Quad-Core Cortex-A72 IIoT Gateway for Edge Computing

Matrix-900

Features

- High-Performance Empowering Intelligent Edge Computing
- Rugged Design for Advanced Industrial Internet of Things (IIoT) Applications
- Broadcom BCM2711, Quad Core ARM Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
- Onboard 4GB LPDDR4 and 16GB eMMC
- Dual LANs: 1 x Gigabit Ethernet and 1 x 10/100Mbps Ethernet
- 4 x RS-485 Serial Ports
- 1 x HDMI Interface and 1 x Audio Interface
- 2 x USB (Type A) Ports
- Reserved 1 x miniPCIe Slot and 1 x M.2 Slot
- 1 x Micro-SD Socket Internally
- Wide-Range Temperature Operating
- Protective Earthing Design with Chassis Ground Screw
- DIN-Rail Mounting, Optional Wall-Mounting

■ Introduction

Matrix-900, a cutting-edge embedded computing platform designed for advanced Industrial Internet of Things (IIoT) applications. Leveraging the powerful Raspberry Pi Compute Module 4, Matrix-900 is engineered to meet the demands of modern industrial environments with superior performance, flexibility, and reliability.
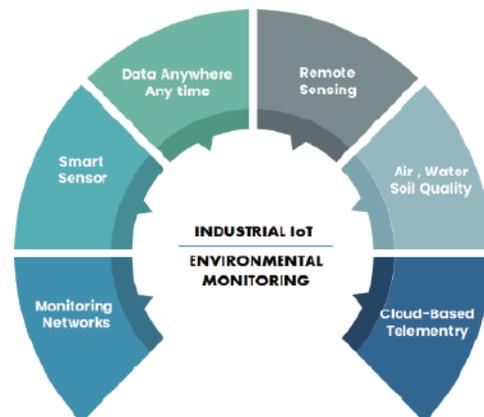
■ Benefits

- **Fanless Design:** Silent, ensures, energy-efficient, and reliable 24/7 operation.
- **Rich I/O:** Dual Ethernet, four RS-485 ports -- Ideal for IIoT gateways and protocol conversion.
- **Expansion Capability:** M.2 B Key Slot (PCIe): Supports SSD, 5G modules, and AI accelerators up to 26 TOPS.
- **Multimedia Ready:** HDMI, USB ports, and audio out for easy desktop use.

■ Applications

Powerful Edge AI Computing Platform

Matrix-900 powers Industrial IoT (IIoT) automation by processing data closer to the source -- at the edge of the network.
In smart factories, energy monitoring, and remote equipment management, edge computing allows IIoT devices to operate efficiently and autonomously.

Intelligent Management for Environment Monitoring

Techniques designed to observe an environment, characterize its quality, and establish environmental parameters, accurately quantifying the impact an activity has on an environment.

Artila

■ Specifications

CPU / Memory

- SoM: Raspberry Pi Compute Module 4
- Processor: BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC
- Frequency: Up to 1.5GHz
- SDRAM: 4GB LPDDR4
- Flash: 16GB eMMC
- By design, the Matrix-900 does not support booting from an SD card

HDMI Display Port

- 1 x HDMI display port
- HDMI 2.0 compliant, up to 4K@60fps
- Connector: HDMI Type A (standard)

Network Interface

- LAN: 2
- Type: 1 x Gigabit ethernet and 1 x 10/100Mbps ethernet
- Connector Type: RJ45

Serial Port

- 4 x RS-485 serial ports (non-isolation)
- Termination resistor: 120ohm (disable as default)
- Auto direction control: YES
- Signal: RS-485 (Data+, Data-)
- Connector: Terminal block
- LED Indicator: YES

Debug / Console Port (internally)

- 1 x serial debug / console port (UART interface)
- Connector: 4-pin wafer
- Authoring & Debug

Flashing Port (for image update only)

- 1 x System image flashing port
- Connector: USB connector
- Flashing port is dedicated exclusively for firmware or image flashing. It is not intended for regular USB communication or peripheral connection

General

- WatchDog (WDT): YES
- Real-Time Clock (RTC): YES, backup by SuperCap or external battery
- Power Input: +9~+48 VDC (terminal block)
- Indicator: PWR, READY, RS-485
- Dimensions (WxLxH): 45 x 166 x 120mm (1.77 x 6.53 x 4.72in)
- Net Weight: 686g (1.51lb)
- Operating Temperature: 0~70°C (32~158°F)
- Regulation: CE Class A, FCC Class A
- Installation: DIN-rail mounting & wall mounting

Audio

- Stereo audio codec: TI TLV320
- Type: Stereo audio out and microphone in
- Connector: Audio Jack, 4 pole, 3.5mm

SD Slot

- 1x Micro-SD socket inside, SD 2.0 compliant, support SDHC

Expansion (M.2)

- 1 x M.2 slot
- Interface: PCIe 1-Lane, Gen2
- Form factor: B-Key
- Module size support 30x52mm
- Reserved 1x nano-SIM socket for RF module

Expansion (miniPCIe)

- 1 x miniPCIe slot (full-size)
- Interface: USB 2.0
- Reserved 1x nano-SIM socket for RF module

USB Interface

- Type: 2 x USB 2.0 ports
- Connector: Type A

■ Ordering Information

Matrix-900

- Quad-core Cortex-A72 Industrial IoT Gateway for Edge Computing with Raspberry Pi OS

■ Mounting

Wall-Mounting
Ground Screw
DIN Rail (30mm)

■ Dimension (unit:mm)

166
120
45

Artila