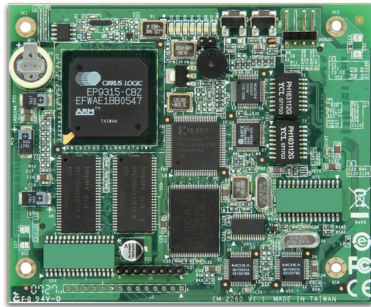


# EM-2260 Series

**RISC embedded core modules with 4 serial port DI/DO, dual LANs, VGA, CompactFlash, USB**



- > Cirrus Logic EP9315 ARM9 CPU, 200 MHz
- > 128 MB RAM on-board, 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 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, an EIDE interface for designing an external storage connection, such as a CompactFlash socket and 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 to developing software and building reliable communication bases for industrial automation applications.

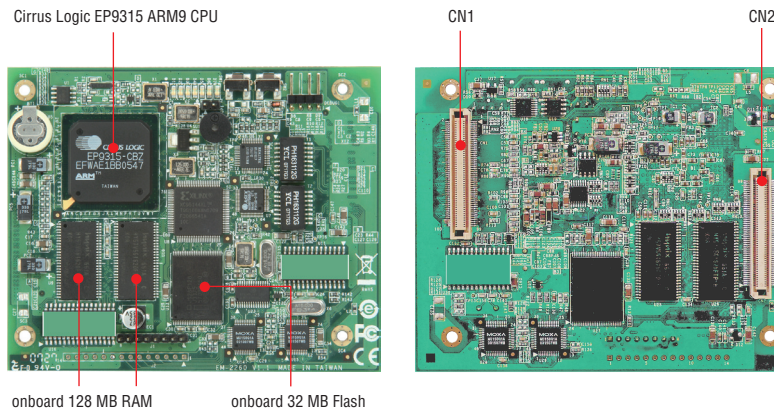
The EM-2260 embedded module uses the Cirrus Logic EP9315 ARM9, 32-bit, 200 MHz RISC CPU. This powerful computing engine supports

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.

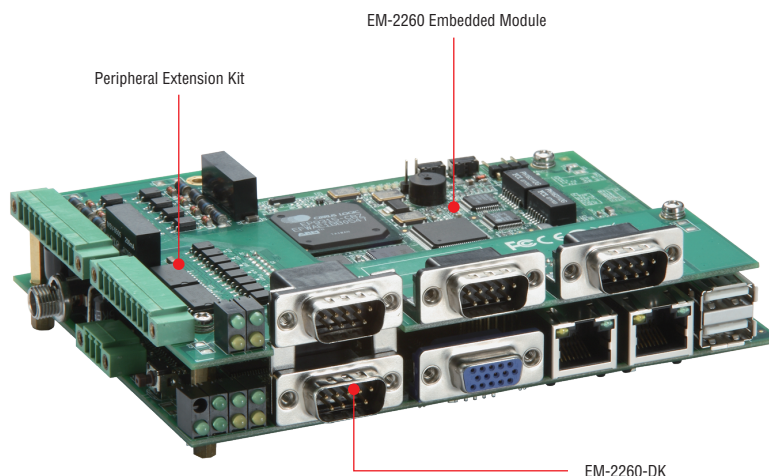
The EM-2260 Development Kit provides users with a handy tool for first time evaluation to test the functionality of the embedded core module. It has several peripherals built-in, including RS-232/422/485 ports and digital input and output, making it suitable for developing a variety of industrial applications.

## Appearance

### EM-2260 Embedded Module



## Development Kit



## Hardware Specifications

### Computer

**CPU:** Cirrus Logik EP9315 ARM9 CPU, 200 MHz

**OS (pre-installed):** Windows CE 6.0 or Linux

**DRAM:** 128 MB onboard

**Flash:** 32 MB

### 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:** 2 auto-sensing 10/100 Mbps ports (RJ45)

**Magnetic Isolation Protection:** 1.5 kV built-in

### Serial Interface

**Serial Standards:** 4 RS-232/422/485 ports, software-selectable

**Console Port:** RS-232 (TxD, RxD, GND), 4-pin pin header output (115200, n, 8, 1)

### 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 non-standard 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:** 8

**Input Voltage:** 3.3 V, CMOS level

### Digital Output

**Output Channels:** 8

**Digital Output Levels:** 3.3 V, CMOS level

EM-2260 Embedded Module

Peripheral Extension Kit

EM-2260-DK

### Switches and Buttons

**Reset Button:** Supports "Reset to Factory Default"

### Physical Characteristics

**Weight:** 70 g

**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

**Power Consumption:** 5.8 W (480 mA @ 12 VDC)

### Standards and Certifications

**EMC:** EN 55022 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 (meantime between failures):** 131,832 hrs

### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Software Specifications

### Linux

**OS:** Linux 2.6.23

**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

**Web Server (Apache):** Allows you to create and manage web sites

**Terminal Server (SSH):** Provides secure encrypted communications between two un-trusted hosts over an insecure network

**Dial-up Networking:** PPP Daemon for Linux that allows Unix machines to connect to the Internet through dialup lines, using the PPP protocol, as a PPP server or client. Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP, and (for Linux) IPX (Novell).

**Watchdog:** Features a hardware function to trigger system reset in a user specified time interval (Moxa 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 on-board 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

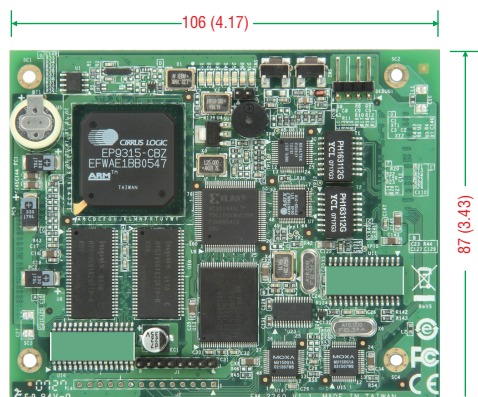
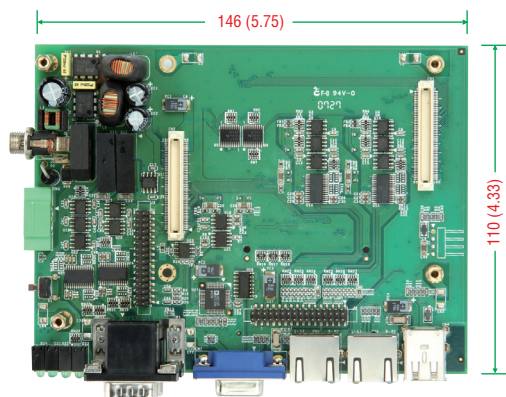
**File Server:** Enables remote clients to access files and other resources over the network

**Watchdog:** Features a hardware function to trigger system reset in 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 adaptor set
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card