

MiiNePort E1 Series

10/100 Mbps embedded serial device servers



Features and Benefits

- Same size as an RJ45 connector—only 33.9 x 16.25 x 13.5 mm
- Extremely low power consumption
- Uses the MiiNe, Moxa's second-generation SoC
- NetEZ technology makes integration incredibly easy
- Variety of operation modes, including Real COM, RFC2217, TCP, and UDP

Certifications



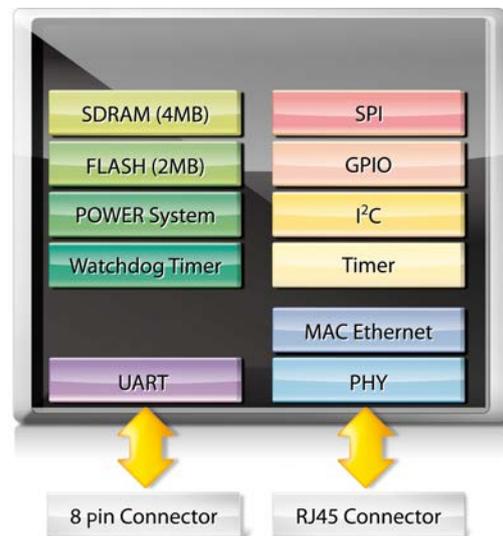
Introduction

Moxa's MiiNePort E1 embedded device servers are designed for manufacturers who want to add sophisticated network connectivity to their serial devices with minimal integration effort. The MiiNePort E1 is empowered by the MiiNe, Moxa's second-generation SoC, which supports 10/100 Mbps Ethernet, serial baudrates up to 921.6 kbps, a versatile selection of ready-to-use operation modes, and requires only a small amount of power. By using Moxa's innovative NetEZ technology, the MiiNePort E1 can be used to convert any device with a standard serial interface to an Ethernet enabled device in no time. In addition, the MiiNePort E1 is the size of an RJ45 connector, making it easy to fit into virtually any existing serial device.

Moxa's Second-Generation SoC

The MiiNe was created to provide manufacturers with a competitive embedded serial-to-Ethernet solution. The MiiNePort E1, which uses the MiiNe for its SoC, is one of the world's tiniest embedded device servers and has the lowest power consumption of any similar product. The MiiNe has the following features:

- Designed for 1 or 2-port serial-to-Ethernet applications
- Uses a 32-bit Arm 7 core
- Uses Moxa's own advanced UART technology
- 2 MB Flash and 4 MB SDRAM memory built in



NetEZ Technology

Moxa's NetEZ technology makes the MiiNePort E1 one of the most user-friendly embedded device servers by promising ease-of-use with minimal integration work required. Moxa's NetEZ technology gives serial device manufacturers a range of powerful tools for integrating Ethernet capability into serial devices. These tools include EXTrigger, MCSC (multi-channel serial communications), Serial Communication Mode (SCM), and AutoCFG. With EXTrigger, resetting and restarting the device can be done in an instant by simply pressing the EXTrigger button, making troubleshooting much easier. There is no need to open the device's casing or interrupt operations. MCSC provides dual connections and dual channels for multitask applications, which enable the device to be a server and client at the same time. The MiiNePort's user-friendly SCM allows users to configure the network through serial communications inside the serial device. This function provides another option for on-site troubleshooting without an Internet connection. AutoCFG enables auto-configuration with mass configuration software in order to place default settings on multiple modules simultaneously. This technology not only accelerates time-to-market but also prevents manual errors.

Specifications

Embedded System

CPU	32-bit Arm Core
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Memory

Flash	2 MB
SDRAM	4 MB

Input/Output Interface

Configurable DIO Channels (by software)	1
Digital Input Channels	1
Digital Output Channels	1

Ethernet Interface

10/100BaseT(X) Ports, Auto MDI/MDI-X	8-pin RJ45
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features

Configuration Options	Web Console (HTTP), Windows Utility, Telnet Console, Serial Console
Management	ARP, BOOTP, Device Search Utility (DSU), DHCP Client, HTTP, IPv4, SMTP, SNMPv1, TCP/IP, Telnet, TFTP, ICMP, ICMP
Windows Real COM Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), Windows Embedded CE 5.0/6.0, Windows XP Embedded
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6x, 3.x, 4.2
Android API	Android 3.1.x and later

Serial Interface

No. of Ports	1
Serial Standards	TTL
Operation Modes	MiiNePort E1 Series: Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode MiiNePort E1-SDK: Real COM mode, Ethernet Modem mode
Baudrate	MiiNePort E1 Series: 50 bps to 230.4 kbps MiiNePort E1-H/-SDK Series: 50 bps to 921.6 kbps
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	None, RTS/CTS, XON/XOFF

Serial Signals

TTL	• TxD, RxD, RTS, CTS, RST (reset circuit), GND
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NetEZ Technology

NetEZ Functions

ExTrigger, SCM (Serial Command Mode), AutoCFG, MCSC (Multi-Channel Serial Communication)

Serial Software Features

Serial to Ethernet Sample Source Code

MiiNePort E1-SDK (Integrated in MiiNePort-IDE):

1. TCP Server Echo
2. TCP Server to Serial (Single connection)
3. TCP Server to Serial (Multi-connection)
4. TCP Client Echo
5. TCP Client to Serial (Startup)
6. TCP Client to Serial (Any character)
7. TCP Client to Serial (Designed destination TCP/IP port from serial)
8. UDP Echo
9. UDP to Serial

Power Parameters

Input Current

MiiNePort E1 Series: 160 mA @ 3.3 VDC max.
MiiNePort E1-H/-SDK Series: 195 mA @ 3.3 VDC max.

Input Voltage

3.3 VDC

Physical Characteristics

Dimensions

MiiNePort E1-ST/-SDK Series: 140 x 100 mm (5.51 x 3.94 in)
MiiNePort E1/E1-H/E1-SDK Series: 33.9 x 16.25 x 13.5 mm (1.33 x 0.64 x 0.53 in)

Weight

MiiNePort E1/E1-H/E1-SDK Series: 9 g (0.02 lb)

Form Factor Type

Drop-in modules

Environmental Limits

Operating Temperature

Standard models: 0 to 55°C (32 to 131°F)
Wide Temp. models: -40 to 85°C (-40 to 185°F)

Storage Temperature (package included)

-40 to 60°C (-40 to 140°F)

Ambient Relative Humidity

5 to 95% (non-condensing)

Standards and Certifications

EMC

EN 55032/24

EMI

CISPR 32, FCC Part 15B Class B

EMS

IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11 DIPs

Environmental Testing

IEC 60068-2-1
IEC 60068-2-3

Shock

IEC 60068-2-27

Vibration

IEC 60068-2-6

Declaration

Green Product

RoHS, CRoHS, WEEE

Ordering Information

Model Name	No. of Serial Ports	Supported Baudrates	Operating Temp.	With MiiNePort E1	With Evaluation Board	With Software Development Kit
MiiNePort E1	1	50 bps to 230.4 kbps	0 to 55°C	✓	–	–
MiiNePort E1-H	1	50 bps to 921.6 kbps	0 to 55°C	✓	–	–
MiiNePort E1-T	1	50 bps to 230.4 kbps	-40 to 85°C	✓	–	–
MiiNePort E1-H-T	1	50 bps to 921.6 kbps	-40 to 85°C	✓	–	–
MiiNePort E1-ST	1	50 bps to 921.6 kbps	0 to 55°C	✓	✓	–
MiiNePort E1-ST (w/o module)	1	50 bps to 921.6 kbps	0 to 55°C	–	✓	–
MiiNePort E1-SDK	1	50 bps to 921.6 kbps	0 to 55°C	✓	✓	✓