CAN *Newsletter Online*

ROLLING STOCK COMPUTER
Based on Nvidia Jetson AGX Xavier

Syslogic launched the AI railway computer RSL A3 for AI-assisted (artificial intelligence) railroad applications. It provides two CAN interfaces.

(Source: Adobe Stock)

The device is based on the recent Nvidia Jetson AGX Xavier industrial system on module (SOM), which is designed for demanding environmental conditions. The module features a 512-core Nvidia Volta GPU (graphics processing unit) with 64 Tensor cores, two Nvidia deep learning accelerators, two vision accelerators, and an eight-core Nvidia Carmel Arm CPU (central processing unit). The computer's hardware base allows for decision-making directly in the railway vehicle without the need for a cloud connection. An AI performance of 32 Tera operations per second (TOPS) is possible. Thus, it is suitable for AI applications such as video analysis, computer vision, inferencing, or machine learning. Specific applications include automated driving, collision avoidance, signal and hazard identification, predictive maintenance, and visual inspection of rails.

RSL A3 is designed for 24/7 railroad operation at temperatures from -40 °C to +70 °C (Source: Syslogic)

The computer is tailored to the railway market by combining the Nvidia module with Syslogic's carrier board and a robust housing. Embedded electronics are designed for 24/7 railroad operation in temperatures ranging from -40 °C to +70 °C. The boards are protected against condensation through a conformal coating. Screw-on M12 connectors and a galvanically-isolated voltage input ensure reliable operation under extreme situations, stated the company with more than 30 years of experience in railroad electronics technology.

Available interfaces include two CAN ports accessible via 9-pin Dsub connectors. The galvanically-isolated CAN interfaces support the listen-only mode, whereby the sending function of the transceiver is disabled. Sockets for micro-SD card and mini PCIe, a display port, two USB 3.1, USB 2.0, and two 10/100/1000-Mbit/s Ethernet ports are offered as well.

The computer has recently passed the EN 50155 railroad certification. It also complies with the EN 45545-2 HL 3 (hazard level) fire protection standard and is shock and vibration resistant in accordance with EN 61373. The device offers the pre-installed Nvidia Jetpack SDK (software development kit) providing tools and libraries. Linux for Tegra (L4T) is the used operating system.

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