


EM-1220

New





RISC-based Ready-to-Run Embedded Core Module with 2 Serial Ports, Dual LANs, SD, μ Clinux



Wide Temperature

Features

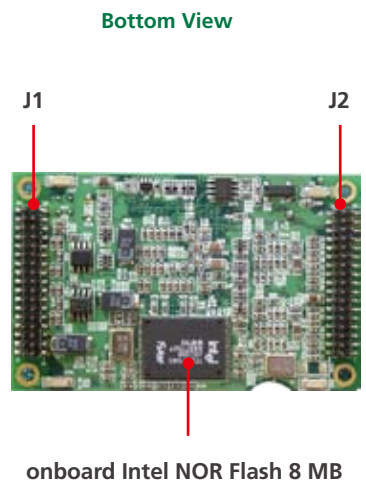
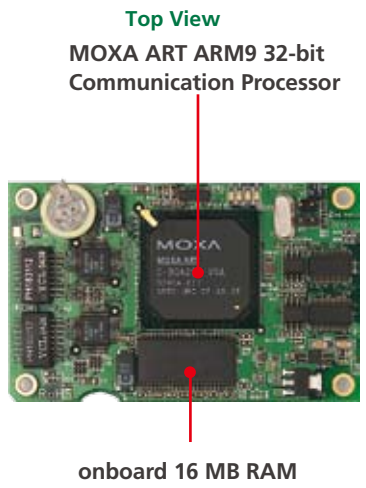
- > MOXA ART ARM9 32-bit 192 MHz processor
- > On-board 16 MB RAM, 8 MB flash disk
- > 2 software-selectable RS-232/422/485 serial ports
- > Dual 10/100 Mbps Ethernet for network redundancy
- > RS-232 serial console port supports PPP
- > Ready-to-run μ Clinux Kernel 2.6 platform
- > SD signals supported for external SD socket connection
- > Built-in RTC, buzzer
- > 8 GPIOs reserved for system integration
- > Credit card size design for easy integration at any field site
- > Full-function development kit for quick evaluation and application development
- > -40 to 75°C wide temperature model available

Overview

The EM-1220 embedded module features 2 RS-232/422/485 serial ports, dual Ethernet ports, and an SD socket for external storage expansion. The module has a compact design that can be easily integrated with industrial applications, such as gas stations, vending machines, and ticketing machines, and offers a powerful serial communication capability for better system integration. Programmers will find that the pre-installed, ready-to-run μ Clinux 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, the "wide temperature" EM-1220-T model is also available to provide a reliable solution for any harsh environment.

Appearance



EM-1220

Hardware Specifications

System

CPU: MOXA ART ARM9 32-bit 192 MHz processor

DRAM: 16 MB onboard (optional 32 MB)

Flash: 8 MB onboard (optional 16 MB)

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

Console Port: RS-232 x 1, full signal, supports PPP

Other: RTC, buzzer, Watchdog Timer

OS: Built-in embedded μ Clinux Kernel 2.6.9

Network Communication

LAN: Auto-sensing 10/100 Mbps x 2

Protection: Built-in 1.5 KV magnetic isolation protection

Serial Communication

Serial Port: software-selectable RS-232/422/485 x 2

Protection: Built-in 15 KV ESD protection for all signals

Data bits: 5, 6, 7, 8

Stop bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF, RS-485 ADDC™

Speed: 50 bps to 921.6 Kbps, supports Any Baudrate

Software Specifications

Kernel Version: μ Clinux Kernel 2.6.9

Protocol Stack: ARP, ICMP, IPV4, TCP, UDP, FTP, Telnet, SNMP V1/V2c, HTTP, CHAP, PAP, DHCP, NTP, NFS V2/V3, SMTP, Telnet, PPP, PPPoE

File System: JFFS2 for Kernel, Root File System (Read Only) and User Director (Read / Write)

Msh: Minix shell command

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

Snmpd: SNMP V1 Agent daemon

Busybox: Linux normal command utility

Tinylogin: login and user manager utility

Telnetd: Telnet server daemon

Telnet: Telnet client daemon

Inetd: TCP server manager program

ftpd: FTP server program

ftp: FTP client program

Boa: Web server daemon

ntpdate: Network Time Protocol client utility

Tool Chain: (supports both Linux and Windows)

Arm-elf-gcc: C/C++ PC Cross Compiler,

μ Clibc: POSIX standard C library

UC Finder: UC's LAN IP broadcast searching utility for Windows and Linux

LEDs

System: Ready x 1

LAN: 10M/Link x 2, 100M/Link x 2

Serial: TxD x 4, RxD x 4

Power Requirements

Power Input: External 5 VDC through pin header

Mechanical

Dimensions (W x L):

EM-1220: 80 x 50 mm

EM-1220 Development Kit: 117 x 70 mm

Weight: EM-1240: 40 g, EM-1240-Development Kit: 120 g

Module Interface: Two 2 x 28 pin-headers;

pitch: 1.27 x 1.27 mm

Environmental

Operating Temperature:

-10 to 60°C (14 to 140°F), 5 to 95% RH

-40 to 75°C (-40 to 167°F) is optional for EM1220-T model

Storage Temperature:

-20 to 80°C (-4 to 176°F), 5 to 95% RH

-40 to 85°C (-40 to 185°F) is optional for EM-1220-T model

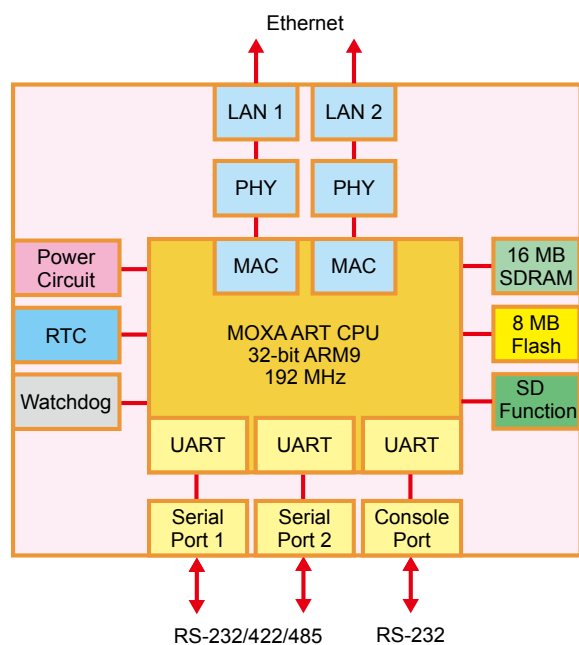
Regulatory Approvals

EMC: FCC Part 15, CISPR 22 Class A

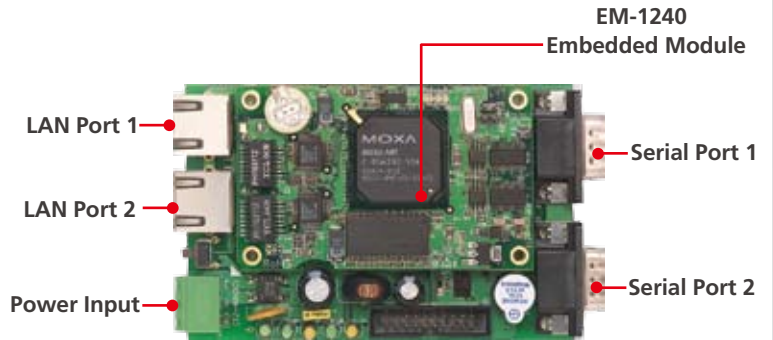
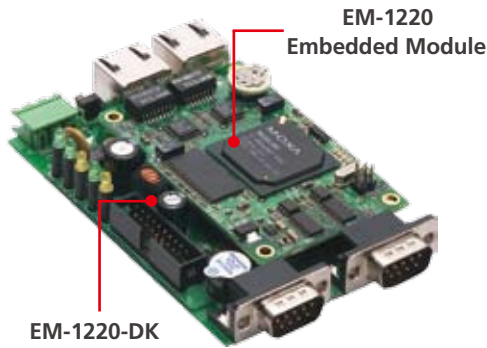
CE Class A: EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024

Warranty: 5 years

H/W Block Diagram



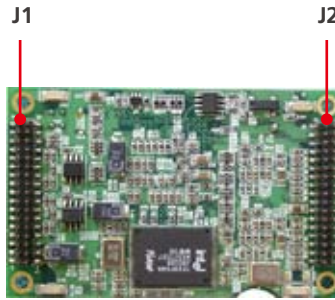
Development Kit Appearance



Pin Assignment

J1 Pin Assignment

Signals	Pin No.	Pin No.	Signals
VCC (5V)	1	2	VCC (5V)
VCC (5V)	3	4	VCC (5V)
GND	5	6	GND
GND	7	8	GND
TxD0 (RS-232)	9	10	RxD0(RS-232)
RTS0	11	12	CTS0
DTR0	13	14	DSR0
RxD1 (RS-232)	15	16	DCD0
CTS1	17	18	TxD1 (RS-232)
DSR1	19	20	RTS1
DCD1	21	22	DTR1
Data-(A)/ RxD-(A)0	23	24	Data-(A)1/ RxD-(A)1
Data+(B)/ RxD+(B)0	25	26	Data+(B)1/ RxD+(A)1
Serial LED_Tx0	27	28	Serial LED_Rx0
Serial LED_Tx1	29	30	Serial LED_Rx1
TxDA(-)0	31	32	TxDA(-)1
TxDB(+0)	33	34	TxDB(+1)

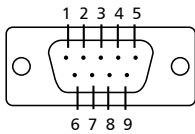


J2 Pin Assignment

Signals	Pin No.	Pin No.	Signals
Console_RxD	1	2	Console_TxD
Eth1_TxD_out+	3	4	GND
Eth1_TxD_out-	5	6	Eth1_RxD_in+
Eth1_LED_100M	7	8	Eth1_RxD_in-
Eth0_TxD_out+	9	10	Eth1_LED_10M
Eth0_TxD_out-	11	12	Eth0_RxD_in+
Eth0_LED_100M	13	14	Eth0_RxD_in-
GPIO0	15	16	Eth0_LED_10M
GPIO2	17	18	GPIO1
GPIO4	19	20	GPIO3
GPIO6	21	22	GPIO5
GPIO8	23	24	GPIO7
Buzzer	25	26	GPIO9
LED_Ready	27	28	SW Reset
SDA	29	30	SCL
GND	31	32	GND
GND	33	34	GND

Pin Assignment

Male DB9



PIN	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TxDA(-)	TxDA(-)	---
2	RxD	TxDB(+)	TxDB(+)	---
3	TxD	RxDB(+)	RxDB(+)	DataB(+)
4	DTR	RxDA(-)	RxDA(-)	DataA(-)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---

Items included with the EM-1220 Development Kit

- EM-1220 Embedded Module
- EM-1220-DK, the carrier board for the EM-1240 Development Kit
- Quick Installation Guide
- Document & Software CD
- Cross-over Ethernet cable
- Universal Power Adaptor Set
- Product Warranty Statement

Ordering Information

EM-1220-LX New

RISC-based Ready-to-Run Embedded Core Module with 2 Serial Ports, Dual LANs, SD, µClinux OS

EM-1220-T-LX New

RISC-based Ready-to-Run Embedded Core Module with 2 Serial Ports, Dual LANs, SD, Wide Temperature, µClinux OS

EM-1220-LX Development Kit New

EM-1220-LX Development Kit