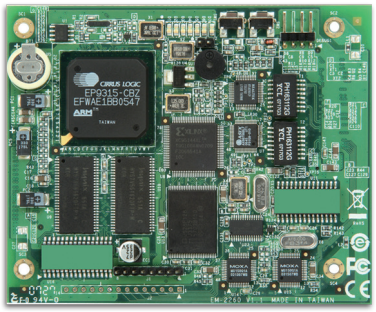
EM-2260 Series

RISC embedded core modules with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB



- Cirrus Logic EP9315 ARM9 CPU, 200 MHz
- 128 MB RAM onboard, 32 MB flash disk
- Graphical interface for external VGA output connection
- 2 kV optically isolated RS-232/422/485 serial ports
- Dual 10/100 Mbps Ethernet ports for network redundancy
- 8 DI and 8 DO channels
- Supports CompactFlash and USB 2.0 hosts
- Ready-to-run WinCE 6.0 platform
- Full-function development kit for quick evaluation and application development

Overview

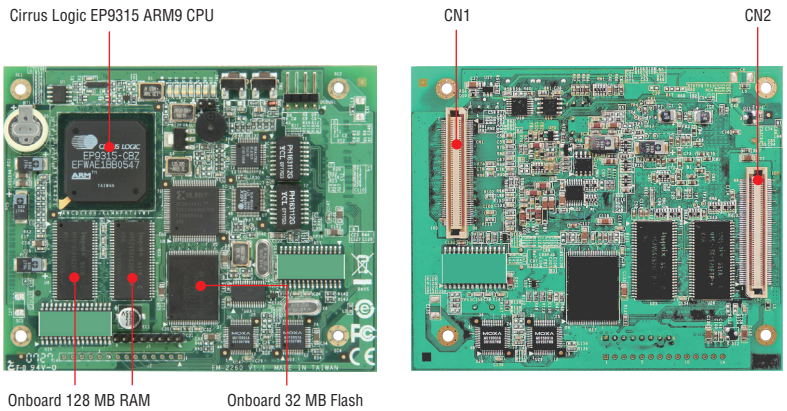
The EM-2260 embedded module features 4 RS-232/422/485 serial ports, dual Ethernet ports, and an EIDE interface for designing an external storage connection, such as a CompactFlash socket or USB port signals. The module has a compact design that is easily integrated with a variety of industrial applications, including gas stations, vending machines, and ticketing machines, and offers a powerful serial communication capability for better system integration. Programmers will find the pre-installed, ready-to-run Windows CE 6.0 platform and full-function development kit a great benefit when developing software and building reliable communication bases for industrial automation applications.

The EM-2260 embedded module uses the Cirrus Logic EP9315 ARM9, 32-bit, 200 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but will not generate a lot of heat. The built-in 32 MB NOR Flash ROM and 128 MB SDRAM give you enough memory to run your application software directly on the EM-2260. With its built-in VGA output interface, the EM-2260 is suitable for use with SCADA systems in industrial applications, such as manufacturing automation, production line process monitoring, and mining automation, that require VGA and HMI features.

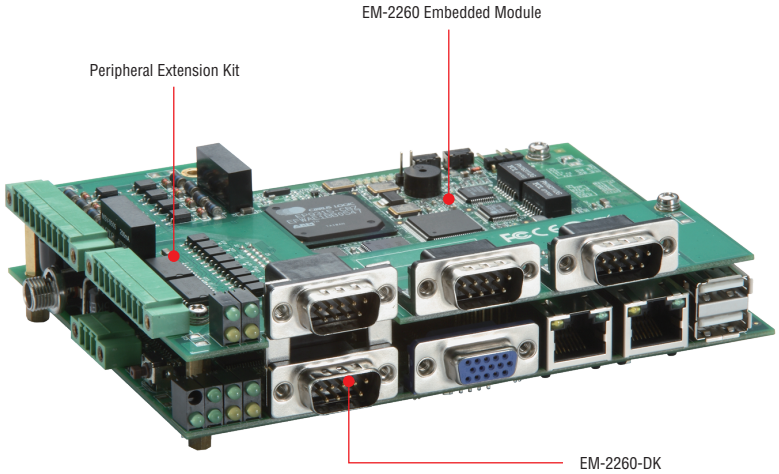
The EM-2260 Development Kit provides users with a handy tool for first time evaluation to test the functionality of the embedded core module. It has several peripherals built-in, including RS-232/422/485 ports and digital input and output, making it suitable for developing a variety of industrial applications.

Appearance

EM-2260 Embedded Module



Development Kit



Hardware Specifications

Computer
CPU: Cirrus Logic EP9315 ARM9 CPU, 200 MHz
DRAM: SDRAM, 128 MB
Flash: NOR Flash, 32 MB
OS (pre-installed): Linux or Windows CE 6.0

Storage
Storage Expansion: EIDE interface for connecting up to 2 external devices

Display
Graphics Controller: EP9315 internal graphics accelerator engine with TTL graphical signal support
Display Memory: Dynamic video memory (shares system memory)
Resolution: 1024 x 768, 8 bits

Ethernet Interface
LAN: Auto-sensing 10/100 Mbps ports (RJ45) x 2
Magnetic Isolation Protection: 1.5 kV built-in

Serial Interface
Serial Standards: RS-232/422/485 ports x 4, software-selectable
Console Port: RS-232 (TxD, RxD, GND), 4-pin pin header output

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485
Baudrate: 50 bps to 921.6 kbps (supports nonstandard baudrates; see user's manual for details)

Serial Signals
TTL: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND

Digital Input
Input Channels: DI x 8
Input Voltage: 3.3 V, CMOS level

Digital Output
Output Channels: DO x 8
Digital Output Levels: 3.3 V, CMOS level

Switches and Buttons
Reset Button: Supports "Reset to Factory Default"

Physical Characteristics
Weight: 70 g (0.16 lb)
Dimensions: 106 x 87 mm (4.17 x 3.43 in)

Environmental Limits
Operating Temperature: -10 to 60°C (14 to 140°F)
Storage Temperature: -20 to 80°C (-4 to 176°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements
Input Voltage: 12 VDC
Input Current: 480 mA @ 12 VDC
Power Consumption: 5.8 W

Standards and Certifications
EMC: EN 55032 Class A, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A
Green Product: RoHS, CRoHS, WEEE

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)

MTBF (mean time between failures)
Time: 131,832 hrs
Standard: Telcordia (Bellcore) Standard

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Software Specifications

Linux

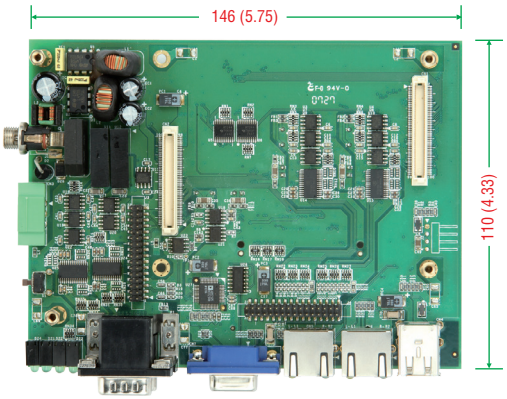
OS: Linux 2.6.23
Web Server (Apache): Allows you to create and manage web sites
Terminal Server (SSH): Provides secure encrypted communications between two untrusted hosts over an unsecure network
File System: JFFS2, NFS, Ext2, Ext3
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1/v2c/v3, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, Telnet, FTP, TFTP, PPP, PPPoE
Internet Security: OpenVPN, IPTables Firewall
Dial-up Networking: PPP Daemon (pppd) for Linux that uses the PPP protocol and allows Unix machines to connect to the Internet as PPP servers or clients, through dialup. The PPP Daemon works with chat, dip, and diald programs among others, and supports the IP, TCP, UDP, and IPX for Linux (Novell) protocols.
Watchdog: Features a hardware function to trigger system reset based on a user-specified time interval (Moxa API provided)
Application Development Software:
• Moxa API Library (Watchdog timer, Moxa serial I/O control, Moxa DI/DO API)
• GNU C/C++ cross-compiler
• GNU C library
• GDB source-level debugging server
Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

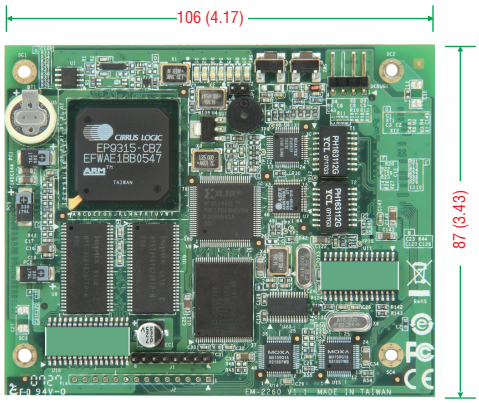
Windows Embedded CE 6.0

OS: Windows Embedded CE 6.0
File System: FAT (for onboard flash)
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP
Web Server (WinCE IIS): Supports ASP, ISAPI Secure Socket Layer (SSL 2/3) and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions
Dial-up Networking: Supports RAS client API and PPP, Extensible Authentication Protocol (EAP), and RAS scripting
File Server: Enables remote clients to access files and other resources over the network
Watchdog: Features a hardware function to trigger system reset based on a user-specified time interval. (Moxa API provided)
Application Development Software:
• Moxa WinCE 6.0 SDK
• Moxa API Library
• C Libraries and Run-times
• Component Services (COM and DCOM)
• Microsoft® .NET Compact Framework 2.0
• XML, including DOM, XQL, XPATH, XSLT, SAX, SAX2
• SOAP Toolkit Client
• Winsock 2.2

Dimensions

Unit: mm (inch)





Ordering Information

Available Models

EM-2260-CE: RISC-based embedded core module with 4 serial ports, 8 DI and 8 DO channels, dual LANs, VGA, CompactFlash, USB, WinCE 6.0 OS
EM-2260-LX: RISC-based embedded core module with 4 serial ports, 8 DI and 8 DO channels, dual LANs, VGA, CompactFlash, USB, Linux OS

Development Kits (can be purchased separately)

EM-2260-CE Development Kit: Includes the EM-2260-CE module and EM-2260-DK carrier board for testing and application development
EM-2260-LX Development Kit: Includes the EM-2260-LX module and EM-2260-DK carrier board for testing and application development

Package Checklist (modules)

- EM-2260-CE or EM-2260-LX module

Package Checklist (development kits)

- EM-2260 module
- EM-2260-DK, the carrier board for the EM-2260 module
- Universal power adapter set
- Ethernet cable: RJ45-to-RJ45 cross-over cable, 100 cm
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card