

EM-1240 Series

RISC ready-to-run embedded core modules with 4 serial ports, dual LANs, SD



- > MOXA ART ARM9 32-bit 192 MHz processor
- > 16 MB RAM, 8 MB flash disk on-board
- > 4 software-selectable RS-232/422/485 serial ports
- > Dual 10/100 Mbps Ethernet for network redundancy
- > SD signals supported for external SD socket connection
- > Built-in RTC, buzzer
- > 10 GPIOs reserved for system integration
- > Ready-to-run μ Linux Kernel 2.6 platform
- > Full-function development kit for quick evaluation and application development
- > -40 to 75°C wide temperature models available



Overview

The EM-1240 embedded module features 4 RS-232/422/485 serial ports, dual Ethernet ports, and an SD socket for external storage expansion. The modules have a compact design that can be easily integrated with industrial applications such as gas stations, vending machines, and ticketing machines, and offer a powerful serial communication capability for better system integration. Programmers

will find that the pre-installed, ready-to-run μ Linux platform and the full-function development kit make it easy to develop software and build a reliable communication base for industrial automation applications. In addition, a wide temperature model is also available to provide a reliable solution for any harsh environment

Appearance

EM-1240 Embedded Module

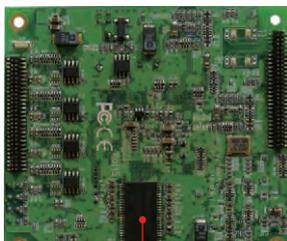
Top View

MOXA ART ARM9 32-bit
Communication Processor

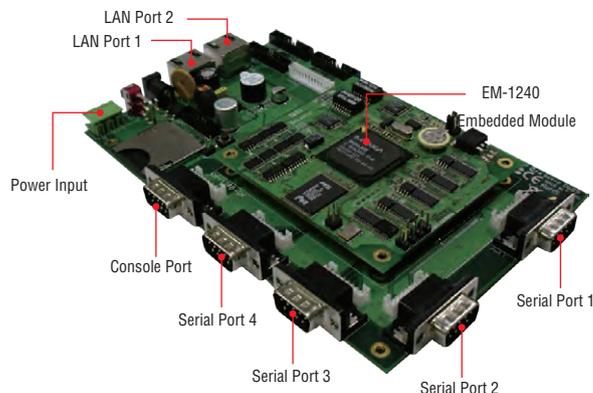


onboard Intel NOR Flash 8 MB

Bottom View



Development Kit



Hardware Specifications

Computer

CPU: MOXA ART ARM9 32-bit 192 MHz processor
OS (pre-installed): Embedded μ Clinix (kernel 2.6.19)
DRAM: 16 MB onboard
Flash: 8 MB onboard

Storage

Storage Expansion: SD signals for external Secure Digital (SD) socket connection

Ethernet Interface

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

Serial Interface

Serial Standards: RS-232/422/485, software-selectable, 4 ports
ESD Protection: 15 kV for all signals
Console Port: RS-232 (all signals), RJ45 connector, supports PPP

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

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

LEDs

System: Ready
LAN: 10M/Link x 2, 100M/Link x 2
Serial: TxD x 2, RxD x 2

Physical Characteristics

Weight:

- EM-1240 Module: 50 g
- EM-1240 Development Kit: 200 g

Dimensions:

- EM-1240 Module: 90 x 80 mm (3.54 x 3.15 in)
- EM-1240 Development Kit: 177 x 115 mm (6.97 x 4.53 in)

Module Interface

Environmental Limits

Operating Temperature:

Standard Models: -10 to 60°C (14 to 140°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F)

Storage Temperature:

Standard Models: -20 to 80°C (-4 to 176°F)

Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 5 VDC

Power Consumption: 2.5 W (500 mA @ 5 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

Reliability

Alert Tools: Built-in buzzer and RTC (real-time clock)

Automatic Reboot Trigger: Built-in WDT (watchdog timer)

MTBF (mean time between failures): 152,222 hrs

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adaptor and cables.

Software Specifications

μ Clinix

Kernel Version: 2.6.19

Protocol Stack: ARP, ICMP, IPV4, TCP, UDP, FTP, Telnet, SNMP V1, HTTP, CHAP, PAP, DHCP, NTP, NFS V2, SMTP, Telnet, PPP, PPPoE

File System: JFFS2, root file system (read only), and user directory (read/write)

System Utilities: msh, busybox, tinylogin, telnet, ftp

pppd: Dial in/out over serial port daemon, including PPPoE (Point-to-Point over Ethernet)

snmpd: SNMP V1 Agent daemon

telnetd: Telnet server daemon

inetd: TCP server manager program

ftpd: FTP server program

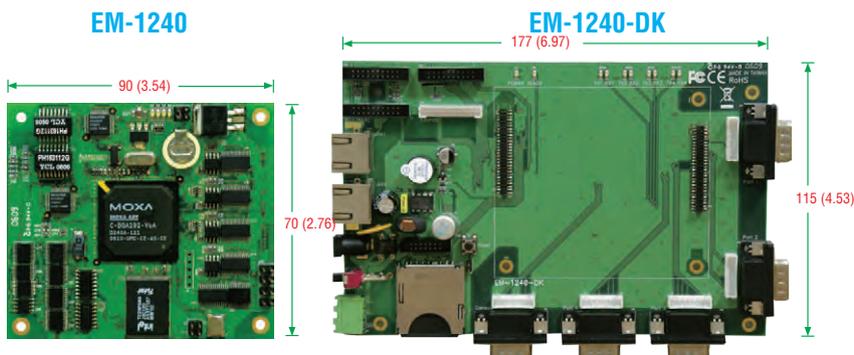
boa: Web server daemon

ntpd: Network Time Protocol client utility

Tool Chain:

- Arm-elf-gcc: C/C++ PC Cross Compiler
- μ CLibc: POSIX standard C library

Dimensions



Unit: mm (inch)

Ordering Information

Available Modules

EM-1240-LX: RISC-based embedded core module with 4 serial ports, dual LANs, SD, μ Clinux OS, -10 to 60°C operating temperature

EM-1240-T-LX: RISC-based embedded core module with 4 serial ports, dual LANs, SD, μ Clinux, -40 to 75°C operating temperature

Development Kits (can be purchased separately)

EM-1240 Development Kit: Includes the EM-1240-DK snap-on testing board with built-in RJ45 LAN ports and DB9 male serial ports

Package Checklist (modules)

- EM-1240 module

Package Checklist (development kits)

- EM-1240 module
- EM-1240-DK, the carrier board for the EM-1240 module
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- Universal power adaptor (including terminal block to power jack converter)
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card