Case Study

Cincoze DX-1100 Accelerates Self-driving Car Innovation

Introduction

Self-driving cars are going mainstream, with major automotive makers actively developing this technology. Legal roadblocks slowed early progress, but now many countries have revised regulations and stepped forward to achieve the vision of self-driving vehicles. The US Department of Transportation first released guidelines in 2016 to give direction to developers of self-driving technology. European countries have also granted permission for testing automated cars on public roads.

There is a lot of work and testing to be done to ensure driverless technologies are 100% foolproof. Before that, according to the US Society of Automotive Engineers (SAE), there are still different levels of driving automation. At level 0-2 vehicles use information transmission and driving assistance. At level 3-5 the automatic driving system begins to control the driving. At level 5, the autopilot system takes full control.

Our customer in the US specializes in providing electronic and safety technology solutions for private and commercial vehicles. Its self-driving car department provides software, sensors, and computing services. Its self-driving cars are gradually being tested and are operating in fully restricted or semi-restricted environments such as amusement parks, campuses, industrial areas, and airports in some major cities.

Customer's Requirements

High Performance

In-vehicle computers perform navigation, information transmission, fault analysis, vehicle control and other functions. The cars integrate radars, computer vision, GPS, and odometers to detect their surroundings and rely on high-performance computers and advanced control systems to interpret sensor information to identify navigation paths.

High Reliability

The customer's requirements for the in-vehicle computer are stable operation in the harsh car environment, anti-vibration, wide operating temperature, low electromagnetic interference, and excellent automotive power management.

Wireless Communication

Intelligent vehicles as part of the Internet of Things need to be connected to Wi-Fi/cellular networks for real-time data transmission and communication. The connectivity is utilized for communication between vehicles or to a central control room.

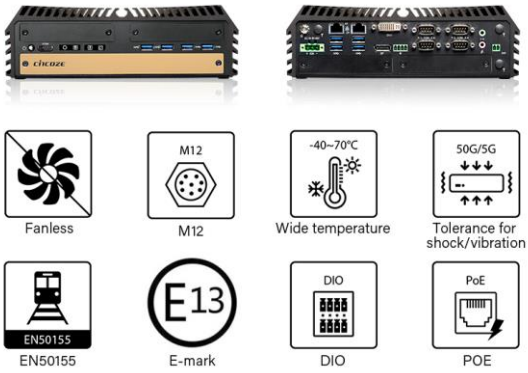
PXE Boot

The in-vehicle computer needs to support Intel® Preboot Execution Environment (PXE) function for remote boot to deploy the PC image.

Why Cincoze?

Compact and Powerful

The DX-1100 has a 9th/8th Gen Intel® Xeon® or Core™ CPU. With a total volume of only 3.2 liters, the DX-1100 fits in space-limited environments such as control cabinets, in-vehicle, and mobile surveillance. Although compact, the DX-1100 features rich I/O interfaces, including 8x USB ports, 4x RS-232/422/485 ports, up to 8x RJ45, M12/PoE, and a remote power button connector. The system also has two front-accessible hot-swappable 2.5” drive bays with RAID 0/1.



Rugged Reliability

The DX-1100 is a rugged computer for the toughest environments. It has a fanless and cableless design. It features high vibration and shock tolerances (5G/50G), a wide operating temperature (-40°C to 70°C), and a wide input voltage (9 V to 48 V). The Ignition Sensing module allows automatic on/off delays to protect from automotive power fluctuations. DX-1100 passed industry certifications, including EN 50155 (EN 50121-3-2 only) and E-mark.

Wireless Connectivity

DX-1100 provides a Mini PCIe slot that allows Wi-Fi connectivity and one M.2 E key type 2230 socket to support Intel® CNVi technology. It also offers a SIM card slot on the front I/O to support 4G LTE connections.

Customized BIOS Service

Cincoze’s customized BIOS service can implement many specific features such as PXE Boot to let customers tailor their products to fulfill different industrial applications.

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