

PTedge A55-SD

Software-Defined Vehicle development kit

A55-SD is a development kit specifically targeting software-defined industrial vehicle applications, designed to showcase our hardware and software frameworks. The kit enables customers to start development early on a proven and well-integrated platform, reducing development risk and accelerating time to market.



Software-Defined Vehicle applications

A55-SD is a development platform for a Central High-Performance Computer (cHPC) designed for next-generation industrial vehicle applications. It enables the implementation and evaluation of Software-Defined Vehicle (SDV) architectures, where the majority of the vehicle software applications are consolidated and executed on a centralized computing platform. The cHPC communicates with distributed zonal controllers via Automotive Ethernet and CAN networks, providing a scalable and future-proof architecture for advanced vehicle functions.

A Software-Defined Vehicle architecture powered by a cHPC delivers significant advantages for industrial vehicles:

- Accelerated innovation through continuous deployment of new features and functionality
- Over-the-Air (OTA) software updates for efficient remote maintenance and upgrades
- Simplified vehicle architecture through ECU consolidation and reduced wiring harness complexity
- Centralized software management, improving maintainability, scalability, and lifecycle support
- Enhanced computing performance for advanced automation, connectivity, and data-driven applications
- Reduced system complexity and cost through the integration of multiple domain functions on a single platform

Time-Sensitive Networking

A55-SD provides advanced Ethernet connectivity with built-in TSN support, enabling deterministic, low-latency, and highly reliable communication over Automotive Ethernet infrastructure. This makes the platform well suited for industrial, automotive, and edge applications where predictable data delivery and precise time synchronization are critical.

PRODUCT FEATURES



Wireless
communication



Scalable



AI enabled



Time-Sensitive
Networking

Processing & Memory

Microprocessor	NXP i.MX956
CPU Cores	Hexa-core ARM Cortex-A55 1x AMR Cortex-M7 + Cortex-M33 Neural Processing Unit
Memory	4GB LPDDR5
Storage	16GB High-speed eMMC (HS-400)
AIPU	Axeleris Metis LPDDR4

Interfaces

Ethernet	2x 1000BASE-T1 with TSN 1x SFP+ cage
CAN	4x CAN 2.0 up to 1Mbit/s
Serial	RS485, RS232
USB	2x USB Type C
Video In/Out	2x GMSL2 camera input 1x HDMI out
Audio	1x Line In/Out
Expansion slots	1x M.2 E-key 1x M.2 M-key (prepared for AI accelerator module)

Wireless

Local	WiFi 6 Bluetooth low Energy 5.4
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Sensors & Peripherals

RTC	1x Real-Time Clock
IMU	1x Accelerometer / Gyroscope
Temperature	4x on-board temperature sensor
Power Input	Voltage/Current monitoring

Input/Output

4x Digital Input/Output

Power Input

Nominal voltages	9-36 V DC
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Regulatory

On request

Information subject to change, contact us for more details:

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