# UPort 1200/1400/1600 Series User's Manual

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www.moxa.com/product



# UPort 1200/1400/1600 Series User's Manual

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# **Technical Support Contact Information**

#### www.moxa.com/support

#### Moxa Americas

Toll-free:1-888-669-2872Tel:+1-714-528-6777Fax:+1-714-528-6778

#### Moxa Europe

Tel: +49-89-3 70 03 99-0 Fax: +49-89-3 70 03 99-99

#### <u>Moxa India</u>

Tel: +91-80-4172-9088 Fax: +91-80-4132-1045

# **Table of Contents**

1.	Introduction	
	Overview	1-2
	ADDC <sup>™</sup> (Automatic Data Direction Control) for RS-485	1-2
	ARDC (Automatic Recovery Data Communication)	
	Ordering Information	
	Product Features	
	Product Specifications	
	Panel Layout	
	UPort 1250	
	UPort 1250I	
	UPort 1410/1450/1450I	
	UPort 1610-8/1650-8	
	UPort 1610-16/1650-16	
	Dimensions	
	UPort 1250	
	UPort 12501	
	UPort 1410/1450	
	UPort 1450I	
	UPort 1610-8/1650-8	
	UPort 1610-16/1650-16	
2.	Driver Installation	
	UPort's USB Usage Limitation	2-2
	Hardware Description	2-2
	Connecting the Hardware	
	Installing the Windows Driver	
	Installing the Driver for the Converter	
	Installing the Driver for the Ports	
	Configuring the Ports	
	Uninstalling the UPort	
	Uninstalling the Driver	
	Installing the Mac Driver for macOS	2-23
	Troubleshooting	
	Uninstall the UPort 1200/1400/1600 Series Driver	
	Installing the Linux Driver	2-29
	Driver Files	
	Module Driver Configuration	
	Installing the Moxa Driver	
	Setting the Serial Parameters	2-31
	Troubleshooting	2-31
	Installing the Windows CE Driver	2-32
	Installation With an Installation Package for Win CE 6.0	2-32
	Installation With an Installation Package for Win CE 5.0	2-39
	Removing the Moxa Win CE 5.0/ CE6.0 Driver	2-41
	Installation With a CAB File	2-42
	Removing the Moxa Win CE 5.0/ CE6.0 Driver	2-43
3.	Serial Port Pin Assignments	2_1
э.	DB9 Male RS-232 Port	
	DB9 Male RS-232/422/485 Port	
	Mini DB9F-to-TB* for RS-422/485 wiring	3-1

# Introduction

The Moxa UPort 1200/1400/1600 are advanced USB-to-serial converters that add 2, 4, 8, or 16 serial ports to a PC through the PC's USB port. The UPort 1200/1400/1600 are compatible with both new and legacy RS-232 or RS-422/485 devices. These plug-and-play USB-to-serial converters are ideal for mobile, instrumentation, and point-of sale applications.

In this manual, we refer to the products in the series collectively as the **UPort 1200/1400/1600 Series**, or simply as the **UPort**. The UPort 1200/1400/1600 Series includes the following models:

UPort 1250	2-port RS-232/422/485 USB-to-serial converter
UPort 1250I	2-port RS-232/422/485 USB-to-serial converter with isolation protection
UPort 1410	4-port RS-232 USB-to-serial converter
UPort 1450	4-port RS-232/422/485 USB-to-serial converter
UPort 1450I	4-port RS-232/422/485 USB-to-serial converter with isolation protection
UPort 1610-8	8-port RS-232 USB-to-serial converter
UPort 1650-8	8-port RS-232/422/485 USB-to-serial converter
UPort 1610-16	16-port RS-232 USB-to-serial converter
UPort 1650-16	16-port RS-232/422/485 USB-to-serial converter

The following topics are covered in this chapter:

- Overview
- □ ADDC<sup>TM</sup> (Automatic Data Direction Control) for RS-485
- ARDC (Automatic Recovery Data Communication)
- Ordering Information
- Product Features
- Product Specifications
- Panel Layout
  - UPort 1250
  - ➢ UPort 1250I
  - UPort 1410/1450/1450I
  - > UPort 1610-8/1650-8
  - > UPort 1610-16/1650-16

#### Dimensions

- UPort 1250
- UPort 1250I
- > UPort 1410/1450
- ➢ UPort 1450I
- > UPort 1610-8/1650-8
- UPort 1610-16/1650-16

# **Overview**

UPort 1200/1400/1600 Series products are easy to install and use. After installing the drivers on your PC, connect the UPort to your computer, plug in your serial devices, and you're ready to go. Programming is NOT required, and you do not need to worry about IRQs, configuring a board, power requirements, or connection schemes.

UPort 1200/1400/1600 Series products are compliant with USB 1.1, and 2.0 specifications, and meet the 480 Mbps high-speed requirement of Hi-Speed USB 2.0. Using your computer's USB ports to connect serial devices reduces the total cost of ownership, investment in hardware, and long term management and integration costs.

The UPort 1250 supports bus power whereas the UPort 1410/1450 converters support both bus power and external power. The UPort 1250I, UPort 1600-8, and UPort 1600-16 converters support external power only. When using bus power, the UPort will get 500 mA through the laptop's or workstation's USB port. When an external power adapter or power cord is used, the UPort will only get 100 mA through the laptop or workstation's USB port.

# ADDC<sup>™</sup> (Automatic Data Direction Control) for RS-485

ADDC<sup>™</sup> (Automatic Data Direction Control) makes it easier to manage 2-wire RS-485 half-duplex connections, eliminating the need for software interference. This means that it is not necessary to write extra code for Windows applications to control the half-duplex protocol. ADDC<sup>™</sup> intelligence is built into the UPort 1200/1400/1600 USB-to-serial converters that support the RS-485 serial interface.

# ARDC (Automatic Recovery Data Communication)

ARDC (Automatic Recovery Data Communication) makes it easier to auto recover data transmissions even if the cable gets unplugged accidentally. This means the user does not need to worry about reconfiguring complex settings to ensure smooth data transmissions. If the USB cable is accidentally unplugged, simply plug it back into the same port and the converter will automatically reconnect with the host and continue to transfer data. This feature not only reduces reconfiguration time, but also the probability of data loss.

# **Ordering Information**

#### Package Checklist

Moxa's UPort 1200/1400/1600 products are shipped with the following items:

- 1 UPort 1200/1400/1600 USB-to-serial converter
- USB cable: CBL-USBA/B-100
- 100 to 240 VAC power adapter
- 1 power cord suitable for your region
- 1 serial adapter: mini DB9F-to-TB (for RS-232/422/485 model only)
- WK-45-01: 19" rackmount L brackets (2 L-shaped plates with 8 screws; for UPort 1600-16 series)
- Quick installation guide (printed)
- Warranty card

#### Optional Accessories (can be purchased separately)

#### Cables

- CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
- CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
- CBL-F9M9-20: DB9 female to DB9 male serial cable, 20 cm
- CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
- ADP-RJ458P-DB9: DB9 female to RJ45 connector

#### Connectors

- Mini DB9F-to-TB: DB9 female to terminal block connector
- ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector

#### **Mounting Kits**

DIN-rail kit/Wall-mounting kit

#### For the UPort 1200

**DK-UP1200:** DIN-rail/wall-mounting kit that includes 2 wall-mounting plates with 6 screws (WK-35-02) and 2 DIN-rail plates with 4 screws (DK35A, 35-mm DIN-rail mounting clips)



#### For the UPort 1400/1600-8

**DK-UP1400:** DIN-rail/wall-mounting kit that includes 2 wall-mounting plates with 6 screws (WK-35-01), and 2 DIN-rail plates with 4 screws (DK35A, 35 mm DIN-rail mounting clips)



**DK-UP-14168:** DIN-rail kit with 2 plates for smart switch (89 x 19 mm) and 6 screws (FMS M3 x 5 mm); for the **UPort 1400 (V1.5.0)** and **UPort 1600-8 (V1.4.0)** models.

**WK-UP-14168:** Wall-mounting kit with 2 plates (35 x 44 mm) and 6 screws (FMS M3 x 4 mm); for the **UPort 1400** and **UPort 1600- 8** models.

#### For the UPort 1600-16

> WK-45-01: 19" rackmount L brackets; 2 L-shaped plates with 8 screws



**NOTE** Please notify your sales representative if any of the above items is missing or damaged.

# **Product Features**

UPort 1200/1400/1600 Series products have the following features:

- Hi-Speed USB 2.0 supported (up to 480 Mbps)
- Additional I/O or IRQ not required
- Serial transmission speed up to 921.6 Kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- Windows Real COM Drivers
- Mac Drivers
- Linux Real TTY Drivers
- The UPort 1250 supports bus power; the UPort 1410/1450 supports both bus power and external power
- Suitable for 4-wire RS-422/485 and 2-wire RS-485 applications
- Easy maintenance with LED display
- IP30, rugged metal case
- COM port assignments maintained across different PCs
- Mini DB9 female to terminal block attachment for easy wiring
- Wall-mount and DIN-rail accessories available

# **Product Specifications**

#### USB

Compliance: USB 1.1/2.0 compliant Connector: USB type B Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

#### Serial Interface

Number of Ports: UPort 1200: 2 UPort 1400: 4 UPort 1600-8: 8 UPort 1600-16: 16 Serial Standards: UPort 1410/1610: RS-232 UPort 1250/1250I/1450I/1650: RS-232/422/485 Connectors: DB9 male

#### **Serial Line Protection**

Optical Isolation Protection: 2 KV (UPort 1250I/1450I only)

#### Performance

Baudrate: 50 bps to 921.6 Kbps

#### 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 FIFO: 128 bytes

#### Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC<sup>™</sup> (Automatic Data Direction Control)

#### **Driver Support**

#### Windows:

10/8.1/8/7 (x86.x64), Vista/ME/XP/98/95

Server 2019, Server 2016, 2012 R2, 2012, 2008 R2, 2008, 2003, 2000, NT

#### macOS:

11.2 / 11.1 / 11.0 / 10.15 / 10.14 / 10.13 / 10.12

#### Linux:

Kernel 5.x / Kernel 4.x / Kernel 3.x / Kernel 2.6.x / Kernel 2.4.x

Win CE:

Win CE5.0/CE6.0

Note: Please refer to Moxa's website for the latest driver support information.

#### **Physical Characteristics**

Housing: SECC sheet metal (1 mm), IP30 protection

- Weight: UPort 1200:
- Product only: 180 g (0.40 lb)
- UPort 1400:
   Product only: 720 g (1.59 lb)
- UPort 1600-8:
   Product only: 835 g (1.84 lb)
  - Packaged: 1435 g (3.16 lb)
- UPort 1600-16:

Product only: 2475 g (5.45 lb)

#### **Environmental Limits**

**Operating Temperature:** 0 to 55°C (32 to 131°F) **Operating Humidity:** 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

**Regulatory Approvals:** EN55032 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11 FCC Part 15 Class A, UL, CUL, TÜV

#### **Power Requirements**

#### **Power Consumption:**

 Bus power: UPort 1250: 360 mA @ 5 VDC UPort 1410/1450: 180 mA @ 5 VDC

12 to 48 VDC external power: UPort 1250I: 200 mA @ 12 VDC UPort 1410: 180 mA @ 12 VDC UPort 1450: 260 mA @ 12 VDC UPort 1450I: 360 mA @ 12 VDC UPort 1610-8: 230 mA @ 12 VDC UPort 1650-8: 340 mA @ 12 VDC UPort 1650-16: 130 mA @ 100 VAC UPort 1650-16: 150 mA @ 100 VAC

**NOTE** The operating temperature of the power adapter in the box (if applicable) is from 0 to 40°C. If your application is out of this range, please use a power adapter supplied by UL Listed External Power Supply. (The power output meets SELV and LPS and is rated 12 to 48 VDC; the minimum current is 92.4 mA).

#### Warranty

Warranty Period: 5 years Details: See www.moxa.com/warranty

# **Panel Layout**

# **UPort 1250**

**UPort 1250I** 





# UPort 1410/1450/1450I



UPort 1610-8/1650-8



# UPort 1610-16/1650-16



# Dimensions

# UPort 1250



# **UPort 1250I**



# UPort 1410/1450



# **UPort 1450I**



# UPort 1610-8/1650-8



# UPort 1610-16/1650-16



# **Driver Installation**

In this chapter, we use Windows XP to illustrate how to install the UPort 1200/1400/1600 USB-to-serial converters. The procedures for other Windows platforms are essentially the same.

We recommend installing the UPort driver first, before connecting the UPort to your computer's USB port.

The following topics are covered in this chapter:

#### UPort's USB Usage Limitation

- Hardware Description
- Connecting the Hardware

#### Installing the Windows Driver

- > Installing the Driver for the Converter
- > Installing the Driver for the Ports
- > Configuring the Ports
- Uninstalling the UPort
- Uninstalling the Driver

#### Installing the Mac Driver for macOS

- Troubleshooting
- > Uninstall the UPort 1200/1400/1600 Series Driver

#### Installing the Linux Driver

- Driver Files
- Module Driver Configuration
- Installing the Moxa Driver
- > Setting the Serial Parameters
- > Troubleshooting

#### □ Installing the Windows CE Driver

- > Installation With an Installation Package for Win CE 6.0
- > Installation With an Installation Package for Win CE 5.0
- > Removing the Moxa Win CE 5.0/ CE6.0 Driver
- > Installation With a CAB File
- > Removing the Moxa Win CE 5.0/ CE6.0 Driver

# **UPort's USB Usage Limitation**

- 1. A maximum of 4 UPort converters can be connected to one PC host. Connecting more than 4 UPort converters will strain system resources and potentially destabilize the computer.
- 2. We recommend connecting the UPort directly to your PC's USB port.
- 3. Although your UPort supports USB 1.1, we recommend using a USB 2.0 host controller or hub for the best and most stable performance.

# **Hardware Description**

We recommend installing the driver before connecting the UPort to your PC. Some UPort models require an external power adapter or cord, and other models support both external and bus power.

	UPort 1250	UPort 1250I	UPort 1410/1450	UPort 1450I	UPort 1600-8	UPort 1600-16
Bus Power	$\checkmark$	-	$\checkmark$	-	-	-
External Power (adapter)	-	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	-
External Power (cord)	-	-	-	-	-	~

If you want to use bus power with the UPort 1410/1450, set the DIP switch to **bus** when you connect the USB cable between the host PC and the UPort 1410/1450. The UPort 1450I requires external power.

### **Using an External Power Source**

The UPort 1250I, UPort 1450/1450I, and UPort 1600-8 come with a power adapter for connecting to an external AC power source. UPort 1410 users can purchase a power adapter separately. The UPort 1600-16 comes with a power cord as a standard accessory. If the power is properly supplied, the Active LED will glow a solid green.

# Buzzer (UPort 1400 and 1600 only)

The UPort 1400 and UPort 1600 will sound the built-in buzzer twice when the power is turned on. You will also hear the buzzer when using the **Locate** function from the driver property page of the UPort utility.

# **Connecting the Hardware**

Please install the driver before connecting the UPort series to your PC's USB port. See the previous section for details.

# **Connecting to a Serial Device**

Use the proper serial cables to connect your serial devices to the UPort's serial ports, which support the RS-232 and/or RS-422/485 interface. The UPort's serial ports use DB9 male connector with standard pin assignment. Please see Chapter 3 for detail pin assignment.

# **LED Indicators**

### UPort 1250/1250I

There are five LEDs per port for indicating the status of the ports. The LEDs are listed under P1 and P2.

LED Name	LED Color	LED Function
Active	Red	Power is on
Active	Off	Power is off, or power error condition exists
RS-232	Red	Port is configured for RS-232 operation
RS-422	Red	Port is configured for RS-422 operation
4W RS-485	Red	Port is configured for 4-wire RS-485 operation
2W RS-485	Red	Port is configured for 2-wire RS-485 operation
	Orange	Port is receiving data from attached device
TxD/RxD	Green	Port is transmitting data to attached device
	Off	No data is being transmitted or received

#### UPort 1400/1600

There are five LEDs per port for indicating the status of the ports. The LEDs are listed under P1, P2, P3, etc.

LED Name	LED Color	LED Function
Active	Red	Power is on; when the firmware is ready, the LED will turn green
		If the device's LED remains red, it means the firmware is not ready, and
		the device cannot work properly
	Green	The device is ready
	Flashing green	The device is located by the Locate function on the host
	Off	Power is off, or power error condition exists
Tx/Rx	Orange	Port is receiving data from attached device
Green Port is transmit		Port is transmitting data to attached device
	No data is being transmitted or received	

### Adjustable Pull High/low Resistors for the RS-485 Port

The UPort uses DIP switches to set the pull high/low resistor values for each serial port.

To set the pull high/low resistors to 150 K $\Omega$ , make sure both of the assigned DIP switches are in the OFF position.

To set the pull high/low resistors to 1 K $\Omega$ , make sure both of the assigned DIP switches are in the ON position. This is the default setting.

SW	1	2
511	Pull High	Pull Low
ON	1 ΚΩ	1 ΚΩ
OFF	150 KΩ	150 KΩ

#### UPort 1200 DIP Switches



#### UPort 1400 DIP Switches



#### UPort 1600-8 DIP Switches



UPort 1600-16 DIP Switches



# **Installing the Windows Driver**

- 1. Connect the UPort to the PC using the USB cable.
- 2. After turning your PC's power on, Windows will automatically detect the UPort.
- 3. Run the Setup program that you may find on Moxa's support website <a href="http://www.moxa.com/support/">http://www.moxa.com/support/</a>. Click **Next** to start installing the driver.

🕼 Setup - MOXA UPort Windo	ows Driver	_		×		
	Welcome to the MOX Windows Driver Set					
	This will install MOXA UPort Windows Driver Ver3.1 on your computer.					
It is recommended that you close all other applications before continuing.						
	Click Next to continue, or Cancel to exi	t Setup.				
	Ne	ext >	Can	cel		

4. Read and accept the agreement. Click **Next** to set the indicated folder.

🕼 Setup - MOXA UPort Windows Driver 🦳 🗌	×
License Agreement Please read the following important information before continuing.	ð
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
MOXA END-USER LICENSE AGREEMENT	^
FOR MOXA USB Serial HUB Windows Driver	
IMPORTANT: Please Read This Agreement Before Using The Software Indicated Above.	
This End-User License Agreement ("EULA") is a legal agreement between you, the Customer (either as an individual or a single entity), and the Owner concerning this special purpose ("System") computer device that includes certain Owner software products ("Software") installed on the System. Installing, copying, or	
• I accept the agreement	
$\bigcirc I  \underline{d} o$ not accept the agreement	
< <u>B</u> ack <u>N</u> ext > (	Cancel

5. Set **Start Menu Folder** location.

🕼 Setup - MOXA UPort Windows Driver	_		×
Select Start Menu Folder Where should Setup place the program's shortcuts?			ð
Setup will create the program's shortcuts in the following Start	Menu	folder.	
To continue, click Next. If you would like to select a different folder, c	lick Br	owse.	
MOXA\UPort Windows Driver		B <u>r</u> owse	
< <u>B</u> ack <u>N</u> ext	: >	Ca	ancel

### 6. Click **Install** to proceed with the installation.

🕼 Setup - MOXA UPort Windows Driver	—	
Ready to Install Setup is now ready to begin installing MOXA UPort Windows D computer.	river on your	Ð
Click Install to continue with the installation, or click Back if yo change any settings.	u want to reviev	v or
Destination location: C:\Program Files\Moxa\UPortDriver		^
Start Menu folder: MOXA\UPort Windows Driver		
<		>
< <u>B</u> ack	Install	Cancel

7. The installation will take a few minutes to complete.

📸 Setup - MOXA UPort Windows Driver 🦳 —		×
Installing Please wait while Setup installs MOXA UPort Windows Driver on your computer		Ð
Installing driver (80%)		
	C	ancel

8. After the driver has been installed successfully, you can click **Scan** to review the installation results if the UPort is connected to your computer.

🕼 Setup - MOXA UPort Windows Driver	_		$\times$
Review installed UPort UPorts are all installed on your computer.		(	Ð
You may connect more UPorts and press Scan button to review the Following list the UPorts which are installed on computer.	installatio	n result.	
[On computer] Port 1 (COM50) Port 2 (COM51) Port 3 (COM52) Port 4 (COM53) Port 5 (COM54) Port 5 (COM55) Port 7 (COM56) Port 8 (COM57)			
Scan			
Ne	xt >		

 Check Launch Windows Driver Manager after finish to configure the UPort after quitting the driver installer.



# Installing the Driver for the Converter

**NOTE** The operating system will automatically detect the UPort when you plug it into one of your computer's USB ports. If you have installed the latest UPort driver, the UPort and the UPort's serial port will be installed automatically. If the UPort and the serial ports are not installed automatically, follow the instructions below.

# **Case 1: The UPort Driver Is Certified**

If the UPort driver that you installed has been certified by Microsoft, the UPort and the UPort's serial ports will be installed automatically when you plug the UPort into your computer's USB port.

# **Case 2: The UPort Driver Is NOT Certified**

If the UPort driver that you installed has not been certified by Microsoft, then plugging the driver into your computer's USB port will activate the UPort installation program. The first part of the installation procedure installs the software for the UPort itself (the second part of the procedure installs the serial ports).

1. After connecting the USB cable from the UPort to the host PC, Windows XP will automatically detect the new UPort, and the Found New Hardware balloon will open in the bottom right corner of the Windows desktop.



2. Select No, not at this time. Click Next to start the installation.



3. Select Install the software automatically (Recommended), and then click Next to continue.

Found New Hardware Wizard		
	This wizard helps you install software for: MOXA UPort 1250 Series If your hardware came with an installation CD or floppy disk, insert it now.	
	What do you want the wizard to do?	
	<ul> <li>Install the software automatically (Recommended)</li> <li>Install from a list or specific location (Advanced)</li> </ul>	
	Click Next to continue.	
	< Back Next > Cancel	

4. Wait while the installation wizard searches for the correct drivers. The next window that opens cautions you that although this software has not passed Windows logo testing, this driver has already been tested and shown that it can support the Windows operating system. Click **Continue Anyway** to proceed.

Found New Hardware Wizard		
Please wait while the wizard installs the software		
	Hardware Installation	
M	The software you are installing for this hardware: MOXA UPort 1250 Series has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.	
	Continue Anyway STOP Installation	

5. The next window shows the model name of the board, and indicates that Windows has completed the driver installation. Click **Finish** to proceed with the rest of the installation procedure.

Found New Hardware Wizard		
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: MOXA UPort 1250 Series	
	< Back Finish Cancel	

6. Open Windows Device Manager to check that the installation was successful. The UPort USB-to-serial converter should appear under Multi-port serial adapters.

# **Installing the Driver for the Ports**

 The Found New Hardware Wizard window will open to help you install the driver. This window will offer to connect to the Windows update site to search for a driver. Select No, not at this time and then click Next to continue.

Found New Hardware Wizard		
	Welcome to the Found New Hardware Wizard Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). Read our privacy policy	
	Can Windows connect to Windows Update to search for software? Yes, this time only Yes, now and every time I connect a device No, not this time Click Next to continue.	
	< Back Next > Cancel	

2. Select Install the software automatically (Recommended), and then click Next to continue.



3. Wait while the installation wizard searches for the correct drivers. The next window that opens cautions you that although this software has not passed Windows logo testing, this driver has already been tested and shown that it can support the Windows operating system. Click **Continue Anyway** to proceed.

Found New Hardware Wizard			
Please wait while the wizard installs the software			
	Hardware Installation		
<b>р</b> м	Image: The software you are installing for this hardware:         MOXA UPort COM Port         has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)         Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.		
	Continue Anyway STOP Installation		

- 4. Wait while the driver software is installed.
- After all files have been copied to the system, the Completing the Found New Hardware Wizard window will open to indicate that it has finished installing driver. Click Finish to proceed with the rest of the installation.

Found New Hardware Wizard			
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: MOXA UPort COM Port		
	K Back Finish Cancel		

6. Repeat Step 1 through Step 5 for each of the remaining ports (once for the UPort 1200 series, 3 times for the UPort 1400 series, 7 times for the UPort 1600-8 series, 15 times for the UPort 1600-16 series).

7. The **Found New Hardware** balloon will reappear to inform you that the hardware was installed successfully.

🔅 Found New Hardware	X
Your new hardware is installed and ready to us	se.

8. Open Windows Device Manager to check that the installation was successful. The UPort USB-to-serial converter should appear under Ports (COM&LPT).



# **Configuring the Ports**

After the driver has been installed, use Windows' Device Manager to configure the UPort serial ports.

1. With the **System Properties** window open, click on the **Hardware** tab, and then click on **Device Manager**.

oyotom	n Restore Automatic Updates		Remote	
General	Comp	uter Name	Hardware	Advanced
D				
Device M	280 - 28 - 19 - 19 s			8 8 C 13
			the hardware device evice Manager to ch	
	properties of a			
			Device Ma	anager
Drivers				
a la	Driver Signing	i lets vou make	sure that installed dr	ivers are
	compatible wit	th Windows. W	indows Update lets .	you set up
	how Windows	; connects to W	/indows Update for (	drivers.
ſ	Driver 3	Sianina	Windows L	Ipdate
(	Driver :	<u>S</u> igning	∫ <u>W</u> indows L	Ipdate
( Hardware		<u>S</u> igning	<u>W</u> indows L	lpdate
	Profiles		,	· · · · ·
-	Profiles Hardware prof		vay for you to set up	· · · · ·
-	Profiles Hardware prof	files provide a v	vay for you to set up	· · · · ·
-	Profiles Hardware prof	files provide a v	vay for you to set up	and store
-	Profiles Hardware prof	files provide a v	vay for you to set up ions.	and store

 Expand the Multi-port serial adapters tab, right click MOXA UPort 1250 Series, and then click Properties to open the UPort's configuration panel.



The **Ports Configuration** page settings are described below.

eneral Ports Con	figuration Driver	Details	
Basic Settings Port Select Port 1 Port 2	COM No.	COM3 (cu	ed. 1st port is port 1)  rrent)  COM Number
	Friendly Name		Port COM
	UART FIFO Tx Mode Fast Flush	Enable Hi-Perform	nance 💌
		Enable	•
	Interface	RS-232	•
	R <u>e</u> set	default	⊻iew all settings
-Advance Setting <u>S</u> ave	s	tore	Clear
		lp	Locate

### **Port Settings**

#### Auto Enumerating COM Number

If the "Auto Enumerating COM Number" checkbox is checked, COM numbers will be assigned automatically and in sequence to the ports. E.g., COM3 to Port 1, COM4 to Port 2, etc.

If you do not enable this check box, only the first COM Number will be changed to new COM number list in the drop-down list box. Enable this function if you want to configure several ports with sequential numbers.

#### Friendly Name

Setting	Factory Default	Necessity
1 to 20 characters	Moxa UPort COM	Optional
(E.g., UPort 1610-8)		

Use the "Friendly name" to allow easy identification of the serial devices that are connected to the UPort's serial ports.

#### UART FIFO

Setting	Factory Default	Necessity
Enable/Disable	Enable	Required

The UPort's serial ports provide a 128-byte FIFO both in the Tx and Rx directions. Disable UART FIFO setting when your serial device does not have a FIFO to prevent data loss during communication. For a slow serial device, we recommend you disable FIFO to improve the latency. If you want to use XON/XOFF flow control, we recommend disabling UART FIFO.

#### Tx Mode

Setting	Factory Default	Necessity
Hi-Performance,	Hi-Performance	Required
Classical		

To improve the write performance, you can select Hi-Performance mode. Under classical mode, the driver will not notify the user's program that Tx is completed until all Tx data has been sent out from the UPort; this mode will cause lower throughput. If you want to ensure that all data is sent out before further processing, classical mode is recommended. Classical mode is the same as the COM Port behavior: The WriteFile() call will only finish when all queued data are sent out.

#### Fast Flush

Setting	Factory Default	Necessity
Enable/Disable	Enable	Required

- 1. For some applications, the user's program will use the Win32 PurgeComm() function before it reads or writes data. With our design, after the program uses this PurgeComm() function, the UPort driver will keep querying the UPort's firmware several times to make sure that no data is queued in the UPort's firmware buffer, rather than just flushing the local buffer. This kind of design is used because of some special considerations. However, it might take more time (about several hundred milliseconds) than a native COM1, because it needs to work over Ethernet. This is why the native COM ports on the motherboard can work fast with this function call, but the UPort requires much more time.
- 2. To begin with, make sure there are some *PurgeComm()* functions being used in your application program. In this kind of situation, you might find that your UPort exhibits a much poorer operation performance than when using the native COM1 port. Once you have enabled the *Fast Flush* function, you can check to see if there has been an improvement in performance.
- By default, the optional *Fast Flush* function is enabled, which allows the UPort driver to work faster when using the *PurgeComm()* function.
- 4. Win32 function *PurgeComm()* with PURGE\_TXCLEAR will clear all queued Tx data. But for some applications, it will call this function for each transaction and result in low throughput. To avoid this, you can enable this function. The driver will only clear the data queued in the local buffer; it will not send firmware through the USB port to clear the data queued in the firmware buffer.

#### Interface

UPort 1410, 1610-8, 1610-16

Setting	Factory Default	Necessity
RS-232	RS-232	Required

UPort 1250, 1250I, 1450, 1450I, 1650-8, 1650-16

Setting	Factory Default	Necessity
RS-232, RS-422,	RS-232	Required
4-wire RS-485, 2-wire		
RS-485		

#### Reset default

If you click the **Reset default** button, all the settings will return to Factory default settings:

COM Number:	<assign automatically="" available="" com="" number=""></assign>
Tx Mode:	Hi-Performance
UART FIFO:	Enable
Fast Flush:	Enable
Interface:	RS-232

#### View All Settings

You can preview all ports settings with this function.

Ports	Configu	ration					2
Port 1 2	COM No. COM3 COM4	UART FIFO Enable Enable	Tx Mode Hi-Performance Hi-Performance		Interface RS-232 RS-232	Friendly Name MOXA UPort COM MOXA UPort COM	
				ок			

### **Advanced Settings**

Serial transmission applications use names such as COM3 and COM4 to identify COM ports. Unfortunately, most USB-to-serial products are unable to use fixed COM names on the host PC. This means the names of the COM ports change when the USB-to-serial device is plugged into a different USB port, either on the same or a different PC, forcing the user to reconfigure the COM names manually from within the application. Moxa's UPort<sup>™</sup> 1200/1400/1600 USB-to-serial converters have two advanced features that allow them to use fixed COM names when the user enables the COM port.

With Moxa's COM Preserver<sup>™</sup> function or fixed-base COM mode, the COM names remain on the UPort<sup>™</sup> device. Moreover, the COM Preserver<sup>™</sup> function can even create the same COM port names on a different host PC. With this feature, you do not need to modify application programs, or rebuild the entire project every time you install a new operating system or upgrade the computer. Don't worry about moving the UPort<sup>™</sup> from one USB hub to another, or even from one computer to another.

#### COM Preserver – Driver Setting Management

UPort provides one special function to help you manage the UPort settings. In the general case, you need write down all the settings including COM number to prevent them from being lost. In some applications, to clone multiple systems you also need to worry about how to clone the COM Port settings. Using the UPort **COM Preserver** function, you just need to save all the settings into UPort device directly– just like a USB Mass Storage device. You do not need to record it using additional paper or disk. If your host crashes, you can just install the driver into new host, plug the original UPort and click the **Restore** button to restore all settings back very quickly.

**NOTE** If you want to use these settings in another PC, be sure the PC has a free COM port available. Otherwise, the new settings will copy over the settings of a COM port that is already in use.

#### Save

Save all settings to the UPort.

Informa	tion  🕅
į	Configurations store successfully.
	ОК

#### Restore

Read all UPort settings as new settings. Click **OK** to activate.

Information	
(j)	Configurations restore successfully.
	ОК

#### Clear

Clear the UPort settings stored in the UPort. This operation is similar to resetting all settings to their factory defaults.

Informa	tion 🛛
(į)	Configurations clear successfully.
	OK

The following settings will be saved to the UPort if you select **Save**:

COM number, Friendly Name, Transmission Mode, FIFO settings, Fast Flush settings, and Interface.

#### Help

Clicking **Help** will open the online help for the UPort.

ntents   I <u>n</u> dex   <u>S</u> earch	<b>Basic Operation</b>
<ul> <li>☑ UPort Configuration Guide</li> <li>② Basic Operation</li> <li>③ Parameters Description</li> <li>③ Advance Settings</li> </ul>	Reset default All parameter settings will change to default. View all Settings Show current settings of all ports. Locate When the PC plugs more than one UPort device series, it can help user to find out the current UPort device by sound the beeper.

#### Locate

Use this function to identify the UPort's location, especially when two or more UPorts are installed in the same computer. This function will ask the UPort to flash the ready LED and turn on the Buzzer until you stop it.

Locate		X
	Device locating	
	Stop	

#### **Fixed-base COM**

Moxa's UPort 1200/1400/1600 Series Utility gives users a convenient tool for configuring and maintaining products from the UPort series. In this section, we introduce the "Fixed-base COM Mode" function that enables user to set COM names on the host PC. We use the UPort 1250 as an example.

# **Enable Fixed-base COM Mode**

Moxa's UPort 1200/1400/1600 series provides a unique fixed-base COM function that allows users to set a specific initial COM port number. Regardless of which UPort is plugged into the host, the COM port numbers for the UPort's serial ports will be numbered sequentially starting with the initial COM port number.

The default setting is disabling Fixed-base COM Mode. To use "Fixed-base COM Mode," be sure to check the "Enable Fixed-base COM Mode" check box.

JUPort 1200/1400/1600 Series Configuration Tool	
Devices Configuration	
Enable Fixed-base COM Mode	
Select a beginning COM number COM3	•
<u>V</u> iew Settings	
Help OK	<u>C</u> ancel

Fixed-base COM Mode" allows users to specify which COM number will be assigned first. In addition, COM numbers are assigned sequentially, and are not tied to specific UPort converters. For example, assume that you have set COM10 as the first COM number that will be assigned. If UPort D1 is plugged into your computer first, your computer will assign COM10 and COM11 to the UPort's serial ports. When UPort D2 is plugged in, the computer will assign COM numbers COM12 and COM13.



If both UPorts are unplugged from the computer, and then UPort D2 is plugged back in, the computer will now assign COM10 and COM11 to the UPort's serial ports. When UPort D1 is plugged back in, COM numbers COM12 and COM13 will be assigned the UPort's serial ports.



When "Fixed-base COM Mode" is enabled for the first time, all COM port numbers and serial port parameters will be reset to their default values. You can then set the COM numbers and configuration parameters to the values needed for your application.

For example, let's assume that before you enable "Fixed-base COM Mode" you set the parameters of the UPort 1250 as follows:

Ports Configuration						
Port	COM No.	UART FIFO	Tx Mode	Fast Flush	Interface	Friendly Name
1 2	COM3 COM4	Disable Enable	Classical Hi-Performance	Enable	RS-232 RS-485 4W	POS Device
,				ОК		

If you enable "Fixed-base COM Mode," all parameters will be reset to their default values:

ll Ports	Configu	ration					
Port 1 2	COM No. COM10 COM11	UART FIFO Enable Enable	Tx Mode Hi-Performance Hi-Performance		Interface RS-232 RS-232	Friendly Name MOXA UPort COM MOXA UPort COM	
				ОК			

At this point you can set serial parameters to the values needed for your application.

Ports	Configu	ration					
Port 1 2	COM No. COM10 COM11	UART FIFO Enable Enable	Tx Mode Hi-Performance Classical	Fast Flush Enable Enable	Interface RS-232 RS-485 2W	Friendly Name POS Device 2 Meter 2	
				ок			

If you subsequently disable "Fixed-base COM Mode," all parameters will be restored to the original settings:

Port	COM No.	UART FIFO	Tx Mode	Fast Flush	Interface	Friendly Name
2	COM3 COM4	Disable Enable	Classical Hi-Performance	Enable Enable	RS-232 RS-485 4VV	POS Device Meter

# **Uninstalling the UPort**

If you want to remove the UPort, you just need to remove the device from **Device Manager**. The UPort driver will still stay alive enabling other UPort devices to keep working.

 To uninstall the UPort, click Start → Settings → Control Panel → System, select the Hardware tab, and then click Device Manager.

oystom no.	store Auti	Automatic Updates					
General	Computer Name	Hardware	Advanced				
Device Mana	- 10 VART 10-0	1212 20 20 2010	22 8222 83				
		all the hardware device Device Manager to cl					
	perties of any device.	e bevice manager to cr	lange the				
		Device Ma	anager				
		<u></u>					
Drivers							
Dri	ver Signing lets vou ma	ke sure that installed dr	ivers are				
cor	Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up						
hou		o Windows Update for					
hou			drivers.				
hou	w Windows connects t	o Windows Update for	drivers.				
Hardware Pro	v Windows connects t Driver <u>S</u> igning	o Windows Update for	drivers.				
Hardware Pro	v Windows connects t Driver <u>Signing</u> ifiles	o Windows Update for	drivers.				
Hardware Pro	v Windows connects t Driver <u>Signing</u> ifiles	o Windows Üpdate for <u>W</u> indows L a way for you to set up	drivers.				
Hardware Pro	v Windows connects t Driver <u>Signing</u> files rdware profiles provide	o Windows Üpdate for <u>W</u> indows L a way for you to set up	drivers.				
Hardware Pro	v Windows connects t Driver <u>Signing</u> files rdware profiles provide	o Windows Üpdate for <u>W</u> indows L a way for you to set up	drivers.				
Hardware Pro	v Windows connects t Driver <u>Signing</u> files rdware profiles provide	o Windows Update for Windows L a way for you to set up rations.	drivers.				

 Expand the Multi-port serial adapters tab, right click MOXA UPort 1250 Series, and then click Uninstall to uninstall this UPort. A window will pop up to confirm that you want to remove this UPort.



3. Click **OK** to continue uninstalling the UPort. The UPort will be removed from the list of **Multi-port serial adapters**.

# **Uninstalling the Driver**

1. To uninstall the driver, open the Control window, and click **Add/Remove Programs**.



2. Select Moxa UPort Windows Driver Ver1.4. Click the Remove button.

🐻 Add or Rer	nove Programs			
5	Currently installed programs:	Show up <u>d</u> ates	Sort by: Name	*
C <u>h</u> ange or Remove Programs	N FastStone Capture 5.3		Size	1.41MB
	🚧 Marvell Miniport Driver		Size	0.83MB
Add <u>N</u> ew	🔀 Microsoft .NET Framework 2.0		Size	88.37MB
	MOXA UPort Windows Driver Ver1.4		Size	<u>1.55MB</u>
Programs	Click here for support information.			ccasionally
<b>F</b>			Last Used On	3/4/2009
Add/Remove	To remove this program from your computer, click Remove.			Remove
<u>W</u> indows Components				
Componentes				
<b>()</b>				
Set Pr <u>o</u> gram				
Access and Defaults				

🐻 Add or Re	emove Programs	
	Currently installed programs: Show updates Sort by: Name	*
C <u>h</u> ange or Remove	FastStone Capture 5.3 Size	1.41MB
Programs	Marvell Miniport Driver Size	0.83MB
	B Microsoft .NET Framework 2.0 Size	88.37MB
Add <u>N</u> ew	J MOXA UPort Windows Driver Ver1.4 Size	1.55MB
Programs	Click here for support information. Used oc	casionally
		3/4/2009
Add/Remove	To remove this program from your computer dick Remove MOXA UPort Windows Driver Ver1.4 Uninstall	Remove
<u>W</u> indows Components		
componentes	Are you sure you want to completely remove MOXA UPort Windows Driver Ver1.4 and all of its components?	
€⁄		
Set Pr <u>o</u> gram Access and	Yes No	
Defaults		

3. Click **OK** to proceed with the un-installation procedure.

MOXAL	IPort Windows Driver Ver1.4 Uninstall 🛛 🛛 🕅
٩	MOXA UPort Windows Driver Ver1.4 was successfully removed from your computer.
	ОК

# **Installing the Mac Driver for macOS**

For macOS 10.12 and later, follow the steps below to install the driver.

- 2. Disable System Integrity Protection (SIP) by typing 'csrutil disable' in the terminal.
- 3. Return to Normal Mode.
- 4. Launch the UPort driver installer and finish the installation procedures shown below.
- 5. Enter Recovery Mode again.
- 6. Enable System Integrity Protection (SIP) by typing 'csrutil enable' in the terminal.
- 7. Return to Normal Mode.

### **Installation Procedure**

1. Run the installer package, which you can find on Moxa's support website <a href="http://www.moxa.com/support/">http://www.moxa.com/support/</a>. Click **Continue** to install the driver.



2. Under Read Me, see the instructions for installation and troubleshooting.

🖲 🕘 💮 💝 I	nstall macOS driver for the UPort 1200/1400/1600 Series	
	Important Information	
<ul> <li>Introduction</li> <li>Read Me</li> <li>License</li> </ul>	The UPort 1200/1400/1600 Series macOS driver supports the following UPort devices: UPort 1250/1250I UPort 1410/1450/1450I UPort 1610-8/1650-8	
<ul> <li>Destination Select</li> </ul>	UPort 1610-16/1650-16	
Installation Type		
<ul><li>Installation</li><li>Summary</li></ul>	Prerequisite - Hardware platform: Intel x86/x64 machine - USB Standard: USB 1.1/2.0 compliant - OS version: macOS 10.12 to 10.15 - Turn off System Integrity Protection (SIP). Please refer to the "Troubleshooting" section to learn how to enter Recovery Mode.	
ΜΟΧΛ	Troubleshooting         Turn off System Integrity Protection (SIP)         1. Reboot the Mac and hold command \mathcal{Command \mathcal{H}+R}, entering Recovery Mode.         2. Launch the terminal         Print       Save         Go Back       Continu	e
3. Please read the Software License Agreement.

🖲 🔵 🔿 😂 İn	stall macOS driver for the UPort 1200/1400/1600 Series	
	Software License Agreement	
	MOXA LICENSE	
Read Me	Version 1, 29 November 2007 Copyright (c) MOXA Inc. All rights reserved.	
• License	The SOFTWARE is copyrighted and is protected by all applicable	
<ul> <li>Destination Select</li> </ul>	national laws. Any duplication of the SOFTWARE other than for	
<ul> <li>Installation Type</li> </ul>	archival purposes is a violation of law, i.e., redistribution of this SOFTWARE in source and binary form are prohibited. You agree to	
<ul> <li>Installation</li> </ul>	prevent any unauthorized copying of the SOFTWARE.	
• Summary	LIMITED WARRANTY: MOXA Inc. or its distributors, depending on which party sold the SOFTWARE, warrants that the media on which the SOFTWARE is installed will be free from defects in materials under normal use. MOXA or its distributor warrants, for your benefit alone, that during the Warranty Period the SOFTWARE, shall operate substantially in accordance with the functional specifications in the User's Manual. If, during the Warranty Period, a defect in the SOFTWARE, appears, you may obtain a replacement of the SOFTWARE. Anv replacement SOFTWARE will be warranted for the	
	Print Save Go Back Continue	

4. By clicking **Agree**, you agree to the terms and conditions of this Software License Agreement. Next, the **Destination Select** page will open.

000	🥪 Ins	stall macOS driver for the l	JPort 1200/1400/1600 Sei	ries	
	To continue installing the software you must agree to the terms of the software license agreement.				
Introdu	Click Agree to continue or click Disagree to cancel the installation and quit				
Read M	the Installer.				
Licens					le
<ul> <li>Destina</li> </ul>	Read Licens	se	Disagree	Agree	
<ul> <li>Installa</li> </ul>					e to
<ul> <li>Installation</li> </ul>	on	prevent any unauthorize	ed copying of the SOFTW	/ARE.	
<ul> <li>Summary</li> </ul>		which party sold the SC the SOFTWARE is insta normal use. MOXA or it that during the Warranty substantially in accorda User's Manual. If, during SOFTWARE, appears,	MOXA Inc. or its distribut FTWARE, warrants that alled will be free from defe s distributor warrants, for y Period the SOFTWARE nce with the functional sp g the Warranty Period, a you may obtain a replace cement SOFTWARE will	the media o bects in mate your benefi , shall opera becifications defect in the ment of the	n which rials under t alone, ate in the
		Print Save	(	Go Back	Continue

5. Under **Destination Select**, select a target user.



#### 6. Click Install to start the installation.

🛑 😑 💿 🛛 💝 Install	macOS driver for the UPort 1200/1400/1600 Series	
	Standard Install on "FPCMBP"	
<ul> <li>Introduction</li> <li>Read Me</li> <li>License</li> <li>Destination Select</li> <li>Installation Type</li> <li>Installation</li> <li>Summary</li> </ul>	This will take 985 KB of space on your computer. Click Install to perform a standard installation of this software for all users of this computer. All users of this computer will be able to use this software.	
ΜΟΧΛ	Change Install Location Go Back Install	

Key in your credentials to confirm the installation.

$\bigcirc$	Installer is trying to install new software.					
5	Enter your password to allow this.					
	User Name: moxa					
	Password:					
	Cancel Install Software					

7. The installation process starts.

	Install macOS driver for the UPort 1200/1400/1600 Series	
	Installing macOS driver for the UPort 1200/1400/1600 Series	
<ul> <li>Introduction</li> <li>Read Me</li> <li>License</li> <li>Destination Select</li> <li>Installation Type</li> <li>Installation</li> <li>Summary</li> </ul>	Running package scripts	
MOXA	Go Back Continue	

8. Installation has been completed.



# Troubleshooting

If the installation encounters an error message such as below, please check your System Integrity Protection (SIP) by executing the **csrutil status** in the terminal. If it is enabled, please disable it and try to install it again.



If you cannot install the driver on macOS 10.15 successfully, starting with macOS 10.15 Catalina, Apple has introduced a new read-only protection that does not allow users to install the driver directly in the kernel folder. To solve this issue, please type the following command in Terminal before installation:

\$ sudo mount -uw /

### **Setting the Serial Parameters**

mxutty is a command line tool used to set/query the UPort settings.

Usage: mxutty <operation> [device name]

Device\_name: The POSIX device name of UPort, such as '/dev/tty.USB0'

Operation:

Command	Description
-h	
-i	
-i [TYPE]	Set the type of serial interface. [TYPE] is one of the following:
	[RS232] – RS-232 mode
	[RS422] – RS-422 mode
	[RS4852W] - RS-485 2 wire mode
	[RS4854W] - RS-485 4 wire mode
-a	Query the setting of the Fast Flush function
-a [VALUE]	Set to enable or disable the Fast Flush function. [VALUE] is one of following:
	[1] – Enable
	[0] - Disable
-f	Query the setting of FIFO
-f [VALUE]	Set to enable or disable FIFO. [VALUE] is one of following:
	[1] – Enable
	[0] - Disable
-1	Locate the UPort with a beeper
-v	Show the overall information for the UPort

#### Examples:

./mxutty -i RS4852W /dev/tty.USB0 -> Set tty.USB0 to RS-485 2 wire mode

./mxutty -i /dev/tty.USB0-> Get the interface mode of tty.USB0

./mxutty -v-> Show overall information about the UPort

## Uninstall the UPort 1200/1400/1600 Series Driver

Run the following command to uninstall the driver.

\$ sudo bash /Library/MxUPortDriver/uninstall.sh

# Installing the Linux Driver

The Linux driver provided with the UPort 1200/1400/1600 maps Linux host ttyMXUSBxx ports to UPort device ports. Once the mapping has been set up, Linux users and applications can connect to a device port as if it were a ttyMXUSBxx port. These drivers have been designed and tested for the majority of Linux distributions. Please check Moxa's website (http://www.moxa.com) for the latest Linux kernel support.

## **Driver Files**

First obtain the Linux driver file **driv\_linux\_uport\_v1.x\_build\_xxx.tgz** from the Moxa website at <a href="http://www.moxa.com">http://www.moxa.com</a>. Save the driver file to a specific directory, such as **/moxa**, and then execute the commands listed below:

```
# cd /moxa
```

```
# tar xvfz driv_linux_uport_v1.x_build_xxx.tgz # cd /moxa
```

```
# make
```

```
# make install
```

- # modprobe mxuport
- # ls /dev/ttyMXUSB\*

## **Module Driver Configuration**

We cover the following topics in this section:

- Building the Moxa Driver
- Installing the Moxa Driver

### **Building the Moxa Driver**

Before using the Moxa driver, you will need to compile all of the source code. This only needs to be done once, unless you modify the source code. If the source code is modified, then you will need to re-compile it.

To compile the source code, change to the **/moxa/mxuport** directory, and then run the **Is** (list) command to check if the **Makefile** file is in the directory. Next, run the "make" command as follows:

# make

### Installing the Moxa Driver

To install the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **Is** (list) command to check if the **Makefile** file is in the directory. Next, run the "make install" command as follows:

# make install

The driver files "mxuport.ko" and "mxusbserial.ko" will be compiled and copied to system directories.

### Loading the Moxa Driver

To load the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **Is** (list) command to check if the **Makefile** file is in the directory. Next, run the "modprobe mxuport" command as follows:

# modprobe mxuport

After loading the Moxa driver, run the following command to check the Moxa serial port

# ls /dev/ttyMXUSB\*

**NOTE** The serial COM port will be ttyMXUSB[nnn], nnn = 0~255. For example, ttyMXUSB0,ttyMXUSB1 ...

### Unloading the Moxa driver

To unload the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **ls** (list) command to check if the **Makefile** file is in the directory. Next, run the two "rmmod" commands as follows:

```
# rmmod mxuport
```

```
# rmmod mxusbserial
```

### Uninstalling the Moxa driver

To uninstall the Moxa driver, change to the **/moxa/mxuport** directory, and then run the **Is** (list) command to check if the **Makefile** file is in the directory. Next, run the two "make remove" command as follows:

# make remove

## **Setting the Serial Parameters**

After installing the Moxa Linux Driver, you will be able to configure parameters.

#### 1. Serial Interface:

The UPort 1250/1250I/1450/1450I/1650-8/1650-16 supports four interfaces: RS-232, RS-485 2W, RS-485 4W, RS-422. If you want to switch to a different interface, execute the setserial command to set the port's interface. The supported parameters are listed below.

Parameter Value	Interface
0x0	RS-232
0x1	RS-485 2W
0x2	RS-422
0x3	RS-485 4W

#### Example:

- (i) The following command sets the interface of "/dev/ttyMXUSB0" to RS-422:
   # setserial /dev/ttyMXUSB0 port 0x2
- Use the following command to look up the serial settings of the current port:
   # setserial -g /dev/ttyMXUSB0

#### 2. Serial Baudrate:

Evample	
spd_normal	Use 38.4 kbs instead of 38.4 kbs.
spd_warp	Use 460 kbs instead of 38.4 kbs.
spd_shi	Use 230 kbs instead of 38.4 kbs.
spd_vhi	Use 115.2 kbs instead of 38.4 kbs.
spd_hi	Use 57.6 kbs instead of 38.4 kbs

#### Example:

# setserial /dev/ttyMXUSB0 spd vhi

**NOTE** For the UPort with DB Male Serial Ports, you may refer to the DB9 Male Ports pin assignment section to loop back pin 2 and pin 3 for the RS-232 interface to carry out a self test on the device.

## Troubleshooting

#### 1. Compile error

Building a Moxa driver requires kernel header files. If you get a compile error, run **rpm -qa | grep kernel** to check if the kernel-source package is installed properly. If not, get the kernel-source irpm package and run **rpm -ivh <pacakge>** to install it. You also need to make sure the build tool is ready by including make/gcc/lib. See Linux related documents for more information.

#### 2. No such file or directory

This problem occurs when a device node is not generated automatically when loading the driver. It usually happens with previous kernel versions, such as versions 2.6.0 to 2.6.5. Therefore, just execute the make node script "upmknod" to generate the device node.

# Installing the Windows CE Driver

In this section, we introduce installation procedures for the Windows CE 5.0 and Windows CE 6.0 drivers. Both Win CE 5.0 and Win CE 6.0 need the Win CE platform builder for installation. The only difference is that Win CE 6.0 also requires Visual Studio 2005. Win CE 6.0 platform builder has tools necessary for you to design, create, build, test, and debug Windows CE. Visual Studio 2005 and Win CE 6.0 Builder provide a workspace where you can work on both OS designs and projects to build your own embedded system.

Win CE 6.0 installation requires both Visual Studio 2005 and Win CE 6.0 Builder. When installing Visual Studio 2005, you can select your preferred language with .NET Framework SDK or use the "default".

After completing installation for Visual Studio 2005, run Win CE 6.0 Builder "setup.exe" to install and download the files.

You will need to select "x86" for the CE 6.0 operating system.

This process will may take a couple of hours and the folder size is around 3 GB.

## Installation With an Installation Package for Win CE 6.0

### **Installation Procedure**

Copy the UPort 1200/1400/1600 WinCE 6.0 driver package onto your computer and extract. Double click on the installation package and it will automatically copy the **Mxser** folder to C:\MOXAUPORT\wince600\Uport.

 Launch Visual Studio 2005 with Platform Builder WinCE6.0. Open the OSDesign that you want to install. In Visual Studio 2005, click File → New → Project, and select "Platform Builder for CE 6.0". Select "OS Design" for the template then click OK.



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<u>N</u> ame:	OSDesign1				
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Solution Na <u>m</u> e:	OSDesign1		Create <u>d</u> irectory for solu	tion	
				OK	Cancel

2. When the CE 6.0 OS Design Wizard starts, select CEPC: x86 for Board Support Packages.



Cancel

<u>N</u>ext >

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 Under Design Templates and Design Template Variants, select your environment, such as PDA Device or Mobile Handheld, and then click Next. In Application & Media and Networking & Communication, also select your environment, such as .NET Compact Framework 2.0, ActiveSync, Quarter VGA Resources-Portrait Mode, or TCP/IPv6 Support.



<b>L'esign lemplate variants</b> Select a design template variant that provides the fu requires.	mctionality that your target device
<u>V</u> ariants: <u>Mobile Handheld</u> <u>Enterprise Web Pad</u>	Enterprise web pad
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4. When the **OS Design Project Wizard Complete** screen appears, click **Finish**. The notification will pop up. Click **"Acknowledge**" to finish the project.

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 Open the project you created. Click **Project** on top of the screen, and then select **Add Existing Subproject**. Switch the folder to "C:\MOXAUPORT\wince600\Uport" and add subprojects into your OS Design. Assign the pbpxml file to a different folder (i.e.mxupce6.pbpxml).



After the subproject is added, you may configure the "mxupce6.reg" registry file with the location
 [HKEY\_LOCAL\_MACHINE\Drivers\USB\ClientDrivers\MXU\_PORT].

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7. Open "Build", select "Advanced Build Commands" and "Build Sysgen". This operation will take you a few minutes.

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8. After building sysgen, select "**Build**" and "**Make Run-Time Image**" to create the WinCE OS image. Finally, copy your image file to the target Host.

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 Configure the interface on the target device using the configuration tool found in "Start → Programs → MOXA UP Configuration Panel\UPort Configuration Utility".

## Installation With an Installation Package for Win CE 5.0

In this section, we describe how to install the Moxa Win CE 5.0 Driver on a Windows CE 5.0 operating system.

- Obtain a copy of the UPort 1200/1400/1600 Series WinCE 5.0 driver package and extract it to your computer. Double click the installation package and it will automatically copy the UPort folder to "\WINCE500\PLATFORM\" (e.g., C:\WINCE500\PLATFORM\UPort) and import the UPort 1200/1400/1600 WinCE 5.0 driver into the "Catalog".
- Open your workspace in Platform Builder, and then open "Manage Catalog Items" (View à Catalog). You will find the UPort 1200/1400/1600 WinCE 5.0 driver in the "Third Party" folder.



3. Right-click on the driver "USB to Serial Adapters (Prefix COM)" or "USB to Serial Adapters (Prefix MXU)" and then choose "Add to OS Design." After adding the driver, you will be able to find it in your workspace, after which you can start to build your OS and download it into a target.





 Interface configuration. On the target device, configuration tool will be found in "Start→Programs→MOXA UP Configuration Panel\UPort Configuration Utility".

# Removing the Moxa Win CE 5.0/ CE6.0 Driver

### For Win CE 6.0 Driver:

1. Select the driver to remove.



 Switch the folder to C:\ MOXAUPORT \ and double click "unins000.exe" to remove the installation folder.

### For Win CE 5.0 Driver:

- 1. In the "OSDesign\_View", delete "USB to Serial Adapters (Prefix XXX)".
- 2. Remove the driver from Control Panel.
- 3. Checkmark "clean before building".
- 4. Use "build and sysgen" to rebuild the image.

# **Installation With a CAB File**

Install the UPort 1200/1400/1600 series Win CE driver onto the target host.

- 1. If you do not have ActiveSync, install Microsoft ActiveSync in the source PC. Before running ActiveSync, use an RS-232 null modem cable to connect the WinCE Device (CEPC) and the PC.
- 2. Execute the command **repllog** from the WinCE device's command prompt. When the **New Partnership** window appears, select **No** and then click **Next** to connect through ActiveSync.

New Partnership		
	Set Up a Partnership	
$\sim$	Before you can synchronize information between your mobile device and this computer, you must set up a partnership between them. Would you like to set up a partnership?	
( ,	Ves	
$\mathcal{V}$	Set up a partnership so that I can synchronize information between my device and this computer.	
	No I don't want to synchronize information. Set up my device as a guest so that I can copy or move information between my device and this computer.	
	K Back Next > Cancel Help	

Get Connected	
	Get Connected
	To connect your device to this PC:
	1. Connect the cable to the PC
( ) )	2. Turn on the device
( ) )	3. Connect the device to the cable
$\leq$	ActiveSync should automatically detect your device.
	If your device is not automatically detected, click Next. If you are using infrared (IR) or Bluetooth, click Help.
	KBack Next > Cancel Help

🔇 Microsoft ActiveSync	
<u>File Y</u> iew <u>T</u> ools <u>H</u> elp	
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 Click on the "Explore" button in the ActiveSync window, and then copy the UPort\_COM\_v1.0\_Setup.cab (Win CE 6.0) or UPort\_COM\_v1.1\_Setup.cab (Win CE 5.0) file to the "Mobile/Target Device".

Mobile Device							
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4. Double click on the CAB file (UPort\_COM\_v1.0\_Setup.cab (Win CE 6.0) or UPort\_COM\_v1.1\_Setup.cab (Win CE 5.0)) to start installing the UPort 1200/1400/1600 Series WinCE driver. After installing the driver, plug the UPort 1200/1400/1600 Series USB Serial device into the WinCE device's USB port. The driver will be loaded automatically, after which the UPort 1200/1400/1600 will be ready to use.

# Removing the Moxa Win CE 5.0/ CE6.0 Driver

- 1. Enter Control Panel → Remove Programs.
- Select MOXA UPort 1200/1400/1600 Windows CE6 Driver Ver1.0 (For Win CE 6.0) or MOXA UPort 1200/1400/1600 Windows CE5 Driver Ver1.1 (For Win CE 5.0).
- 3. Click Remove.

# **Serial Port Pin Assignments**

The UPort 1250/1250I have 2 RS-232/422/485 ports, the UPort 1410 has 4 RS-232 ports, the UPort 1450/1450I have 4 RS-232/422/485 ports, the UPort 1610-8/1610-16 have 8 or 16 RS-232 ports, and the UPort 1650-8/1650-16 has 8/16 RS-232/422/485 ports.

# DB9 Male RS-232 Port



### UPort 1410/1610-8/1610-16

# DB9 Male RS-232/422/485 Port

#### UPort 1250/1250I/1450/1450I/1650-8/1650-16

	Pin	RS-232	RS-422/ 4-wire RS-485	2-wire RS-485
$\cap$ ( $\cdot$ · · · $\cdot$ ) $\cap$	1	DCD	TxD-(A)	-
	2	RxD	TxD+(B)	-
	3	TxD	RxD+(B)	Data+(B)
69	4	DTR	RxD-(A)	Data-(A)
	5	GND	GND	GND
	6	DSR	-	-
	7	RTS	_	-
	8	CTS	_	_

# Mini DB9F-to-TB\* for RS-422/485 wiring

DB9F	<b>Terminal Block</b>
1	 2
2	· 1
3	 3
4	 4
5	5

\*An adapter is included with the UPort 1250, 1250I, 1450, 1450I, 1650-8, and 1650-16.