MOXA®

CP-114EL/CP-114EL-I PCI Express Multiport Serial Board Quick Installation Guide

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1. Overview

Moxa's new CP-114EL and CP-114EL-I PCI Express multiport serial boards are designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators. The boards are compatible with all popular operating systems. Each board also supports data rates of up to 921.6Kbps and provides full modem control signals, ensuring compatibility with a wide range of serial peripherals. In addition, the CP-114EL and CP-114EL-I work with PCI Express ×1, allowing the boards to be installed in any available PCI Express slot (including ×1, ×2, ×4, ×8, ×16, and ×32).

2. Package Checklist

Before installing the PCI Express board, verify that the package contains the following items:

- 1 PCI Express serial board
- Documentation and Software CD
- Quick Installation Guide
- Low Profile Bracket

Notify your sales representative if any of the above items is missing or damaged.

3. Hardware Installation Procedure

The PCI Express board MUST be plugged into the PC before the driver is installed. Follow these steps to install the board in the PC.

STEP 1: Power off the PC.

STEP 2: Plug the board firmly into an open PCI Express slot.

STEP 3: Fasten the holding screw to fix the control board in place.

STEP 4: Connect the connection cable.

STEP 5: Power on the PC; the BIOS will automatically set the IRQ and I/O address.

4. Software Installation Information

The board MUST be plugged in before installing the driver. See the previous section for instructions on how to install the board in your PC. Refer to the PCI Express Board User's Manual for detailed instructions on installing the drivers for this board.

NOTE: The following procedure shows how to install the CP-114EL driver

Windows 2008/Vista (32-bit/64-bit) Driver Installation

1. After powering on your PC, Windows 2008 will automatically detect the PCIe board.
2. Insert the PCIe software CD in your CD-ROM drive.
3. Select **Locate and install driver software (recommended)**.
4. After selecting **Search for driver software in this location**, select the **Include subfolders**, and then click **Browse**. If the system is a 32-bit (x86) platform, navigate to the **\CP-114EL Series\Software\Windows 2008_Vista\x86** folder on the CD, if the system is 64-bit (x64) platform, navigate to the **\CP-114EL Series\Software\Windows 2008_Vista\x64** folder on the CD, and then click **Next** to continue.
5. Click **Install this driver software anyway** in response to any warnings that the software has not passed Windows Logo testing.
6. After the board has been installed, the installation wizard will guide you through the port installation procedure. Port installation procedure is complete when Port 0 has been set up.
7. Use the **Device Manager** to check the installation of the board and ports. Click the + sign next to **Hardware**, and then check **Multi-port serial adapters** and **Ports (COM & LPT)**. Click the +sign next to **Multi-port serial adapters**, right-click on **Moxa CP-114EL Series (PCI Express Bus)**, select Properties, then choose Port Configuration. Click the port to configure **Interface (RS-232, RS-422, 2-wire RS-485, 4-wire RS-485)** and **Termination Resistor (120Ω, Enable or Disable)**. If there are warning marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** to determine the problem.

Windows 2003/XP (32-bit/64-bit) Driver Installation

1. After powering on your PC, Windows 2003/XP will automatically detect the PCIe board.
2. Insert the PCIe software CD in your CD-ROM drive.
3. Select **Install from a list or specific location (Advanced)**.
4. After selecting **Search for the best driver in these locations**, select the **Include this location in the search**, and then click **Browse**. If the system is a 32-bit (x86) platform, navigate to the **\CP-114EL Series\Software\Windows XP_2003\x86** folder on the CD, if the system is 64-bit (x64) platform, navigate to the **\CP-114EL Series\Software\Windows XP_2003\x64** folder on the CD, and then click **Next** to continue.
5. Click **Continue Anyway** in response to any warnings that the

software has not passed Windows Logo testing.

6. After the board has been installed, the installation wizard will guide you through the port installation procedure, starting with port 0.
7. Use the Device Manager to check the installation of the board and ports. Click the + sign next to **Hardware**, and then check **Multi-port serial adapters** and **Ports (COM & LPT)**. Click the +sign next to **Multi-port serial adapters**, right-click on **MOXA CP-114EL Series (PCI Express Bus)**, select **Properties**, then choose **Port Configuration**. Click the port to configure **Interface (RS-232, RS-422, 2-wire RS-485, 4-wire RS-485)** and **Termination Resistor (120Ω, Enable or Disable)**. If there are warning marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** to determine the problem.

Windows 2000 Driver Installation

1. After powering on your PC, Windows 2000 will automatically detect the PCIe board.
2. Insert the PCIe software CD in your CD-ROM drive.
3. Select **Search for a suitable driver for my device (recommended)**.
4. Under **Optional search location**, select **specify a location**. Navigate to the **\CP-114EL Series\Software\Windows 2K** folder on the software CD.
5. Click **Continue Anyway** in response to any warnings that the software has not passed Windows Logo testing.
6. After the board has been installed, the installation wizard will guide you through the port installation procedure, starting with port 0.
7. Use the **Device Manager** to check the installation of the board and ports. Click the + sign next to **Hardware**, and then check **Multi-port serial adapters** and **Ports (COM & LPT)**. Click the +sign next to **Multi-port serial adapters**, right-click on **MOXA CP-114EL Series (PCI Express Bus)**, select **Properties**, then choose **Port Configuration**. Click the port to configure **Interface (RS-232, RS-422, 2-wire RS-485, 4-wire RS-485)** and **Termination Resistor (120Ω, Enable or Disable)**. If there are warning marks, such as a question mark or exclamation point in front of the board or port icons, examine the **Event Log** to determine the problem.

Linux Driver Installation

1. Execute the following commands from the Linux prompt:
   #mount /dev/cdrom /mnt/cdrom
   #cd /
   #mkdir moxa
   #cd /moxa
   #cp /mnt/cdrom/<driver directory>/
   driv_linux_smart_vx.x_build_yymmddhh.tgz .
   #tar –xzvf driv_linux_smart_vx.x_build_yymmddhh.tgz
2. #cd mxser
   #make clean; make install
3. #cd /moxa/mxser/driver
   #./msmknod

4. #modprobe mxupcie

5. Use the Moxa Port Configuration Tool to set Interface and Termination Resistor for the MUE series. The MUE series includes CP-102E, CP-102EL, CP-132EL, CP-132EL-I, CP-114EL and CP-114EL-I.
   Usage: muestty <operation> device
   Device: The MUE series device node

   Operation: -h   Help
               -g   Get interface and terminator type
               -i intf   Set interface type with options below
               -t value   Set termination resistor with options below
   intf   RS232   RS-232 mode
           RS422   RS-422 mode
           RS4852W   RS-485 2-wire mode
           RS4854W   RS-485 4-wire mode
   value   NONTERM   Non termination resistor
           120TERM   120ohm termination resistor

   For example:
   To set the MUE interface
   # muestty –i RS422 /dev/ttyMUE2

   To set the MUE termination resistor
   # muestty –t 120TERM /dev/ttyMUE2

6. Use the Moxa diagnostic utility to verify the driver status:
   #cd /moxa/mxser/utility/diag
   #./msdiag

7. Use the Moxa terminal utility to test the tty ports:
   #cd /moxa/mxser/utility/term
   #./msterm

5. Pin Assignments

The CP-114EL and CP-114EL-I boards come equipped with a female DB44 connector. Cables with different connectors are available to help you connect your device to the board.
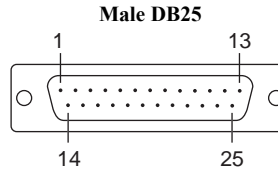
Male DB9: Device-side Pin Assignments (CBL-M44M9x4-50)
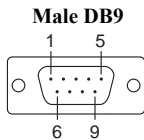
Male DB9

Pin	RS-232	RS-422 & 4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	---
2	RxD	TxD+(B)	---
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	---	---

7	RTS	---	---
8	CTS	---	---
9	---	---	---

Male DB25: Device-side Pin Assignments (CBL-M44M25x4-50)

Male DB25

Pin	RS-232	RS-422 & 4-wire RS-485	2-wire RS-485
2	TxD	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	---
4	RTS	---	---
5	CTS	---	---
6	DSR	---	---
7	GND	GND	GND
8	DCD	TxD-(A)	---
20	DTR	RxD-(A)	Data-(A)
22	---	---	---

6. Specifications

Hardware
Connectors   Female DB44
Comm. Controller   16C550C compatible
Interface
Bus Interface   PCI Express × 1
Number of Ports   4
Max No. of Boards   4
Signal
RS-232   TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422   TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485 4-Wire   TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485 2-Wire   Data+(B), Data-(A), GND
Performance
Baudrate   50 bps to 921.6 Kbps
Configuration
Data Bits   5, 6, 7, 8
Stop Bits   1, 1.5, 2
I/O address/IRQ   BIOS assigned
Parity   None, Even, Odd, Space, Mark
Flow Control   RTS/CTS, XON/XOFF
Environment
Operating Temperature 0 to 55°C (32 to 132°F)
Operating Humidity   5 to 95% RH
Storage Temperature -20 to 85°C (-4 to 185°F)
ESD Protection   Embedded 15 KV ESD Protection

Optical Isolation   2 KV (only for CP-114EL-I)
Regulatory Approvals   EN55022, EN55024, EN61000-3-2,
                       EN61000-3-3, EN61000-6-2, IEC-61000-4-2,
                       IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5,
                       IEC 61000-4-6, IEC 61000-4-8, IEC
                       61000-4-11, FCC Part 15 Class B
Warranty   5 years