SUNIX

Version 1.1

PCI Serial I/O
User Manual

Plug into A
Brand-new World
www.sunix.com.tw

INDEX

WHQL Certification Approval

The Designed for Microsoft Windows XP / Vista logo identifies products that meet Microsoft's quality standards, Sunix's I/O products carry with this logo and listed on Windows Catalog.

User Interface

Sunix provides User Interface (U.I.) software application program, user can use this software driver to control Serial cards RS-232 hardware directly.
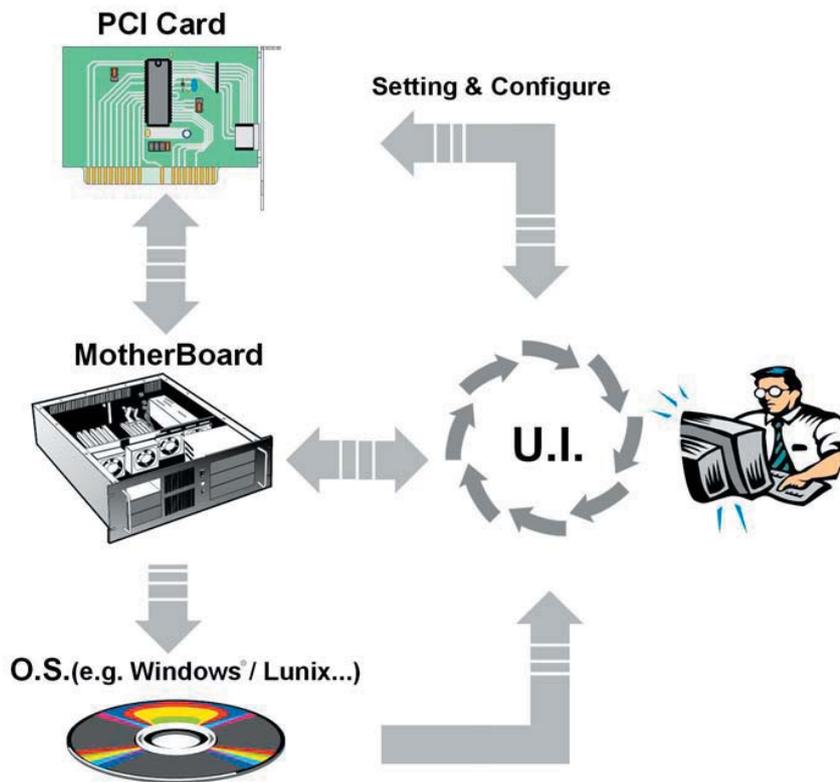
As the flowchart, plug Sunix PCI card on the Motherboard, then install the User Interface software application program under O.S. (e.g. Windows XP). User can control and configure PCI Serial card hardware parameter through this application program.

* Configure the bits per second, Data bits, Parity, Stop bits and Flow control if you want to change.

* There are three kinds of flow control: Xon/Xoff, Hardware and None. Xon/Xoff is using software protocol. Hardware means the flow control is using RTS/CTS, but the RTS/CTS is controlled by software. None means there is no flow control.

* Configure the Enable Auto CTS/RTS Flow Control, 16/32 bytes FIFO length, and Receive/Transmit Buffer trigger level if you want to change.

* The detail of setting and configuring steps, please skip to page 14.

SUNIX's COMLab

SUNIX offers its customers a comprehensive set of software tools, named COMLab.

This software contains the following tools:

1. Speeder

This tool will help you to analyze the serial data communication. It will show the current status of every available communication port, including port settings, TX/RX – performance and furthermore any occurring hard- and software error.

This will help customers to adjust the serial data communication to their environment.

2. COM2COM

This tool will show the current status of the modem signals belonging to serial data communication ports. Transfer data interactively via standard modem protocols.

3. Diagnostic

Here you will find all information about your installed communication cards. This tool provides internal and external testing of UART, IRQ and modem signals (TxD / RxD, CTS / RTS, DTR / DSR, DTR / DCD). This tool works only with installed SUNIX boards.

Speeder

Com2com

Diagnostic
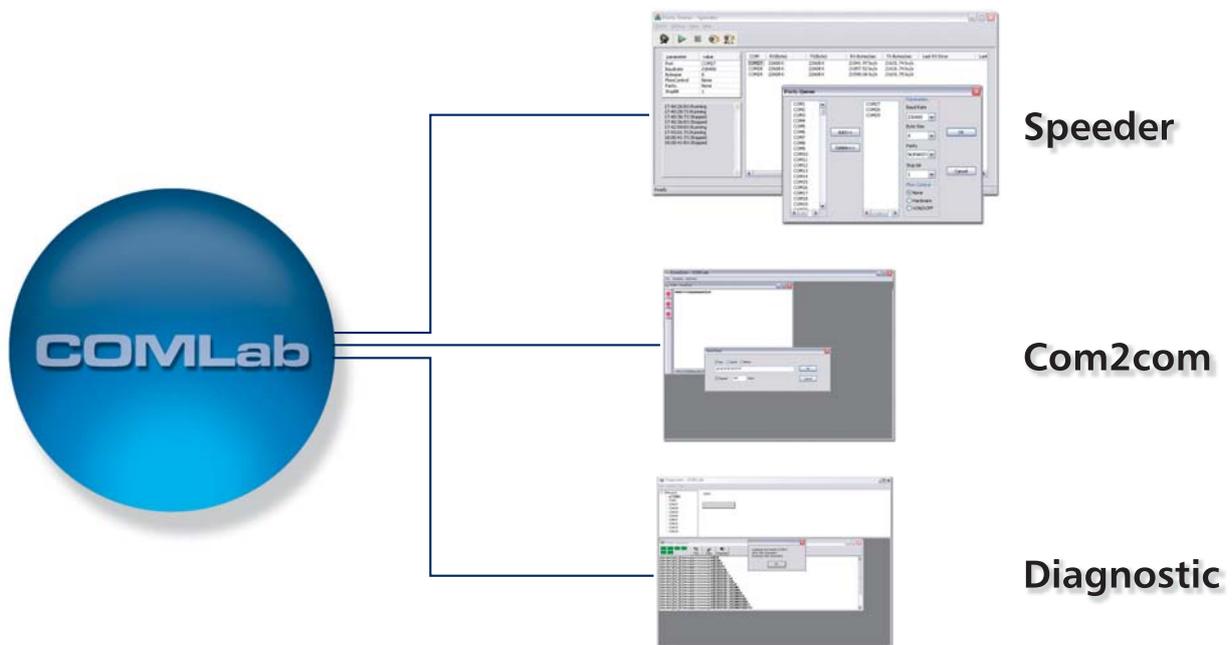
■ 1.0 Introduction

RS-232 Golden I/O series, a line of Universal PCI Multi-port Serial Communication Board, is a 32-bit Plug-n-Play PCI Bus card equipped with independent high-speed RS-232.V24 standard serial interface. The card attaches 1/2/4/8 independent DB9 or DB25 RS-232 serial ports on your system for industrial communication and automation applications. It is compatible with both 3.3v or 5v and 32-bit or 64-bit PCI Bus, allowing this Multi-port Serial card to 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. The system will search the device automatically eliminating any conflicts with other cards or device.
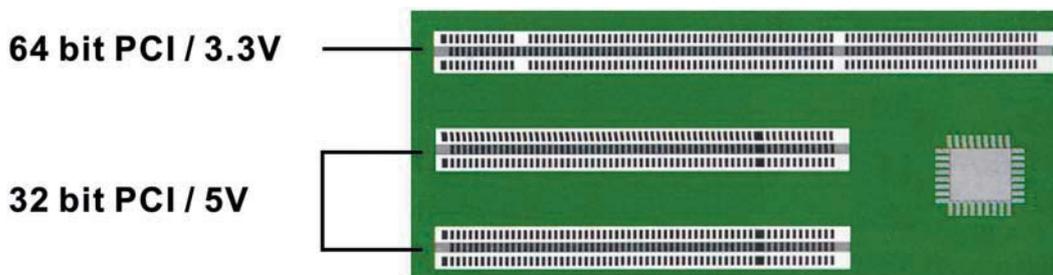
■ 2.0 Specification

2.1 Features:
► Fully compatible with PCI Spec. Ver2.2/2.1 standard.
► Supports both 64-bit & 32-bit PCI Bus and 3.3v & 5v connector keys.
► Expands 1/2/4/8 independent RS-232 serial ports in one single board.(Note)
► High speed 16C650 compatible communication controller with SUN1X self-design single chip hardware flow control to guarantee no data loss and the best technical support.
► Each serial port has built-in 32 byte hardware FIFO.
► Data transmission speeds up to 115.2 Kbps.
► Certified by Microsoft WHQL, CE, FCC ClassB approval.
► Support Microsoft Windows, DOS, Linux, and SCO Unix major operation system.

2.2 Universal Serial PCI Card:
► Bus type: Supports both 64-bit & 32-bit PCI Bus
    3.3v & 5v connector keys

64 bit PCI / 3.3V

32 bit PCI / 5V

2.3 RS-232 Specification:

Model	RS-232 Universal PCI Communication Board
Mode of Operation	HandShaking RS-232 Full-Duplex
Controller	SUNIX 16C650 Compatible UART
Bus Interface	64-bit & 32-bit PCI Bus / 3.3v & 5v Connector key
Number of Ports	1 / 2 / 4 / 8 ports with DB9 or DB25 Male Type
Bracket	Standard 121 mm, Low Profile 79.2 mm
IRQ & IO Address	Assigned by BIOS / O.S.
FIFO	32 byte hardware FIFO
Baud Rate	75 ~ 115, 200 bps
Data Bit	5, 6, 7, 8
Stop bit	1, 1.5, 2
Parity	Even, Odd, None, Mark, Space
Flow Control	None, Xon / Xoff, Hardware
Driver Support	Windows CE5.0/ 3.1/ 9x/ NT/ 2000/ XP/ 2003 /Vista (32/64-bit) Linux 2.2.x, 2.4.x & 2.6.x, DOS
Regulatory Approvals	CE, FCC / Microsoft WHQL

2.4 Low Profile:

Low Profile PCI card size is so small that can easily fit into almost system.
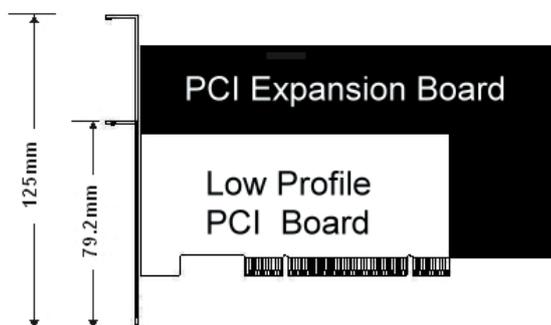

2.5 Package list:

▶ Hardware: PCI Serial I/O Card x 1
    DB9 or DB25 Male cable (only for 4 & 8 ports card)
▶ CD Driver   ▶ User Manual
▶ Serial Cable (Note)

1 port series	: DO NOT need any connection cable.
2 ports serues	: DO NOT need any connection cable.
4 ports series	: DB37 Male to 4 ports DB9 or DB25 Male x 1
8 ports series	: DB62 Male to 8 ports DB9 or DB25 Male x 1

Note : We provide 1, 2, 4 or 8 RS-232 ports product for users selection. The expansions COM ports and cable accessory will depend on what product you bought.
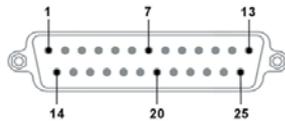
2.6 Pin Assignment:

RS-232:

DB9 Male
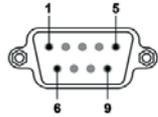
PIN	Signal
1	DCD
2	RD
3	TD
4	DTR
5	GROUND
6	DSR
7	RTS
8	CTS
9	RI

DB25 Male

PIN	Signal	PIN	Signal
1	NC	14	Not Connect
2	TD	15	Not Connect
3	RD	16	Not Connect
4	RTS	17	Not Connect
5	CTS	18	Not Connect
6	DSR	19	Not Connect
7	GROUND	20	DTR
8	CD	21	Not Connect
9	Not Connect	22	RI
10	Not Connect	23	Not Connect
11	Not Connect	24	Not Connect
12	Not Connect	25	Not Connect
13	Not Connect		

■ 3.0 Operation Environment

▶ Operation Temperature: 0 °C ~ 60 °C (32 °F ~ 140 °F)

▶ Operation Humidity: 5 to 95% RH

▶ Storage Temperature: -20 °C ~ 85 °C (-4 °F ~ 185 °F)

■ 4.0 Driver Install / Uninstall

4.1 Driver Installation:

In order to ensure proper operation of your RS-232 PCI serial board, the driver will be in the CD bound with your product. You can specify the location (folder) as below:

Operation System	Driver Location
Windows 2000/ XP/ 2003/ Vista(32-bit)	:\IO\PCI IO\2K & XP & 2003 & Vista_32bit\
Windows XP/ 2003/ Vista(64-bit)	:\IO\PCI IO\XP & 2003 & Vista_64bit\
Windows 95/ 98/ ME	:\IO\PCI IO\Win9x\
Windows NT 4.0	:\IO\PCI IO\WinNT\
Windows 3.1 / DOS	:\IO\PCI IO\DOS\PCI\DOS.exe
Windows CE.NET	:\IO\PCI IO\WinCE\
Linux 2.4.x / 2.60x	:\IO\PCI IO\Linux\
User Manual	:\IO\PCI IO\Manual\Serial.pdf

* You can find the detail of the installation steps in the user manual.

4.2 Driver Install Guide:

1. On booting up, system will delect the PCI Serial card and prompt for driver installation wizard, please choose cancel.

2. Insert the driver CD in your CD / DVD ROM drive and run the point directory setup file: **\IO\PCI IO\win2K and xp\setup.exe**

3. Click "**Next**" to continue when Golden Series Driver Installer Window shows up.

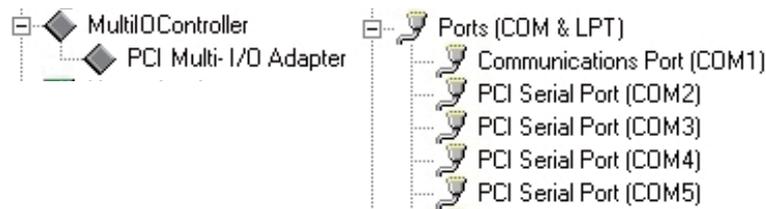4. Follow the instruction to install the driver. It may take a couple minute.

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5. Click "**Finish**" to finish installation.

4.3 Hardware Verity:

Please launch the "Device Manager" to verity hardware installation correctly.

Start > Controller Panel > System > Device Manager

Note : If you install PCI Serial ports to your system, you will be requested to restart your computer when you finish setting up each serial port. Click "Yes" if all serial ports have been installed, others click "No".

4.4 Driver Uninstall Guide (Windows XP/ Vista):

1. Please check the **Start ➔ Settings ➔ Control Panel ➔ System ➔ Hardware ➔ Device Manager ➔ Multifunction adapters ➔ PCI Multi-I/O Adapter**, and click the mouse right button select "**Uninstall**".

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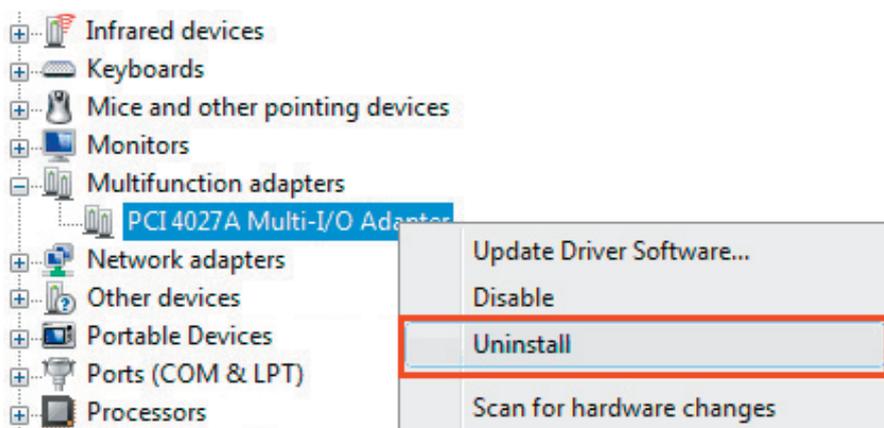
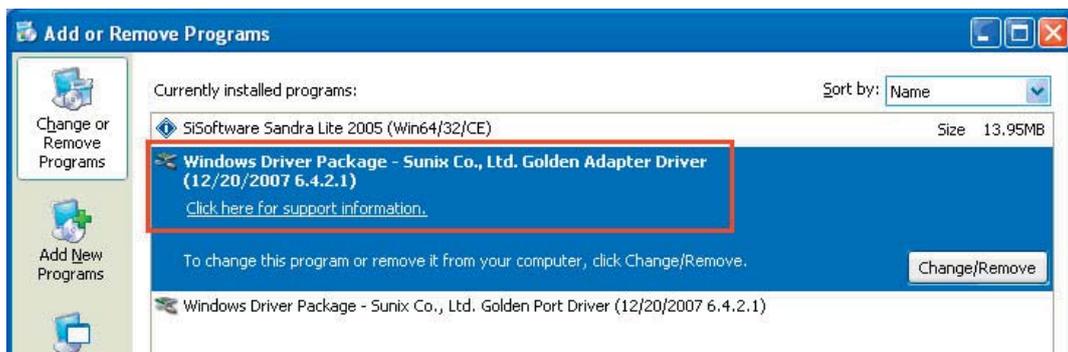2. Then click "**OK**" button to uninstall the device..

3. After finish the process, user need to reboot the system to ensure the uninstallation.

The other way to uninstall the driver is

Start ➜ Settings ➜ Control Panel ➜ Add/ Remove program

1. First press "change/remove" button to remove adapter (device) driver.

Then press "**Yes**" button to finish the uninstallation.

2. Press "change/remove" button to remove port driver.

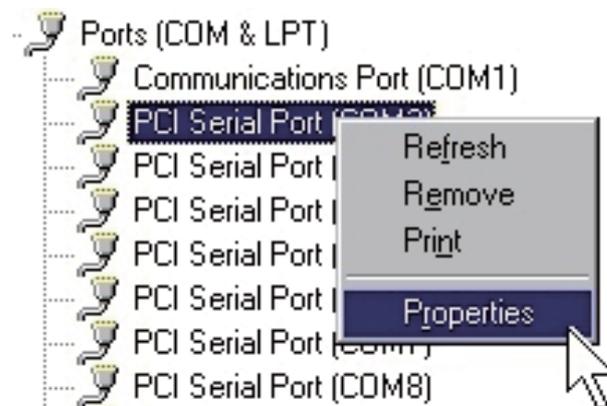Then press "Yes" button to finish the uninstallation.

3. After finish the process, user need to reboot the system to ensure the uninstallation.
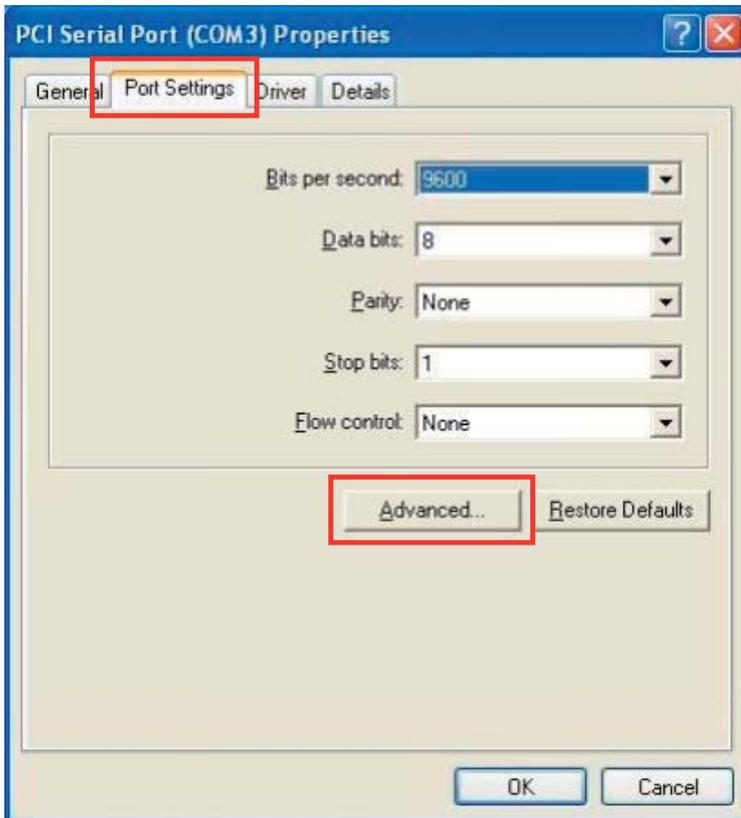
■ 5.0 Port Setting

After installing RS-232 PCI serial board successfully, you can modify the setting for each serial port in device manager.

1. Right click your mouse on the COM port and select "**Properties**".

2. Select "**Port Settings**" page to modify COM port setting.

3. Select "**Advanced**" icon, you can modify COM port number and FIFO.

There are three kinds of flow control: Xon / Xoff, Hardware and None. The Xon / Xoff is using software protocol. The Hardware means the flow control is using RTS / CTS, but the RTS / CTS is controlled by software. The None means there is no flow control. Click the "Advanced" if you want to set more and advanced features.
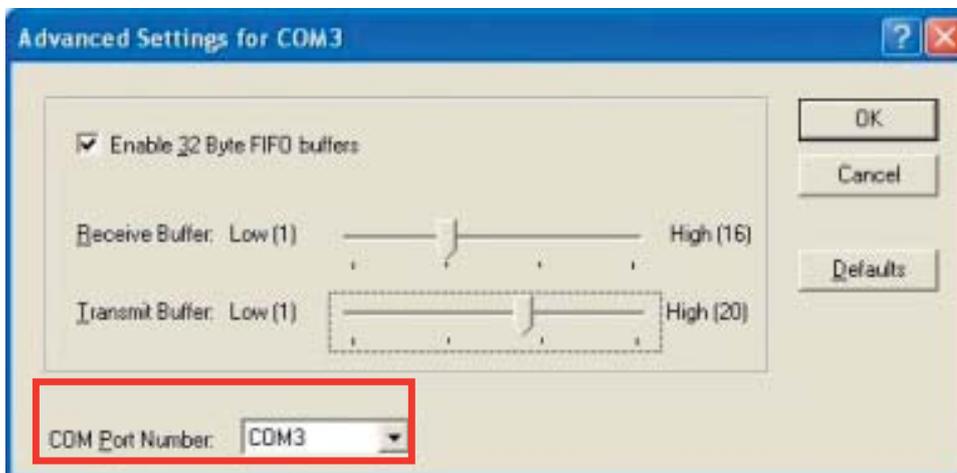
4. Configure the "**Enable Auto CTS/ RTS Flow Control**", "**16 / 32 / 64 bytes FIFO length**", and Receive / Transmit Buffer trigger level if you want to change.

5. Enable Auto CTS / RTS Flow Control means the CTS / RTS Flow Control is controlled by hardware automatically. System will be more stable if the function is enabled.

6. Set the Receive/Transmit Buffer to higher value will get faster performance because the interrupts will be reduced, but the time for interrupt service routine will become shorter. The receive buffer overflow will be easily happened if the CPU speed is not enough to handle. If the system is not stable, select the lower value to correct problems.