateway

- TTEthernet® is an established standard for high-speed, highly reliable communication in the space industry, developed by TTTech Computertechnik AG.
- A tight cooperation of 10 years between TTTech Aerospace and RUAG Space has been formalized by signing of a teaming agreement in June 2021.
- TTTech Aerospace is a technology leader in safety-critical communication products. RUAG Space is a market leader in highly-dependable space equipment.
- The TTEthernet® platform has already been selected for use in two modules of NASA's Gateway.

Vienna, Austria, October 5, 2021 **– Two years ago, TTTech Aerospace and RUAG Space announced they were working together to develop TTEthernet® equipment for deep space. After being successful on the market and closing the first contracts within the NASA Artemis program, TTTech Aerospace and RUAG Space strengthened their commitment to jointly develop space products with a formal teaming agreement closed in June 2021.**

"TTTech Aerospace and RUAG Space are partnering using their complementary strengths, with TTTech Aerospace as a technology leader in safety-critical communication platforms and RUAG Space with its three decades of experience in designing and manufacturing space-qualified equipment. This partnership allows us to design and produce high-tech TTEthernet® equipment for the use in extremely harsh space environments like the moon orbit," says Christian Fidi, Senior Vice President Business Unit Aerospace at TTTech. "We are proud to work together with RUAG Space and their highly skilled and competent space electronics team to deliver high-quality products and services to our customers so they can achieve their ambitious goals successfully." The tight cooperation of 10 years between TTTech Aerospace and RUAG Space includes research programs like the European Space Agency's Future Launchers Preparatory Programme and the standardization of the Time-Triggered Ethernet protocol for space.

First equipment delivered in July

TTTech Aerospace and RUAG Space have been chosen to deliver TTEthernet® network and computing platforms for two of NASA's prime contractors for the lunar Gateway, Maxar Technologies (Power and Propulsion Element – PPE) and Northrop Grumman (Habitation and Logistics Module – HALO). The first form-fit and functional equipment delivered in July by TTTech Aerospace and RUAG Space allows the customers to start early development on flight-like equipment now and will ensure a seamless integration towards the flight products.

"Gateway is currently planned with seven modules. We are already part of two modules and we have good chances to deliver our products to the other five modules as well. That is a huge business opportunity. We are very well positioned to support Gateway and the ARTEMIS mission and beyond," says Andreas Buhl, Country Manager of RUAG Space Austria.

Groundbreaking technology for the space market

In 2019, TTTech Aerospace and RUAG Space began to jointly develop commercial off-the-shelf (COTS) TTEthernet® network products for next generation avionics network and computing platforms. These cards are based on the 3U cPCI form factor and enable a highly modular configuration of the 3U cPCI compatible Avionics Hosting Unit from TTTech Aerospace and RUAG Space. The open 3U cPCI industry standard together with IASIS ("International Avionics System

Interoperability Standards") enables highly modular architectures for a wide variety of deep space applications.

Andreas Buhl explains how the joint solutions from TTTech Aerospace and RUAG Space bring value to the market, "Space electronics need to comply with the highest quality standards. Customers benefit from off-the-shelf hardware solutions that use open standards as they help reduce time-to-market and system complexity and therefore perfectly serve the requirements of NASA's space programs."

Christian Fidi highlights the safety and flexibility of the COTS solutions: "We can offer proven technology for safety-critical applications. Our network and computing platforms are a groundbreaking new offering, allowing customers to integrate their safety-critical applications more efficiently and therefore meet their timelines and cost targets. Our new COTS products dramatically increase the capabilities and reduce the complexity of deep space avionics systems for a wide variety of applications. Furthermore, the modular open system architecture from TTTech Aerospace and RUAG Space enables customers to meet the ever-increasing demand for processing and computing powers over many years of service."

TTTech Aerospace and RUAG Space both have offices in the US to provide direct technical interfaces for their customers. RUAG Space's electronics and customer service team is based in Denver, Colorado. TTTech North America supports the above-mentioned space projects with its experts from its office in Houston, Texas, close to the Gateway integration center at NASA's Johnson Space Center.

Images

Caption: First electronic equipment for module of the NASA Gateway: The ^{TTE}Switch Space 3U cPCI and ^{TTE}End System Space 3U cPCI are among the first form-fit and functional equipment delivered for the Gateway projects in July. (© TTTech Computertechnik AG)
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Caption: The teaming agreement between RUAG Space Austria and TTTech Computertechnik AG was signed on June 23, 2021 at TTTech's headquarters in Vienna, Austria. From left to right: Kurt Kober, General Manager Product Unit Navigation & Payload Processors RUAG Space; Andreas Buhl, Country Manager RUAG Space Austria; Christian Fidi, Senior Vice President Business Unit Aerospace, TTTech; Georg Kopetz, CEO and member of the executive board, TTTech; Manfred Prammer, COO and member of the executive board at TTTech (© TTTech Computertechnik AG). (Note: all participants were vaccinated and/or tested negative for COVID-19)
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Images of the NASA Gateway, showing the power and propulsion element (PPE) and the habitation and logistics outpost (HALO) – images © NASA:
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About TTTech Aerospace

TTTech Aerospace provides deterministic embedded network and platform solutions for aerospace and space applications. Its products have already completed over 1 billion flight hours in Level A safety-critical applications like fly-by-wire, power systems, avionics, engine controls and environmental control systems. Proven, mature solutions help customers in the aerospace and space industries to develop integrated, modular and scalable deterministic network platforms that increase safety, fault-tolerance and availability. In addition, integrated solutions reduce size, weight, power and cost (SWaP-C), allowing for easier handling of equipment and lowering total lifecycle cost.

TTTech Aerospace is part of TTTech Computertechnik AG, a leading provider of safe networked computing platforms. TTTech is the innovator of Deterministic Ethernet and a driving force behind the IEEE TSN and the SAE AS6802 Time-Triggered Ethernet standards. TTTech Computertechnik AG operates under the umbrella of the TTTech Group, a globally oriented group of high-tech companies, founded and headquartered in Vienna, Austria.

Web: https://www.tttech.com

About RUAG Space

RUAG Space Austria has 30 years of experience in space technology and is the European market leader both in the field of precise satellite positioning using electronic navigation receivers and in the thermal protection of satellites. The satellite navigation receivers from Vienna are used, for example, in ESA environmental satellites or in NASA climate and ocean satellites. Vienna also supplies control and interface electronics for mechatronic systems and for on-board computers. Thermal insulation from Austria protects all European navigation satellites Galileo from the extreme cold and heat in space as well as missions such as to Mercury (BepiColombo) and the sun (SolarOrbiter) or commercial broadband satellites like the 322 satellites of the OneWeb constellation currently in orbit.

RUAG Space is the leading supplier to the space industry in Europe, and has a growing presence in the United States. Around 1,300 employees across six countries (Switzerland, Sweden, Austria, Germany, USA and Finland) develop and manufacture products for satellites and launch vehicles—for both the institutional and commercial space market. RUAG Space is part of RUAG International, a Swiss technology group.

Visit www.ruag.com/space, or view our RUAG Space product portfolio video: https://youtu.be/qNbSjUdlXxQ

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