

Case Study



Cincoze DX-1100 Enables Railway Signal Control in Trains

Introduction

Operational safety and efficiency are paramount for both traditional trains and modern high-speed railways. In order to improve railway safety, increase train density, process signal inputs, dispatch signals, and manage various devices and equipment, a comprehensive driving control system must integrate software and hardware in trains and operation control centers.

Our customer, an Asian government-owned train operator, was looking for solutions to undertake a rolling stock upgrade project. The operator wanted to upgrade its rail systems by implementing advanced technologies to improve system safety and stability, increase decision-making efficiency, and meet the goal of developing an intelligent railway system.

For our client, the Cincoze DX-1100 provides a rugged edge embedded computing solution that is compliant with rigorous professional standards for the rolling stock environment, playing a key role in processing, connectivity, and control.



Customer's Requirements

High Performance

Signal collection and communication are integral to train control, with signals arriving from driver cabins, traveler cabins, electrical systems, propulsion, and others. It's also important to know the position of moving trains on the track. Therefore, powerful computers with rich communication ports are required to connect the sensors, signal systems, monitors, and GPS, then transmit that data to the control center.

High Reliability

Mission-critical rolling stock computers must provide uninterrupted performance in a harsh operating environment, and be validated to the EN-50155 standards. In addition, the computers need to withstand other factors like shock, vibration, extreme temperatures, electromagnetic interference, and surges.

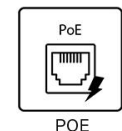
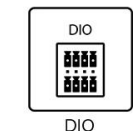
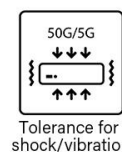
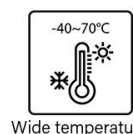
Upgrade Flexibility

Railway systems must be designed with upgrades in mind. Control computers that can easily add new features or functions with modular expansion can really help businesses save costs in the long run and reduce TCO.

Why Cincoze?

Powerful and Versatile

The DX-1100 system is a compact, high-performance embedded computer. It supports a 9th/8th Gen Intel® Xeon® workstation-grade processor and up to 64 GB memory capacity. Although compact, the DX-1100 comes with rich I/O connectors, including 2 x GbE ports, 8 x USB ports, 1 x DVI-I, 1 x DisplayPort, 1 x HDMI, 4 x RS-232/422/485 ports, and a remote power button connector. The system also has a front-accessible SIM card slot for GPRS connection and two hot-swappable 2.5" SSD/HDD slots with RAID 0/1. In addition, DX-1100 provides user-friendly features including instant reboot and integrated SuperCap for easy maintenance.



Rugged Design

DX-1100 has a fanless and cableless design, wide operating temperature (-40°C to 70°C), wide range DC power input (9 V to 48 V), high tolerance of vibration/shock (5G/50G), and industrial-grade protection (OVP, OCP, ESD surge). The DX-1100 has passed various rigorous tests, including EN 50155 (EN 50121-3-2 only) and E-mark certifications for operation in rolling stock and in-vehicle environments.

Modular Expansion

DX-1100 allows users to expand I/O and functionalities through ready-to-use CMI/CFM modules and Mini-PCIe modules, such as GbE/PoE ports, serial ports, M12 connectors, optical isolated digital I/O, and ignition sensing.

For more information, please visit www.cincoze.com, or contact us thru email: info@cincoze.com.

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