CAN *Newsletter Online*

INDUSTRIAL PCS

Controlling AI edge applications

Aaeon launched the CAN-connectable Boxer-8233AI, Boxer-8240AI, Boxer-8253AI, and Boxer-8254AI IPCs. The company's recent Gene-EHL5 subcompact board with CAN and 5G connectivity is made to meet edge applications.

The Boxer-8240AI features the Nvidia Jetson AGX Xavier module (Source: Aaeon)

For example, the Boxer-8240AI embedded AI (artificial intelligence) edge system features the Nvidia Jetson AGX Xavier module. The latter includes the Volta GPU (graphics processing unit), which packs 512 Cuda cores and 64 Tensor cores, offering AI (artificial intelligence) processing speeds up to 32 Tops (Tera operations per second). The fanless IPC design allows to operate in ambient temperatures from -10 °C to +55 °C without a loss in performance while keeping out dust and other contaminants.

The device's I/O range includes CAN, two EIA-485, and different-generation USB interfaces. The four 1-Gbit/s PoE (power over Ethernet) ports are available for powering connected cameras while ensuring delay-free streaming for real-time video processing. The PC also features a 40-pin I/O connector and audio line in (microphone) and out ports. Expandability is given with an M.2 slot used e.g. for wireless communication such as Wifi. This enables the PC to be deployed as an Edge network gateway.

Example applications include powering a single demanding task such as AGV (automated guided vehicle) pathfinding, collision avoidance for smart factory robots, or simultaneously running of multiple AI inferences to provide security and crowd monitoring.

Single board computer (SBC) with 5G

For IOV (Internet of vehicles) or telematics applications, the SBC provides two CAN ports allowing implementations of smart vehicle software (Source: Aaeon)

The Gene-EHL5 is a 3,5-inch sub-compact board made to meet the next-generation edge applications in the 5G era, according to the company. Powered by Intel Atom x6000E series, Pentium, or Celeron N and J series processors (formerly Elkhart Lake), it delivers up to 40 % greater performance than previous generation platforms, claimed the manufacturer. The board comes with four M.2 expansion slots, doubling the previous generations. Enabling connection to a 5G module via one of the M.2 slot and Nano SIM slots, the board can be deployed in telecommunication applications. To meet balance of performance and budget, memory options are offered. For IOV (Internet of vehicles) or telematics applications, the component provides two CAN ports allowing the implementations of smart vehicle software. The SBC comes with dual 1-Gbit/s Ethernet controllers for industrial LAN connectivity.

Enabling an AI module connection via the M.2 expansion slot, the board offers the AI edge computing capability for applications in medical devices. It can also be customized to meet specific requirements of versatile and scalable POS (point of sale) terminals. Support of a high-resolution display enables the use in digital signage applications. The upgraded computing and graphics performance, multiple display outputs, and optional touch-controller allow to accelerate the design-in for robust panel PCs. Additionally, expansion with an AI acceleration module via the M.2 socket permits to boost facial recognition and identity management capability.