# **UPort 1100 Series User's Manual**

Fourth Edition, April 2009

www.moxa.com/product



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## **UPort 1100 Series User's Manual**

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# **1** Introduction

The UPort 1100 Series of USB-to-serial converters provide an easy way to add COM ports to your computer. The UPort 1110 provides one RS-232 port, the UPort 1130 provides one RS-422/RS-485 port, and the UPort 1150 and UPort 1150I each provide one RS-232/422/485 port. As a plug and play USB device, the converters are perfect for mobile, instrumentation, and point-of sale applications.

The UPort 1100 series include the following models:

UPort 1110: 1-port RS-232 USB-to-serial converter.

UPort 1130: 1-port RS-422/485 USB-to-serial converter.

UPort 1150: 1-port RS-232/422/485 USB-to-serial converter.

UPort 1150I: 1-port RS-232/422/485 USB-to-serial converter w/ isolation protection.

The following topics are covered in this chapter:

- □ Overview
  - ➢ ADDC<sup>™</sup> (Automatic Data Direction Control) for RS-485
  - > ARDC (Automatic Recovery Data Communication)
- Package Checklist
- **Product Features**
- **D** Product Specifications
- □ LED Indicators
  - Adjustable Pull High/low, Terminator Resistors for the RS-485 Port

### Overview

The UPort 1110, UPort 1130, and UPort 1150/1150I are part of Moxa's UPort line of USB-to-serial converters. The UPort line provides a range of easy-to-use solutions for adding COM ports through a PC's USB port. Simply install the drivers, 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.

The UPort 1100 series provides single COM port expansion. The UPort 1110 adds one RS-232 port to your computer, which is the same type of COM port that is built into most PC motherboards. The UPort 1130 adds one port that is configurable for RS-422, 2-wire RS-485, and 4-wire RS-485 modes. The UPort 1150/1150I adds one RS-232, RS-422, 2 wire RS-485, or 4 wire RS-485 port to your computer. All of these models can operate at speeds of up to 12 Mbps, which is much faster than the current maximum serial transfer rate. In addition, the UPort 1130/1150/1150I support ADDC<sup>™</sup> (Automatic Data Direction Control) for RS-485 transmission. The converter is bus-powered, so no external power supply is required.

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

ADDC<sup>TM</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>TM</sup> intelligence is built into all UPort products that support RS-485 transmission.

### ARDC (Automatic Recovery Data Communication)

ARDC (Automatic Recovery Data Communication) makes it easier to recover data transmission, even if the cable is accidentally unplugged. This means that you do not need to worry about reconfiguring complex settings to ensure smooth data transmission. 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 eliminates the need for reconfiguration, but also reduces the probability of data loss.

### **Package Checklist**

The following items are included in your UPort package:

- UPort 1100 Series USB-to-serial converter
- UPort Documentation and Software CD
- UPort 1100 Series Quick Installation Guide
- 5-year Warranty Statement

The UPort 1130/1150/1150I also come with the following item:

• Mini DB9F-to-Terminal-Block Converter

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

### **Product Features**

The UPort converter has the following features:

- Full-Speed USB operation at up to 12 Mbps
- Additional I/O or IRQ not required
- Serial transmission speed up to 921.6 Kbps
- 64-byte FIFO and built-in hardware and software flow control
- Built-in 15 KV ESD protection
- Support for RS-422, 2-wire RS-485, and 4-wire RS-485 (UPort 1130/1150/1150I)
- Terminal block adaptor (UPort 1130/1150/1150I)
- 2 KV Optical Isolation Protection (UPort 1150I only)

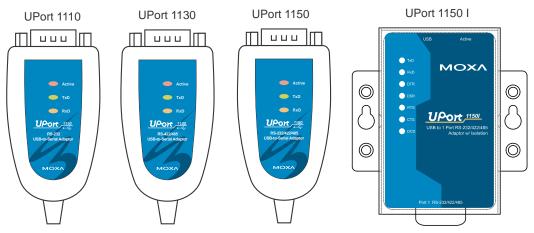
### **Product Specifications**

USB		
Version	USB 1.1 (also compatible with USB 1.0 and 2.0)	
Connector	USB type B	
Speed	12 Mbps	
Serial Interface		
No. of Ports	1	
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 2-wire: Data+(B), Data-(A), GND	
RS-485 Data Direction Control:	ADDC <sup>TM</sup> (Automatic Data Direction Control)	
Connector	Male DB9	
FIFO	64 bytes	
Serial line protection	15 KV ESD for all signals	
Serial Communication	Parameters	
Parity	None, Even, Odd, Space, Mark	
Data bits	5, 6, 7, 8	
Stop bits	1, 1.5, 2	
Flow control	UPort 1130: XON/XOFF UPort 1110/1150/1150I: RTS/CTS, XON/XOFF	
Speed	50 bps to 921.6 Kbps	
<b>Power Requirements</b>		
Power Consumption	UPort 1110: 30mA@5VDC UPort 1130: 90mA@5VDC UPort 1150: 77mA@5VDC UPort 1150I: 260mA@5VDC	
Mechanical		
Dimensions	UPort 1110/1130/1150: 37.5 x 20.5 x 60 mm (L x W x H) UPort 1150I: 52 x 80 x 22 mm (L x W x H)	

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Material	UPort 1110/1130/1150: ABS + PC
Material	UPort 1150I: Metal
Gross Weight	UPort 1110/1130/1150: 60 g (0.13 lb)
Gross Weight	UPort 1150I: 80 g (0.17 lb)
Environmental	
Operating Temperature	0°C to 55°C (32°F to 131°F)
Storage Temperature	-20°C to 70°C (-4°F to 185°F)
Operating Humidity	5% RH to 95% RH
<b>Regulatory Approvals</b>	
	EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC
	61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC
	61000-4-8, IEC 61000-4-11, FCC Part 15 Class B
Warranty	·
	5 years

### **LED Indicators**

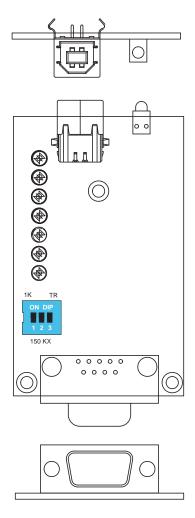


#### UPort 1110/1130/1150 LED description:

Name	Color	Description
Active	Red	<ul><li>This LED indicates normal operation.</li><li>Steady: The UPort is operational.</li><li>Off: Fault condition exists. There may be a problem with the converter, the driver installation, or PC configuration.</li></ul>
TxD	Green	Blinking: Serial device is transmitting data.
RxD	Yellow	Blinking: Serial device is receiving data.

#### **UPort 1150I LED description:**

Name	Color	Description
Active	Red	<ul><li>Steady: The UPort is operational.</li><li>Off: Fault condition exists. There may be a problem with the converter, the driver installation, or PC configuration.</li></ul>
TxD	Green	Blinking: Serial device is transmitting data.
RxD	Yellow	Blinking: Serial device is receiving data.
DTR, DSR, RTS, CTS, DCD	Red	Steady: Require these signals to operate. Off: Disable these signals to operate.



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

In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals. When using termination resistors, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. 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	3
5 W	Pull High	Pull Low	Terminator
ON	1ΚΩ	1ΚΩ	120 Ω
OFF	150 ΚΩ	150 ΚΩ	Disable

2

## Installation and Configuration

Installation of the converter is a simple process. First install the driver, then plug the converter into a USB port. When the converter is plugged in, Windows will load the correct drivers for the converter and the new COM port. In this chapter, basic installation and configuration procedures are explained. Although the installation screens will be for Windows 2000, the procedures are essentially the same for Windows 98 and later versions.

The following topics are covered in this chapter:

#### □ Initial Driver Installation

- Hardware Installation
- ▶ Windows 98/ME and Windows 2000
- ▶ Windows XP, Windows 2003, and Windows Vista (32-bit and 64-bit)
- Configuring the COM Port
- Configuring the Converter
- Removing the Converter
- > Uninstalling the Driver
- **Install Linux Driver** 
  - ▶ Linux Kernel 2.4.20 and above
  - Linux Kernel 2.6.x

#### □ Installing the Windows CE Driver

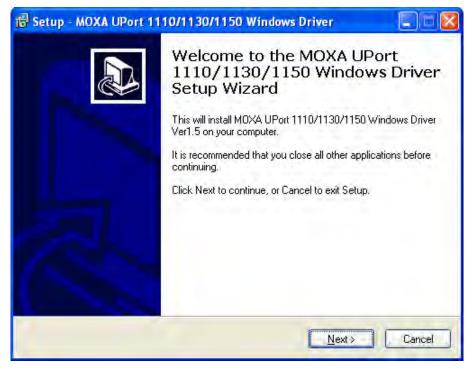
- > Installation with an installation package for Win CE 6.0
- > Installation with an installation package for Win CE 5.0
- ▶ Removing the Moxa WinCE 5.0 / CE 6.0 Driver
- > Installation with a CAB File
- ▶ Removing the Moxa WinCE 5.0 / CE 6.0 Driver

### **Initial Driver Installation**

The Documentation and Software CD contain the drivers for the converter. You may also download the drivers at <u>www.moxa.com</u>. The installation procedure is the same for all Windows operating systems.

Use Windows Explorer to locate the driver installation file, which will be **Setup** or **Install**. On the Documentation and Software CD, this file will be located in the **UPort 1100/Software** folder, filed by operating system. Double-click the **Setup** or **Install** file.

1. The Setup Wizard will open. Click Next to begin installing the driver.



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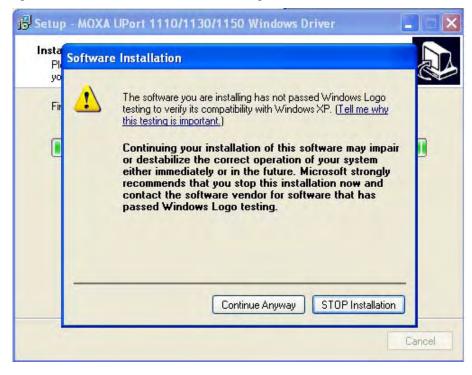
2. Click **Next** to install the driver in the indicated folder, or use the drop-down folder list to locate a different folder.

🔞 Setup - MOXA UPort 1110/1130/1150 Windows Driver	
Select Destination Location Where should MOXA UPort 1110/1130/1150 Windows Driver be in:	stalled?
Setup will install MOXA UPort 1110/1130/1150 Windows E following folder.	Driver into the
To continue, click Next. If you would like to select a different folder,	click Browse.
C:\Program Files\Moxa\US8Driver	Browse
At least 0.7 MB of free disk space is required.	
< Back Ne	ext > Cancel

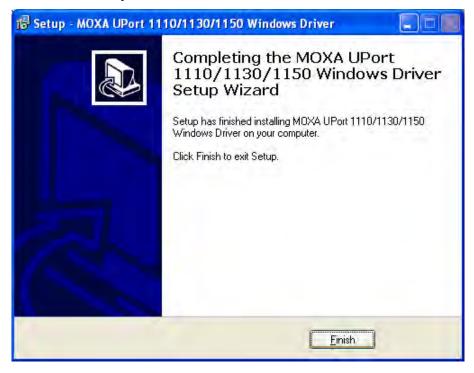
3. Click **Install** to proceed with the installation.

leady to Install		1
Driver on your computer.	n installing MOXA UPort 1110/1130/1150 Windows	C
Click Install to continue with change any settings.	h the installation, or click Back if you want to review or	
Destination location: C:\Program Files\Moxa	a\USBDriver	

4. A window will pop up cautioning you that this software has not passed Windows logo testing. This is a standard warning, and Moxa has thoroughly tested the driver for safe Windows operation. Please click **STOP Installation** to proceed.



5. Click **Finish** to complete the installation of the driver.



#### Hardware Installation

After installing the driver, plug the converter into any upstream USB port, such as a USB port on your computer. Windows will automatically detect the converter and begin installing the driver. When the Windows finishes installing the driver for the converter, it will then detect a new COM port, and will then install another driver for the new COM port.



#### ATTENTION

For best results, we recommend that you install the driver before plugging the converter into the USB port. Please refer to the previous section on Initial Driver Installation for instructions.

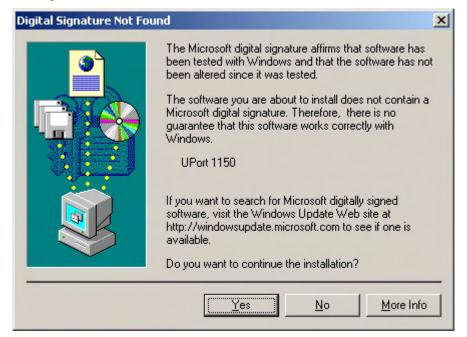
#### Windows 98/ME and Windows 2000

The following instructions are for Windows 98 and Windows 2000 systems:

1. After plugging the converter into a USB port, the **Found New Hardware** window should open automatically. The USB icon indicates that the USB port is being installed. No action is required.



2. Windows 98 users may skip to the next step. On Windows 2000 systems, a window will pop up cautioning you that this software has not passed Windows logo testing. This is a standard warning, and Moxa has thoroughly tested the driver for safe Windows operation. Please click **Yes** to proceed.



3. Windows will automatically detect and install the new serial port. No further action is required

Found New Hardware		
Ţ	MOXA USB Serial Port	
Installing	]	

### Windows XP, Windows 2003, and Windows Vista (32-bit and 64-bit)

The following instructions are for Windows XP, Windows 2003, and Windows Vista systems.

1. After plugging the converter into a USB port, Windows will automatically detect the new device. The **Found New Hardware** balloon will appear in the bottom right corner of the Windows desktop. No action is required yet.



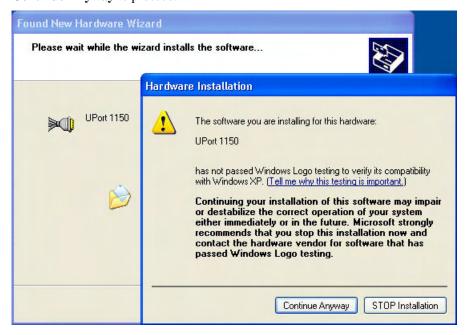
2. After a moment, the Found New Hardware Wizard will open. If you see the following screen, select **No, not this time**, then click **Next**.



Found New Hardware Wiz	ard
	This wizard helps you install software for: UPort 1150 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

3. On the next window that appears, select **Install the software automatically (Recommended)**, then click **Next**.

4. The installation wizard will search for the correct drivers. After a moment, a window will pop up cautioning you that this software has not passed Windows logo testing. This is a standard warning, and Moxa has thoroughly tested the driver for safe Windows operation. Please click **Continue Anyway** to proceed.



- 5. Windows will spend a few moments installing the UPort driver.
- 6. The next window indicates that Windows has completed the installation. Click **Finish** to continue with installation procedure.

Found New Hardware Wizard		
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: UPort 1150	
	Click Finish to close the wizard.	
	< Back Finish Cancel	

7. After Windows has completed installing the converter, it will automatically detect the new COM port. The **Found New Hardware** balloon will appear in the bottom right corner of the Windows desktop.



Found New Hardware Wiz	zard
	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.
	< <u>B</u> ack <u>N</u> ext > Cancel

8. The Found New Hardware Wizard will open. If you see the following screen, select **No, not this time**, then click **Next**.

9. After a moment, the Found New Hardware Wizard will open. Select **Install the software automatically (Recommended)**, then click **Next**.

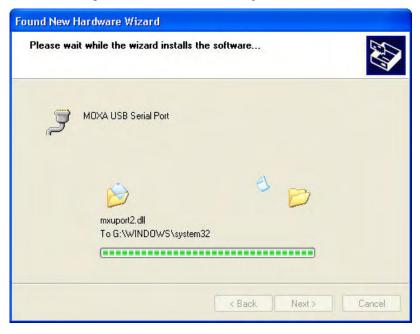
Found New Hardware Wiza	rd
	This wizard helps you install software for: MOXA USB Serial Port If your hardware came with an installation CD or floppy disk, insert it now. What do you want the wizard to do? Install the software automatically (Recommended) Install from a list or specific location (Advanced)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

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10. The installation wizard will search for the correct drivers. After a moment, a window will pop up cautioning you that this software has not passed Windows logo testing. This is a standard warning, and Moxa has thoroughly tested the driver for safe Windows operation. Please click **Continue Anyway** to proceed.



11. Windows will spend a few moments installing the driver.



- Found New Hardware Wizard

   Completing the Found New Hardware Wizard

   The wizard has finished installing the software for:

   Image: The wizard has finished installing the software for:

   Image: The wizard has finished installing the software for:

   Image: The wizard has finished installing the software for:

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   Image: The wizard has finished installing the software for:

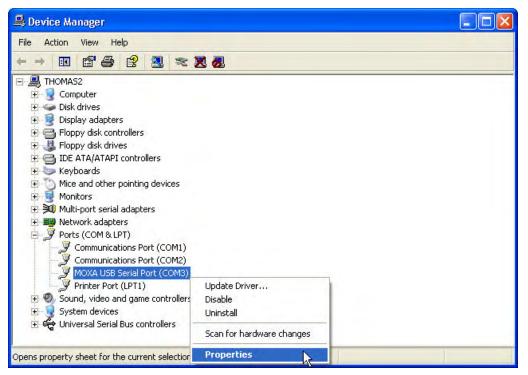
   Image:
- 12. The next window indicates that Windows has completed the installation. Click **Finish** to proceed with installation procedure.

13. The **Found New Hardware balloon** will reappear, indicating that the installation was successful.



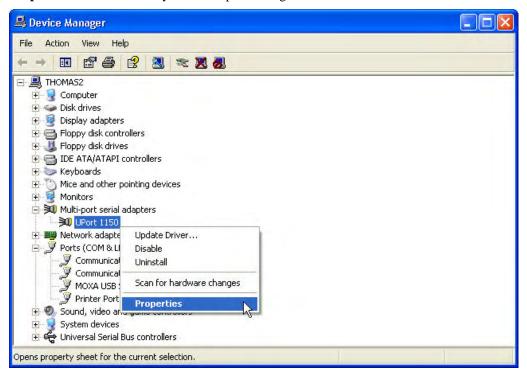
#### Configuring the COM Port

After the driver and hardware have been successfully installed, the new COM port will have a COM number and can be accessed and controlled just like your PC's built-in COM ports. If you need to change the baud rate, parity, or other COM port settings, you may use your serial communication application to make those changes. You may also go to Device Manager and right-click the **MOXA USB Serial Port**, which will be listed under **Ports** along with your PC's built-in COM ports. In the context menu that pops up, you may select **Properties** in order to modify the COM port settings.



### Configuring the Converter

If you need to change the COM number that the converter assigns to the COM port, or adjust other advanced settings, you may go to Device Manager and right-click the UPort converter, which will be listed under **Multi-port serial adaptors**. In the context menu that pops up, you may select **Properties** in order to modify the COM port settings.



In the **Port Configuration** tab, you will see the new COM port listed. Click **Port Setting** to modify the COM number and other parameters.

UPort	1150	) Properti	ies				?×
Gener	al P	orts Configu	ration Driver	Details			
_				di constant			
T	Port	COM No.	Fast Flush	Interface			T
	1	COM3	Enable	RS-232			
						-	1
						Port Setting	
-							lar.
					_		
						ок С	ancel



#### ATTENTION

Before modifying these settings, make sure that you have closed any applications that may be accessing the COM port, such as HyperTerminal.

You may change the Port Number and enable or disable the Fast Flush function. For the UPort 1130, you may also select between RS-422, 2-wire RS-485, and 4-wire RS-485 modes. Please note that **Auto Enumerating COM Number** and **Set the change to all ports** are not available for this model of UPort.

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\* The UPort 1100 only supports RS-232. For this reason, when using the UPort 1100, the Interface drop-down box will be inactive.

\*The UPort 1150/1150I support RS-232, RS-422, 2-wire RS-485, and 4-wire RS-485. The default setting is RS-232.

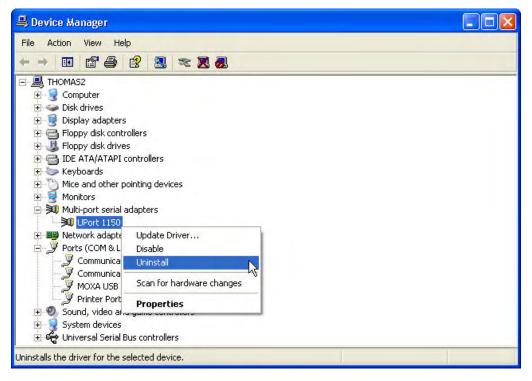
The Fast Flush function is specifically designed to handle Win32 PurgeComm() function calls and is enabled by default. When Fast Flush is enabled, the driver will automatically clear the local buffer when it receives a PurgeComm() command. When Fast Flush is disabled, the driver will repeatedly query the converter until it verifies that there is no more data in the buffer. Disabling this function can cause lower throughput for applications that use PurgeComm() heavily.

#### Removing the Converter

The converter is a plug and play device. No special procedures are required to remove the converter; you may simply pull the converter out of the USB port. You should verify that no data is being transmitted before removing the converter.

Removing the converter does not remove the drivers. The drivers remain in place so that the converter can be automatically detected and installed if it is pluged back into the USB port.

The converter can also be uninstalled through the Device Manager, the same as other Windows devices. Right-click the converter, which will be found under **Multi-port serial adaptors**, then select **Uninstall** from the context menu.



### Uninstalling the Driver

The UPort driver may be removed through Add/Remove Programs in the Windows Control Panel. Click **Remove** next to **MOXA UPort 1110/1130/1150 Windows Driver Ver1.5**.

J	Currently installed programs:	Show up <u>d</u> ates	Sort by: Name	
ge or ove	Modbus_Tool		Size	0.26MB
ams	🛃 Moxa ioMirror		Size	3.09MB
6	🐻 MOXA UPort 1110/1130/1150 Windows Driver Ver1.	5	Size	0.93MB
7 New	Click here for support information.		Used	rarely
ams			Last Used On	1/7/2008
4	To remove this program from your computer, click Remove.			Remove
move	MSXML 6.0 Parser (KB925673)		Size	1.31MB
ows nents	😼 Network Enabler Administrator 2.10		Size	2.47MB
Hencs	🐝 NPort Administration Suite Ver1.8		Size	2.85MB
Y	😸 NPort Windows Driver Manager		Size	1.54MB
gram	PComm Lite Ver1.3		Size	2.80MB
s and ults	PComm Pro Ver 2.0		Size	2.45MB
	🛃 Windows Installer 3.1 (KB893803)			
	🛃 Windows XP Service Pack 2			
l or Rei	B WinPcap 4.0		Size	0.19MB
l or Rei		Show up <u>d</u> ates	Size	
ge or	move Programs Currently installed programs:	Show updates	Sort by: Name	_ (
	Currently installed programs:	Show updates	Sort by: Name Size	0.26MB
ge or ove	Move Programs Currently installed programs: Modbus_Tool Moxa ioMirror		∑ort by: Name Size Size	0.26MB 3.09MB
ge or ove rams	Currently installed programs:		Sort by: Name Size	0.26MB 3.09MB 0.93MB
ge or ove	move Programs         Currently installed programs:         Modbus_Tool         Moxa ioMirror         MOXA UPort 1110/1130/1150 Windows Driver Ver1.		Sort by: Name Size Size Size	0.26MB 3.09MB
ge or ove ams	move Programs         Currently installed programs:         Modbus_Tool         Moxa ioMirror         MOXA UPort 1110/1130/1150 Windows Driver Ver1.		Sort by: Name Size Size Size Used	0.26MB 3.09MB 0.93MB rarely
ge or ove ams	Move Programs Currently installed programs: Modbus_Tool Moxa ioMirror MOXA UPort 1110/1130/1150 Windows Driver Ver1.3 Click here for support information. To remove this program from your computer, click Remove.	5	Sort by: Name Size Size Used Last Used On	0.26MB 3.09MB 0.93MB rarely 1/7/2008
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### Install Linux Driver

#### Linux Kernel 2.4.20 and above

The Linux driver for the Moxa UPort 1000 Series converters will map Linux host ttyUSBxx 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 ttyUSBxx port. These drivers have been designed and tested for the majority of Linux distributions, including Linux kernel version 2.4.20 and above. Please check Moxa's website (http://www.moxa.com) for the latest Linux kernel support.

The Linux drivers support the following models:

- UPort 1110: 1-port RS-232 USB-to-Serial Converter.
- UPort 1130: 1-port RS-422/485 USB-to-Serial Converter.
- UPort 1150: 1-port RS-232/422/485 USB-to-Serial Converter.
- UPort 1150I: 1-port RS-232/422/485 USB-to-Serial Converter with isolation protection.

In this section, we provide four procedures to introduce the Moxa Linux Driver.

- 1. Installing the Linux Driver File
- 2. Loading/Unloading the Moxa Driver
- 3. Setting the Serial Parameters
- 4. Remover the Moxa Linux Driver

#### Installing the Linux Driver Files

Obtain the driver file from the Document and Software CD, or from the Moxa website at <u>http://www.moxa.com</u>.

To install and load the Linux drivers, enter the following commands from the Linux prompt:

# mount /dev/cdrom/ mnt
# cd /
# cd /
# mkdir moxa
# cd /moxa
# cd /moxa
# cp /mnt/<driver directory>/driv\_linux2.4\_uport1p\_vx.x\_build\_yymmddhh.tgz/moxa
# tar -xvfz driv\_linux2.4\_uport1p\_vx.x\_build\_yymmddhh.tgz

\*Note: yy = year, mm = month, dd = day, hh = hour

#### Loading the Moxa Driver

After installing the driver you can load the Moxa driver. The driver will be loaded automatically when the UPort 1100 is plugged into your PC, or you can load the driver manually.

#### # modprobe mxuport1100\_24

You can verify that the driver has loaded by entering the following command:

# lsmod

For additional information, please refer to readme.txt in the mxuport1100\_24 directory.

#### Unloading the Moxa Driver

The driver will not be unloaded when you remove the MOXA UPort 1100 from the PC. The Moxa driver must be unloaded manually.

#### #rmmod mxuport1100\_24

You can verify that the driver has loaded by entering the following command:

#### # lsmod

For additional information, please refer to readme.txt in the mxuport1100\_24 directory.

#### **Setting the Serial Parameters**

The UPort 1130 supports three interfaces (RS-485 2W, RS-485 4W, RS-422) and the UPort 1150/1150I support four interfaces (RS-232, RS-485 2W, RS-485 4W, RS-422). You can execute the **setserial** command to set the port's interface. The supported parameter are listed below.

Parameter	Value	Interface
port	0	RS-232
port	1	RS-485 2W
port	2	RS-422
port	3	RS-485 4W

Example:

To set the port's information, type: # setserial /dev/ttyUSB0 port 1

To retrieve the port's information, type: # setserial -G /dev/ttyUSB0

#### Removing the Moxa Driver and Utility Files

To remove the Moxa files, navigate to /moxa/mxuport1100\_24, and then type: **#make clean;** 

Both the driver and utility files will be removed.

#### Linux Kernel 2.6.x

The Linux driver provided with the UPort 1100 maps Linux host ttyUSBxx 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 ttyUSBxx port. These drivers have been designed and tested for the majority of Linux distributions, including Linux kernel version 2.6.x and follow. Please check Moxa's website (<u>http://www.moxa.com.</u>) for the latest Linux kernel support.

The Linux drivers support the following models:

- UPort 1110: 1-port RS-232 USB-to-Serial Converter.
- UPort 1130: 1-port RS-422/485 USB-to-Serial Converter.
- UPort 1150: 1-port RS-232/422/485 USB-to-Serial Converter.
- UPort 1150I: 1-port RS-232/422/485 USB-to-Serial Converter with isolation protection.

In this section, we provide four procedures to introduce the Moxa Linux Driver.

- 1. Installing Linux Driver File
- 2. Loading/Unloading the Moxa Driver
- 3. Setting the Serial Parameters
- 4. Removing the Moxa Linux Driver

#### Installing Linux Driver Files

Obtain the driver file from the Document and Software CD, or from the Moxa website at <a href="http://www.moxa.com">http://www.moxa.com</a>.

To install and load the Linux drivers, enter the following commands from the Linux prompt:

# mount /dev/cdrom/ mnt
# cd /
# mkdir moxa
# cd /moxa
# cd /moxa
# cp /mnt/<driver directory>/driv\_linux2.6\_uport1p\_v1.1\_build\_xx.tgz/moxa
# tar -xvfz driv\_linux2.6\_uport1p\_v1.1\_build\_xx.tgz

#### Loading the Moxa Driver

After installing the driver, you will be able to load the Moxa driver. The driver will be loaded automatically when the UPort 1100 is plugged into your PC, or you can load the driver manually by typing the following command:

#### # modprobe mxu11x0

You can verify that the driver has loaded by entering the following command:

# lsmod

For additional information, please refer to readme.txt in the mxu11x0 directory.

#### Unloading the Moxa Driver

The driver will not be unloaded when you remove the UPort 1100 from the PC. The Moxa driver must be unloaded manually.

#### #rmmod mxu11x0

You can verify that the driver has loaded by entering the following command:

#### # lsmod

For additional information, please refer to readme.txt in the mxu11x0directory.

#### Setting the Serial Parameters

The UPort 1130 supports three interfaces (RS-485 2W, RS-485 4W, RS-422) and the UPort 1150/1150I 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
port	0	RS-232
port	1	RS-485 2W
port	2	RS-422
port	3	RS-485 4W

For example:

To set the port's information type: # setserial /dev/ttyUSB0 port 1

To retrieve the port's information type: # setserial -G /dev/ttyUSB0

#### Removing the Moxa Driver and Utility Files

To remove the Moxa files, navigate to /moxa/mxu11x0 and then execute: **#make clean;** 

Both the driver and utility files will be removed.

### Installing the Windows CE Driver

In this section, the driver installation procedure for installing Windows CE 5.0 and Windows CE 6.0 driver is described. Both WinCE 5.0 and WinCE 6.0 require the installation of WinCE 6.0 platform builder. In addition, you will also need to install Visual Studio 2005 if you are using WinCE 6.0. WinCE 6.0 platform builder has all the necessary tools to help you to design, create, build, test, and debug a Windows CE. WinCE 6.0 platform Builder together with Visual Studio 2005 provides a workspace where you can work on OS designs and projects to build your own embedded system.

With WinCE 6.0, you need to install Visual Studio 2005 & WinCE 6.0 Builder first. When installing Visual Studio 2005, you can select the language with .NET Framework SDK or use the "default."

After you've installed VS 2005; run WinCE 6.0 Builder "setup.exe" to install and download the files. You need to select "x86" for the WinCE 6.0 operating system. Note that this process will take a couple of hours and the folder size is around 3GB.

Follow "Installing Visual Studio 2005" to install the UPort 1100 Series WinCE 6.0 driver.

### 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.

**Step 1:** Launch Visual Studio 2005 with Platform Builder WinCE6.0. Open the OSDesign that you want to install.

In Visual Studio 2005, click **File**  $\rightarrow$  **New**  $\rightarrow$  **Project**, and select "Platform Builder for CE 6.0". Select "OS Design" for the template then click **OK**.

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Step 2: The WinCE 6.0 OS Design Wizard will start, click "Next" to continue. In the "Board Support Packages" page, select the "CEPC: x86." Click "Next."

Windows Embedded CE 6.	) OS Design Wizard	7 🔀
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	This wizard guides you through the process of creating an OS design for a CE 6.0 based platform. An OS design defines the characteristics of a CE 6.0 OS. You can create an OS design by choosing a design template and one or more board support packages (BSPs). A BSP includes an OEM adaptation layer (OAL) and device drivers	
	This wizard helps you: Choose a BSP. Choose a design template. Add items to your OS design or remove items from it. To continue, click Next.	ncel

Windows Embedded CE 6.0 OS Design	Wizard ?X
<b>Board Support Packages (BSPs)</b> A BSP contains a set of device drivers the	at are added to your OS design
Available BSPs: Aruba Board.: ARMV4I CEPC: x86 Device Emulator: ARMV4I H4Sample OMAP2420: ARMV4I MainstoneIII PXA27X: ARMV4I	Select one or more BSPs for your OS design. A BSP for a Windows Embedded CE PC-based hardware reference platform. The platform uses the OS based on the x86 architecture.
	Note: Only BSPs supported by installed CPUs are displayed in the list.
< Previous	<u>N</u> ext > <u>Finish</u> Cancel

Step 3: 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.

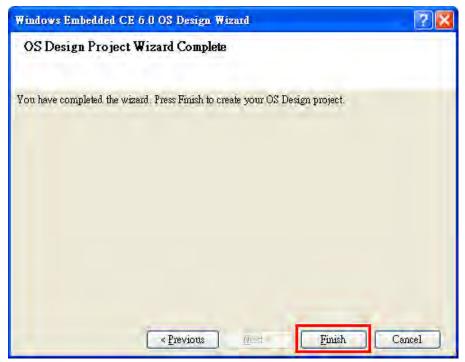
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Custom Device	closely aligned with the purpose of your
Industrial Device	target device.
PDA Device	Provides the starting point for a range of
Phone Device	personal digital assistants (PDAs) or mobile
Small Footprint Device	devices with a clamshell-and-keyboard
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Applications & Media Select items for applications and media to include i	n your OS design.
<ul> <li>NET Compact Framework 2.0</li> <li>File Systems and Data Store</li> <li>Windows Embedded CE Error Reporting</li> <li>ActiveSync</li> <li>DCOM</li> <li>Internet Browser</li> <li>Lightweight Directory Access Protocol (LDAP</li> <li>VBScript support</li> <li>Windows Media Audio/MP3</li> <li>Windows Media Video/MPEG-4 Video</li> <li>Windows Messenger</li> <li>WordPad</li> <li>&lt; Previous</li> </ul>	Support for applications and services designed for the .NET V2.0 Compact Framework. ext > <u>Finish</u> Cancel

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< Previous Next > Finish Cancel				

Step 4: When the OS Design Project Wizard Complete screen appears, click Finish. The notification will pop up. Click "Acknowledge" to finish the project.





Step 5: 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).



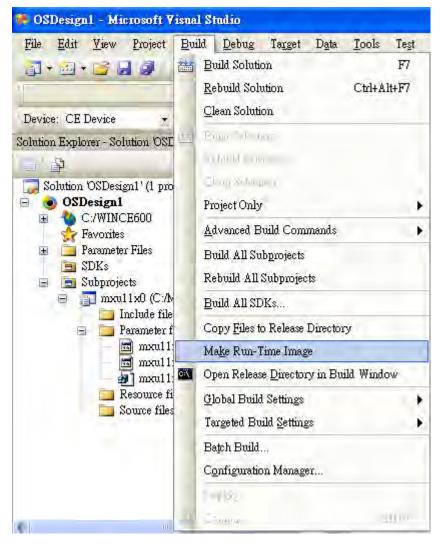
**Step 6:** After the subproject is added, you may configure the "mxupce6.reg" registry file with the location [HKEY\_LOCAL\_MACHINE\Drivers\USB\ClientDrivers\MXU\_PORT].

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

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**Step 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.

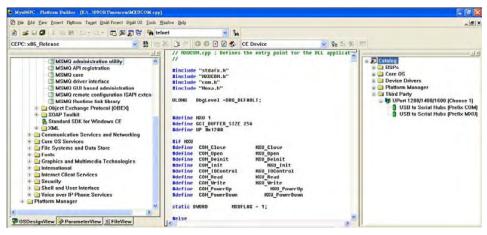


Step 9: Configure the interface on the target device using the configuration tool found in "Start → Programs → MOXA UP Configuration Panel\UPort Configuration Utility".

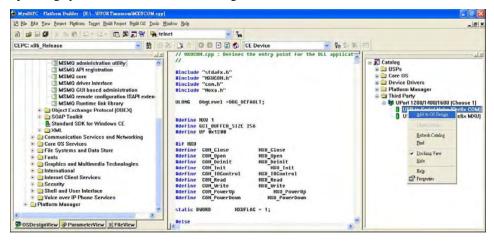
### Installation with an installation package for Win CE 5.0

In this section, we show how to install the Moxa WinCE 5.0 driver on a Windows CE 5.0 operating system directly.

- **Step 1:** Obtain a copy of the UPort 1110/1130/1150 WinCE 5.0 driver package and extract it to your computer. Double click the installation package to copy the files automatically to the UPort folder **\WINCE500\PLATFORM\** (e.g., C:\WINCE500\PLATFORM\U11x0) and import the UPort 1110/1130/1150 WinCE 5.0 driver into the Catalog.
- Step 2: Open your workspace in Platform Builder and then open "Manage Catalog Items" under View → Catalog. The UPort 1110/1130/1150 WinCE 5.0 driver is located in the "Third Party" folder.

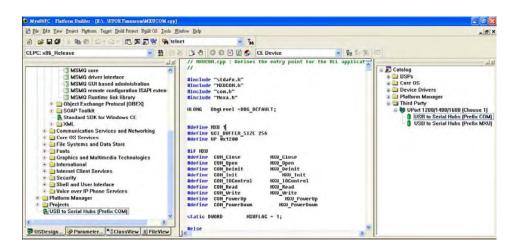


**Step 3:** Right-click on the driver "USB to Serial Adaptors (Prefix COM)" or "USB to Serial Adaptors (Prefix MXU)" and then choose "Add to OS Design." After adding the driver, you should be able to find it in your workspace. At this point, you can start building your operating system and download it to a target.



#### **UPort 1100 Series User's Manual**

#### Installation and Configuration

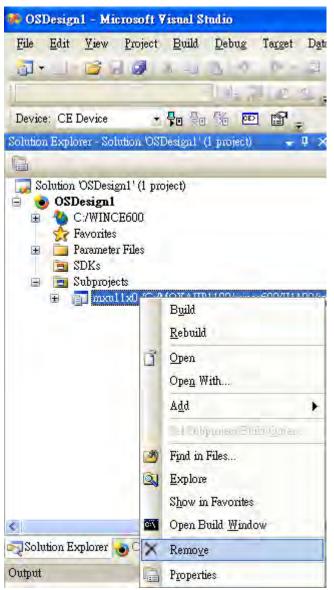


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### Removing the Moxa WinCE 5.0 / CE 6.0 Driver

#### For WinCE 6.0 Driver:

Step 1: Select driver to Remove.



**Step 2:** Switch the folder to C:\ MOXAUP1100 \ and double click "**unins000.exe**" to remove installation folder.

#### For WinCE 5.0 Driver:

- Step 1: In the "OSDesign\_View", delete "USB to Serial Adaptors (Prefix XXX)".
- **Step 2:** Remove driver from control panel.
- Step 3: Check "clean before building"
- Step 4: Use "build and sysgen" to rebuild the image.

#### Installation with a CAB File

Install the UPort 1100 series WinCE driver to target host.

- **Step 1:** First install Microsoft ActiveSync on the source PC. Before running ActiveSync on the source PC, use an RS-232 null modem cable to connect the WinCE device (CEPC) to the PC.
- Step 2: Go to the "Command Prompt" on the WinCE device and execute the repllog command. A new partnership window will appear. Select "No" and then click on "Next." You will see "Connected" in ActiveSync.

Get Connected		
	Get Connected	
	To connect your device to this PC:	
	1. Connect the cable to the PC	
$\left( \right)$	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.	
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Step 3: Click on the "Explore" button in the ActiveSync window, and then copy the UP1100\_COM\_v1.0\_Setup.CAB (For WinCE 6.0) or UP1100\_COM\_v1.1\_Setup.CAB (For WinCE 5.0) file to the Mobile/Target Device.



**Step 4:** Double click on the CAB file to start installing the UPort 1100 series WinCE driver. After installing the driver, plug the UPort 1100 series device into the USB port of the WinCE Device. The driver will be loaded automatically. At this point, the UPort 1100 series is ready to use.

### Removing the Moxa WinCE 5.0 / CE 6.0 Driver

- **Step 1:** Enter **Control Panel**  $\rightarrow$  **Remove Programs**.
- Step 2: Select MOXA UPort 1110/1130/1150 Windows CE6 Driver Ver1.0 (For WinCE 6.0)

or

MOXA UPort 1110/1130/1150 Windows CE5 Driver Ver1.1 (For WinCE 5.0)

- Step 3: Click Remove.
- Step 4: Interface configuration

On the target device, go to Start  $\rightarrow$  Programs  $\rightarrow$  MOXA UP Configuration Panel\UPort Configuration Utility to find the configuration tool.

# **3** Pin Assignment

### **UPort DB9 Pin Assignments**

The UPort 1100 series uses male DB9 connectors. Pin assignments are shown in the following diagram:

DB9 (male)	Pin	RS-232	RS-422 4-wire RS-485	2-wire RS-485
	1	DCD (in)	TxD-(A)	-
1 5	2	RxD (in)	TxD+(B)	-
	3	TxD (out)	RxD+(B)	Data+(B)
	4	DTR (out)	RxD-(A)	Data-(A)
	5	GND	GND	GND
	6	DSR (in)	-	-
	7	RTS (out)	-	-
	8	CTS (in)	-	-

### **Terminal Block Pin Assignments**

The UPort 1130/1150/1150I comes with a DB9 to terminal block converter, with pin assignments as shown below:

Terminal Block	Pin	RS-422 4-wire RS-485	2-wire RS-485
	1	TxD+(B)	-
	2	TxD-(A)	-
	3	RxD+(B)	Data+(B)
	4	RxD-(A)	Data-(A)
1 5	5	GND	GND

Note that the converter maps pin 1 on the DB9 connector to pin 2 on the terminal block, and pin 2 on the DB9 connector to pin 1 on the terminal block.