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Railroad Company Optimises Safety with On-Board Computer Upgrade from Sintrones

When looking to upgrade the hardware platform for its high-rail (road-rail) limits compliance system, an American freight railroad company turned to in-vehicle computing specialist Sintrones.

After an incident between a road-rail vehicle and a moving train highlighted the weaknesses of its existing high-rail limits compliance system, one American freight railroad company knew it was imperative that it upgrade its existing solution.

This was because the Federal Railroad Administration Office of Safety's railroad accident report declared that a contributing factor to the incident, in which thankfully nobody was harmed, was the incorrect use of the high-rail limits compliance system.

"Their older units had limited functionality and were lacking many of the latest features now available on the market. This enabled the high-rail limits compliance system to be turned off, which

was a contributing factor to the accident," says Alan Yao, Managing Director of the Sintrones Technology Corp.

"The incident brought to their attention the new generation of technology available to them, and the benefits it could bring in terms of safety, but also above and beyond."

Upgrading High-Rail Vehicle Hardware

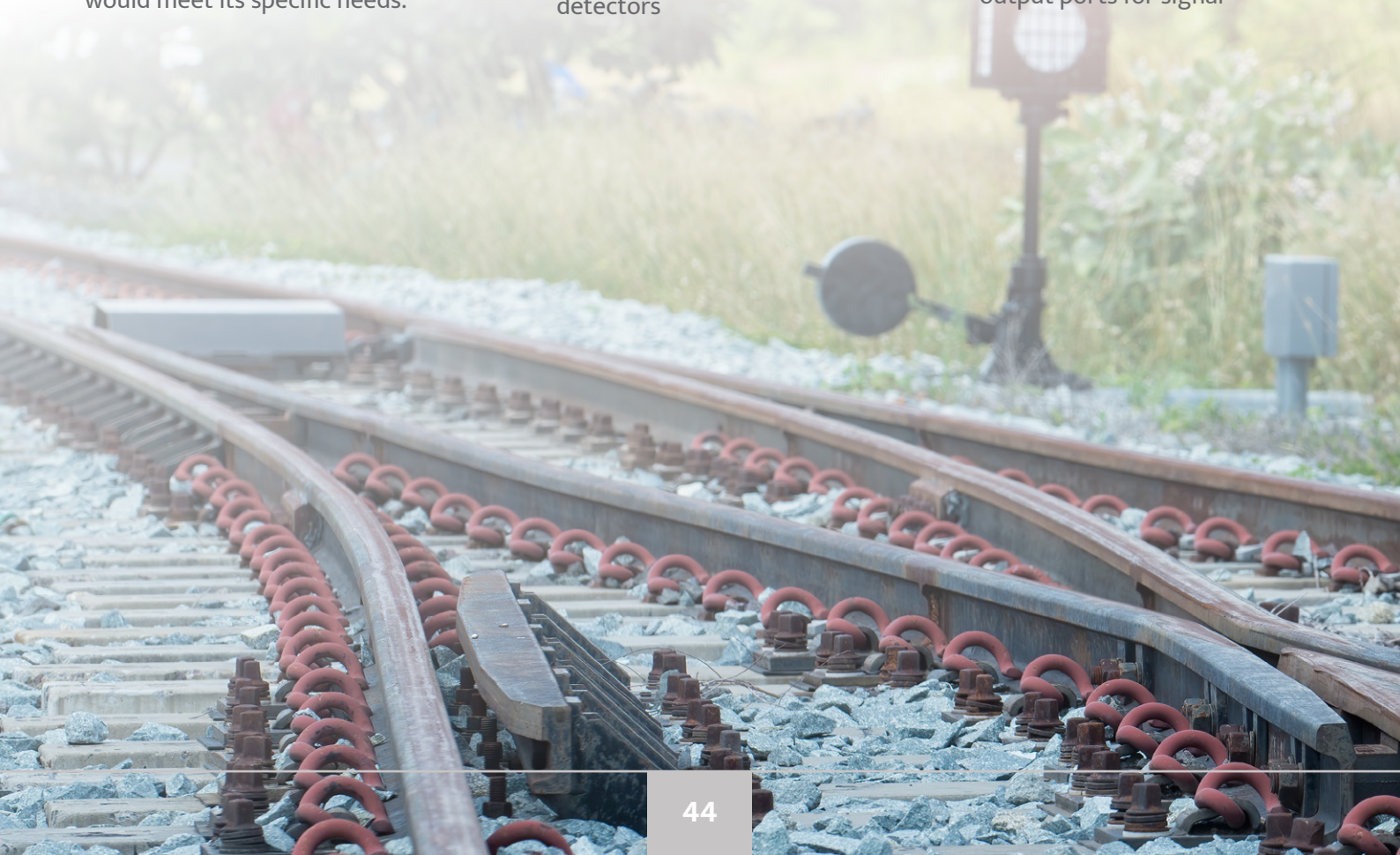
With the new solution, the rail company was looking to ensure it had a reliable authority limiter that could not be disabled by users and would guarantee that vehicles could only travel where they were safely authorised to do so.

This required a bespoke computing solution that would seamlessly integrate with the company's existing software and equipment, consolidating into a single hardware platform that would meet its specific needs.

With years of engineering and product design experience behind it, Sintrones is renowned for its ability to provide computing systems that meet customers' bespoke technical requirements, and this piqued the railroad company's interest.
Upon discussing the organisation's needs, it was clear Sintrones could provide a solution that was the perfect fit for its desired feature sets. This took the form of the ABOX-5210 fanless box computer.

Sintrones's ABOX-5210 offered the American freight railroad company:

- GPS with real-time kinematic accuracy of up to one centimetre-level positioning
- Dual cellular (AT&T & Verizon) capability to support AT&T FirstNet and band 14 communications
- Wireless radio connectivity
- Power over ethernet (PoE) ports for camera and motion sensors, in addition to laser gun speed detectors
- A BAT-5200 internal system-level back-up battery, which enables the computer to keep running for approximately 10 minutes after losing an external power source
- Power input voltage surge protection and wide power voltage input (12V~48V DC input accepted) to protect from unstable vehicle power sources
- A rugged housing and fanless design, with an extended wide temp operating range of 40–70∞C
- Nvidia GPU AI graphics assistance for high-resolution rail tie surface inspection and image catching
- CAN bus for getting road-rail truck engine MCU data – such as engine condition, braking and milage information
- CAB bus for CAN-2-ADR data for location data when GPS is unavailable
- A number of digital input/ output ports for signal



detection and digital on/off control for equipment

- Automatic turn on and running with truck ignition sense, without the need for track inspector to manually turn on

"The engineers were really happy to find a solution that had the specifications they needed and fit so well into what they were looking for. As they could get what they needed 'off-the-shelf' as such, integrating the new hardware was much quicker than they expected," says Yao.

"They were also very impressed with our communication. We took the time to understand their field requirements and explain how the technology we provided could help them achieve their goals. Through our discussions they're able to make the most of the technology they now have, and benefit from its features fully."

To date the company has purchased 100 of Sintrones's ABOX-5210 fanless box computers, with plans for more orders in the future.

To find out more about Sintrones and how its customised solutions could meet your rail needs, please visit **https://www.sintroncorp.com** or email **sales@sintroncorp.com**.