

EDGE AI COMPUTER

For visual automotive applications

The NRU-110V computer by Neosys (Taiwan) supports eight automotive cameras and one isolated CAN interface for in-vehicle communication.



The solution includes on-board GMSL deserializers, and a pre-installed board support package for selected cameras (Source: Neosys)

lighting conditions, from rainy or bright sunny days to pitch-black nights. The computer requires a power supply of 8 V_{DC} to 35 V_{DC} and operates at temperatures from -25 °C to +70 °C. The design with 30 W of power consumption is suited to extend operation time for battery-powered machines, such as autonomous mobile robots (AMR). The PC is dedicated for AI-based vision applications that require continuous interaction with surroundings, such as AMR, ADAS (advanced driver assistance systems), V2X (vehicle-to-any communication), etc.

The device integrates the Nvidia Jetson AGX Xavier system-on-module comprising the Volta GPU (graphic processing unit) and the Carmel CPU (central processing unit). By incorporating a 10-Gbit/s Ethernet interface, the computer can act as a camera sensor hub by streaming real-time images to another similar computer. In addition to the CAN interface, the device supports one EIA-232 port for GPS (global positioning system) input and isolated digital I/Os (3/4) for connection of sensors and actuators. The GPS pulse-per-second (PPS) input supports time synchronization among multiple platforms. Three USB interfaces and one mini PCIe socket for the Wifi or the 4 G mobile network module are offered. For data storage, a 32-GiB eMMC (on the Xavier module) and an M.2 2280 NVMe socket for SSD (solid state drive) read/write performance are available.

The video input of the device supports commercial off-the-shelf (COTS) automotive cameras. It features the water-proof ability, high dynamic range, auto white balance, and LED flickering mitigation. Thus, the image quality does not depend on the

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