USER'S MANUAL

Universal PCI Parallel Communication Board

English Version

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CE FC

Universal PCI Parallel Communication Board

User's Manual

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Safety Information

1. Keep this User's Manual for future reference.
2. Always read the safety information carefully.
3. Keep this equipment away from direct sunlight, or in humid or damp places.
4. Do not place this equipment in an unstable position, or on vibrating surface before setting it up.
5. Do not use or place this equipment near magnetic fields, televisions, or radios to avoid electronic interface that affects device performance.

Table of Contents

WHQL Certification Approval

The Designed for Microsoft Windows 32/64-bit operation system WHQL logo identifies products that meet Microsoft's quality standards, SUNIX I/O products carry with this logo and listed on Windows Catalog. WHQL logo includes below operation system version

Microsoft Windows Client: Windows 2000 / XP / Vista / 7 (X86/X64)
Microsoft Windows Server: Windows 2003 / 2008 (X86/X64)

1.
Introduction

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SUNIX Golden I/O series, a line of Universal PCI Parallel Communication Board, is designed for both 3.3 / 5V and 32 / 64-bit PCI Bus with Plug and Play feature. Its can be installed in virtually any available PC system and compatible with all major operating systems. Users do not need to manually set jumpers to configure I/O addresses and IRQ locations.

This board supports independent parallel LPT port for connecting printers, IC programmers, ZIP Drives, or other Parallel devices

The following topics covered in this chapter:

◆ **Overview**
◆ **Package Checklist**
◆ **Product Features**
◆ **Product Specifications**

Overview

Thanks for purchasing SUNIX Universal PCI Parallel Communication Board; it is compatible with IEEE1284 standard parallel interfaces. User can expand parallel LPT ports on PC-based system by installing into PCI or PCI-X slots. SUNIX parallel card is designed with SUNIX high performance and realizable parallel connectivity controller and as well built with many of SUNIX advanced features and technologies, making it the advanced and high efficient solution for commercial and industrial automation applications.
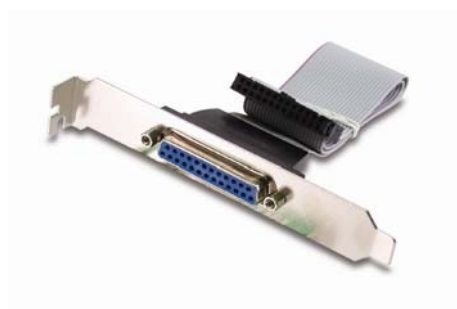
Package Checklist

Please check if the following items are present and in good condition upon opening your package. Contact your vendor if any item is damaged or missing.

1. Hardware:
   Universal PCI Parallel Communication Board $\times$ 1

   Cable: (Only for **2**-port Parallel Board)
   13x2 Pin Header to DB25F Flat Cable With Bracket set $\times$ 1

2. CD Driver
3. User's Manual   (This document)

Product Features

- High performance SUNIX IEEE1284 parallel controller on-board.

- Ultra low power consumption design for Green Environment.

- Compliance with PCI 33MHz Version 3.0/2.3/2.2./2.1 specification.

- Supports both 64-bit PCI-X & 32-bit PCI bus slot.

- Expand IEEE1284 parallel LPT port on system.

- Support IEEE 1284-1994 parallel port standard

    ECP (Enhance Capacity Port) / EPP (Enhance Parallel Port)

    SPP (Standard Parallel Port) / BPP (Bi-direction Parallel Port).

- Auto-switching between ECP/EPP/SPP/BPP modes without configuration.

- Plug-n-Play, I/O address and IRQ assigned by system.

- Certified by CE, FCC, RoHS, and Microsoft WHQL approval.

- Support Microsoft Windows, Linux, and DOS.

Note:

* LPT port does not support legacy 278 / 378 ISA address under Windows nor Linux operation systems, but only DOS mode.

* Do not support LPT Key Locker Parallel devices, because of legacy ISA address limitation

Product Specifications

Parallel Communication

Interface	IEEE-1284
Mode	SPP/ECP/EPP/BPP (Auto-switching)
Controller	SUNIX SUN1989
BUS	Universal PCI 64/32bit PCI Spec.Ver3.0/2.3/2.2/2.1
IRQ & IO	Assigned by System
Data Speed	Maximum 1.8 MB/s
FIFO	16 byte Hardware
Number of Port	1 or 2-port
Board Connector	DB25 Female
Protection	±2KV ESD protection for each signal Human Body Model (HBM)

Driver Support

Microsoft Client	XP / Vista / 7 (X86/X64)
Microsoft Server	2000 / 2003 / 2008 (X86/X64)
Microsoft Embedded	XP Embedded / POS Ready 2009 / Embedded System 2009
Linux	Linux 2.4.x / 2.6.x
DOS	DOS

Regulatory Approvals

Hardware	EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, FCC Part 15 Class B, RoHS
Software	Microsoft WHQL Windows Microsoft Client: XP / Vista / 7 (X86/X64) Microsoft Server: 2000 / 2003 / 2008 (X86/X64)

Environment

Operation Temperature	0 to 60°C (32 to 140°F)
Operation Humidity	5 to 95% RH
Storage Temperature	-20 to 85°C (-4 to 185°F)

2.
Hardware Installation

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This chapter includes information about hardware installation for Universal PCI Parallel Communication Board. The following topics are covered:

◆ **Hardware Installation**
◆ **Pin Assignments**

Hardware Installation

The hardware installation of PCI parallel board is easy to carry out. Before inserting the card into the PCI bus, please follow the detailed steps given below to install the PCI parallel board in your computer.

> ⚠ **Safety First**
> To avoid damaging your system and boards, make sure your PC's power is turned off before installing PCI card.

Step 1: Turn your PC's power off, and shut off the power to any peripheral.

**Step 2:** Remove the power plug from the plug socket.

Step 3: Remove the cover from the computer case.

**Step 4:** If fitted. Remove the metal cover plate on the rear of a free PCI slot.

Step 5: Insert Universal PCI Parallel Communication Board into the free PCI

slot and screw it firmly on the bracket side.

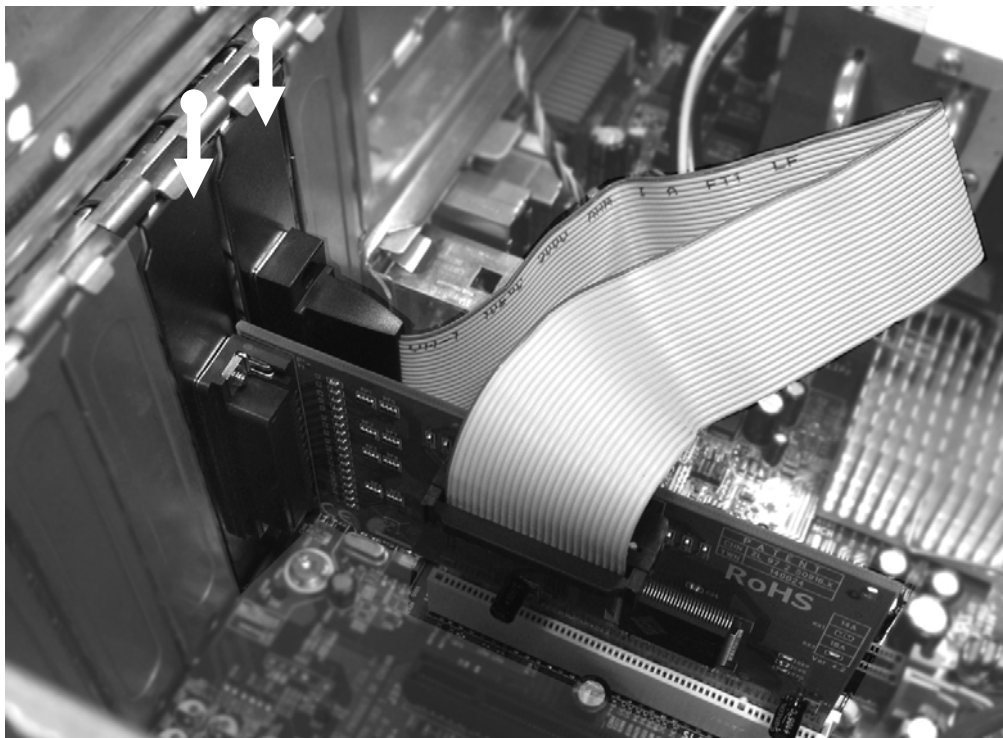**Step 6:** Place the cover back onto the computer.

Step 7: Insert the plug into the plug socket.
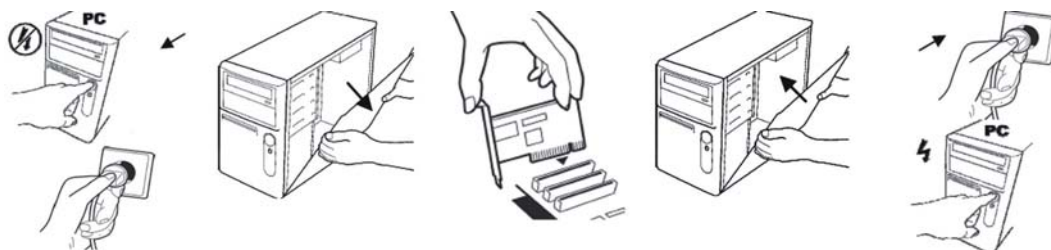
For 2-port PCI Parallel Card, there is one extend flat cable along with the board. Please connect the cable 2x13 female header to the board. The red wire matches with the arrow mark (first pin) on the board.
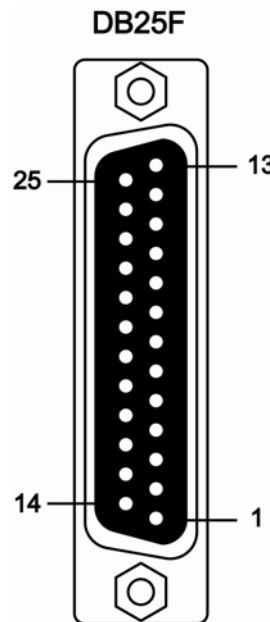
Red Wire
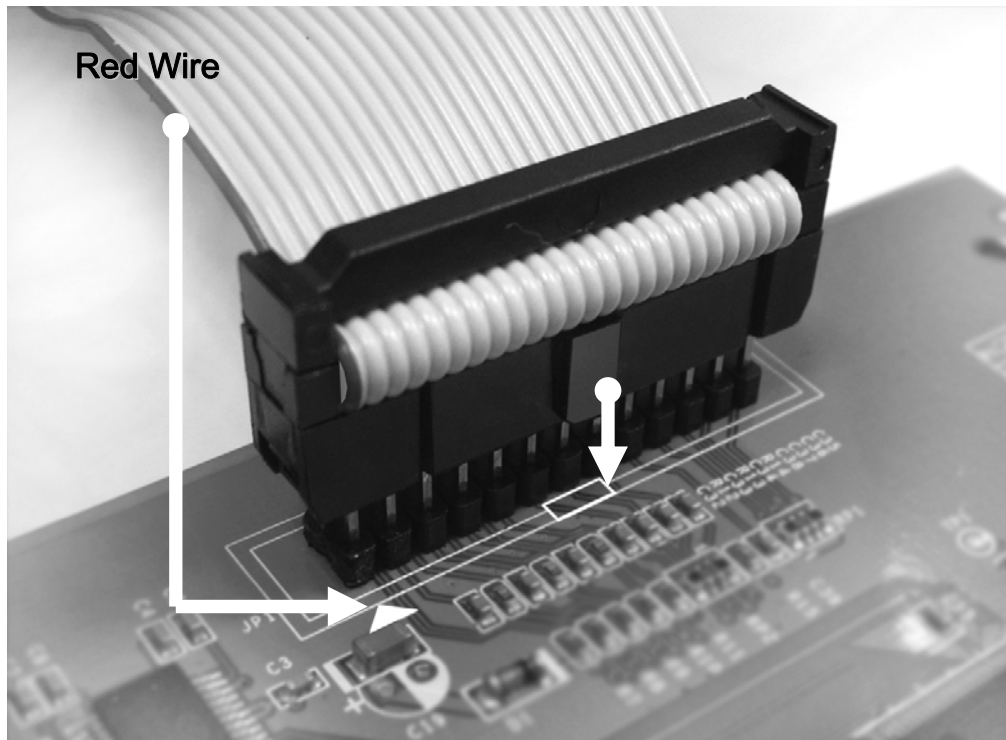
Fix the bracket on the PC chassis.

Pin Assignment

This chapter provides the pin assignments for SUNIX Universal PCI Parallel Communication Board, as well as the DB25 female pin assignments for the optional accessories.

DB25F	PIN	DB25F	PIN
1	STROBE	14	AUTO FEED
2	DATA0	15	ERROR
3	DATA1	16	INT
4	DATA2	17	SELECT INPUT
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDGE	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	SELECT		

3.
Driver Installation

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After installing the Universal PCI Parallel Communication Board in your system successfully, please follow the step by step software installation guide to confirm how to install appropriate driver and configure the LPT port settings.

The driver for PCI parallel board supports Windows and Linux operating systems, and you can select your requirement in the following chapter:

The following topics covered in this chapter:

◆ **Windows Driver Install**
◆ **Windows Driver Uninstall**
◆ **Windows Verify Installation**
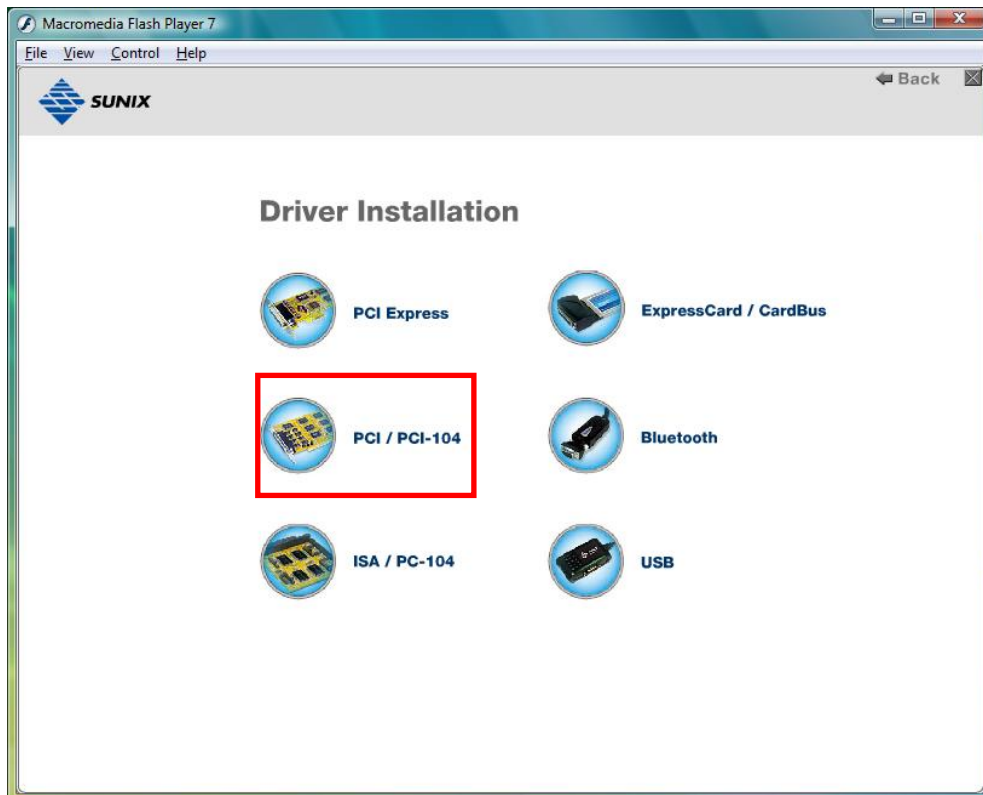◆ **Linux Driver Install**

Windows Driver Install

Please refer to following instructions to install the driver for the first time under Windows operation system. You will need to plug the board in an available PCI or PCI-X slot first, before installing the driver.

(1) After the board is physically installed and the PC boots up, system will detect the PCI parallel board and prompt for driver installation wizard, please choose cancel.

(2) Put CD driver bound with product in your CD / DVD ROM drive.
Please select Run autorun.exe., then select "**Driver Installation**".
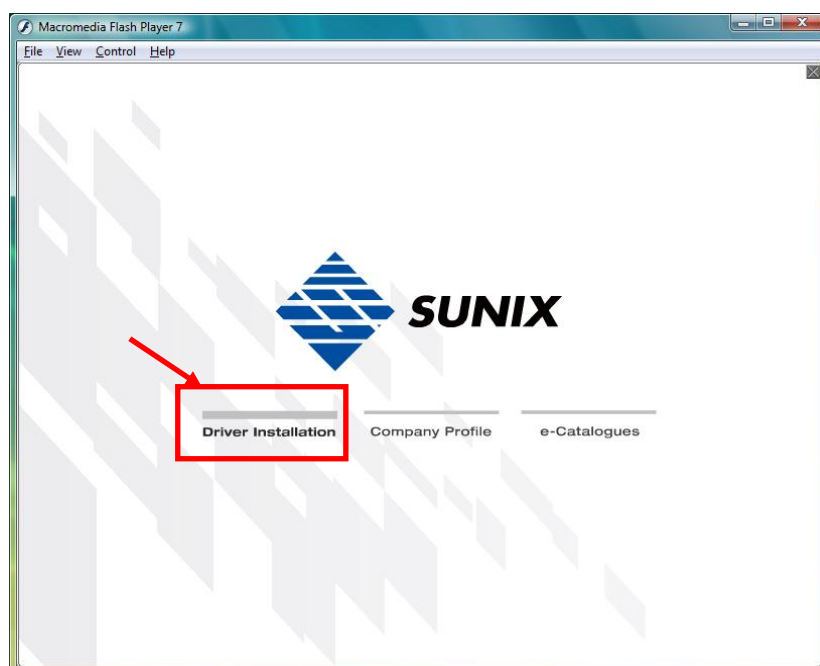
(3) Please select the product interface you bought, such as PCI.

(4) Please select the O.S. version you are using, such as Windows Vista. Then system will process the driver installation step automatically.
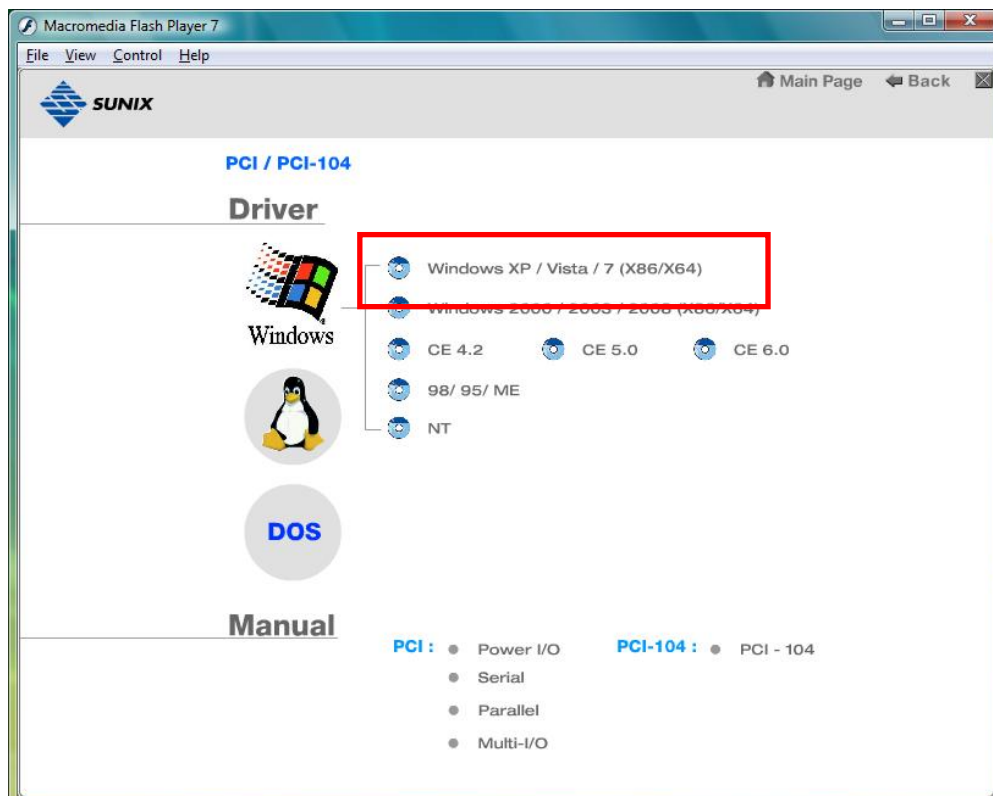
(5) Click "**Next**" to continue driver installation steps.

(6) Click "**Finish**" to end installation steps. If SUNIX I/O card install correct in your system, you can read "**V**" icon in this picture.
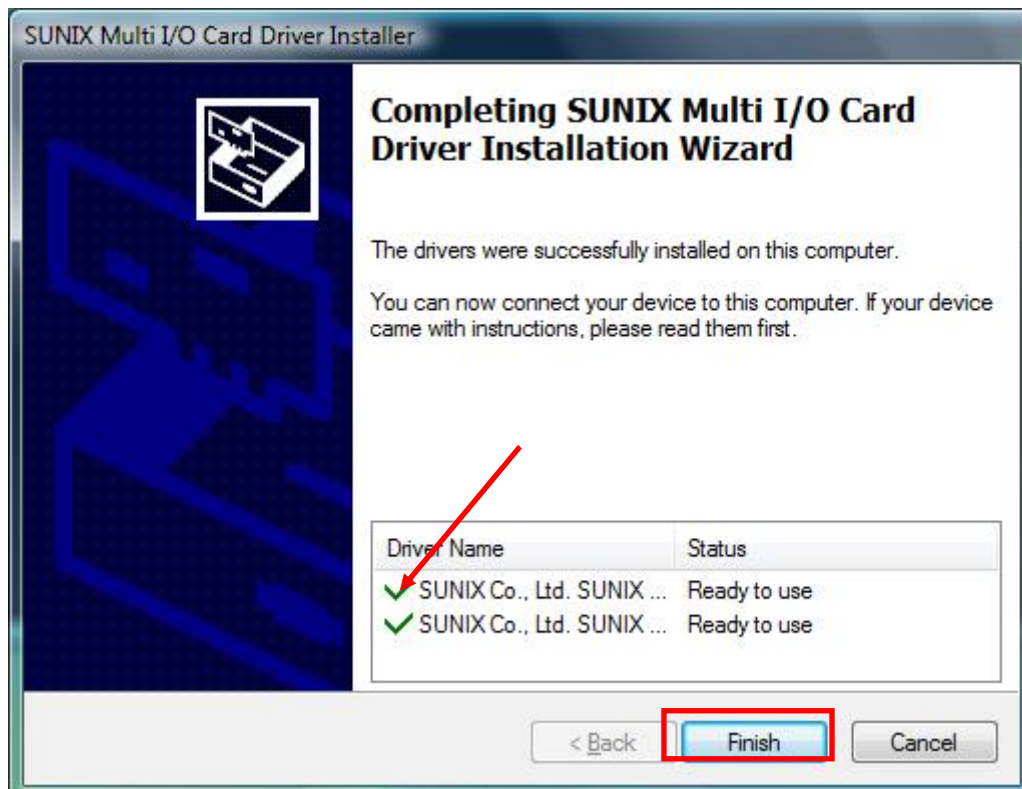
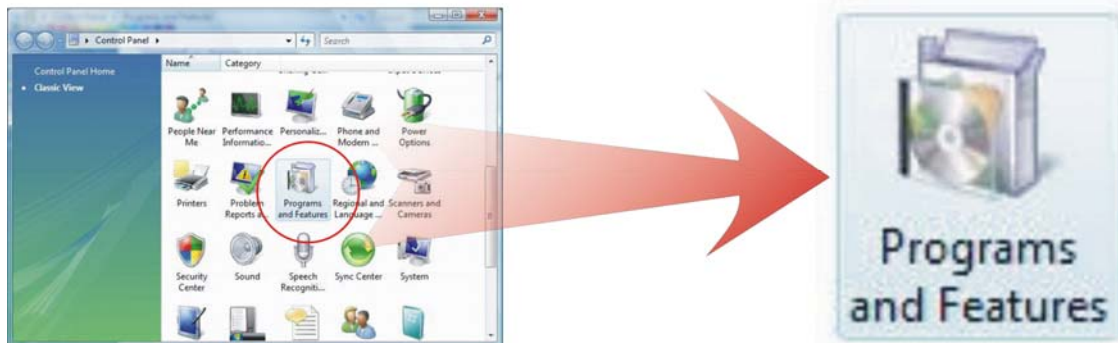# Windows Driver Uninstall
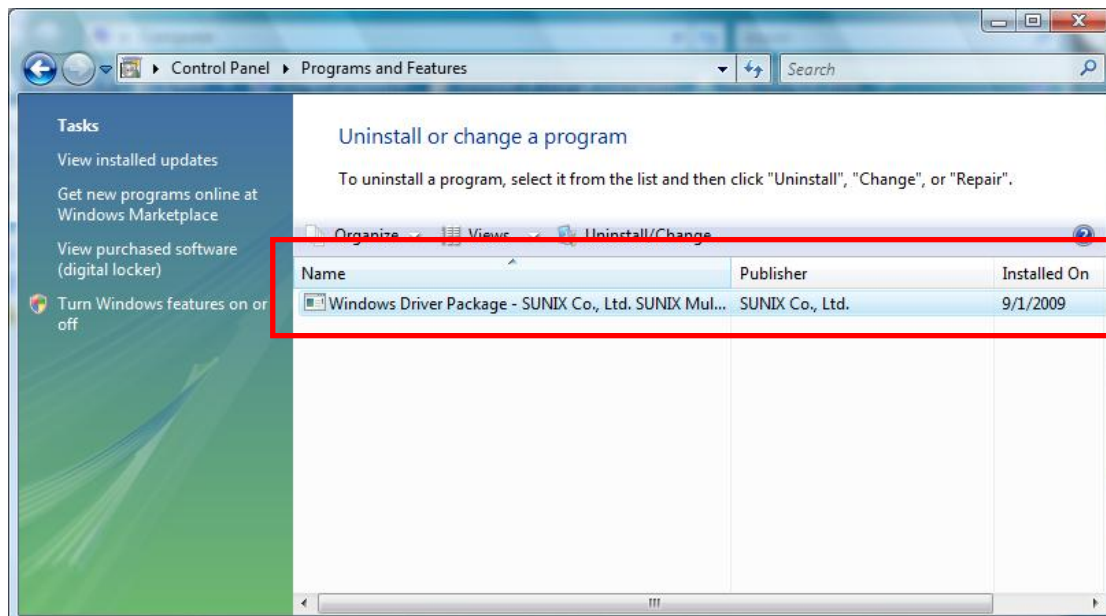
Please refer to following instructions uninstall Multi-I/O card driver.

(1) Click on the "**Programs and Features**" tab in the Windows Control Panel.

Start > Controller Panel > Programs and Features

(2) Entry Uninstall or change a program page, and double click "**Windows Driver Package – SUNIX Co., Ltd SUNIX Multi-I/O Controller**" to process driver uninstall procedure.

Windows Verify Installation

You can use Windows "**Device Manager**" to verify proper installation.

(1) Click on the "**Programs and Features**" tab in the Windows Control Panel.

Start > Controller Panel > Device Manager
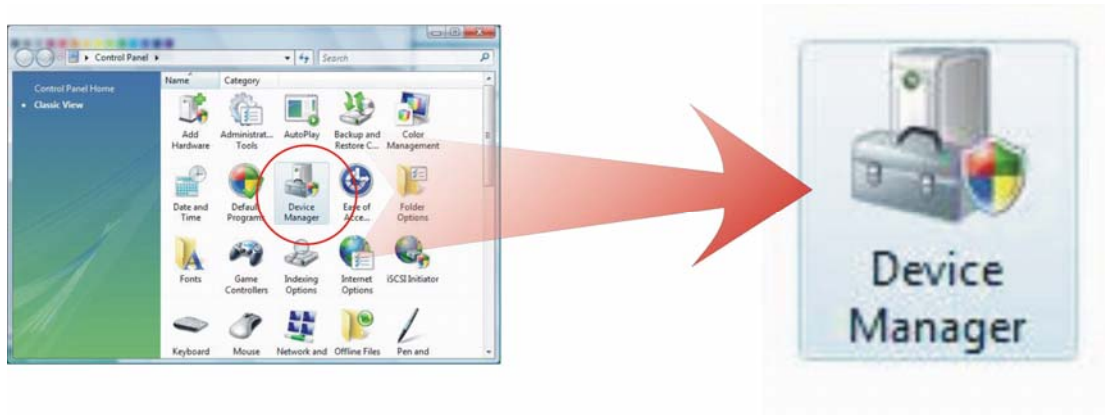
(2) In the Device Manager window, you should see this board under **Multifunction adapters** (SUNIX 1-port Parallel Card in this example). You should also see SUNIX LPT port under **Ports (COM & LPT)**. (SUNIX LPT Port LPT3 in this example).
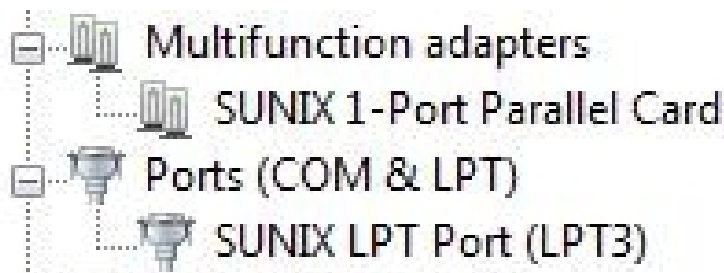
Linux Driver Install

This installation guide describes the procedures to install the PCI parallel board in Linux kernel 2.4.x and 2.6.x. Please refer to "snx_Vx.x.x.x.tar.gz" for driver installation detail in CD Driver (Linux folder) directory.

: \ PCI_IO \ Linux

(1) Driver install
    Please create a directory under root directory,   e.g /temp, do commands:

        # cd /
        # mkdir temp

        After get driver file "snx_Vx.x.x.x.tar.gz". Copy file to /temp
        directory, then extract and install, do commands:

        # cp snx_Vx.x.x.x.tar.gz /temp
        # cd /temp
        # tar xvfz snx_Vx.x.x.x.tar.gz
        # cd /temp/snx
        # make clean ; make install

        ****
        * If system is Suse 9.0 and errors occur when
        * "make clean ; make install", do commands:
        *
        * # cd /usr/src/linux/
        * # make cloneconfig
        * # make dep
        *
        * then do "make clean ; make install" again in /temp/snx
        ****
        Load driver module, do command:

        # modprobe snx
        or
        # insmod /temp/snx/driver/snx.ko (snx.o for kernel 2.4)

Check driver module, do command:
lsmod | grep snx

Unload driver, do command:
rmmod snx

(2) Device node creation

Each parallel port has two device node which is name "lp?" and "parport?". This step will backup lp2~lp3 and parport2~parport3 to lp?.bak and parport?.bak in /dev for your system first. Then, create lp2~lp3 and parport2~parport3 in /dev for sunix driver, maximum up tp 2 parallel ports.

This setp will be done when do "make clean ; make install", if device nodes aren't in /dev, do commands:

    # cd /temp/snx/snxmknod
    # ./snxmknod

This will create device nodes in /dev.

If there are more than two boards installed, LPT port device nameing convention please refer to F1.

4.
Port Configuration

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This chapter shows all Parallel LPT port settings that user came with usually, such as LPT port number, IO address and others.

The following topics covered in this chapter:

◆ **Configure Parallel LPT Port Settings**
◆ **LPT I/O Resource**
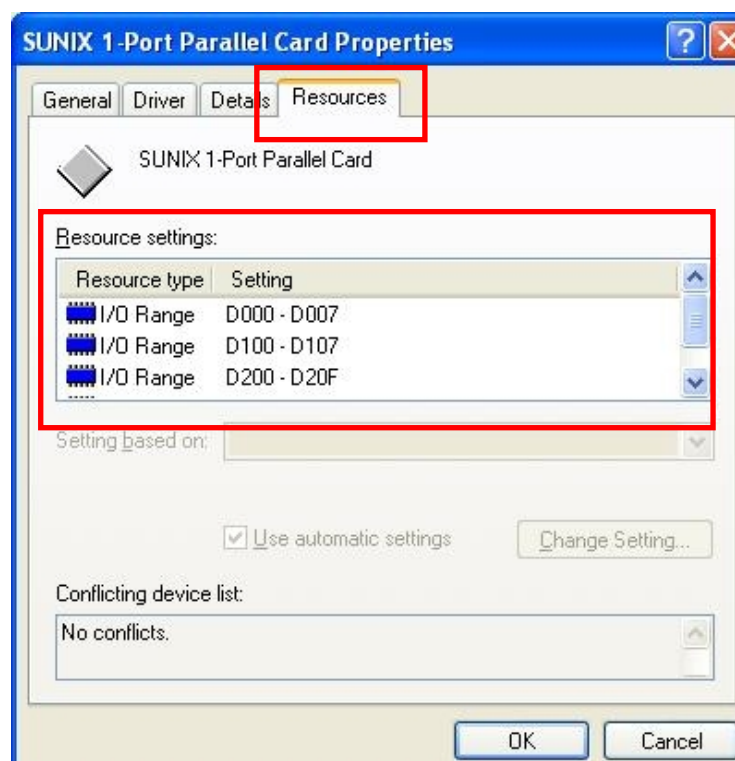◆ **LPT Port Number Settings**

Configure Parallel LPT Port Settings

After the parallel board and LPT port drivers are installed, please refer to following instructions to configure LPT port settings.

(1) Please launch the "**Device Manager**".
(2) Right click the "**SUNIX LPT Port**" or "**SUNIX 1-port Parallel Card**". and select "**Properties**" to execute the detail settings.


LPT I/O Resource

User can read the LPT port's "**IO Range**" and "**IRQ**" located in system by selecting "**Resource**" page.

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LPT Port Number Settings

System default setting is LPT3, if you want to change LPT number to another port, please follow up below steps. Please select "**Port Settings**" page. Under LPT Port Number, select a LPT number to assign to the port. Click "**OK**" to approve the settings for the selected port.
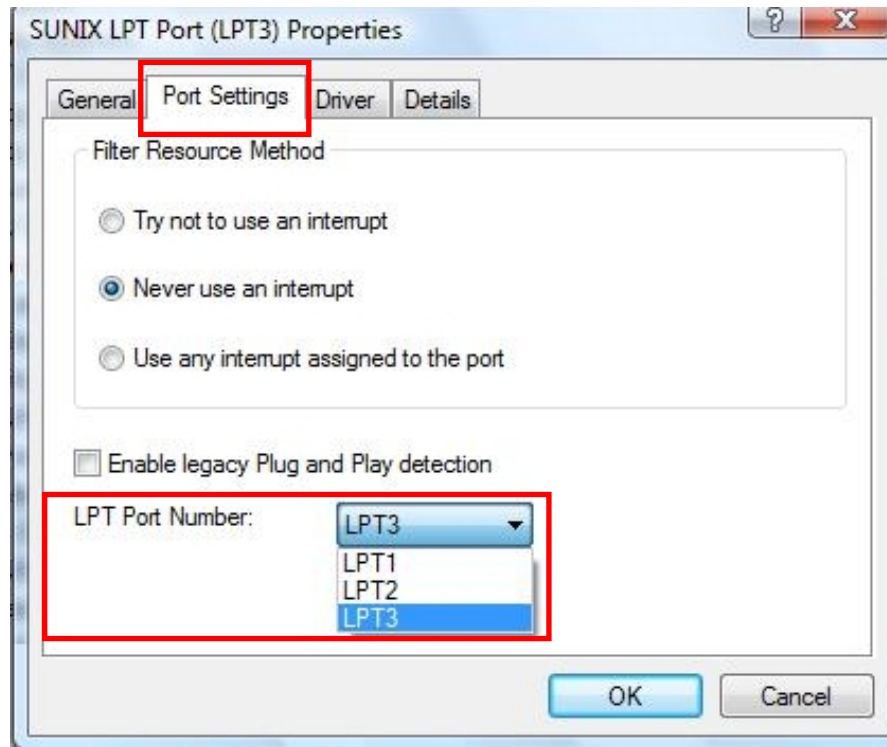
Note: In order to prevent system resource conflict, do not select "**in use**" port.

5.
Appendix

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This chapter shows some problems that user came with usually. Also you can check it if the PCI parallel board can not work properly in your system after following hardware and software installation steps. In addition, you could contact with us for detail technical product information.

In this appendix, we cover the following topics.

◆ **Troubleshooting**
◆ **Product Family**
◆ **Contact Information**

Troubleshooting

**1. System fails to find the PCI parallel board or LPT port.**

A: It may cause by following issue:

    a. The board is not properly plugged into the PCI slot.

    b. Please clean the golden finger.

    c. The PCI slot is defective. Please try other slots until you find one that works.

    d. The mainboard does not have an available IRQ for the PCI parallel board. Enter the PC.s BIOS and make sure an IRQ setting is available in the PCI/PnP settings.

    e. The board itself might be defective. You can try another mainboard testing this board working or not.

2. There is a blue screen when I entry operation system.

A: The possible reason is an IRQ or I/O address conflict with other PCI bus adapters, such as LAN or serial boards, or with the system BIOS. Refer to the corresponding problem in the previous FAQ for solutions.

3. There are some exclamation marks on the LPT port and Parallel Card in device manager.
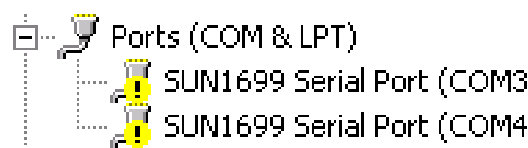
A: It caused by the wrong driver installing. Please uninstall current driver by following driver uninstall chapter, and delete SUNIX parallel card and LPT port in the device manager. Then please reboot the PC, and re-install the correct or latest driver which can download from SUNIX offical website (http://www.sunix.com.tw/). If problem still happens, please contact with us for detail.

4. How can I set the LPT port to the legacy 278 or 378 ISA address?

A: Because of PCI plug-n-play rule and windows operation system limitation, you can NOT remap to 278H or 378H legacy ISA IO address under Microsoft Windows 2000, XP, 2003 Vista, 2008, 7 or Linux OS.

5. How come my parallel device can not work on this Card, but work properly under on-board LPT port??

A: a. Please confirms your parallel device connect to the LPT port correctly.

    b. Make sure the LPT port number you connected matches with parallel device settings.

    c. Your parallel device only works under 278/378 legacy ISA IO address. This card can not satisfy with this feature. Please contact with your parallel device vendor for driver updating.

6. How can I set the different ECP / EPP / SPP / BPP operation mode?

A: Under Windows OS such as 2000, XP, Vista, and 7, PCI parallel card will automatically communicate with the device to which it is connected and sets to that particular mode. For example if this card is connected to a printer that support SPP mode, then this parallel card will communicate with this printer and will automatically set to SPP mode. It means that this card will handshake with the device to which it is connected and configures to that mode. User does not require changing to any particular mode. This parallel card's working mode can not force setting particular mode by driver or BIOS!!

Product Family

SUNIX provides kinds of Parallel IEEE1284 interface cards for customer selection, including PCI Express, PCI, CardBus, and ExpressCard. Please refer to the product family table for reference.

Parallel IEEE1284 PCI Express Interface			
Port	**Connecter**	**Bracket**	**Model NO.**
2	DB25 Female & 13 x 2 Pin Header	Standard	PAR4418A
	DB44 Female	Low Profile	PAR4418A L
1	DB25 Female	Standard	PAR5408A
		Low Profile	PAR5408A L

Parallel IEEE1284 PCI Interface			
Port	**Connecter**	**Bracket**	**Model NO.**
2	DB25 Female & 13 x 2 Pin Header	Standard	PAR4018A
	DB44 Female	Low Profile	PAR4018A L
1	DB25 Female	Standard	PAR5008A
		Low Profile	PAR5008A L

Parallel IEEE1284 ExpressCard Interface			
Port	**Connecter**	**Bracket**	**Model NO.**
1	DB25 Female	34mm	ECP1000

Parallel IEEE1284 CardBus Interface			
Port	**Connecter**	**Bracket**	**Model NO.**
1	DB25 Female	54mm	CBP1000

Contact Information

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, SUNIX services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided

E-mail for technical support

.... info@sunix.com.tw

World Wide Web (WWW) Site for product information:

.............................http://www.sunix.com.tw