EBox-AIO-008 Multi-I/O IoT-Application Controller

ver. 1.0

- ☑ **ARM® Cortex®-A7 64-bit multi-core RISC low power consumption**
- ☑ **9~24VDC Working Power Input**
- ☑ **2-ch 100Mbps Ethernet Communication Interface**
- ☑ **8-ch RS-485 serial equipment data transmission communication**
- ☑ **RS-485 2KV Isolation protection**
- ☑ **GPS Positioning/time calibration function**
- ☑ **M.2 SSD Storage function**
- ☑ **10 Digital Input/ Output Control Points (GPIO)**
- ☑ **Expandable 4G、5G / Wi-Fi / NB-IoT / LoRa function**
- ☑ **Embedded Linux Operating System**

Product Features

☒ ARM® Cortex®-A7 RISC low power consumption architecture, high stability

EBox-AIO-008 adopts 1.2-GHz ARM Cortex®-A7 64-Bit 4-core RISC Processor, with 512MB DDR3 SDRAM、8GB eMMC as system core，With built-in 4.14.x embedded Linux operating system，it is suitable for low power consumption and high communication performance requirements for industrial automation applications。

☒ Multifunctional communication

EBox-AIO-008 has 2 sets of Ethernet interface and 802.11 Wi-Fi or 4G wireless network interface expandable via built-in mini-PCIe interface to make network communication seamless。

☒ Complete wireless communication expansion

EBox-AIO-008 has 4G/5G mobile communication, Wi-Fi, NB-IoT, LoRa, etc. wireless communication expansion functions, just install the corresponding expansion module, EBox-AIO-008 can add the required wireless communication ability immediately。

Exterior schematic diagram

(Top View)

(Lateral View)

☒ Fully protected RS-485 communication interface

EBox-AIO-008 has 8 sets of 921.6Kbps high-speed RS-485 serial port interface with ability to connect 128 multi-drop nodes。

EBox-AIO-008's RS-485 communication interface, with 2KV signal isolation protection and 400W surge protection, which is suitable for long-distance communication needs.

☒ Complete expansion storage function

EBox-AIO-008 has a MicroSD slot and a SATA III SSD M.2 slot. Whether it is a small-capacity SD card or a large-capacity hard drive, it can be installed in EBox-AIO-008 to increase data storage space。

☒ Built-in GPS function

The built-in GPS function of EBox-AIO-008 not only provides positioning function, but also meets the needs of current high-end applications to synchronize the time through GPS.

☒ Complete digital signal control interface(Digital I/O)

EBox-AIO-008 has 10-point GPIO digital control signal interface which could be set as Digital Input or Digital Output through the program to be used with a variety of I / O adapter board, easy to reach the proximal control applications。

☒ Simple and easy human machine interface

EBox-AIO-008 includes a DIP Switch, Tack Button etc. input determining function, and simple sound and light effects such as LED and Beeper that can be controlled by process.

EBox-AIO-008 also has an audio output interface, which can be used for music and voice broadcast applications。

☒ Suitable for various High-level programming language

With built-in Linux 4.14.x embedded Linux operating system，EBox-AIO-008 supports the most recent popular High-level programming language, such as Python、Java、Scratch、NodeJS etc.，allowing developers to set up or porting applications in EBox-AIO-008 rapidly。

It also supports traditional C/C++ programs for those applications need to process lower level and higher speed I/O action or response。

Product specifications

Hardware

Core

▷ CPU：Allwinner H3 1.2GHz (Cortex®-A7)

▷ Memory：512MB DDR3 SDRAM、8GMB eMMC Flash

Network Interface

▷ Quantity：2

▷ Type：10/100BaseT Ethernet

▷ Connector：RJ45

RS-485 Serial interface

▷ Quantity：8

▷ RS-485 Signal：Data+, Data-, GND

▷ Multi-Drop Nodes：128 (1/4 Load)

▷ Built-in Terminal Resistor：120/600 Ω，By DIP Switch

▷ Pull High/Low Resistor：1K/10K Ω，By DIP Switch

▷ Protection：2KV Isolation protection, 2KV ESD Static protection, 400W Surge protection

▷ Connector：5.00mm 3-pin pluggable terminal block　x 8

Serial Port communication parameters

▷ Baud Rate：300 ~921,600 bps

▷ Parity：None, Even, Odd, Mark, Space

▷ Data Bits：5, 6, 7, 8

▷ Stop Bit：1, 1.5, 2 bits

Wireless network expansion interface

▷ Quantity：1 (need to open the case)

▷ Connector：mini-PCIe socket x1, SIM Card x1

▷ Function：4G、5G、NB-IoT、Wi-Fi Network comm. Module

GPS

▷ Quantity：1

▷ Signal：GPS/BDS/GLONASS

USB

▷ Quantity：1

▷ Type：USB 2.0

▷ Connector：USB Host Type A x 1

SSD Hard drive Interface

▷ Quantity：1 (need to open the case)

▷ Type：SATA III

▷ Connector：M.2 2242

SD expansion interface

▷ Quantity：1 (need to open the case)

▷ Connector：Micro SD slot

Digital Control (GPIO)

▷ Points：17

▷ Signal Type：3.3V CMOS

▷ 2x10 2.54mm Simple box header x 10 GPIO

▷ DIP Switch x 2 GPIO

▷ Tack Button x 1 GPIO

▷ Beeper x 1 GPIO

▷ LED x 3 GPIO

Human Interface

▷ Audio Output：3.MM Stereo

▷ LED indicator：power, network, serial port, user defined

▷ Buzzer：1

Debug Console interface

▷ Quantity：1

▷ Signal：UART/TTL (TxD, RxD, GND)

▷ Connector：3-pin 2.54 mm contact

Mechanism

▷ Size：245 x 140 x 35 mm (terminal block excl.)

▷ Material：galvanized steel sheet

Power

▷ Working Voltage：DC 9-24VDC

▷ Power Connector：5.00mm pluggable terminal block

▷ Power Consumption：< 10W (not include USB device)

▷ DC Output for FAN：5V (0.1A max.) 2.54 mm 3-pin contact

Others

▷ Real Time Clock (RTC)：1

▷ Real Time Clock Battery Holder：CR1220

▷ Applicable temperature：-20~70□

▷ Applicable humidity：20%~80% RHG

▷ Certification：CE, FCC

Software

Core

▷ OS: Linux kernel 4.14.x

Pre-Installed Services

▷ SSH terminal server, ftp server, python, gcc, g++, apt-get, lld-IP searched

Purchasing Information

▷ **EBox-AIO-008**　　　　Multi-I/O IoT-Application Controller

Content：　EBOX-AIO-008，QIG x 1