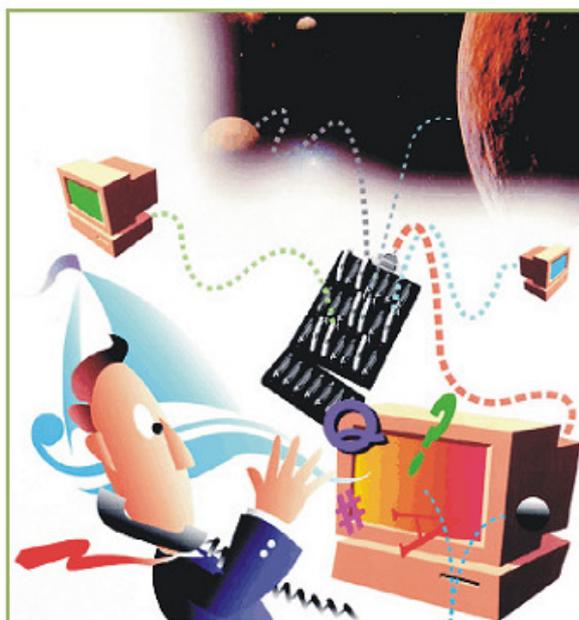


MultiPort/PCI



Serial Communication Experts
SystemBase
Since 1987

Revision History

Revision Date	Version	Pages	Description
7/14/2006	2.0	All	Renewal by shlee
6/26/2007	2.1	Partial	Added Vista 32 by khheo
5/27/2008	2.2	All	Form fixed by hjnoh
8/22/2008	2.3	Partial	Form fixed by msbaek
9/22/2008	2.4	Partial	Form fixed by msbaek

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Greetings from CEO

We appreciate all the customers for their deep interest in our products.

SystemBase has been engaged wholly in the field of the serial communications to produce the various products related to the same since it was founded in 1987.

Along with the recent booming market trend by the advanced skill of high speed communication applying LAN the applicable field of this serial communications could not draw the attention of the public. Consequently the customers of the serial communications have faced the difficulty of very poor technical support from the supplier in spite of its wide use before then.

But the customers of SystemBase are not needed to worry about such inconveniences since the technical discussions with customers for the application of our products as well as the efficient After-Service work have been kept effectively so far and will also be kept continuously in future by the technical staffs our company who have enough experiences and skills to perfect customers from such inconveniences.

Once again we appreciate all of our customers who have loved our products during the past years

About MultiPort

MultiPort is a multi serial communication device which makes PC to a multi-user or Multi device system by applying it.

Multi-user system or RAS(Remote Access System) is a system which enables a server computer to be used together by multi users thru the terminal at distance or to have the information used together.

All the users can access to the server thru the MultiPort equipped on the server at distance and can use the device connected to the network as if it is his own one, or can access to the file server as if he is on the LAN. In many cases only one computer is used simultaneously by multi staff in the company due to the function and economic reason. What makes it possible is the multi communication access device which connects the operating system with multi user function and multi users. The typical ones are LAN and the asynchronous serial communication port. Of these the device which connects the host and multi users locating at distance by using asynchronous communication port is the MultiPort.

The multi device system is mainly used for the automation system, and it collects and distributes the data at real time created from each device, or control various devices at distance by a computer installed at center with several asynchronous devices connected. In other words the user at center can work at the real time by catching the present status of all devices located at distance, or controlling the movement of them thru the MultiPort of the computer at center.

The merit of MultiPort is easy and economic to install and maintain.

Meantime LAN has high speed to transmit data, but the more devices connected and users are involved the more crashes among the transmitted data happens. Once such crashes happens far more times than some level then the transmitting efficiency is declined suddenly. But it is possible to realize Real Time without any distance limitation by applying MultiPort because it is 1:1 communication and transmitting capacity can be kept constantly even if several dozens of port were connected.

At the same time the speed of asynchronous communication is being improved along with the advanced technique of hardware day by day, so not necessary to worry about the communication speed.

There are 2 types of MultiPort-Dummy and Intelligent. Dummy MultiPort is the one which has no processor by itself. It is better in economical viewpoint than Intelligent one in case of smaller volume in transmitting data and fewer number of port connected to system. Usually it is more efficient to use Dummy MultiPort when the number of port is not exceeding 32. Meantime Intelligent MultiPort is rather efficient when required to transmit large volume of data due to its fast processing speed as it has processor by itself. Furthermore it is possible to connect several hundreds port to a system, but costs high.

About PCI

PCI(Peripheral Component Interconnect) is a type of local bus that connects CPUs and internal peripherals. In 1991, PCI was proposed by Intel Corporation for the first time, but now it is a local bus standard so that PCs, and even medium and large computer systems can adopt it. A few features of PCI bus can be summarized as follows.

The PCI is basically designed to operate at 33 MHz clock speed and 32 bit I/O. It also has an extended 66 MHz, 64 bit I/O that accommodates Baud rates 8 times faster than the conventional ISA bus type (8 MHz, 16 bit I/O).

Peripherals connected to the PCI bus have their own register and device information used for setting hardware automatically. This enables users to install PCI devices with ease.

The CPU works separately from the bus master, so that the PCI bus continues to perform its functions without waiting for the CPU even though the peripherals connected though the bus are slow. This structure helps PCI handle much more loads at the same time.

The PCI bus has multiplexed card pins that contribute to reduce component size, making them smaller than ISA cards and further lowering hardware costs.

PCI bus components are completely compatible with existing device drivers and applications. That is, they only require PCI in order to control the devices and show perfect compatibility with previously installed programs.

The PCI bus makes its surface reversely located from that of the ISA card so that it can utilize a shared slot (using the identical guide between different bus types).

The PCI bus is the most effective supporting type for 64-bit CPU. As it has the advantage on being compatible with the existing ISA bus, it is expected to be a standard bus type for all computers in the future.

Isolation

- What is Isolation?

ISO version boards and panels include an embedded isolator to provide isolation feature. Isolator cuts off the electric route between the input and output by inserting an appropriate shock absorber. This feature protects the device from the power crash.

- Product Features

Securely protects the product from electric shock with opto coupler and DC-DC converter that electrically isolate the power and signal lines.

PC internal signal and RS422, RS485 signal: 10kV Opto Isolated.

PC internal power and RS422, RS485 power : 3kV Isolated.

- Applied Products

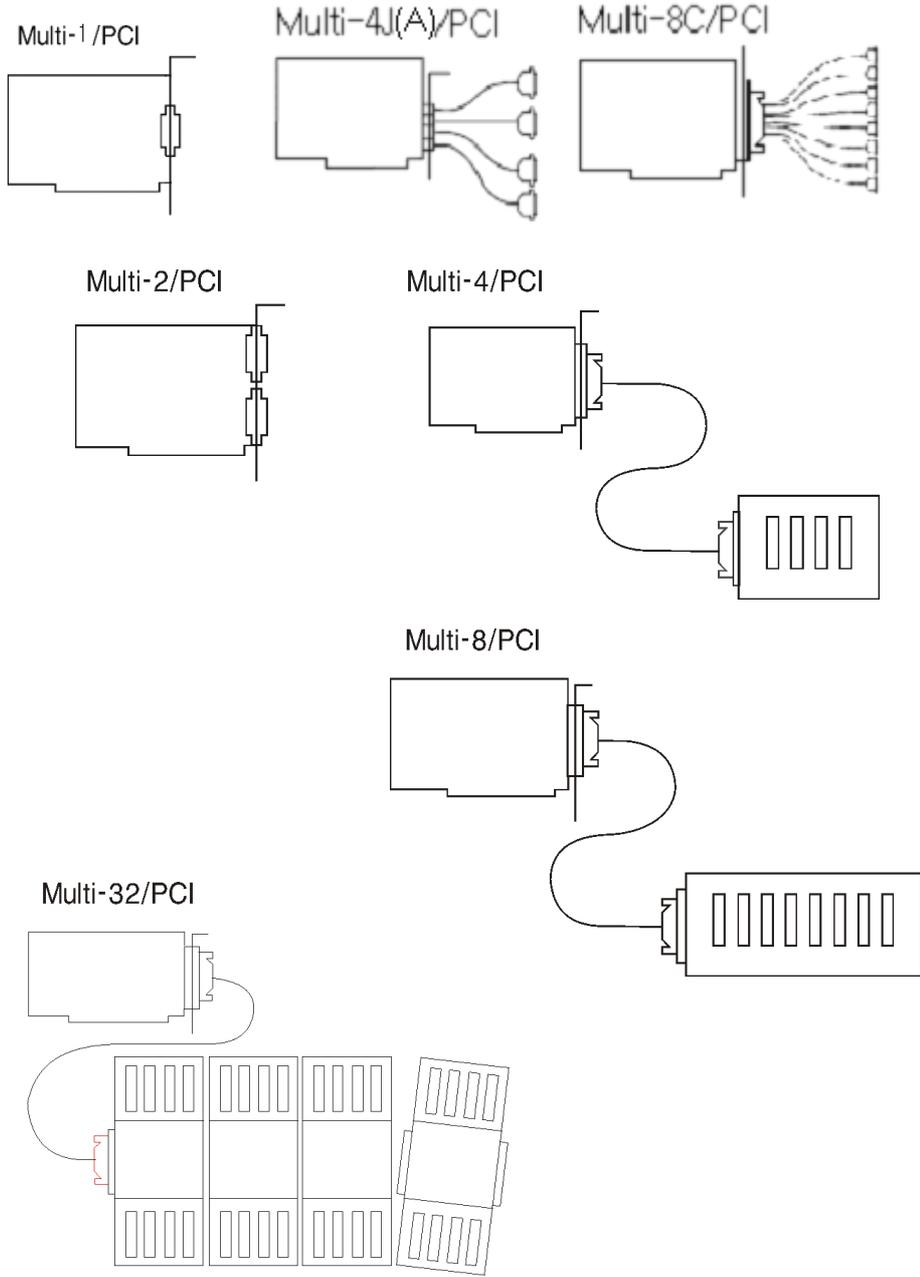
Panel: Panel4 DB4 ISO 422/485 Ver A1

Board: Multi-2 ISO/PCI

Synopsis

- SystemBase's MultiPort PCI boards are installed on a PCI slot of your PC, providing 1,2,4,8,16,24 or 32 RS 232/RS422/RS485 serial ports.
- Multi-1/PCI, Multi-2/PCI, Multi-4/PCI, Multi-8/PCI MultiPort boards provide one, two, four and eight serial ports respectively.
- Multi-32/PCI MultiPort board is composed of 8, 16, 24, 32 ports with the extended external port box, Each port complies with standard UART for both-way communication at up to 921,600 bps.
- MultiPort PCI board occupies one interrupt number (IRQ) and many I/O addresses.
- MultiPort PCI board has automatic setting functions that eliminate the inconvenience of manually setting I/O base addresses and IRQ numbers.
- Each PC has up to four multiPort PCI boards and amounts to up to 128 ports.
- In Multi user environments such as SCO UNIX, Linux and Windows 2000/NT/XP/2003/Vista MultiPort PCI boards operate in multi-user mode connecting several terminals to one PC through multiplexed asynchronous serial communications.
- In singular user environments such as windows 98 and MS-DOS, MultiPort PCI boards operate in multi-device mode connecting several devices to one PC through multiplexed asynchronous serial communications.
- The MultiPort board includes
 1. MultiPort controller board.
 2. External port box(however, it is excluded from
 3. Multi-1,2,4J,8C,16C).
 4. Controller cable(however, it is excluded from Multi-1,2).
 5. CD with driver manual.

OverView



Multi-1/PCI

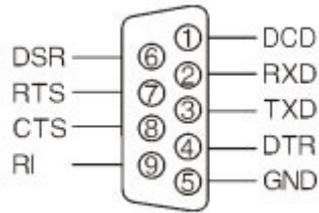
Multi-1/PCI board is a model that supports PCI Local Bus Spec 2.3. It is an asynchronous single port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-1 ALL/PCI uses core for PCI Local Bus Spec 2.3 designed by SystemBase. Multi-1 ALL/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.. Also, LED is attached outside to show the current status of signal lines.

- Product Specifications

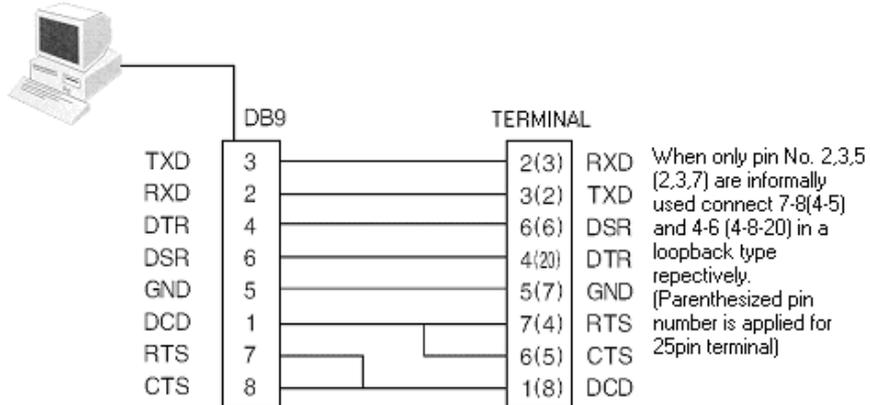
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C550
Connector	DB9
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit Protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- How to Connect RS232 Connector

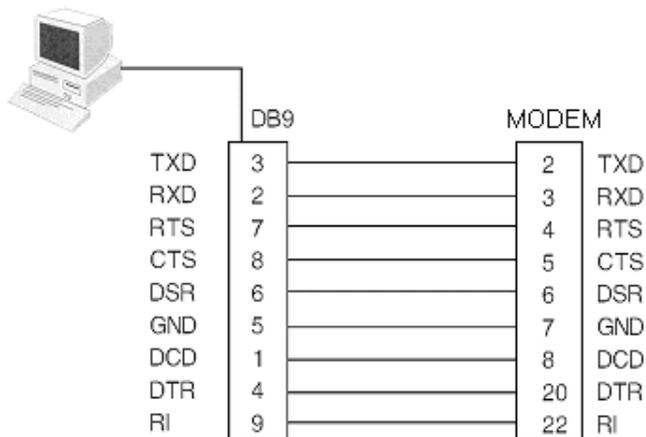
1. 9Pin Connector(Male)



2. Connecting Terminal

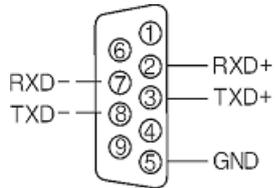


3. Connecting Modem



- How to Connect RS422 Connector

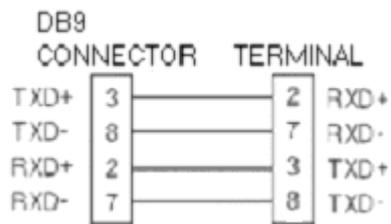
1. 9 Pin Connector(Male)



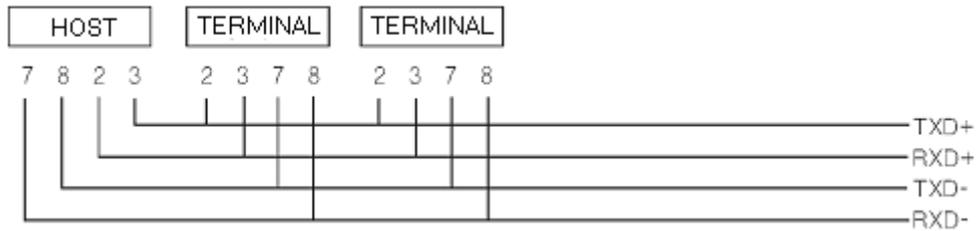
2. Mode Change

Select between point-to-point mode and multidrop mode during the installation of the device driver. The default mode is point-to-point mode.

3. Connecting External point-to-point

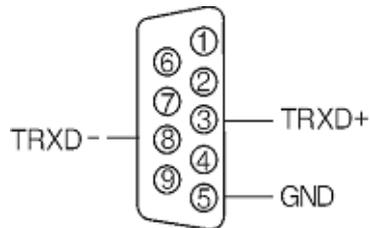


4. Connecting multi-drop



- How to Connect RS485 Connector

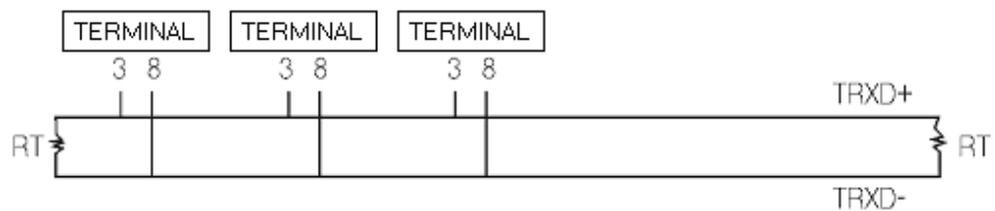
1. 9 Pin Connector(Male)



2. Mode Change

Select between non-echo mode and echo mode during the installation of the device driver. The default mode is non-echo mode.

3. Method of Connecting



RT: 120 Ohm (If there is no serious noise, termination resistors are not required)

RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Multi-1 ALL/PCI

Multi-1 ALL/PCI board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-1 ALL/PCI uses core for PCI Local Bus Spec 2.3 designed by SystemBase. Multi-1 ALL/PCI not only supports maximum communication speed of 921.6Kbps but also provides different communication interfaces, RS232/RS422/RS485, with simple jumper setting. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

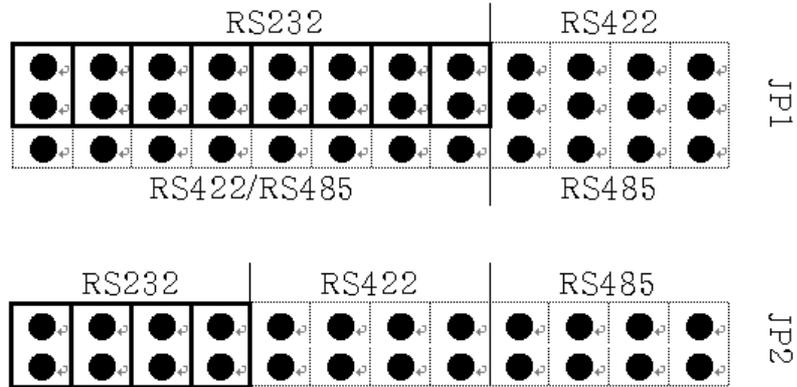
- Product Specifications

Communication Speed	921.6K BPS Maximum
Bus Interface	PCI Local Bus Spec 2.2
Line Interface	RS232/RS422/RS485
Communication Controller	16C550
Connector	DB9 Male
I/O Address	Automatic configuration
IRQ Number	Automatic configuration
Line Protection	Surge Protector embedded
Supporting O/S	Windows 95/98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase, co., Ltd.

- RS232 Jumper Configuration and Connector Pin-outs

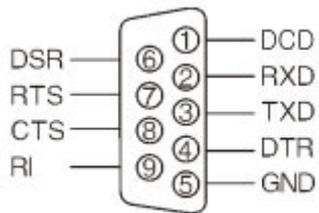
1. RS232 Jumper Configuration

(default)



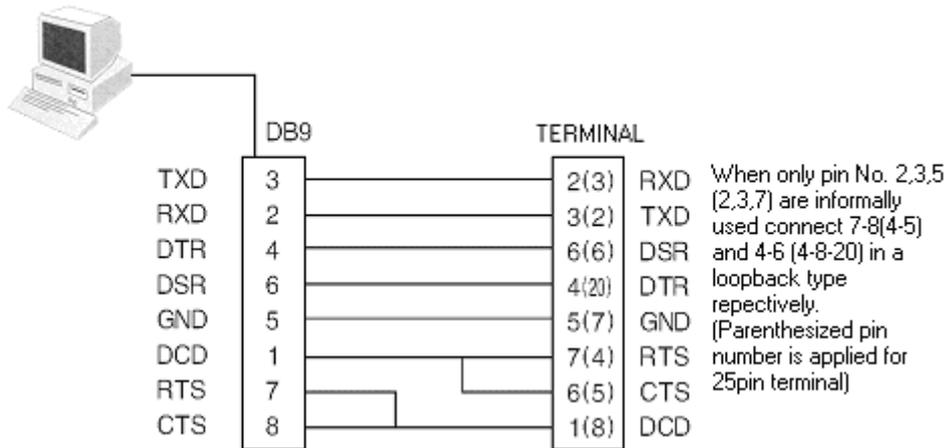
2. RS232 Connector Pin-outs

a. 9 Pin Connector(Male)

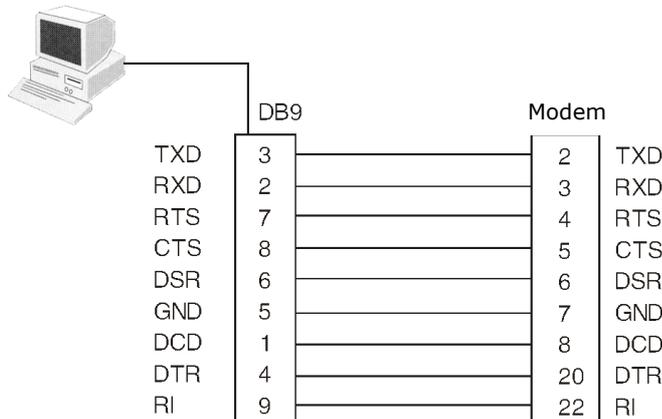


5V, 12V power can be supplied through 9-pin connector, using the board jumper setting.

b. Terminal Connection Tips

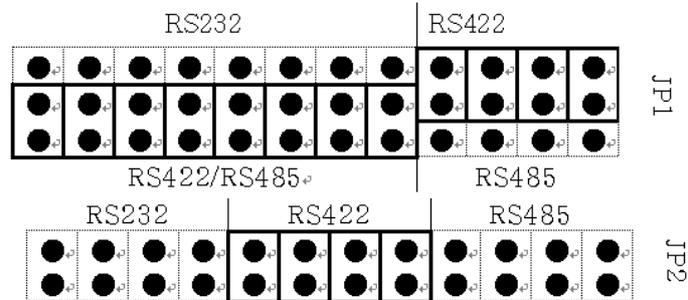


c. Modem Connection Tips



- RS422 Jumper Configuration and Connector Pin-outs

1. RS422 Jumper Configuration



2. Changing Modes

When installing the device driver, select either point-to-point mode or multi-drop mode by software. The default is point-to-point mode.

3. Line Pin-outs

TXD + — RXD +

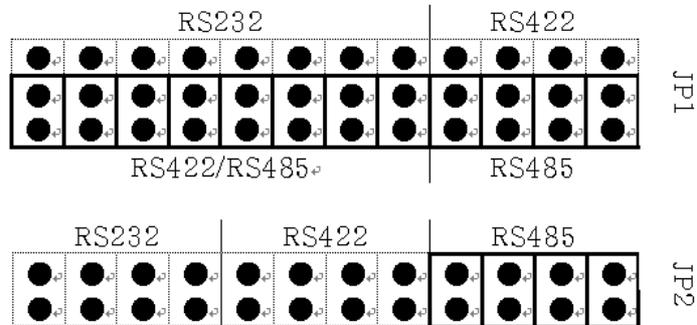
TXD - — RXD -

RXD + — TXD +

RXD - — TXD -

- RS485 Jumper Configuration and Connector Pin-outs

1. RS485 Jumper Configuration



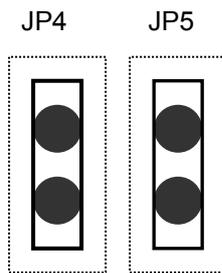
2. Changing Modes

When installing the device driver, select either non-echo mode or echo mode by software. The default is non-echo mode.

3. Line Pin-outs

TRXD+ — TRXD+
 TRXD- — TRXD-

4. Setting Terminal Resistance



- JP4: RS 485 Communication Terminal Resistance
- JP5: RS 422 Communication Terminal Resistance

- Terminal resistance only connects to terminal channels in RS422 or RS485.
- Multi-1 All/PCI can independently connect to the terminal resistance, using the Jumper Switch
- Jumper for the matching channel should be connected when the connection of the terminal resistance is desired.

Multi-1/LPCI VA2

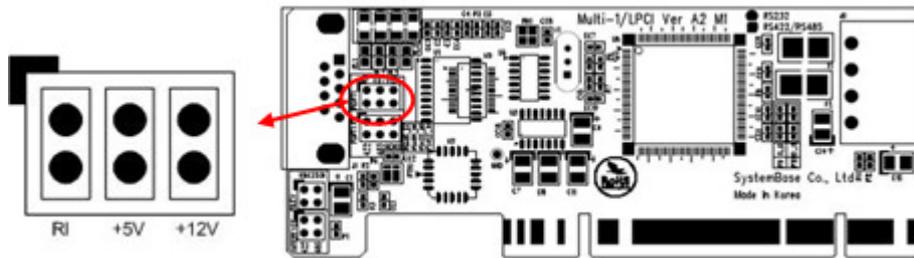
Multi-1/LPCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is an asynchronous single port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-1 ALL/PCI uses core for PCI Local Bus Spec 2.3 designed by SystemBase. Multi-1 ALL/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

Communication Speed	921.6Kbps Maximum
Bus Interface	PCI Local Bus Spec 2.2
Line Interface	RS232/Combo model(RS422/RS485)
Communication Controller	16C550
Connector	DB9 Male
I/O Address	Automatic configuration
IRQ Number	Automatic configuration
Line Protection	Surge Protector embedded
Supporting O/S	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase, co., Ltd.

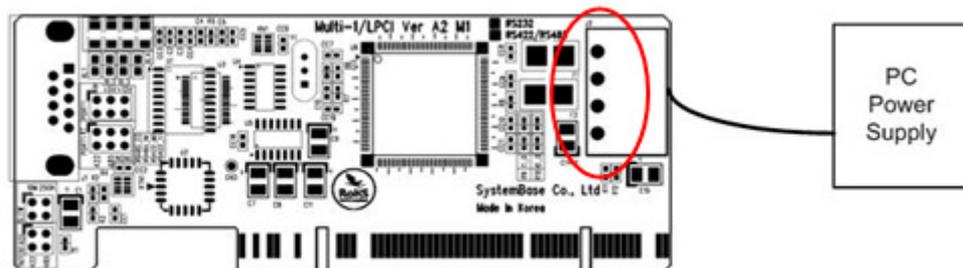
- RS232, Combo Common

1. Port1: External Power Supply Setting Jumper



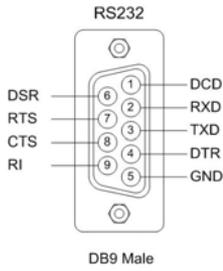
- RI: Do not supply external power and use pin 9 for RI signal line.
- +5V: Use pin 9 for supplying +5V external power.
- +12V: Use pin 9 for supplying +12V external power.

In case you want to supply +5V power but the PCI slot does not supply it, you should use PC's power supply.

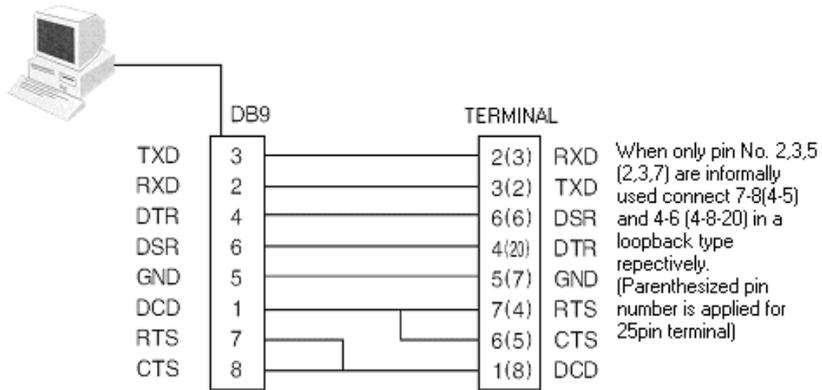


RS232 Model

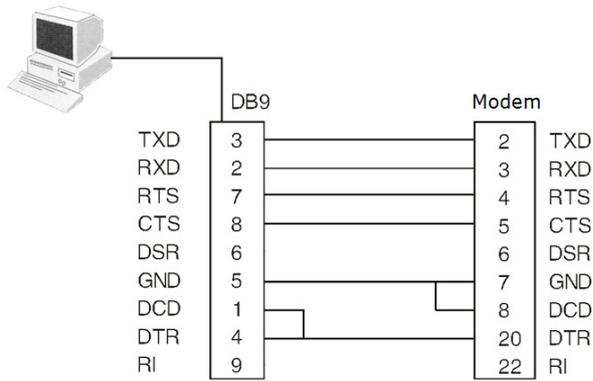
1. 9 Pin Connector



2. Terminal Connection Tips



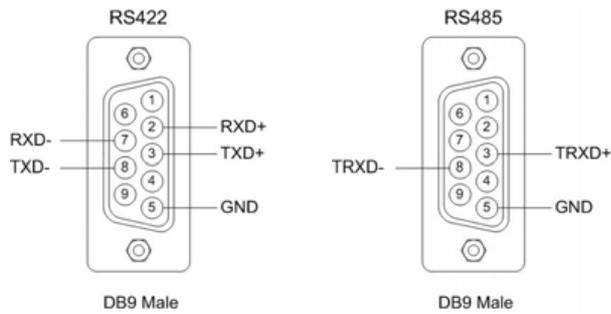
3. Modem Connection Tips



- RS422/RS485 Combo Model

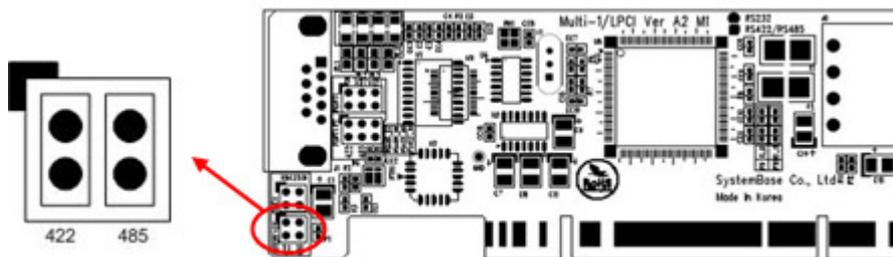
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings (default: RS485)

1. 9 Pin Connector(Male)



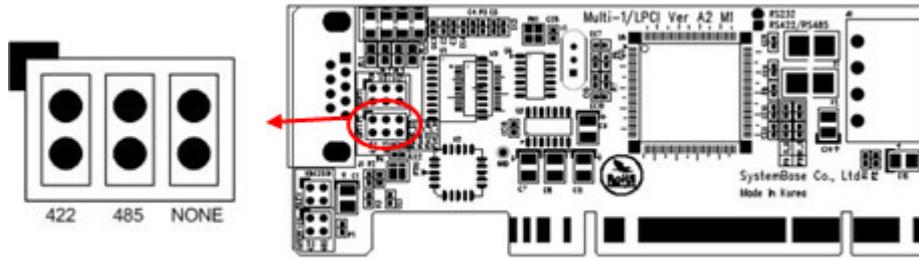
2. Jumper Settings

a. Interface Settings: Interface Selection



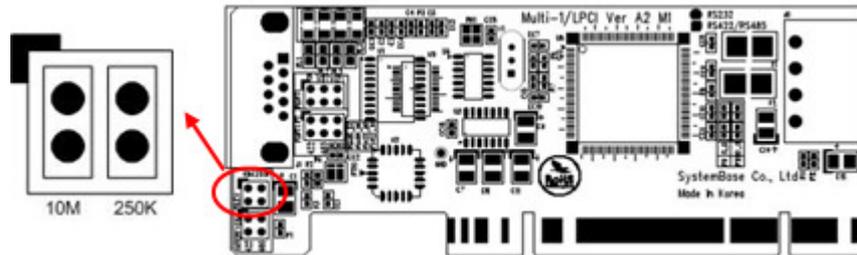
- 422: Select RS422 Interface
- 485: Select RS485 Interface

b. Port1 RT: RS422/RS485 Terminal Resistance Selection



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

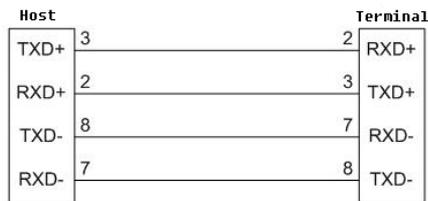
c. Slew: Slew Rate Limit Ability



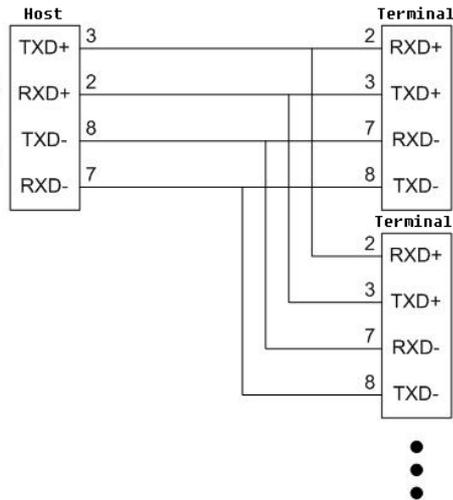
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode.

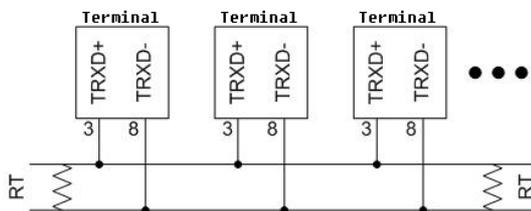
3. RS422 Point-to-Point Connection



4. RS422 Multi-Drop Connection



5. RS485 Connection



- RT: 120 Ohm (Not necessary when there is not much noise)
- RS485, like LAN, uses Half Duplex Bus and has no classification between host and terminal.

Multi-2/PCI

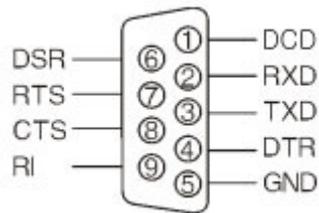
Multi-2/PCI board is a model that supports PCI Local Bus Spec 2.2. It is a asynchronous 2 port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-2/PCI uses core for PCI Local Bus Spec 2.3 designed by SystemBase. Multi-2/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

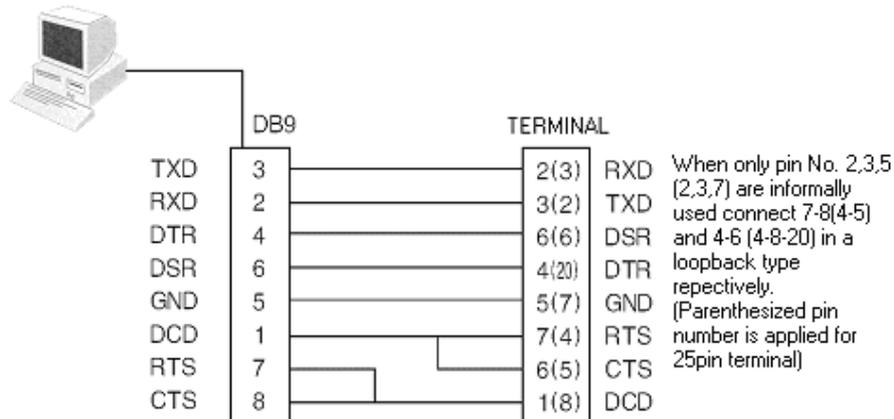
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C550
Connector	DB9
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit Protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd.

- How to Connect RS232 Connector

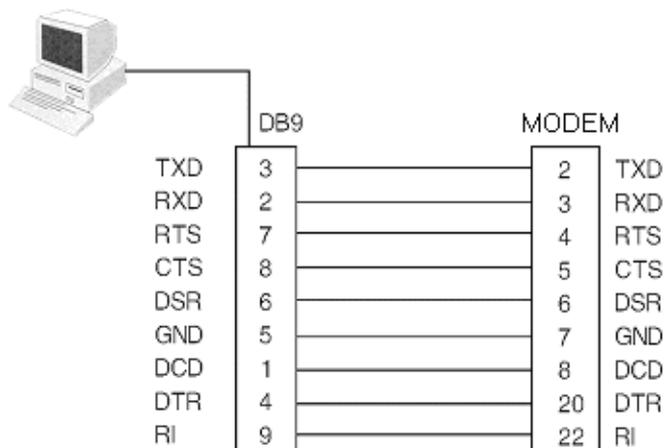
1. 9 Pin Connector (Male)



2. Connecting Terminal

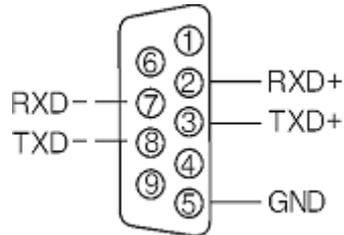


3. Connecting Modem



- How to Connect RS422 Connector

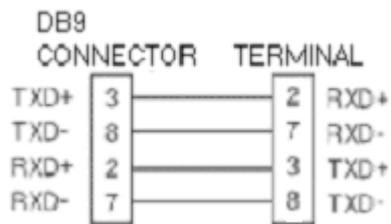
1. 9 Pin Connector (Male)



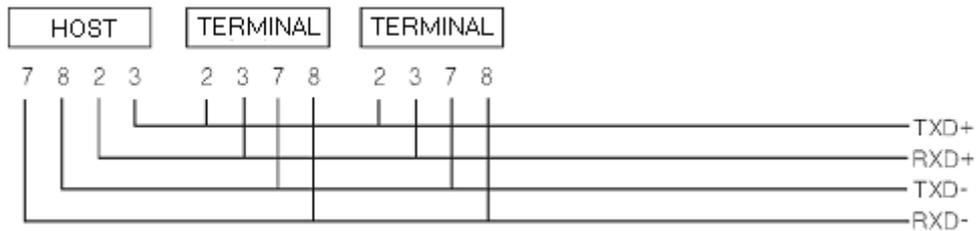
2. Mode Change

Select between point-to-point mode and multi-drop mode during the installation of the device driver. The default is point-to-point mode.

3. Connecting External point-to-point

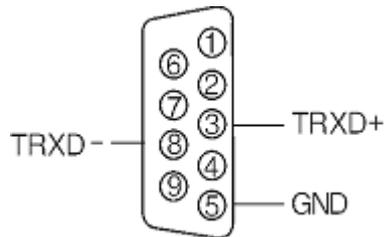


4. Connecting multi-drop



- How to Connect RS485 Connector

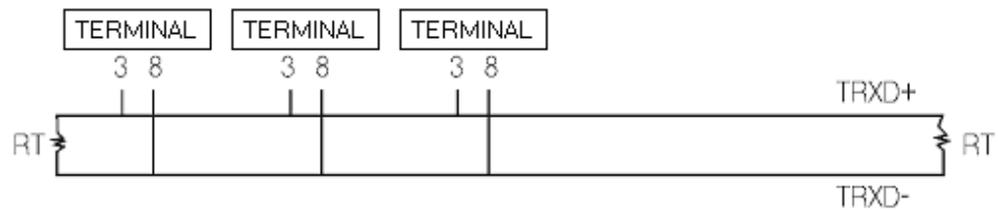
1. 9 Pin Connector (Male)



2. Mode Change

Select between non-echo mode and echo mode during the installation of the device driver. The default is non-echo mode.

3. Connection



- RS: 120 ohm (If there is no serious noise, termination resistors are not required)
- RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Multi-2/PCI VA2

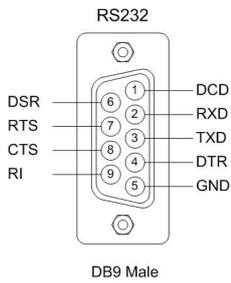
Multi-2/PCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is a asynchronous 2 port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-2/PCI VA2 uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-2/PCI VA2 not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc..

- Product Specifications

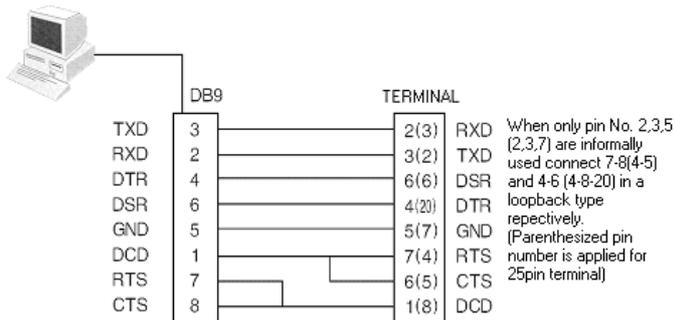
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C550
Connector	DB9 Male
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit Protection	Surge Protector attached
Supporting OS	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd.

- RS 232 Model

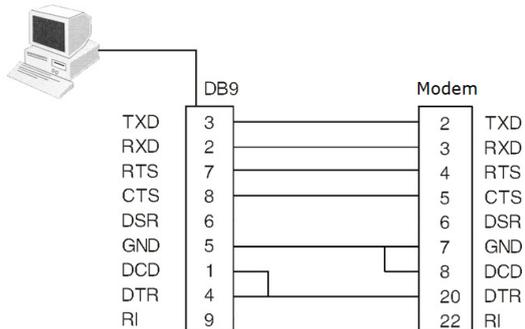
1. DB9 Connector(Male)



2. Connecting Terminal



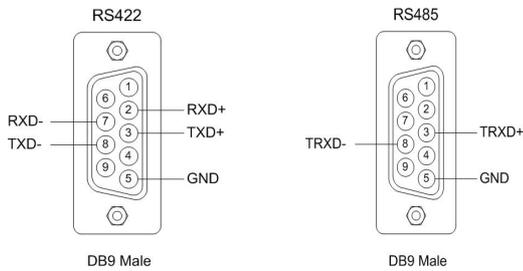
3. Connecting Modem



- RS422/RS485 Combo

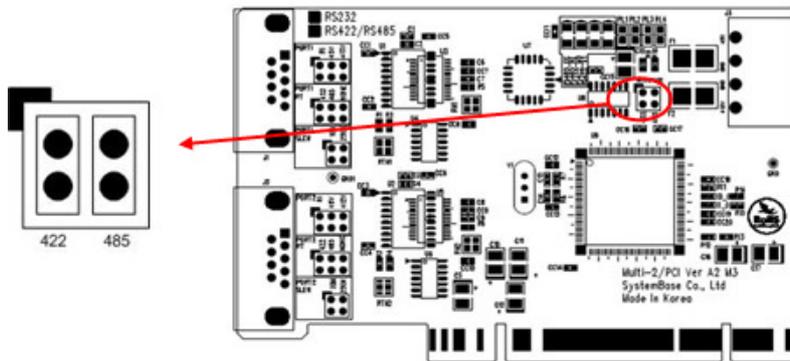
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings. (default :RS485)

1. DB9 Connector(Male)



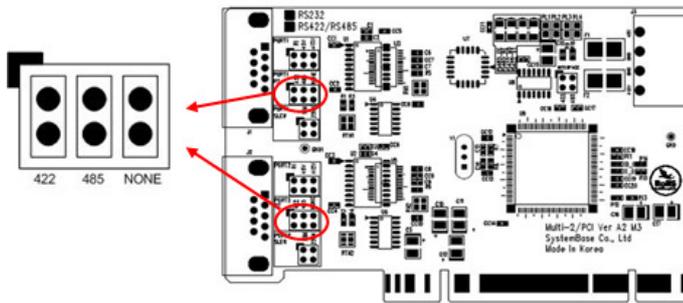
2. Jumper Settings

a. Interface Settings: Interface Selection



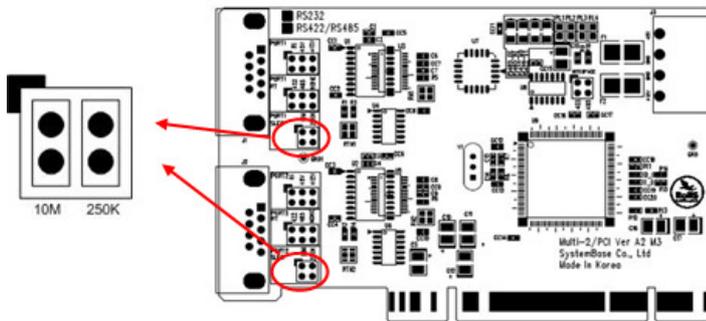
- 422: Select RS422 Interface
- 485: Select RS485 Interface

b. Port1 RT: RS422/RS485 Terminal Resistance Selection



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

c. Slew: Slew Rate Limit Ability



- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode.

Multi-2C/LPCI VA2

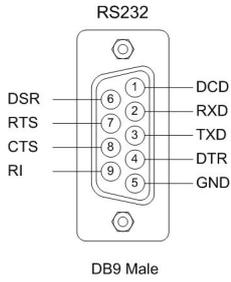
Multi-2C/LPCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is an asynchronous 2 port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-1 ALL/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-2C/LPCI board provides RS232 line interface and maximum communication speed of 921.6Kbps. In addition, it provides 2 DB9 Male connector cable that can be connected to DB25 pin connector for external connection. It is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

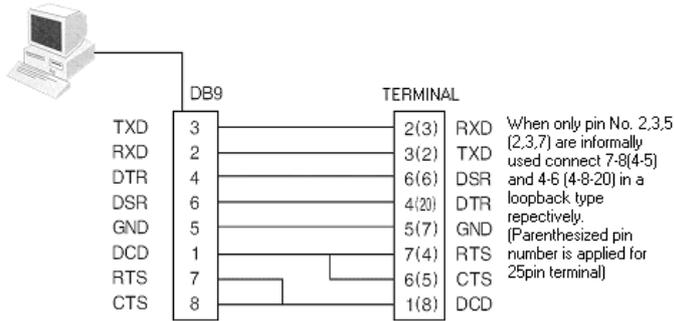
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232
Communication controller	16C550
Connector	DB9 Male
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit Protection	Surge Protector attached
Supporting OS	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd.

- RS232 Model

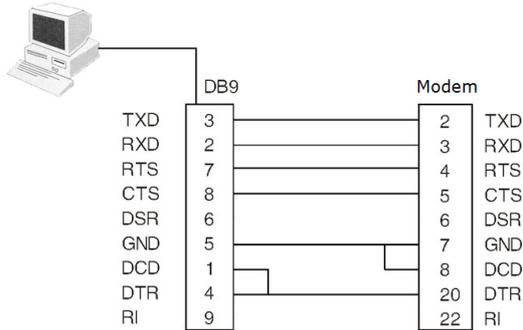
1. DB9 Connector(Male)



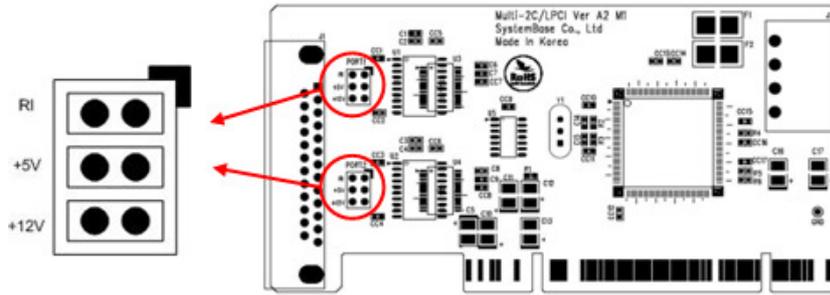
2. Connecting Terminal



3. Connecting Model

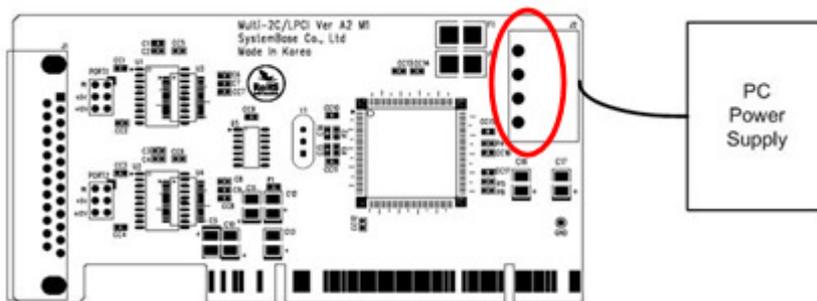


4. Portx: External Power Supply Setting Jumper



- RI: Do not supply external power and use pin 9 for RI signal line.
- +5V: Use pin 9 for supplying +5V external power.
- +12V: Use pin 9 for supplying +12V external power.

In case you want to supply +5V power but the PCI slot does not supply it, you should use PC's power supply.



Multi-4/PCI

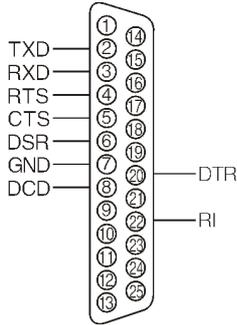
Multi-4/PCI board is a model that supports PCI Local Bus Spec 2.2. It is an asynchronous 4 port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4/PCI uses core for PCI Local Bus Spec 2.3 designed by SystemBase. Multi-1 ALL/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is used by connecting external port box with control board with Female DB9/25. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

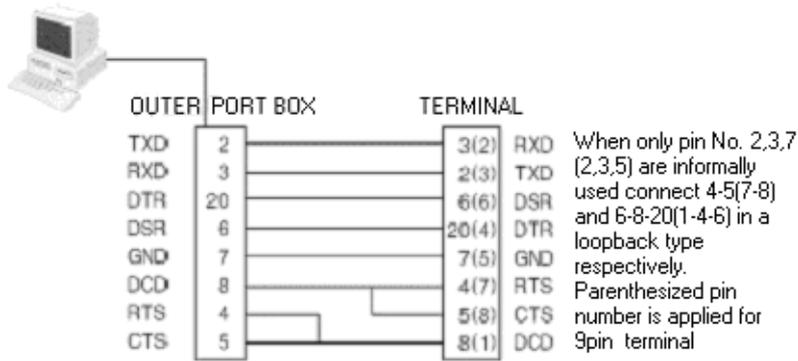
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

- How to Connect RS232 Connector

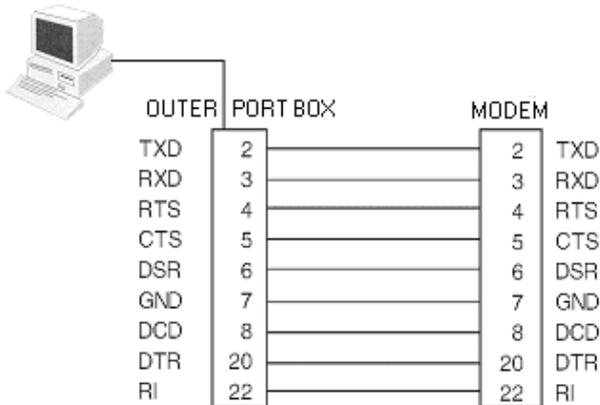
1. 25 Pin Connector (Female)



2. Connecting Terminal

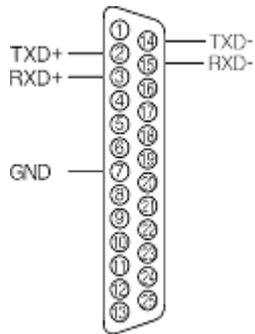


3. Connecting Modem



- How to Connect RS422 Connector

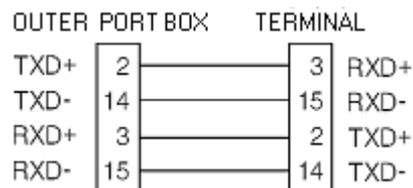
1. 25 Pin Connector (Female)



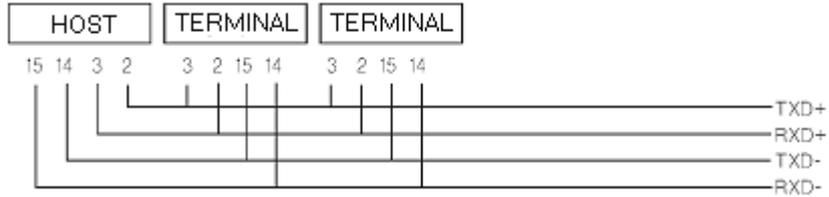
2. Mode Change

Select between point-to-point mode and multidrop mode during the installation of the device driver. The default is point-to-point.

3. Connecting External point-to-point

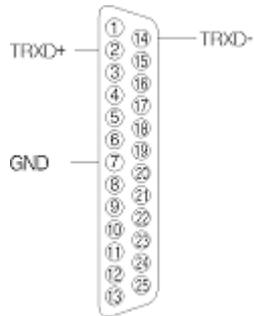


4. Connecting multi-drop



- How to Connect RS485 Connector

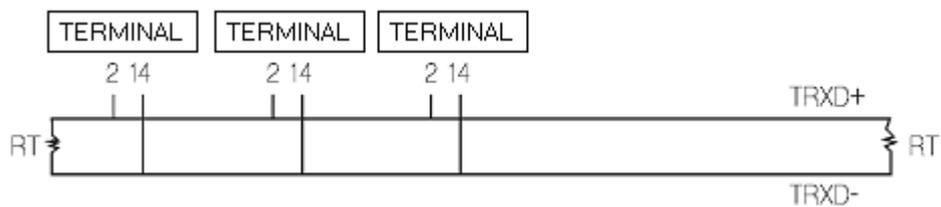
1. 25Pin Connector (Female)



2. Mode Change

Select between non-echo mode and echo mode during the installation of the device driver. The default is non-echo mode.

3. Method of Connecting



- RT: 120 ohm (If there is no serious noise, termination resistors are not required)
- RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Multi-4/LPCI VA2

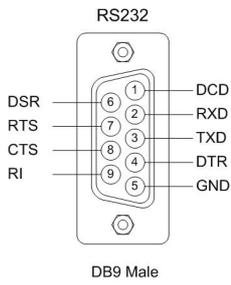
Multi-4/LPCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4/LPCI VA2 uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-4/LPCI VA2 is used with Panel-4 VA2 panel. It not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

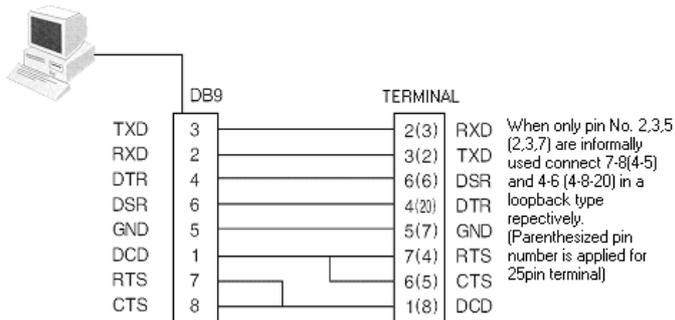
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB9 Male
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

-RS232 Model

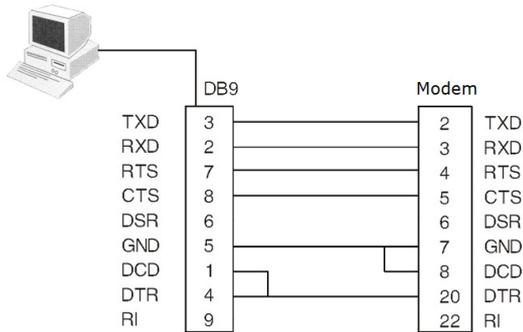
1. DB9 Connector(Male)



2. Connecting Terminal



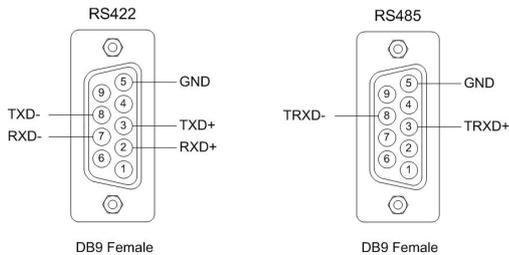
3. Connecting Model



- RS422/RS485 Combo Model

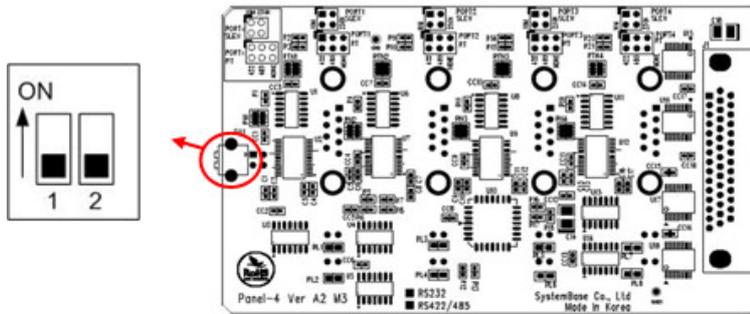
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings. (default: RS485)

1. DB9 Connector(Female)



2. Panel Switch Settings

Selects RS422, RS485 line interface and mode

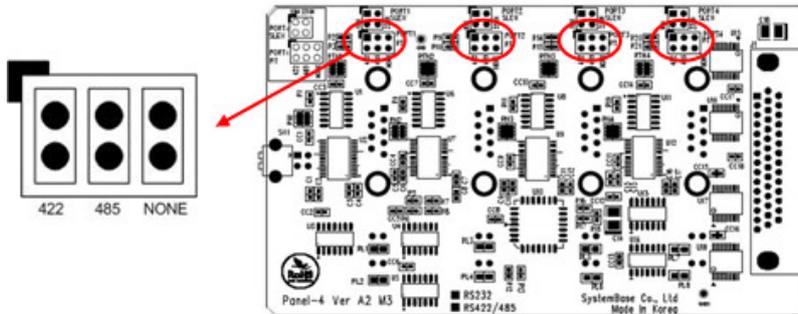


1	2	Interface	Mode
OFF	OFF	RS422	Point-to-Point
OFF	ON	RS422	Multi-Drop
ON	OFF	RS485	Non-Echo
ON	ON	RS485	Echo

3. Jumper Settings

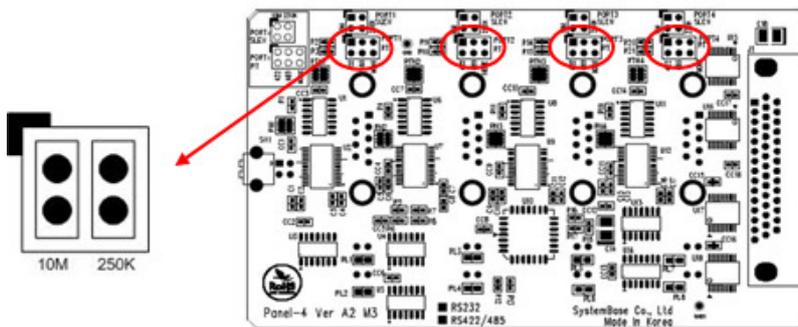
a. Portx RT: RS422/RS485 Terminal Resistance Selection

(Port 1 is Port #1, Port2 is Port#2)



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

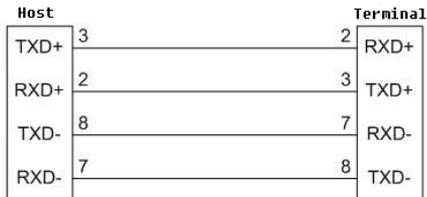
b. Slew: Slew Rate Limit Ability



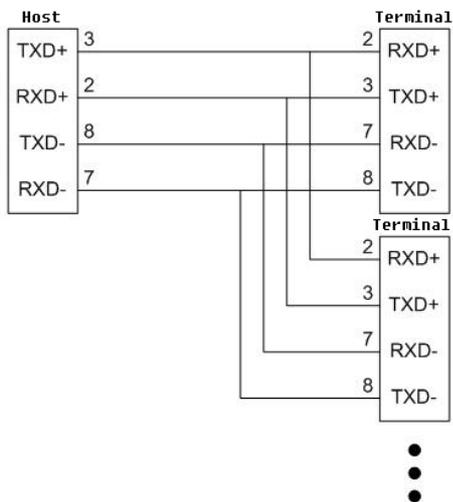
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode

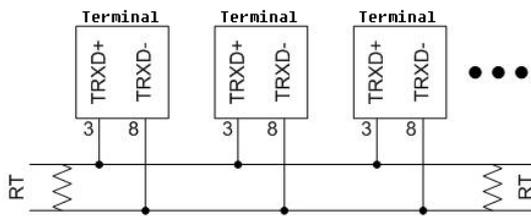
3. RS422 Point-to-Point Connection



4. RS422 Multi-Drop Connection



5. RS485 Connection



- RT: 120 Ohm (Not necessary when there is not much noise)
- RS485, like LAN, uses Half Duplex Bus and has no classification between host and terminal

Multi-4/LPCI VA2 (A)

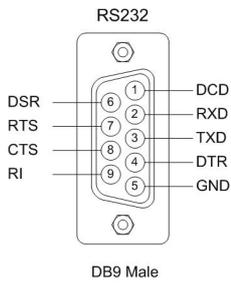
Multi-4/LPCI VA2(A) board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4/LPCI VA2(A) uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-4/LPCI VA2(A) is used with Panel-4 VA2(A) panel. It not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. And it provide voltage via direct connector to the device like bar code reader that is related with PC POS so is very useful when it is used in connecting small device (cash drawer, bar code reader, receipt printer and so on) Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

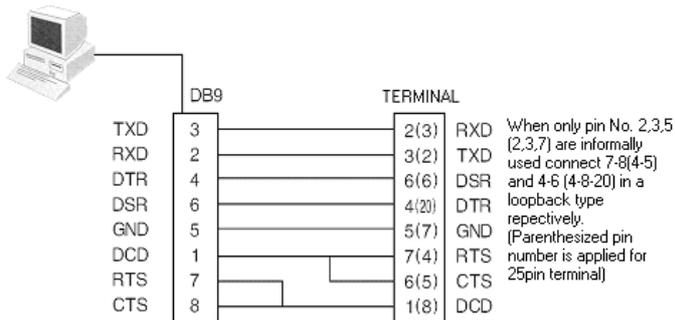
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB9 Male
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

-RS232 Model

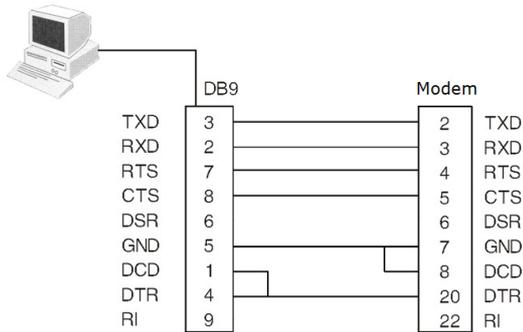
1. DB9 Connector(Male)



2. Connecting Terminal



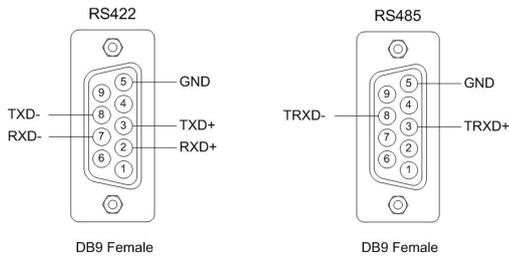
3. Connecting Model



- RS422/RS485 Combo Model

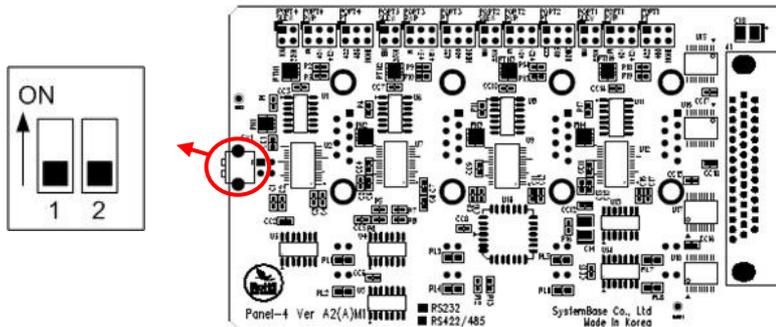
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings. (default: RS485)

1. DB9 Connector(Female)



2. Panel Switch Settings

Selects RS422, RS485 line interface and mode

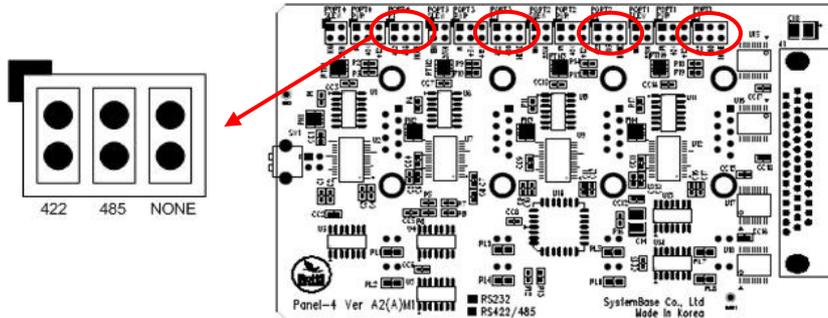


1	2	Interface	Mode
OFF	OFF	RS422	Point-to-Point
OFF	ON	RS422	Multi-Drop
ON	OFF	RS485	Non-Echo
ON	ON	RS485	Echo

3. Jumper Settings

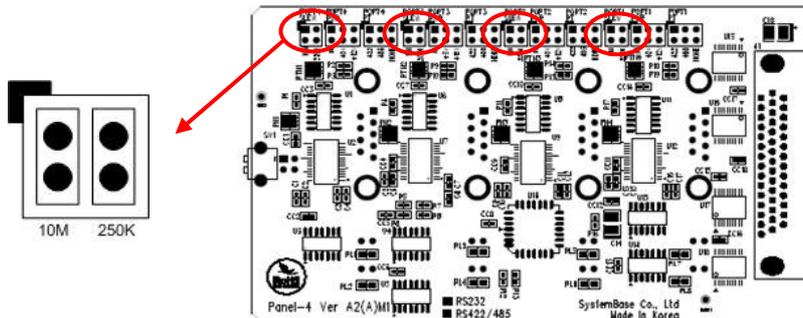
a. Portx RT: RS422/RS485 Terminal Resistance Selection

(Port 1 is Port #1, Port2 is Port#2)



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

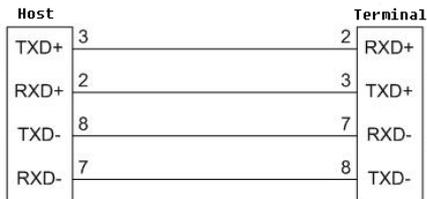
b. Slew: Slew Rate Limit Ability



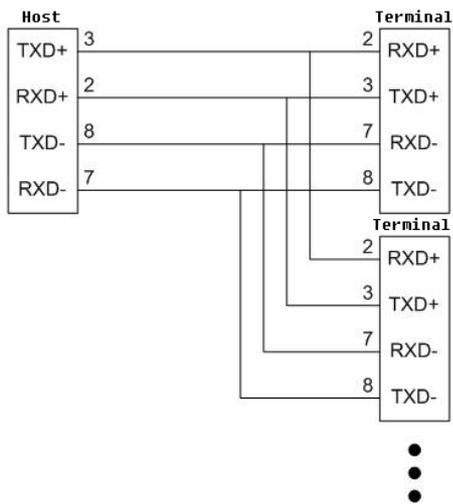
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode

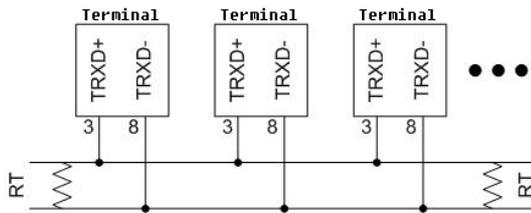
3. RS422 Point-to-Point Connection



4. RS422 Multi-Drop Connection



5. RS485 Connection



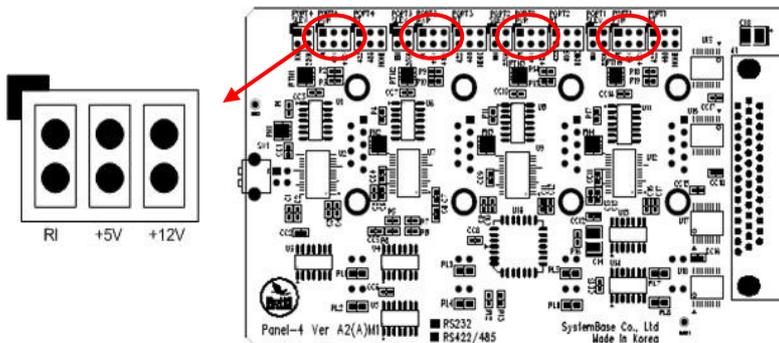
- RT: 120 Ohm (Not necessary when there is not much noise)

- RS485, like LAN, uses Half Duplex Bus and has no classification between host and terminal

-RS232, Combo Common

1. Portx: External Power Supply Setting Jumper

PORT1 is Port #1, PORT2 is Port #2



RI: Do not supply external power and use pin 9 for RI signal line.

- +5V: Use pin 9 for supplying +5V external power.
- +12V: Use pin 9 for supplying +12V external power.

Multi-4C/PCI

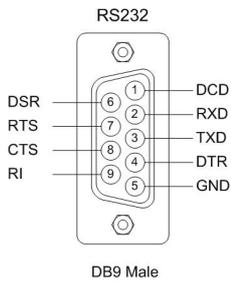
Multi-4C/PCI board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4C/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-4C/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. As Multi-4C/PCI is cable-end type multiport, we supply DB44(M) to 4 x DB9(M) Cable so that user can work simple cabling. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

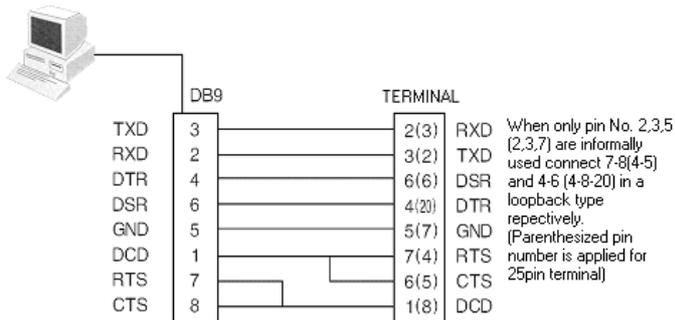
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554 or 16C1054
Connector	RJ45
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd

RS232 Model

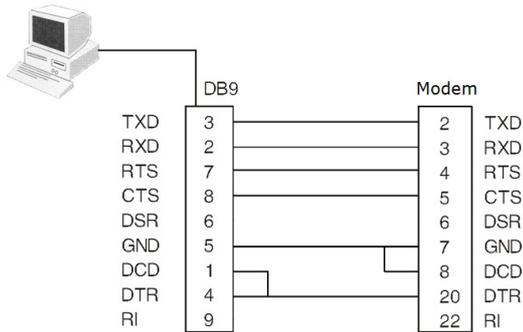
1. DB9 Connector(Male)



2. Connecting Terminal

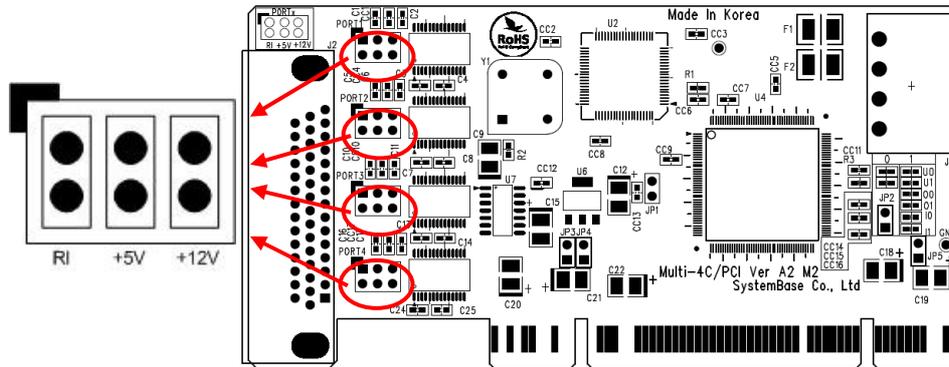


3. Connecting Model



PORTx PWR : voltage supply selection jumper

(PORT1 is Port #1~ PORT4 is Port #4)

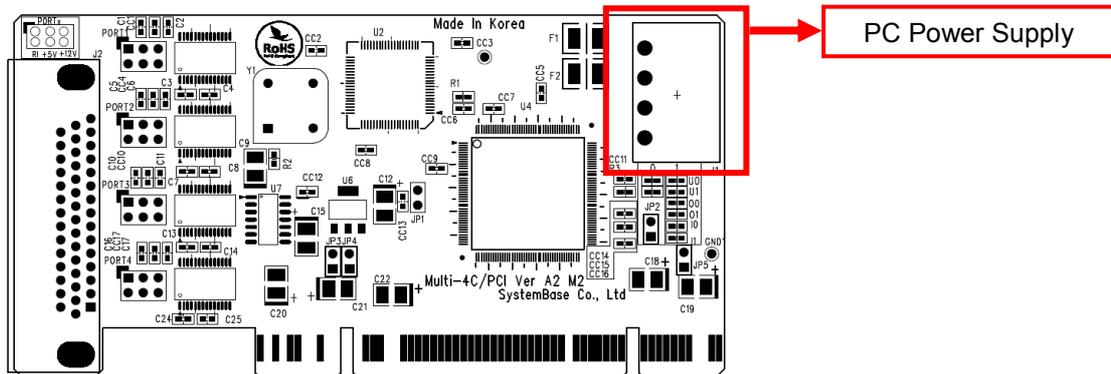


+5V: supply 5V voltage to peripheral using 9th.pin.

+12V: supply 12V voltage to peripheral using 9th.pin.

RI: Enables RI communication when using RS232. not supply any peripheral.

※If there is no 5V voltage in PCI slot of user's PC, should be supplied by Power Supply of PC.



Multi-4J/PCI

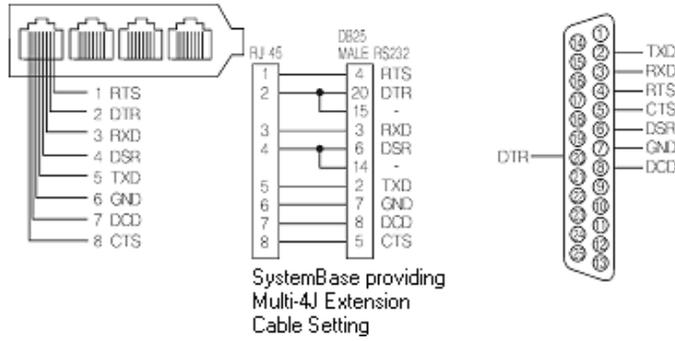
Multi-4J/PCI board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4J/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-4J/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is a low price model equipped with RJ45 connector without external port box and it is possible to supply power through this RJ45 to outside. Also, LED is attached to RJ45 connector to show the current status of signal lines. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

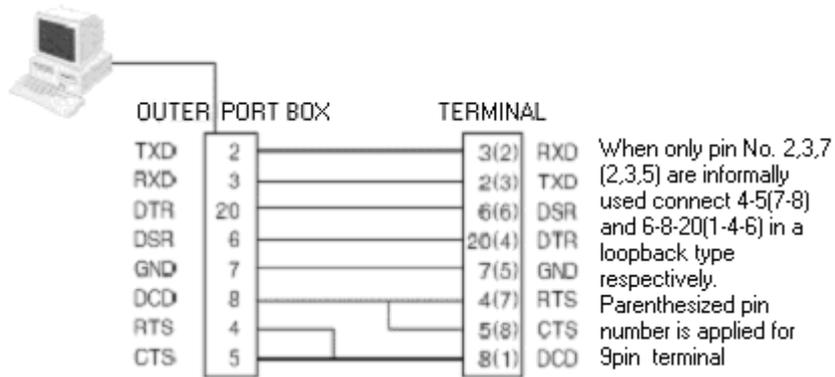
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554
Connector	RJ45
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd

- How to Connect RS232 Connector

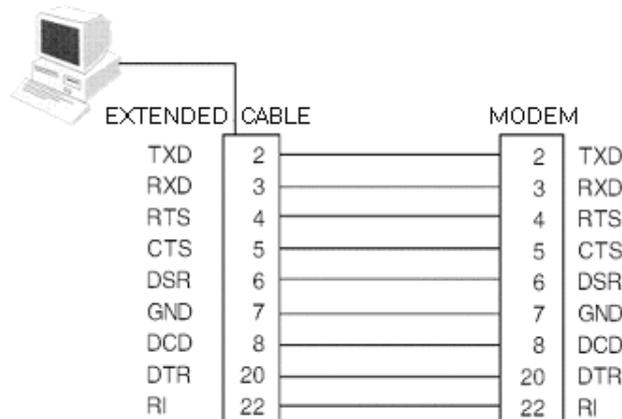
1. RJ45 JACK & 25 Pin Connector (MALE, Extension Cable)



2. Connecting Terminal

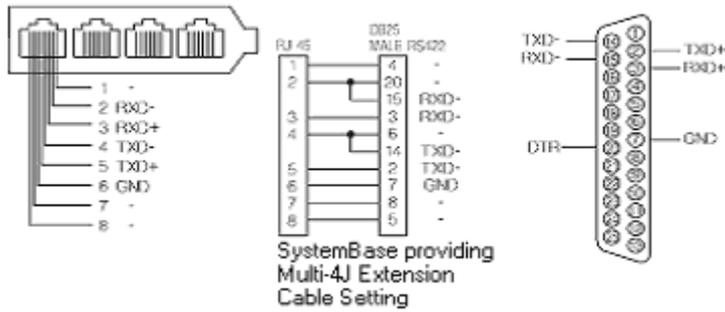


3. Connecting Modem



- How to Connect RS422 Connector

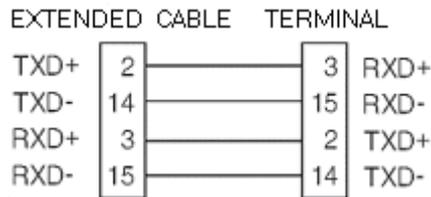
1. RJ45 Jack & 25 Pin Connector (MALE, Extension Cable)



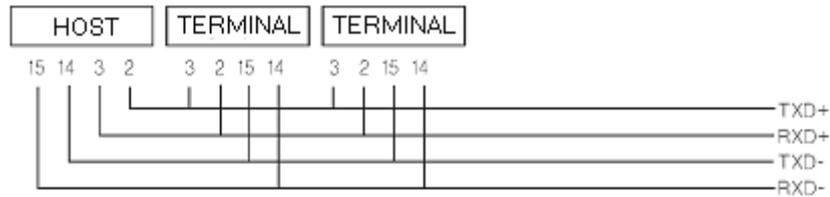
2. Mode Change

Select between point-to-point mode and multi-drop mode during the installation of the device driver. The default is mode point-to-point mode.

3 Connecting External point-to-point

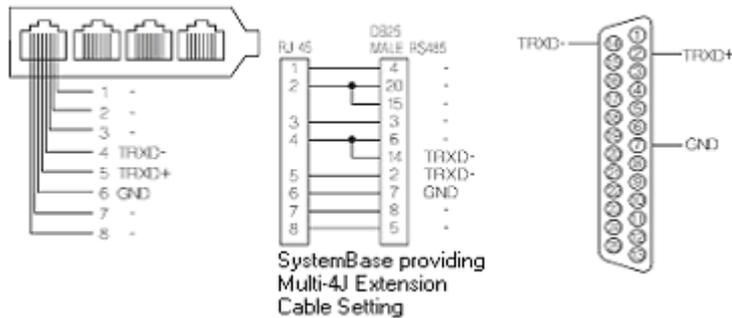


4. Connecting multi-drop



- How to Connect RS485 Connector

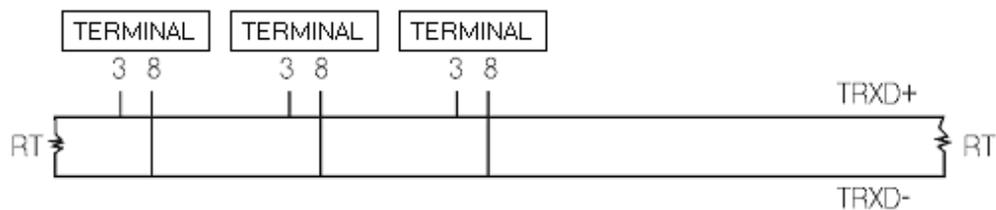
1. RJ45 Jack & 25 Pin Connector (MALE, Extension Cable)



2. Mode Change

Select between non-echo mode and echo mode during the installation of the device driver. The default is non-echo mode.

3. Connection



- RT: 120 ohm (If there is no serious noise, termination resistors are not required)
- RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Multi-4J/PCI VA2

Multi-4J/PCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4J/PCI VA2 uses core for PCI Local Bus Spec 2.2 designed by SystemBase and can be used on PCI 3.3V bus system. Multi-1 ALL/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is a low price model equipped with RJ45 connector without external port box and it is possible to supply power through this RJ45 to outside. Also, LED is attached to RJ45 connector to show the current status of signal lines. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

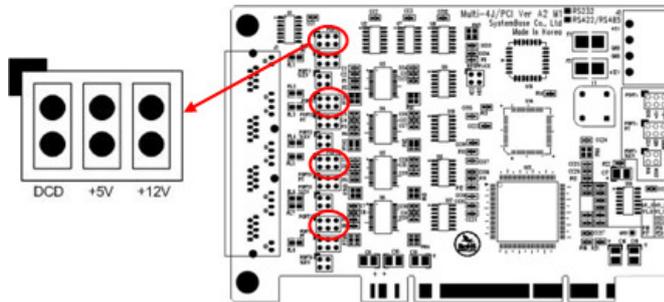
- Product Specifications

Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

-RS232, Combo Common

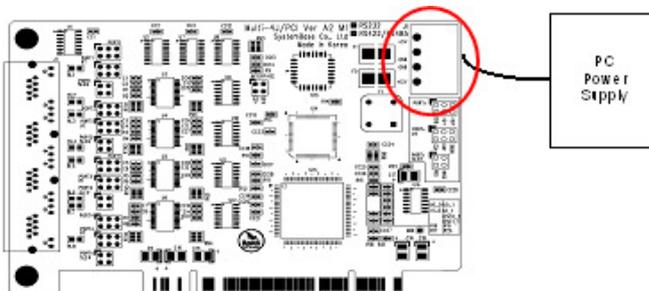
1. Portx: External Power Supply Setting Jumper

PORT1 is Port #1, PORT2 is Port #2



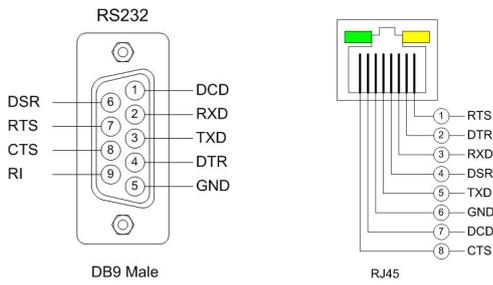
- RI: Do not supply external power and use pin 9 for RI signal line.
- +5V: Use pin 9 for supplying +5V external power.
- +12V: Use pin 9 for supplying +12V external power.

In case you want to supply +5V power but the PCI slot does not supply it, you should use PC's power supply.

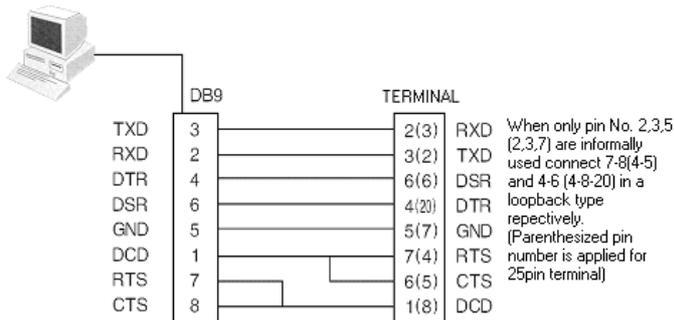


- RS232 Model

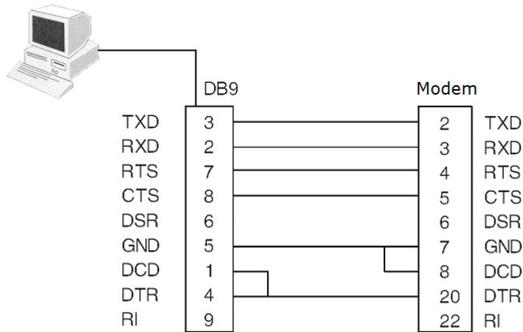
1. DB9 Connector(Male), RJ45 Connector



2. Connecting Terminal



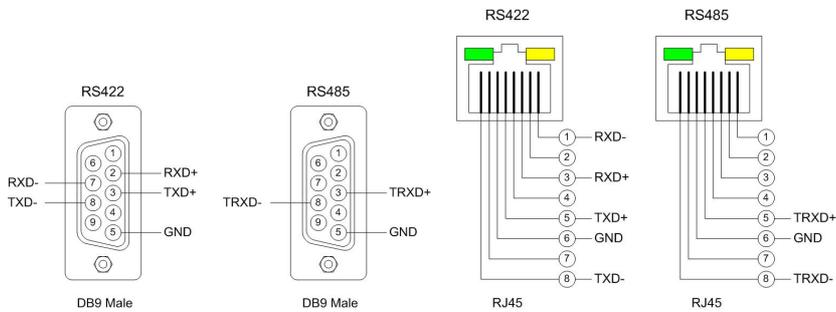
3. Connecting Model



- RS422/RS485 Combo Model

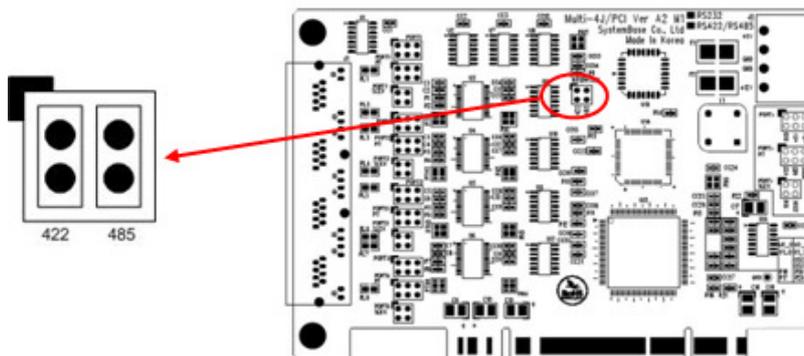
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings. (default: RS485)

1. DB9 Connector(Male), RJ45 Connector



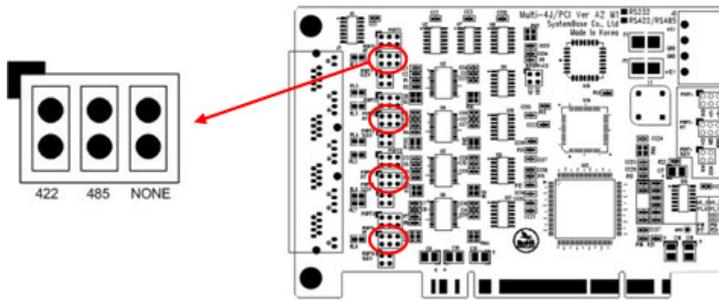
2. Jumper Settings

a. Interface Settings: Interface Selection



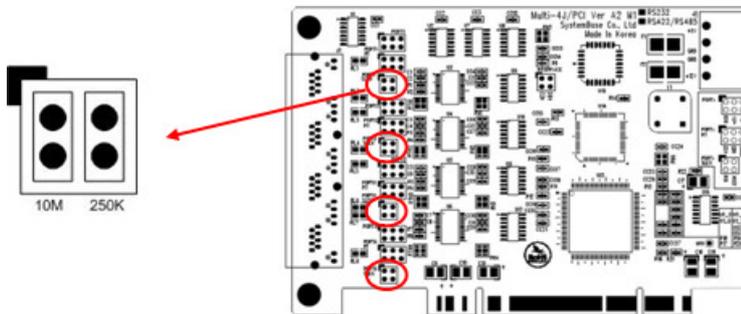
- 422: Select RS422 Interface
- 485: Select RS485 Interface

b. Port1 RT: RS422/RS485 Terminal Resistance Selection



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

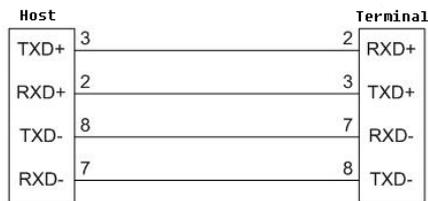
c. Slew: Slew Rate Limit Ability



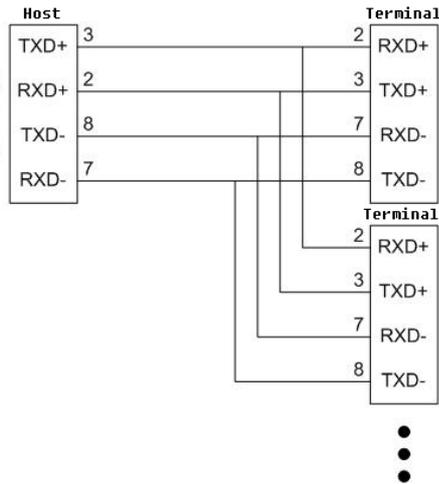
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode

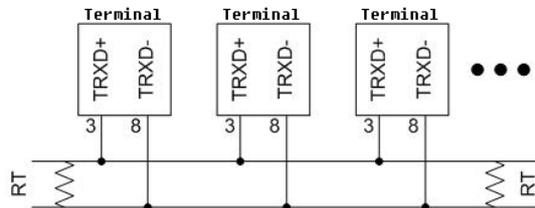
3. RS422 Point-to-Point Connection



4. RS422 Multi-Drop Connection



5. RS485 Connection



- RT: 120 Ohm (Not necessary when there is not much noise)
- RS485, like LAN, uses Half Duplex Bus and has no classification between host and terminal

Multi-4JALL+/PCI VA2

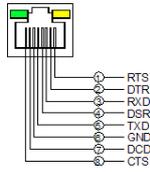
Multi-4JALL/PCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4JALL/PCI VA2 uses core for PCI Local Bus Spec 2.2 designed by SystemBase and can be used on PCI 5V and PCI 3.3V bus system. Multi-4 JALL/PCI VA2 not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is a low price model equipped with RJ45 connector without external port box and can set different line interfaces RS232/RS422/RS485 to each port. Also, LED is attached to RJ45 connector to show the current status of signal lines. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

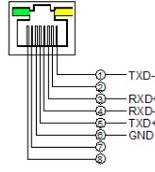
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

- Connecting Connectors

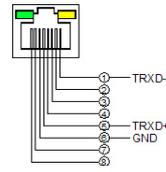
1. RJ45 Jack



RS232

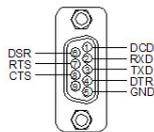


RS422

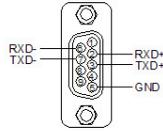


RS485

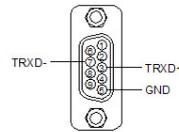
2. 9 Pin Connector (MALE, Expandable Cable)



RS232

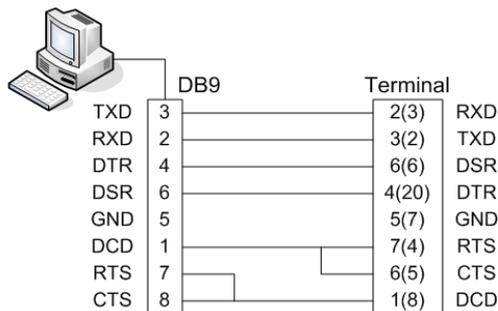


RS422



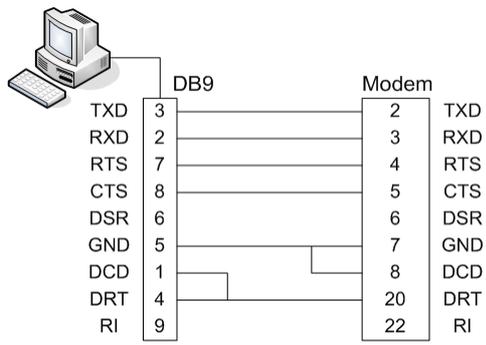
RS485

3. Connecting to a terminal

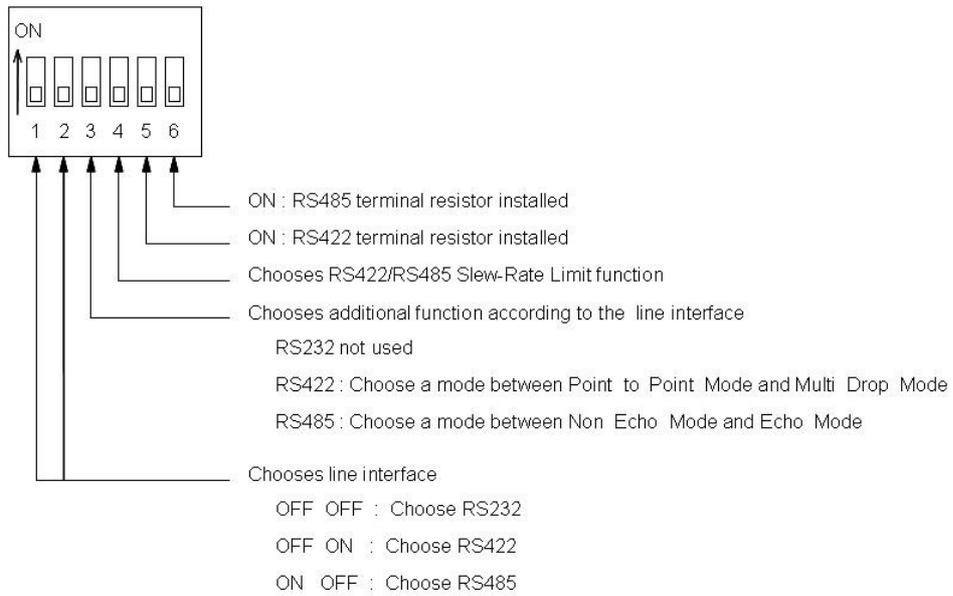


When using 2, 3, 5 only, loop-back each 7-8(4-5), 1-4-6(6-8-20). (numbers in parentheses are for DB25 connector.)

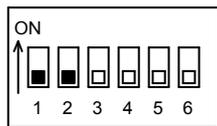
4. Connecting to a modem



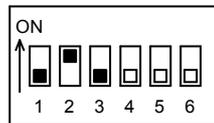
- Setting up the DIP SW



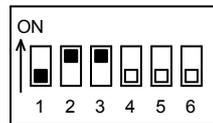
- Configuration of DIP SW when setting serial interface



← RS232

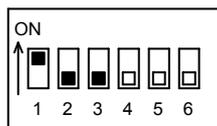


Point to Point Mode

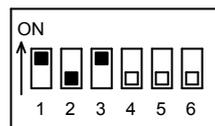


Multi Drop Mode

← RS422



Non Echo Mode

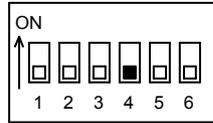


Echo Mode

← RS485

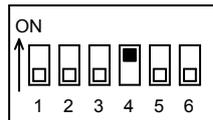
- Configuration of the RS422/RS485 Slew-Rate Limit Ability's DIP SW

1. When setting RS422/RS485 Slew-Rate Limit function



Some RS422/RS485 transceivers are equipped with Slew-Rate Limit ability. In order to maintain compatibility with these chips, the Slew-Rate Limit ability must be activated. If Slew Rate Limit function is activated, communication speed considerably decreases but instead gives off less emission. When activating the Slew-Rate Limit, communication speeds must be below 250Kbps.

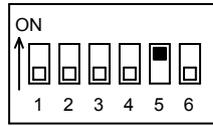
2. When not setting the RS422/RS485 Slew-Rate Limit function



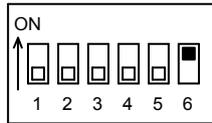
Initial condition used when opposing RS422/RS485 transceiver does not have the Slew-Rate Limit function. When the Slew-Rate Limit function is not selected maximum communication speed is 921.6Kbps. (Max chip speed: 16Mbps)

- Configuration of the Terminal Resistor's DIP SW

1. When setting RS422 Terminal resistor



2. When setting RS485 Terminal resistor



Multi-4JA/PCI

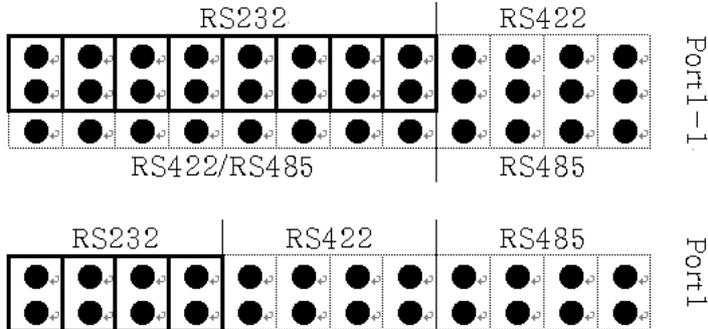
Multi-4JA/PCI board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4JA/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-4 JA/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is a low price model equipped with RJ45 connector without external port box and can set different line interfaces RS232/RS422/RS485 to each port. Also, LED is attached to RJ45 connector to show the current status of signal lines. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

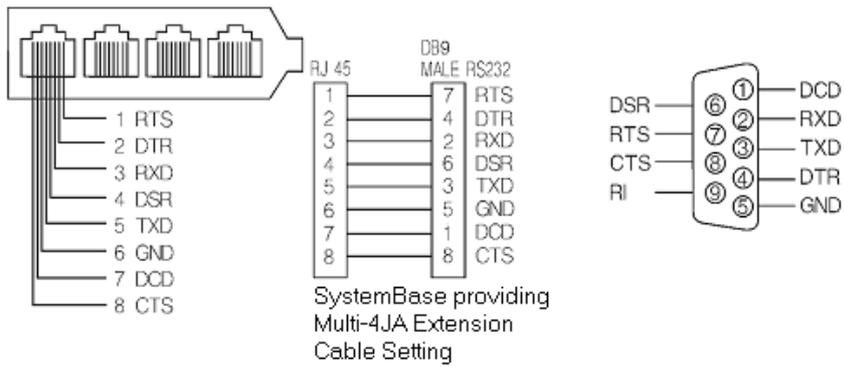
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485 (* enable set to each port)
Communication controller	16C554
Connector	RJ45
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- Setting RS232 Jumper and Connecting RS232 Connector

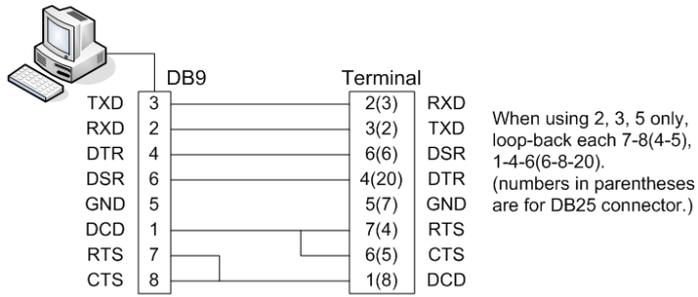
1. RS232 Jumper Setting



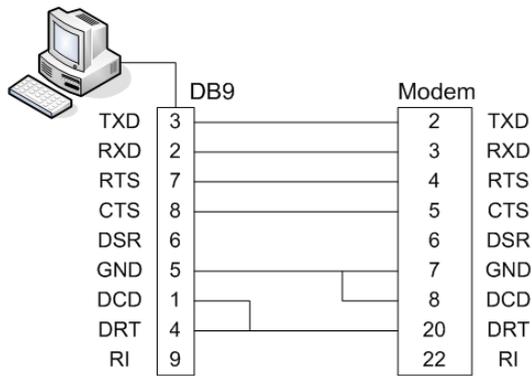
2. RJ45 JACK & 9 Pin Connector (MALE, Extension Cable)



3. Connecting Terminal

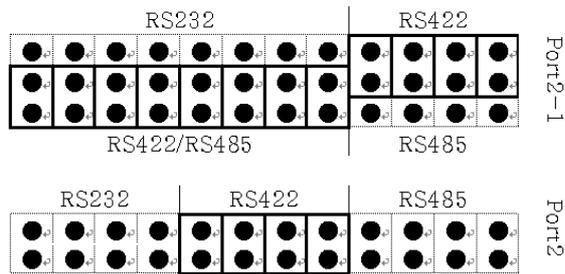


4. Connecting Modem

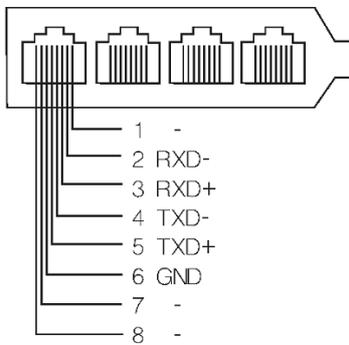


- Connecting RS422 Jumper and Connect RS422 Connector

1. RS422 Jumper Setting



2. RJ45 JACK(*Not providing RS422 DB-type cable separately)



3. Mode Change

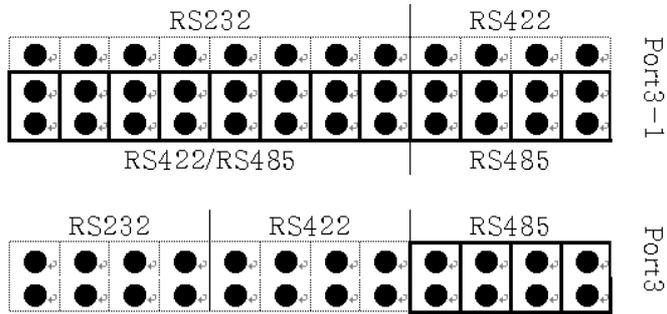
Select between point-to-point mode and multi-drop mode during the installation of the device driver. The default is point-to-point mode.

4. Method of Connecting

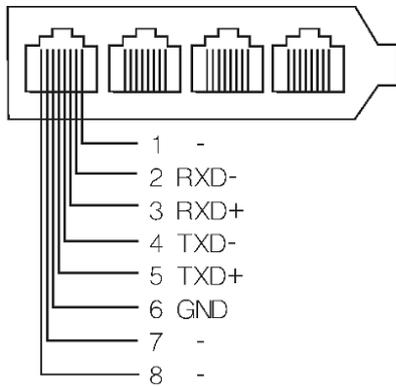
TXD+ — RXD+
 TXD- — RXD-
 RXD+ — TXD+
 RXD- — TXD-

- How to Set RS485 Jumper and Connect RS485 Connector

1. RS485 Jumper Setting



2. RJ45 JACK (*Not providing RS485 DB-type cable separately)



3. Mode Change

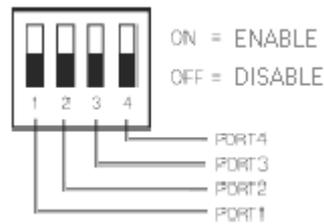
Select between non-echo mode and echo mode during the installation of the device driver. The default is non-echo mode.

4. Method of Connecting

TRXD+ — TRXD+

TRXD- — TRXD-

- How to Set RS422/RS485 Termination Resistors



The termination resistors are connected only to channels located at the last end based on RS422 or RS485 transmission mode. Multi-4JA is available for independent connection to termination resistors by using DIP switch on each channel. At this time, be sure to turn “on” the DIP switch on the channel.

Multi-4JALL+/ISO

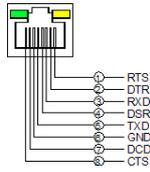
Multi-4JALL+/ISO board is a model that supports PCI Local Bus Spec 2.3. It is an asynchronous 4 port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-4JALL/PCI VA2 uses core for PCI Local Bus Spec 2.3 designed by SystemBase. Multi-4 JALL/PCI VA2 not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is a low price model equipped with RJ45 connector without external port box and can set different line interfaces RS232/RS422/RS485 to each port. Also, LED is attached to RJ45 connector to show the current status of signal lines. Furthermore, it is equipped with surge protector to protect internal systems from outer shock and all signal lines are connected to 2.5KV Optical Isolation Protector to have Isolation ability which makes it very useful in industrial fields. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Specification

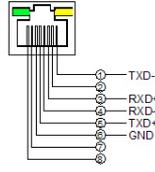
Speed	921.6K BPS
Bus Interface	PCI Local Bus Spec 2.3
Serial Interface	RS232/RS422/RS485 (* Selectable for each port)
Communication Controller	16C554(16-byte TX/RX FIFO)
Connector	RJ45
I/O address	Automatic setting
IRQ number	Automatic setting
Protective Device	Surge protector, 2.5KV Optical Isolation Protection
Operating Systems	Windows 95/98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- Connecting Connectors

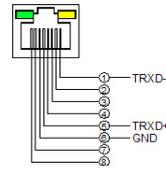
1. RJ45 Jack



RS232

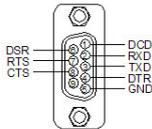


RS422

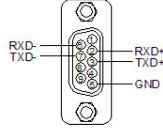


RS485

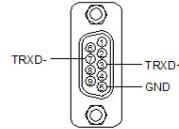
2. 9 Pin Connector (MALE, Expandable Cable)



RS232

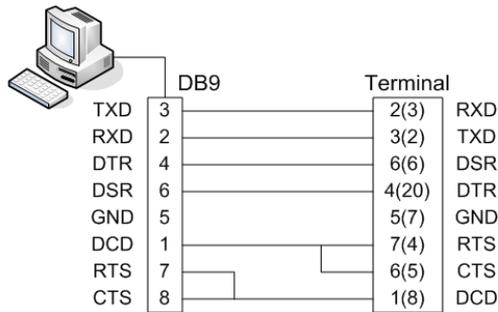


RS422



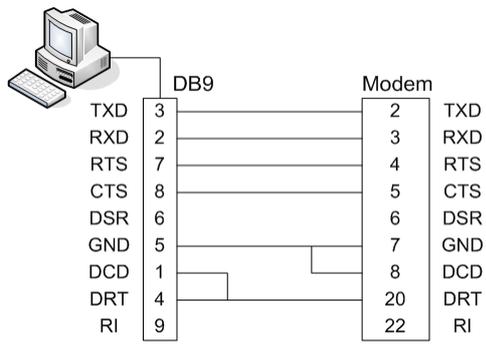
RS485

3. Connecting to a terminal

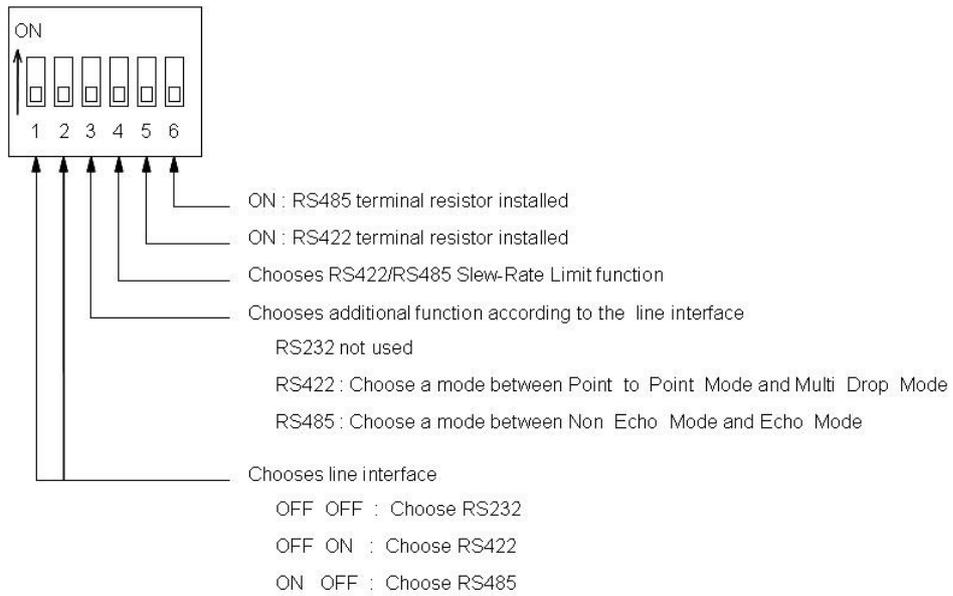


When using 2, 3, 5 only, loop-back each 7-8(4-5), 1-4-6(6-8-20). (numbers in parentheses are for DB25 connector.)

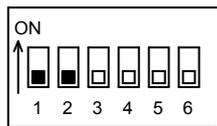
4. Connecting to a modem



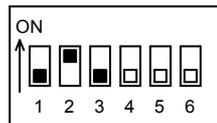
- Setting up the DIP SW



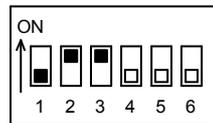
- Configuration of DIP SW when setting serial interface



← RS232

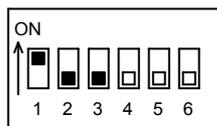


Point to Point Mode

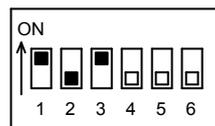


Multi Drop Mode

← RS422



Non Echo Mode

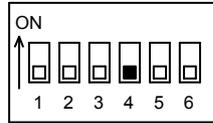


Echo Mode

← RS485

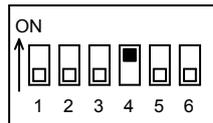
- Configuration of the RS422/RS485 Slew-Rate Limit Ability's DIP SW

1. When setting RS422/RS485 Slew-Rate Limit function



Some RS422/RS485 transceivers are equipped with Slew-Rate Limit ability. In order to maintain compatibility with these chips, the Slew-Rate Limit ability must be activated. If Slew Rate Limit function is activated, communication speed considerably decreases but instead gives off less emission. When activating the Slew-Rate Limit, communication speeds must be below 250Kbps.

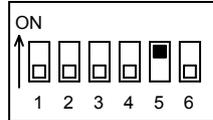
2. When not setting the RS422/RS485 Slew-Rate Limit function



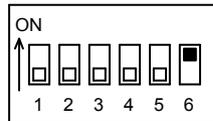
Initial condition used when opposing RS422/RS485 transceiver does not have the Slew-Rate Limit function. When the Slew-Rate Limit function is not selected maximum communication speed is 921.6Kbps. (Max chip speed: 16Mbps)

- Configuration of the Terminal Resistor's DIP SW

1. When setting RS422 Terminal resistor



2. When setting RS485 Terminal resistor



Multi-4ALL/cPCI

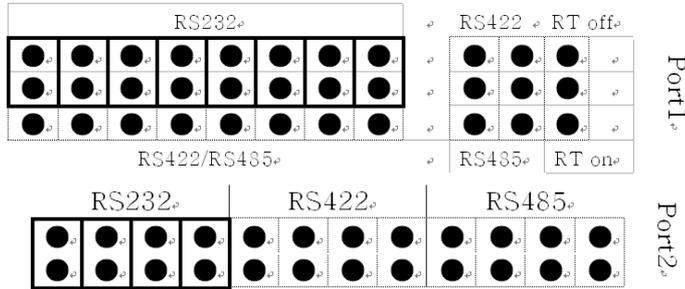
Multi-4ALL/cPCI is a asynchronous 4 port product designed to be equipped on Compact PCI System. It provides maximum communication speed of 921.6Kbps and different line interface RS232/RS422/RS484 for each port. Furthermore, it is equipped with surge protector to protect internal systems from outer shock.

- Product Specifications

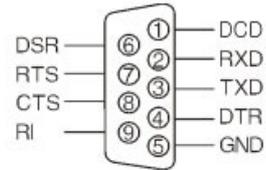
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

-RS232 Jumper Setting and Connector Specification

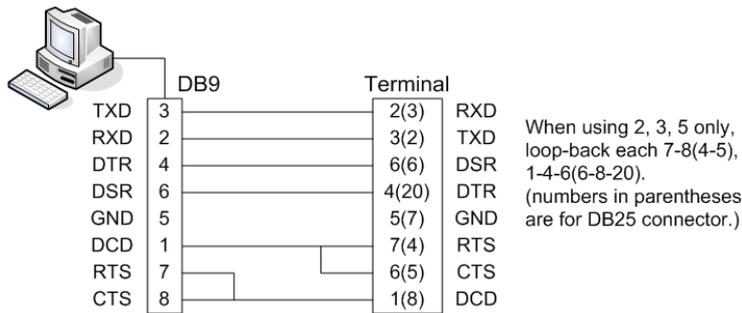
1. RS232 Jumper Setting



2. 9Pin Connector(Male)

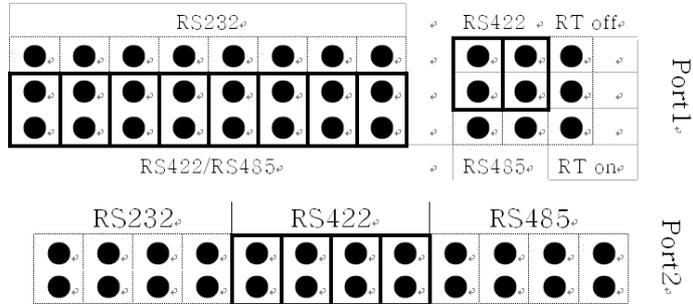


3. Connecting Terminal

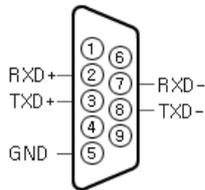


-RS422 Jumper Setting and Connector Specification

1. RS422 Jumper Setting



2. 9Pin Connector(Female)



3. Switching Modes

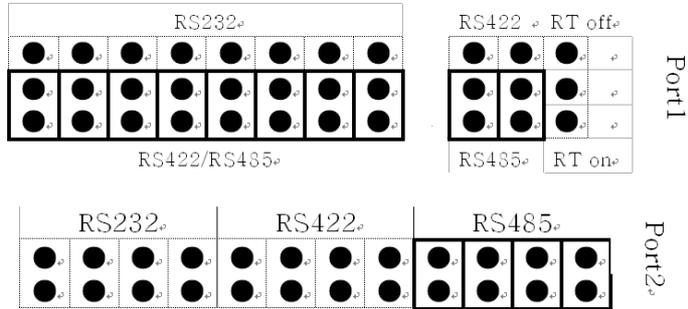
Either Point-to-Point or MultiDrop mode can be selected by software on device driver installation. Point-to-Point mode is set to default.

4. Line Connection

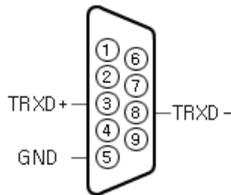
TXD+	RXD+
TXD-	RXD-
RXD+	TXD+
RXD-	TXD-

-RS485 Jumper Setting and Connector Specification

1. RS485 Jumper Setting



2. 9Pin Connector(Female)



3. Switching Modes

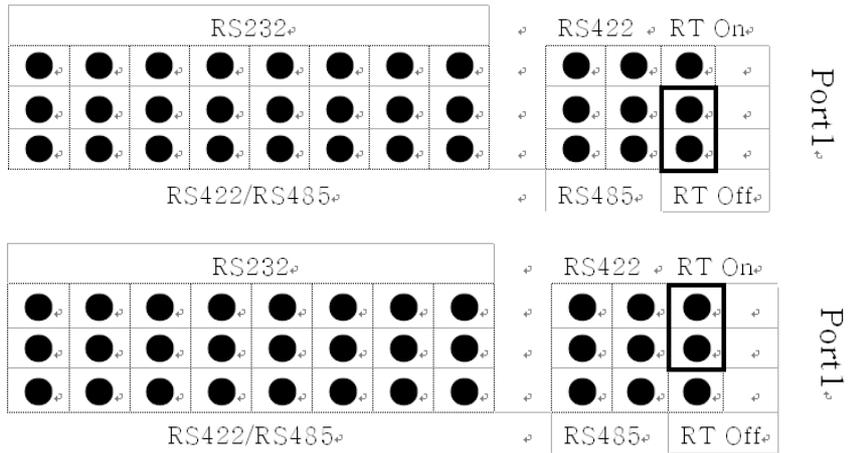
Either Point-to-Point or MultiDrop mode can be selected by software on device driver installation. Point-to-Point mode is set to default.

4. Line Connection

TRXD+ TRXD+
TRXD- TRXD-

-Terminal Resistor Setting

Terminal Resistor only connects to channels in terminals in RS422/RS485 mode. Multi-4ALL/cPCI can independently connect to all terminal resistors using jumpers for all channels. To connect to terminal resistors, Turn ON following jumpers.



Multi-8/PCI

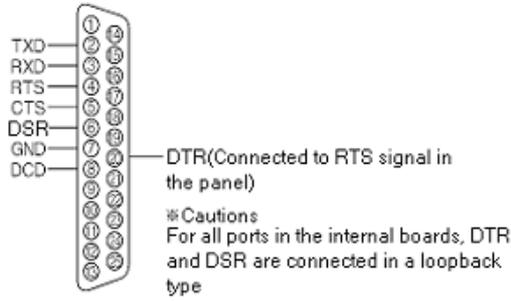
Multi-8/PCI board is a model that supports PCI Local Bus Spec 2.2. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts.. Unlike former products, Multi-8/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-8/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. It is used with external port box connected with control board with Female DB25. Also, LED is attached outside to show the current status of signal lines. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

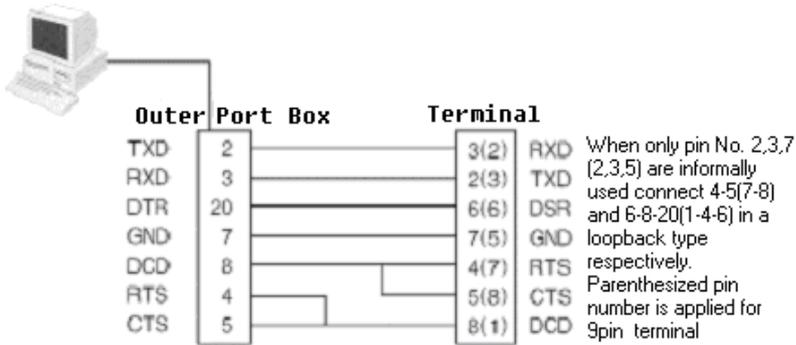
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- How to Connect RS232 Connector

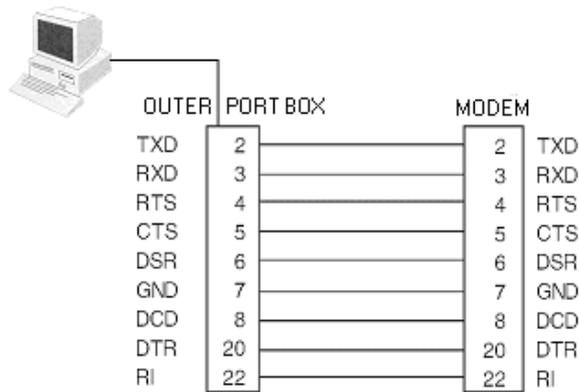
1. 25 Pin Connector (Female)



2. Connecting Terminal

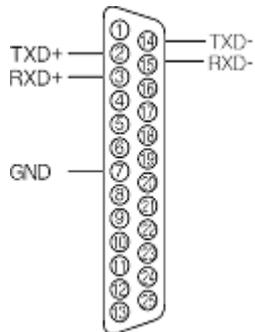


3. Connecting Modem



- How to Connect RS422 Connector

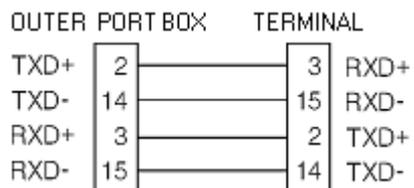
1. 25 Pin Connector (Female)



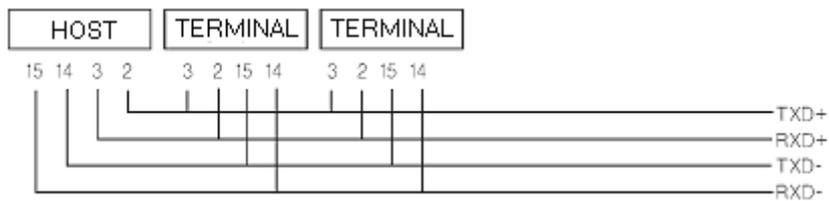
2. Mode Change

Select between point-to-point mode and multi-drop mode during the installation of the device driver. The default is point-to-point mode.

3. Connecting External point-to-point

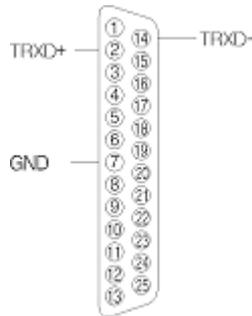


4. Connecting multi-drop



- How to Connect RS485 Connector

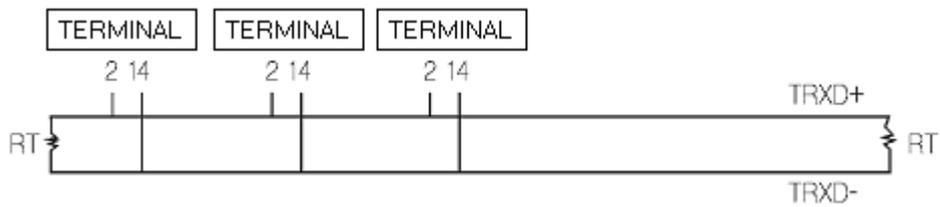
1. 25 Pin Connector (Female)



2. Mode Change

Select between non-echo mode and echo mode during the installation of the device driver. The default is non-echo mode.

3. Method of Connecting



- RT:120 ohm(If there is no serious noise, termination resistors are not required)
- RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Multi-8/LPCI VA2

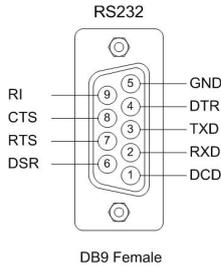
Multi-8/LPCI VA2 board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-8/LPCI VA2 uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-8/LPCI is used with Panel-8 VA2. It not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

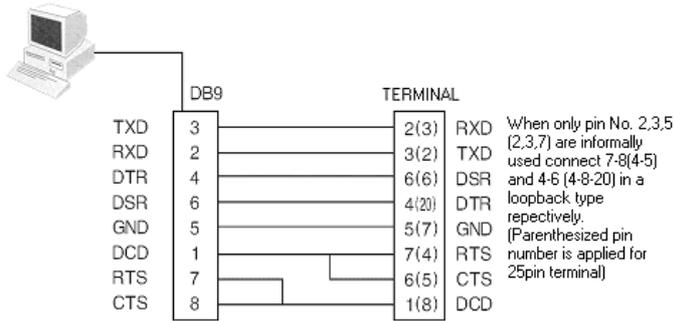
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

-RS232 Model

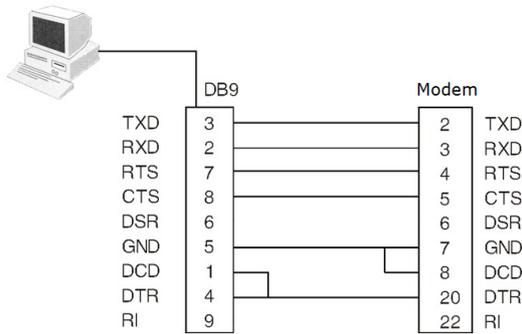
1. DB9 Connector(Female)



2. Connecting Terminal



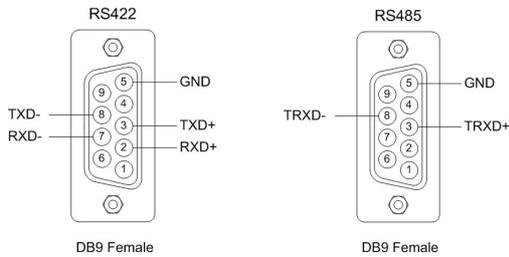
3. Connecting Model



- RS422/RS485 Combo Model

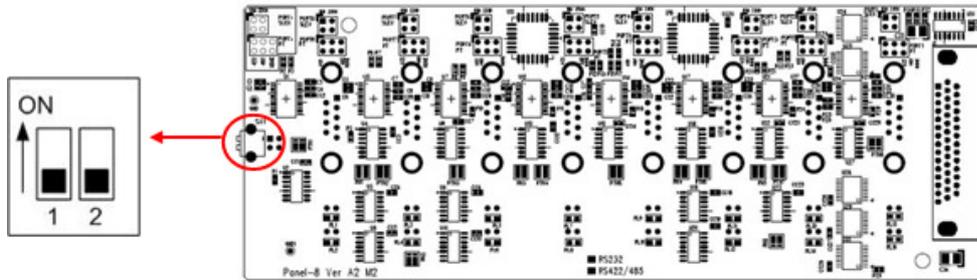
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings. (default: RS485)

1. DB9 Connector(Female)



2. Panel Switch Settings

Selects RS422, RS485 line interface and mode

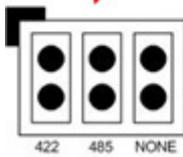
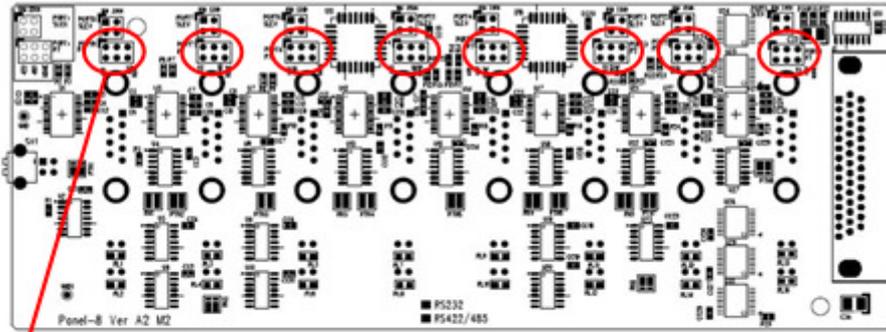


1	2	Interface	Mode
OFF	OFF	RS422	Point-to-Point
OFF	ON	RS422	Multi-Drop
ON	OFF	RS485	Non-Echo
ON	ON	RS485	Echo

3. Jumper Settings

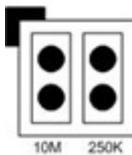
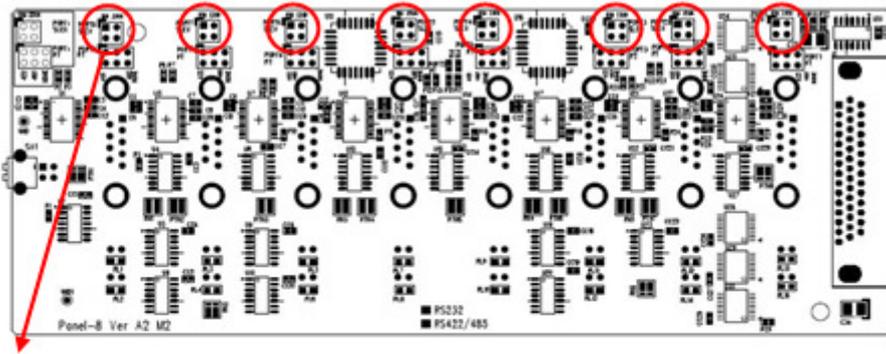
a. Portx RT: RS422/RS485 Terminal Resistance Selection

(Port 1 is Port #1, Port2 is Port#2)



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

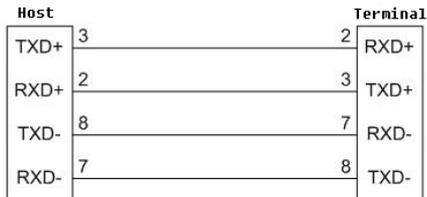
b. Slew: Slew Rate Limit Ability



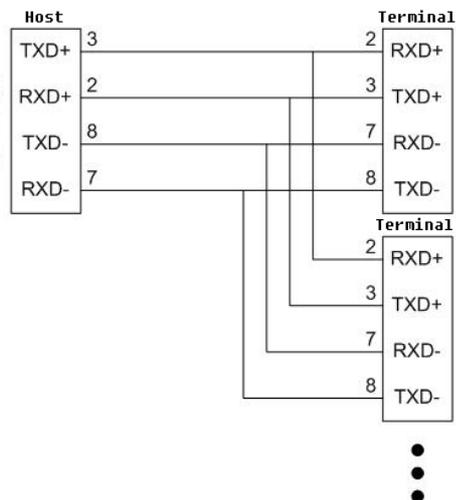
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode

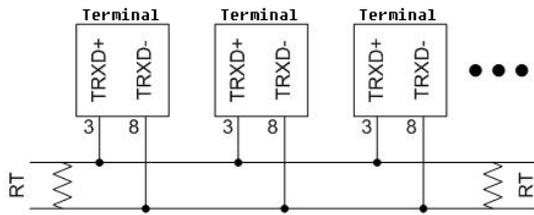
3. RS422 Point-to-Point Connection



4. RS422 Multi-Drop Connection



5. RS485 Connection



- RT: 120 Ohm (Not necessary when there is not much noise)
- RS485, like LAN, uses Half Duplex Bus and has no classification between host and terminal

Multi-8/LPCI VA2(A)

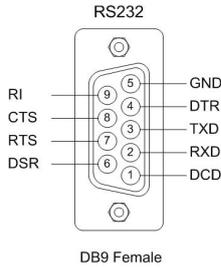
Multi-8/LPCI VA2(A) board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-8/LPCI VA2(A) uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-8/LPCI is used with Panel-8 VA2(A). It not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

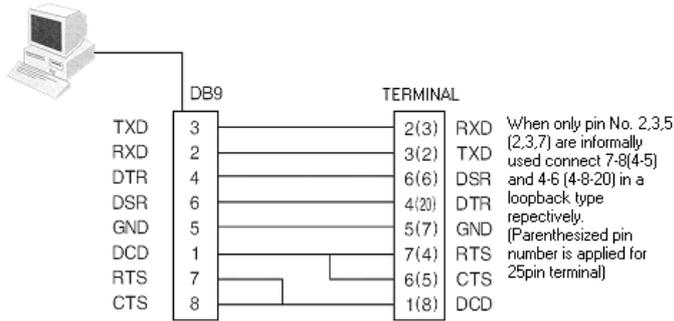
Communication speed	Maximum 921.6K BPS
Bus interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista(32bit), SCO UNIX, Linux
Manufacturer	SystemBase Co.,Ltd

-RS232 Model

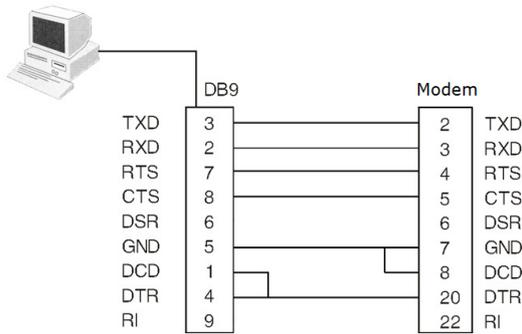
1. DB9 Connector(Female)



2. Connecting Terminal



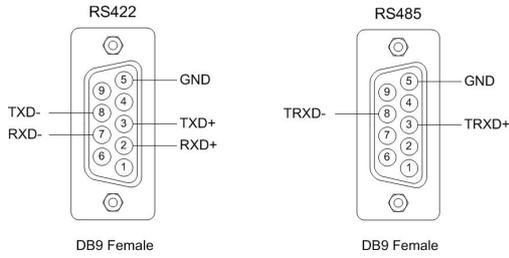
3. Connecting Model



- RS422/RS485 Combo Model

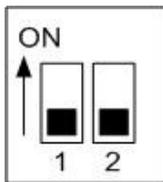
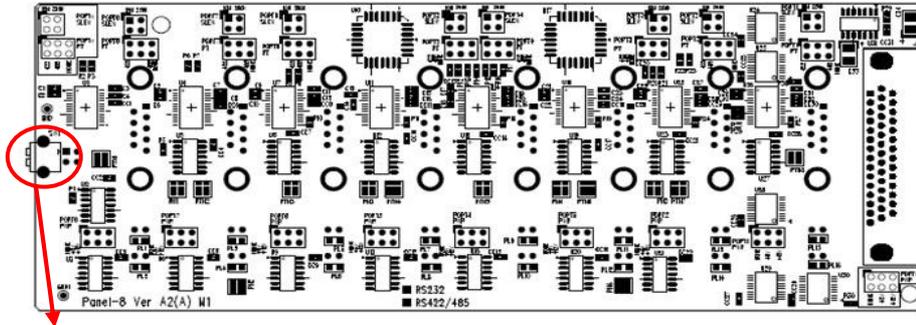
Combo refers to products that can alternatively use RS422 or RS485 using jumper settings. (default: RS485)

1. DB9 Connector(Female)



2. Panel Switch Settings

Selects RS422, RS485 line interface and mode

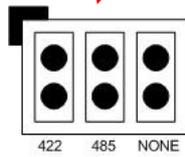
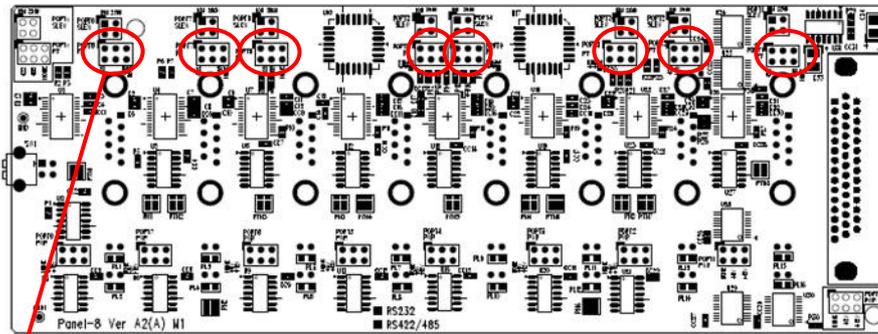


1	2	Interface	Mode
OFF	OFF	RS422	Point-to-point
OFF	ON	RS422	Multi-drop
ON	OFF	RS485	Non-echo
ON	ON	RS485	Echo

3. Jumper Settings

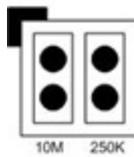
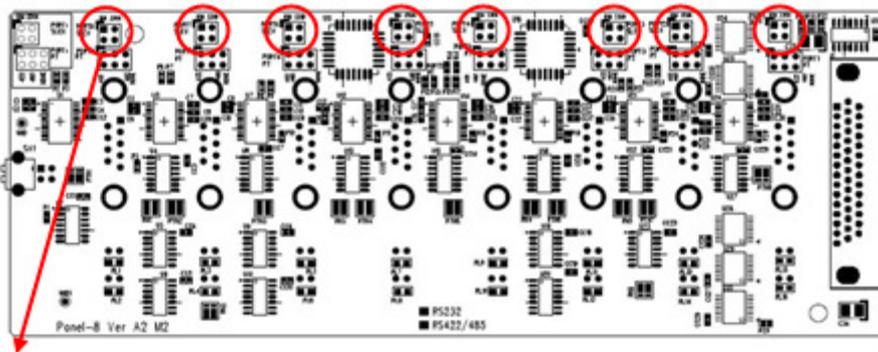
a. Portx RT: RS422/RS485 Terminal Resistance Selection

(Port 1 is Port #1, Port2 is Port#2)



- 422: Set RS422 Terminal Resistor
- 485: Set RS485 Terminal Resistor
- None: Do not set Terminal Resistor

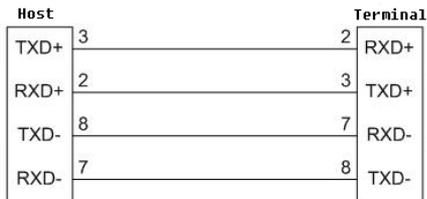
b. Slew: Slew Rate Limit Ability



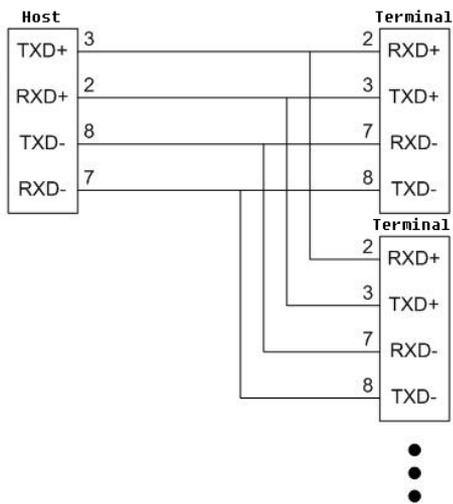
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode

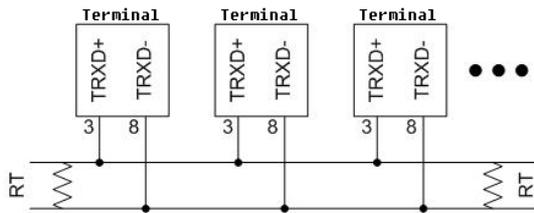
3. RS422 Point-to-Point Connection



4. RS422 Multi-Drop Connection



5. RS485 Connection

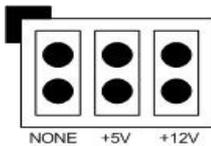
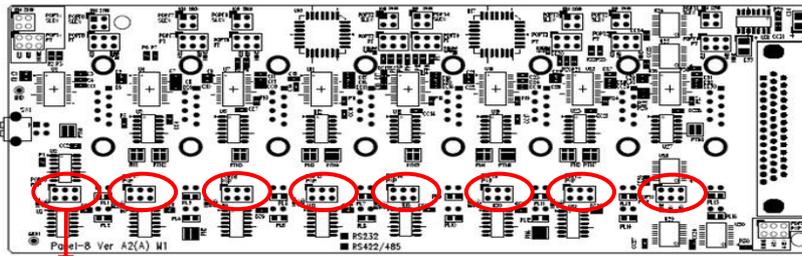


- RT: 120 Ohm (Not necessary when there is not much noise)
- RS485, like LAN, uses Half Duplex Bus and has no classification between host and terminal

-RS232, Combo Common

1. Portx: External Power Supply Setting Jumper

PORT1 is Port #1, PORT2 is Port #2



RI: Do not supply external power and use pin 9 for RI signal line.

- +5V: Use pin 9 for supplying +5V external power.
- +12V: Use pin 9 for supplying +12V external power.

Multi-8C/PCI

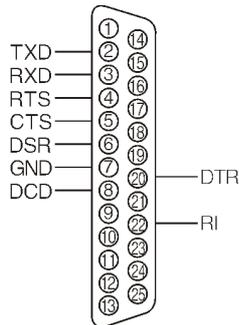
Multi-8C/PCI board is a model that supports PCI Local Bus Spec 2.3. It is designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-8C/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-8C/PCI not only supports maximum communication speed of 921.6Kbps but also provides advanced ability to automatically control IO signals when it is used with driver provided by SystemBase. As Multi-8C/PCI is cable-end type multiport, we supply DB62(M) to 8x DB9(M) Cable so that user can work simple cabling. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

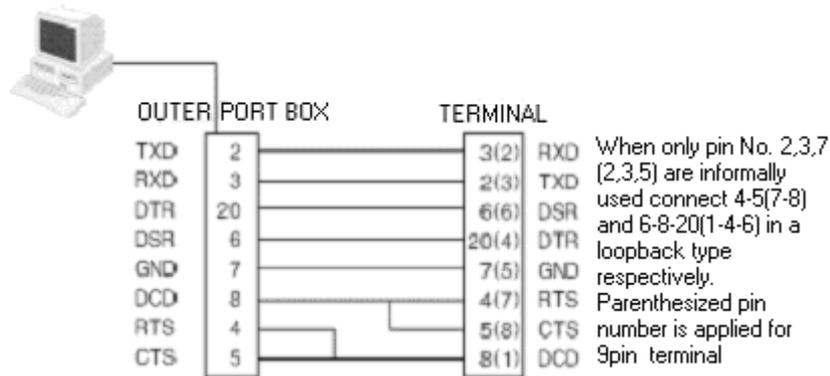
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232
Communication controller	16C554 16c1054
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

How to Connect RS232 Connector

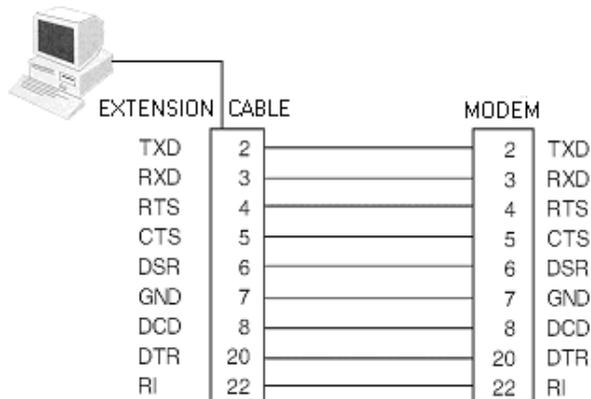
1. 25 Pin Connector (Female)



2. Connecting Terminal



3. Connecting Modem



Multi-16C/PCI

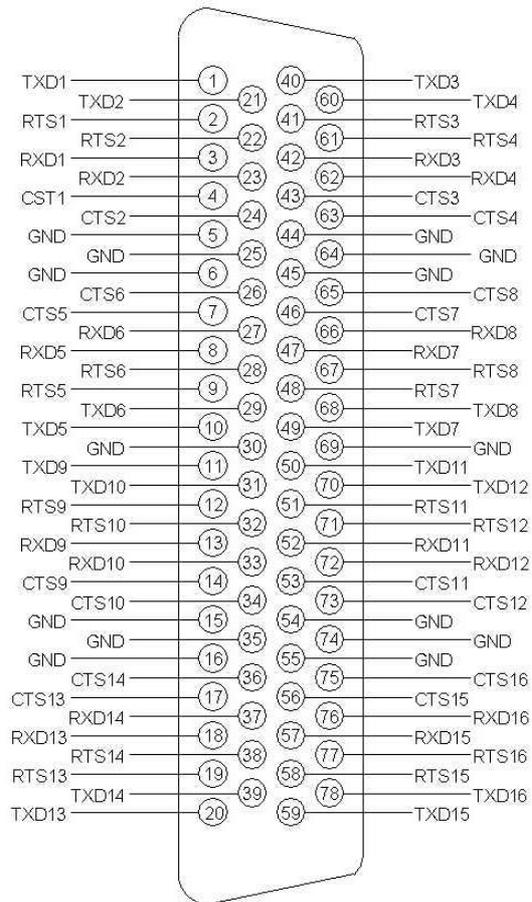
Multi-16C/PCI board is a model that supports PCI Local Bus Spec 2.2. It is an asynchronous 16 port product designed to automatically set I/O address and IRQ number when ROM bios or the operating system starts. Unlike former products, Multi-16C/PCI uses core for PCI Local Bus Spec 2.2 designed by SystemBase. Multi-16C/PCI board supports RS232 line interface and maximum communication speed of 921.6Kbps. Also, DB78 pin connector is provided for outside communication. Furthermore, it is equipped with surge protector to protect internal systems from outer shock. Unlike former products, all information about the board is contained within the board itself so the users can easily know information such as number of ports currently installed, maximum communication speed, kind of communication controller and etc.

- Product Specifications

Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- RS232 Connector

1. 78Pin Connector (Female)



- Multi-16C/PCI only supports TXD, RXD, RTS, CTS signal lines.

Multi-32/PCI

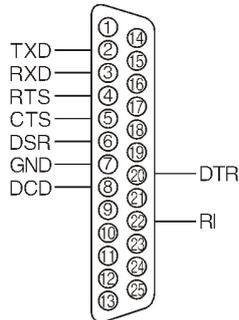
Multi-32/PCI is a model that supports PCI Local Bus Spec 2.2, which is designed to set up I/O address and IRQ number automatically upon starting ROM BIOS and Operating System without DIP switch to board. In the Multi-32/PCI, 32 ports only occupy 64 bytes of small I/O space and there is no limitation of number to be installed as long as slots are available, which solves a problem of Multi-32/ISA as it was limited to install maximum 4 units. It doesn't have any conflicts between I/O address and Interrupt, which has been a frequent problem in products ISA. Also, the driver identifies the number of each port box and interface type automatically; thus easily installation is available. In addition, it is also designed to protect the system safely from transient-voltage by attaching the surge protector on the TX, RX line.

- Product Specifications

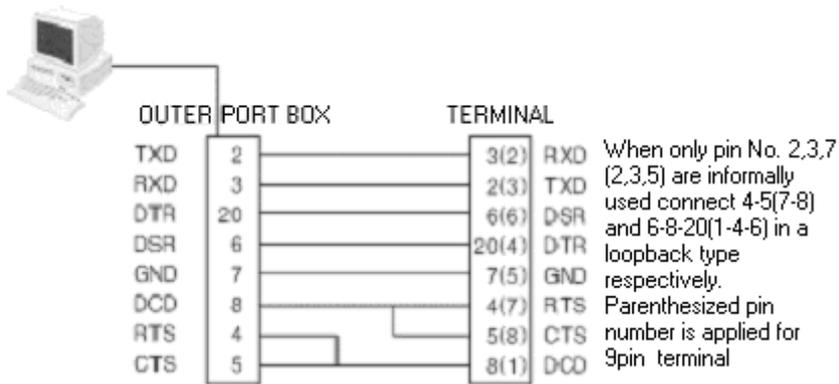
Communication speed	Maximum 921.6K BPS
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/RS422/RS485
Communication controller	16C554
Connector	DB25
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/NT/XP/2003/Vista, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- How to Connect RS232 Connector

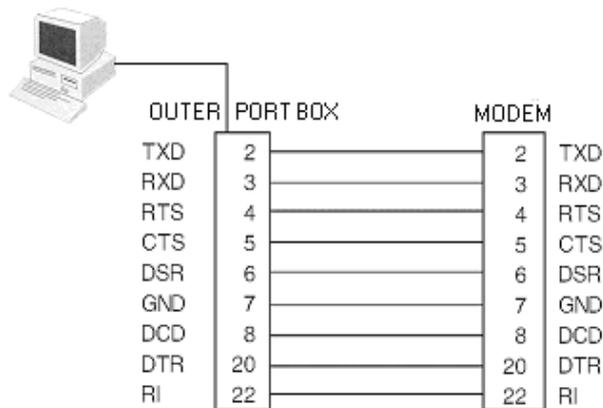
1. 25 Pin Connector (Female)



2. Connecting Terminal

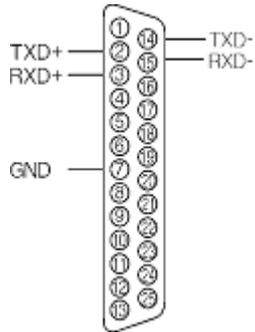


3. Connecting Modem



- How to Connect RS422 Connector

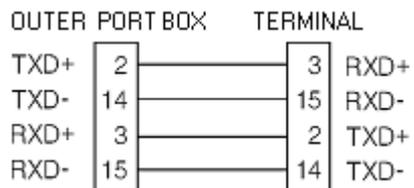
1. 25 Pin Connector (Female)



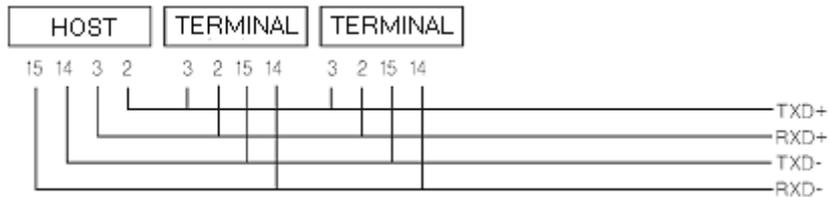
2. Mode Change

Select between point-to-point mode and multi-drop mode during the installation of the device driver. The default is point-to-point mode.

3. Method of Connecting External point-to-point

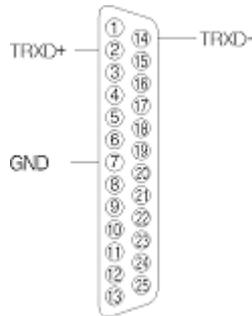


4. Method of Connecting multi-drop



- How to Connect RS485 Connector

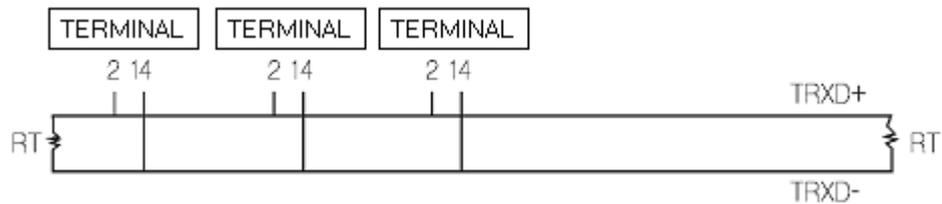
1. 25 Pin Connector (Female)



2. Mode Change

Select between non-echo mode and echo mode during the installation of the device driver. The default is non-echo mode.

3. Method of Connecting



- RT: 120ohm (if there is no serious noise, termination resistors are not required)
- RS485, like, adopts a half duplex bus where the host is not divided from terminals.

Multi-32/LPCI VA2

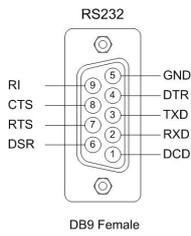
Multi-32/LPCI VA2 board is the model supports PCI Local Bus Spec 2.3. It has 32 Ports that can set I/O address and IRQ number automatically. Unlike existing products, VA2 applies PCI Local Bus Spec 2.2 Core which was developed by SystemBase. Multi-32/LPCI VA2 board is used with Panel-8e VA2. It not only supports maximum speed of 921.6Kbps but also offers enhanced management of automatic I/O. Also it protects system from any outside damage by implementing Surge Protector on signal line. Unlike other products, every information of the board is in board itself. So after implementing driver, automatically user can know implemented port, communicate controller, sort of circuit interface and maximum communication speed in now.

- Product Specifications

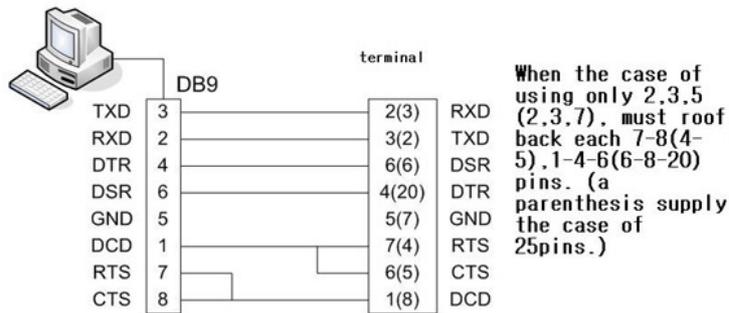
Communication speed	Maximum 921.6Kbps
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB9 Female
Voltage to acting	3.3V
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/2003/NT/XP/Vista32bit, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- RS232 model

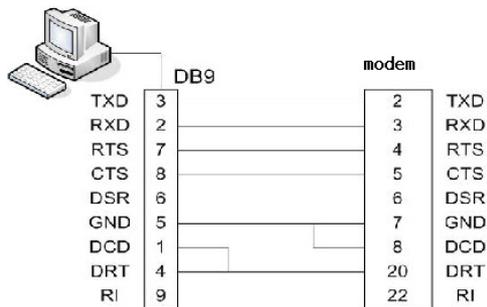
1. DB9 Female connector pin specifications



2. How to connect terminal



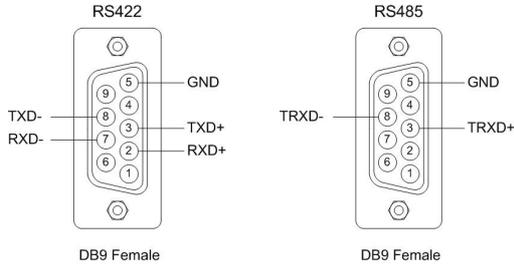
3. How to connect modem



- RS422/RS485 Combo model

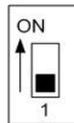
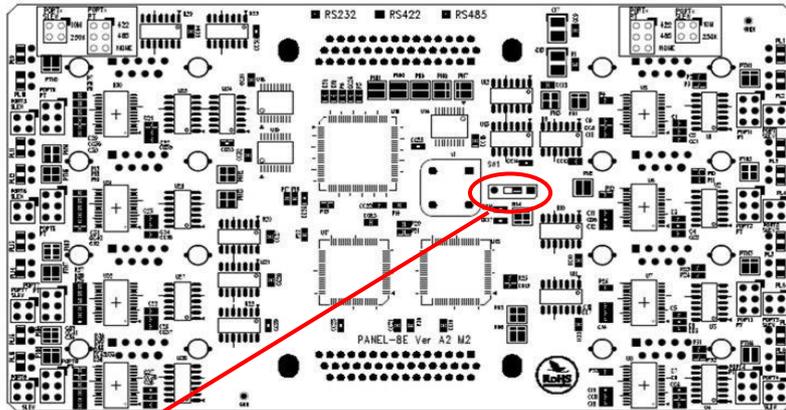
- What is combo in this case? : The products that can be selected in RS422, 485 by jumper setting(default: RS485)

1. DB9 Female connector pin specification



2. Panel switch setting

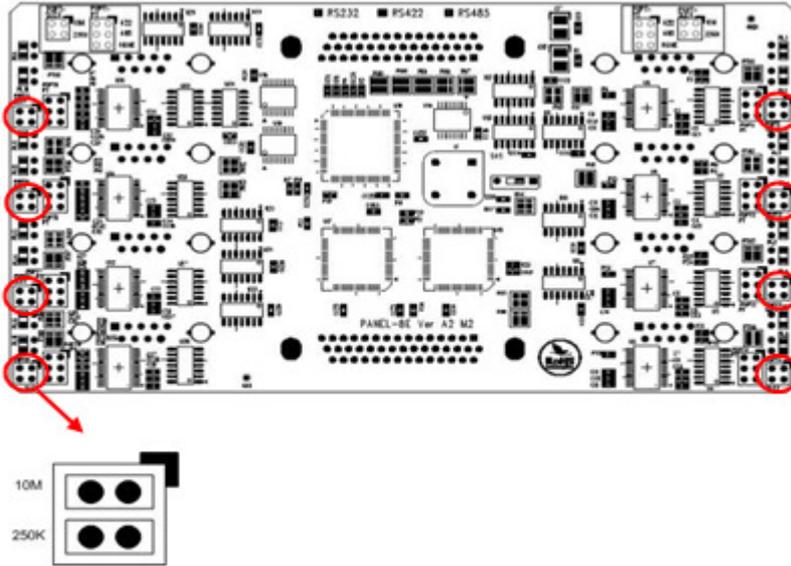
a. RS422, RS485 circuit interface selecting jumper



ON: RS422 interface , OFF: RS485 interface

b. PORTx SLEW: Slew Rate Limit function fit jumper

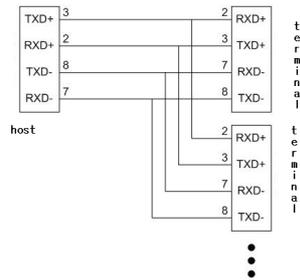
(PORT1 is 1st port, PORT2 is 2nd port)



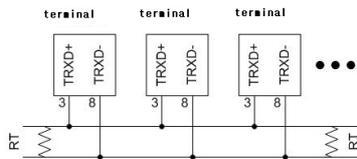
- 10M: Not use Slew Rate Limit ability. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit ability. Communication speed is limited under 250Kbps.

Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode.

4. How to connect RS422 Multi-drop circuit



5. How to connect RS485 circuit



- RT:120 ohm(If there is no serious noise, termination resistors are not required)
- RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Multi-32/LPCI VA3

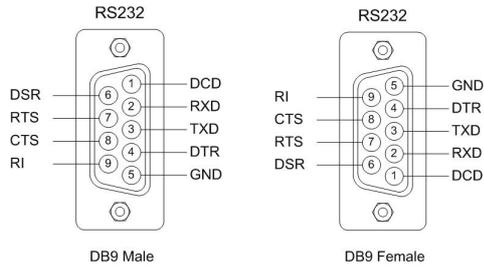
Multi-32/LPCI VA2 board is the model supports PCI Local Bus Spec 2.3. so it has 32 Ports that can set I/O address and IRQ number automatically. In addition, unlike existing products, VA2 applies PCI Local Bus Spec 2.2 Core which was developed by SystemBase. Multi-32/LPCI VA2 board is used with Panel-8e VA2. It not only supports maximum speed of 921.6Kbps but also offers enhanced management of automatic I/O. Also it protects system from any outside damage by implementing Surge Protector on signal line. Furthermore VA3 add DB9 Male type, power port in Panel-8e VA2 panel thereby enabling variety use than before. Unlike other products, every informations of the board is in board itself. So after implementing driver, automatically user can know implemented port, communicate controller, sort of circuit interface and maximum communication speed in now.

- Product specifications

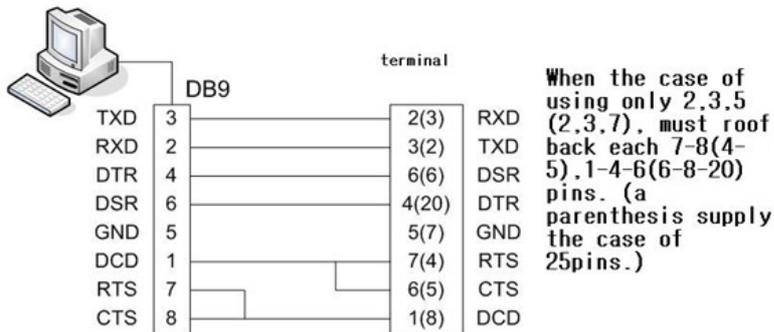
Communication speed	Maximum 921.6Kbps
BUS interface	PCI Local Bus Spec 2.2
Circuit interface	RS232/Combo model(RS422/RS485)
Communication controller	16C554
Connector	DB9 Female, Male
Voltage to acting	3.3V
I/O address	Automatic set-up
IRQ number	Automatic set-up
Circuit protection	Surge Protector attached
Supporting operating system	Windows 98/2000/2003/NT/XP/Vista32bit, SCO UNIX, Linux
Manufacturer	SystemBase Co., Ltd.

- RS232 model

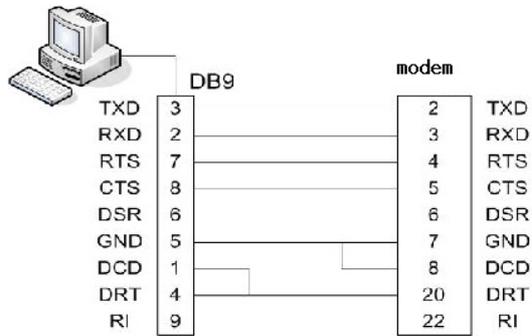
1. DB9 Female, Male connector pin specification



2. How to connect terminal



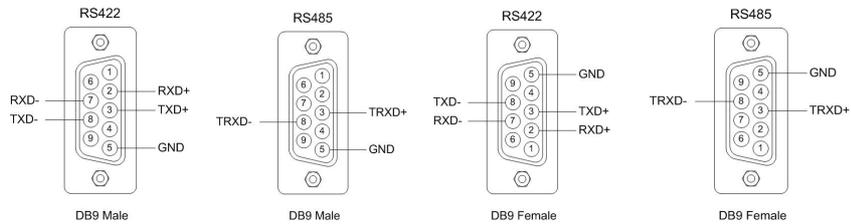
3. How to connect modem



- RS422/RS485 Combo model

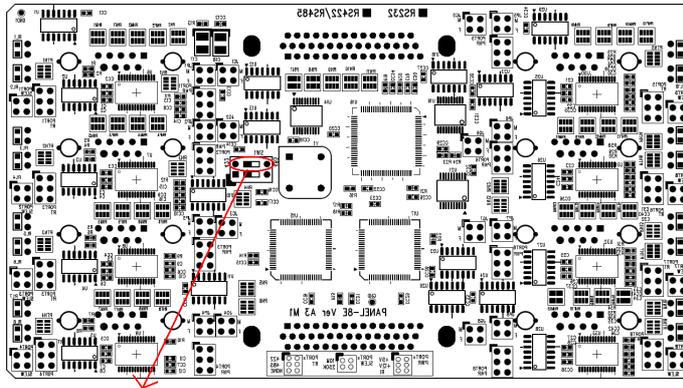
- What is combo in this case? : The products that can be selected in RS422, 485 by jumper setting(default: RS485)

1. DB9 Female, Male connector pin specification



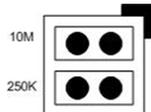
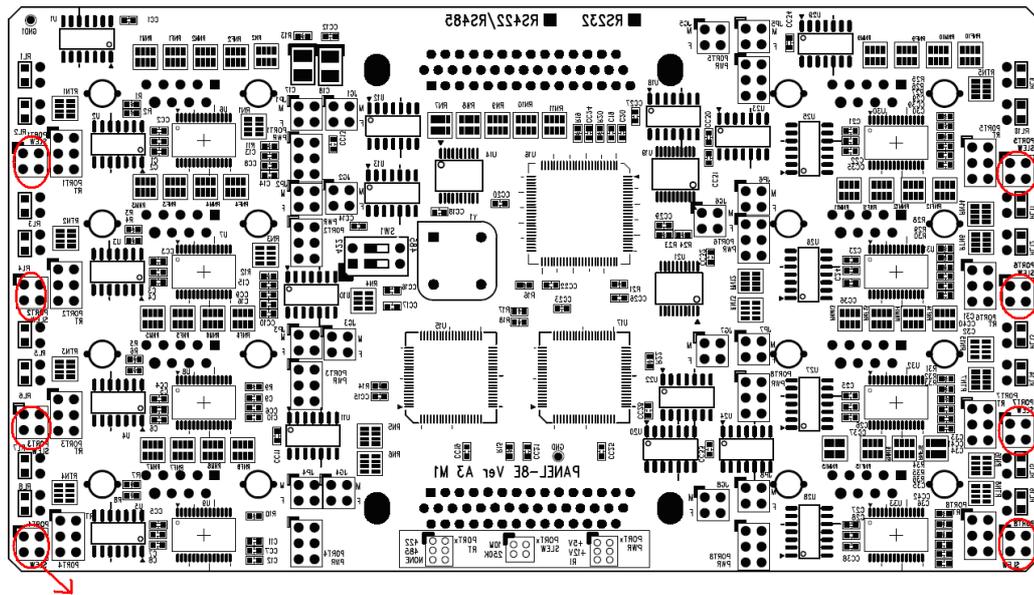
2. Panel switch setting

a. RS422, RS485 circuit interface selecting jumper



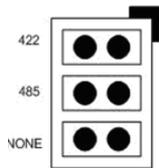
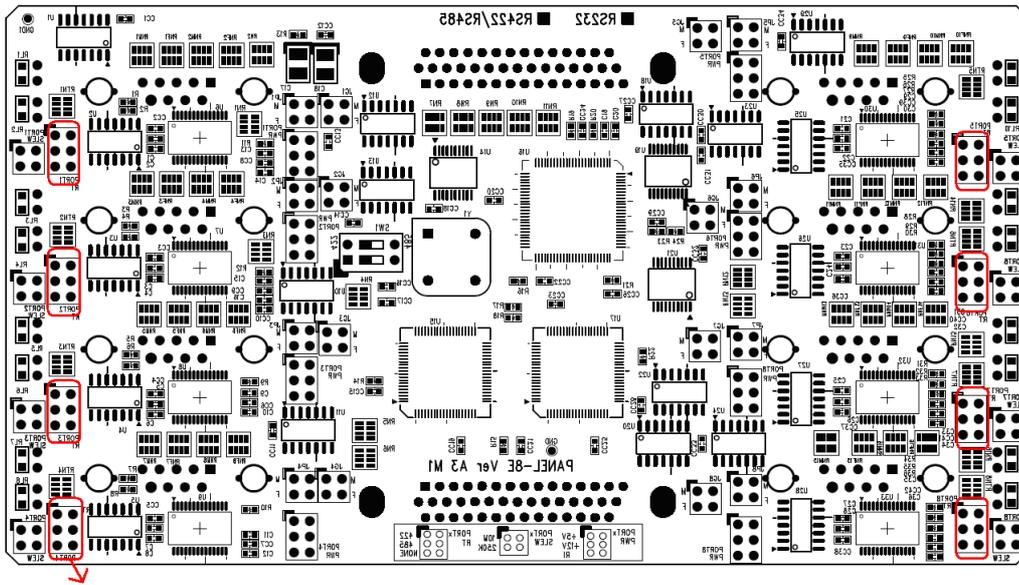
ON: RS422 interface, OFF: RS485 interface

b. PORTx RT : RS422, RS485 terminal resistor selection jumper



- 10M: Not use Slew Rate Limit function. Maximum communication speed 921.6Kbps in this mode.
- 250K: Use Slew Rate Limit function. Communication speed is limited under 250Kbps.
- Slew Rate Limit reduces reflected waves emitting from ends of communication cables and speeds up slew-rate driver that restrains EMP electromagnetic waves thereby enabling communication with no data errors. But communication speed is limited in this mode.

c. PORTx RT : RS422, RS485 terminal resistor selecting jumper



422: Install RS422 terminal resistor.

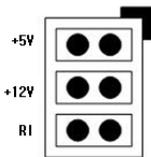
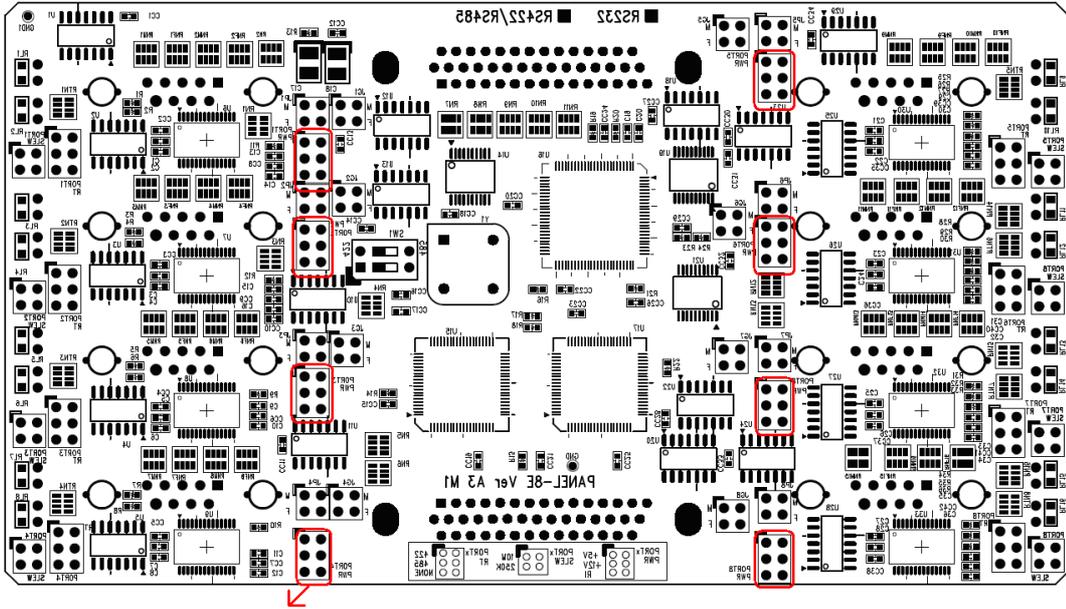
485: Install RS485 terminal resistor.

NONE: Not install terminal resistor.

※ What is terminal resistor?

Transmission interface has several design impedance standards. So when that comes up to this specific resistor, we need terminal resistor in order to avoiding reflection phenomenon.

d. PORTx PWR : RS232,RS422, RS485voltage supply selection jumper



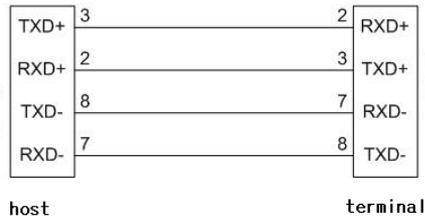
+5V: supply 5V voltage to peripheral.

+12V: supply 12V voltage to peripheral.

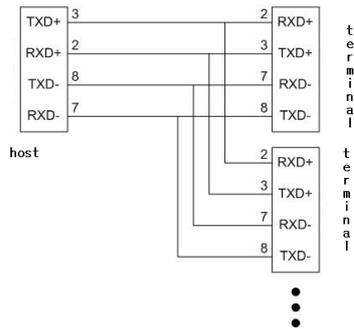
RI: Enables RI communication when using RS232. When using RS422, RS485, not supply any peripheral.

- Power emits from port number 9.

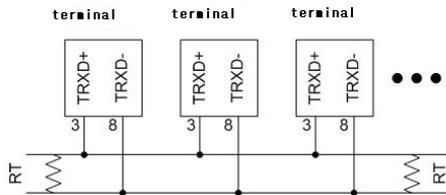
3. How to connect RS422 Point-to-point circuit



4. How to connect RS422 Multi-drop circuit



5. How to connect RS485 circuit



- RT:120 ohm(If there is no serious noise, termination resistors are not required)
- RS485, like LAN, adopts a half duplex bus where the host is not divided from terminals.

Device Driver Installation

- Windows 98

1. Turn off your PC.
2. Insert MultiPort/PCI board into anyone of PCI slots.
3. Connect the port box to the board.
4. Turn on the PC.
5. Start Windows 98.



6. Press the "Next" button.



7. Select the "Search for the best driver for your device" and press the "Next" button.



8. Select the "Specify a location" and insert the provided device driver disk into CD-ROM drive and set path to "[CDROM]\DRIVERS\PCI\Win98,2000,XP,2003,Vista\" and press the "Next" button.



- If the CD-ROM auto-run application appears when you insert Device Driver CD, please terminate it. (The disk doesn't support automatic device driver installation in Windows 98.)
9. Press the "Next" button and Auto-Files-Copied.



10. Press the "Finish" button.



11. Press the "Next" button.



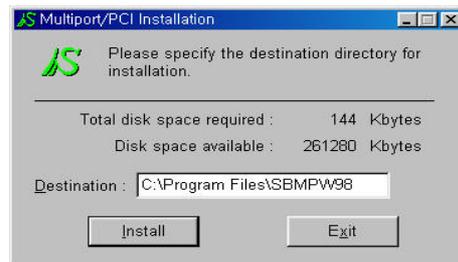
12. Press the "Next" button.



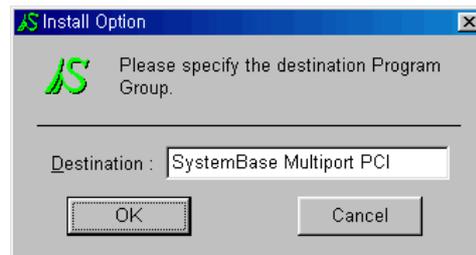
13. Select the “Specify a location” only and set the path to “D:\DRIVERS\PCI\Win98,2000,XP,2003,Vista\” and press the “Next” button.



14. Press the “Next” button and ports is created.
15. Execute Installer for Multiport configuration program.
(“[CDROM]\DRIVERS\PCI\Win98,2000,XP,2003,Vista\INSTALL.EXE”)

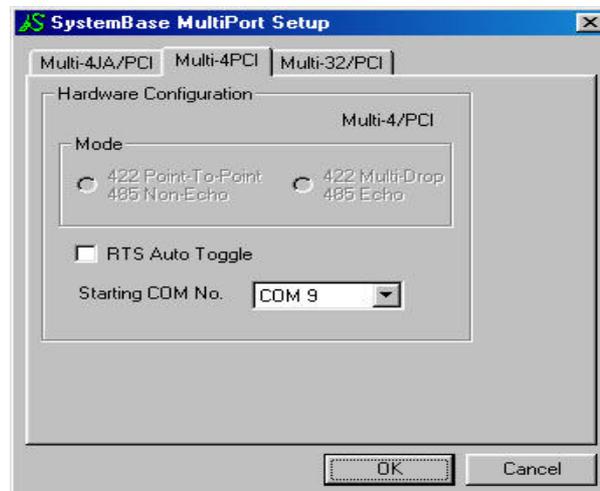


16. Press the "Install" button and Auto-Files-Copied.

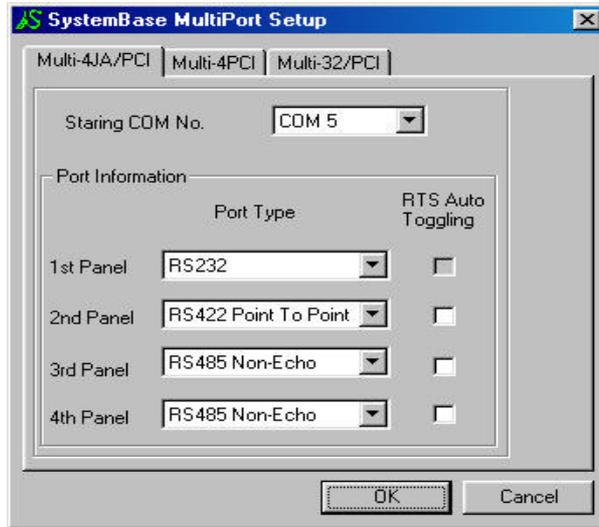


17. Press the "OK" button and register Program Group. MultiPort Setup Program is executed automatically at this time. It shows the number of as tabs as cards you installed.

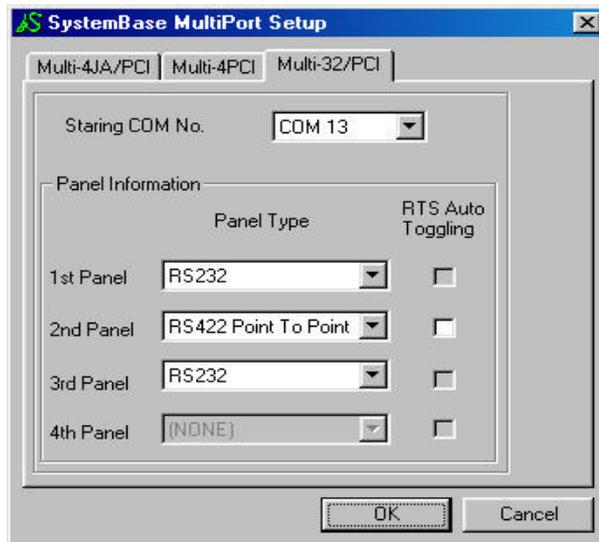
(Multi-4/PCI Card Installation Setting View)



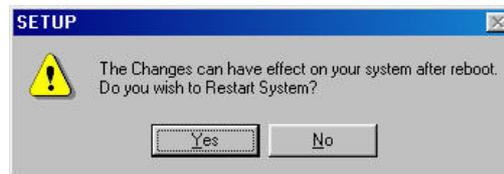
(Multi-4JA/PCI Card Installation Setting View)



(Multi-32/PCI Card Installation Setting View)



18. In case of RS422 port or panel, you can change and specify point-to-point or multi-drop mode. In case of RS485 port or panel, you can change and specify non-echo or echo mode. When you use multi-drop mode or RS485 card, if you select "RTS Auto-toggle" our device driver will process Output Control (RTS toggling) automatically.
19. Set starting-port-number as you want. This port number will be the first serial port's name for the O/S.
20. Press the "OK" button to finish Multi-Port Setup program.



21. Press the "Yes" button to reboot your system.

- When you want to change MultiPort Setting, execute "MultiPort Setup" program registered in "SystemBase MultiPort PCI" program group of "Start" Menu.

- Windows 2000

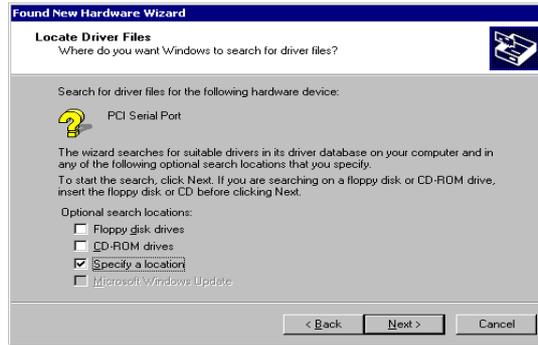
1. Turn off your PC and insert MultiPort/PCI board into anyone of PCI slots.
2. Connect the port box to the board.
3. Turn on the PC.
4. Start Windows 2000.
5. New hardware is detected at this time.



6. Press the "Next" button.



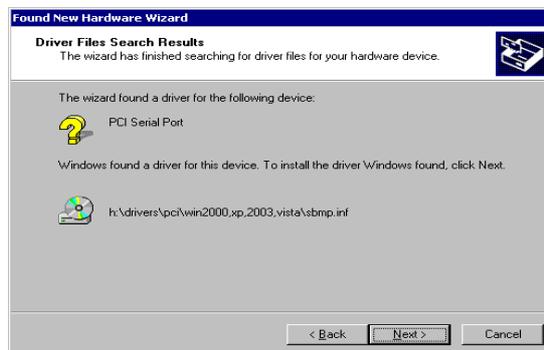
7. Select the "Search for a suitable driver for my device" and press the "Next" button.
8. Insert the provided device driver disk into the CD-ROM drive and press the "Next" button.



9. Select the “Specify a location” and Press “OK” button.



10. Select the “Browse...” and Specify [CDROM]\DRIVER\PCI\Win2000,XP,2003,Vista”. Press “OK” button.



11. Press the “Next” button.



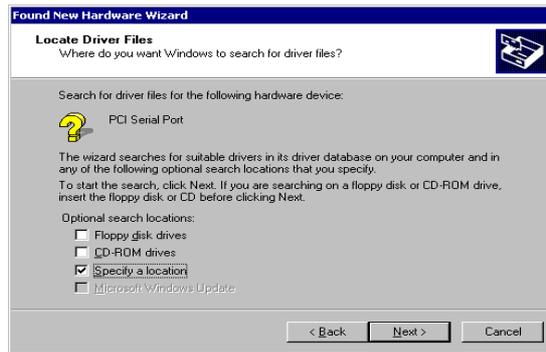
12. Press the "Next" button.



13. New hardware is detected. Press the "Next" Button.



14. Press the "Next" button.



15. Select the “Specify a location” and press the “Next” button.



16. Press the “Next” button.



17. Press the “Finish” button.

18. Remaining ports are installed automatically.



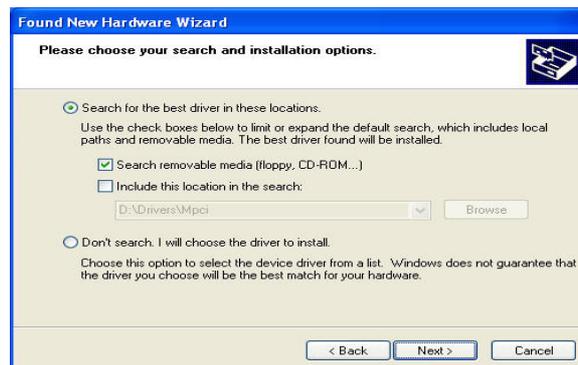
19. After all installations are completed, you can check the device information in [Setting]→ [ControlPanel]→ [System]→ [HardWare]→ [DeviceManager].
- If Windows ask you which device driver is to be installed while device driver installing or you would like to install the driver manually, please use this location: “[CD-ROM]\DRIVERS\PCI\Win98,2000,XP,2003,Vista\

- Windows 2003/XP

- You may refer to this section to install device driver for Windows 2003,XP x64 Edition.
1. Turn off your PC and insert MultiPort/PCI board into anyone of PCI slots.
 2. Connect the port box to the board.
 3. Turn on the PC.
 4. Start Windows 2003,XP.
 5. New hardware is detected at this time.



6. Specify the "Install from a list or specific location" and press the "Next" button.



7. Insert the provided MultiPort/PCI Installation Disk into the CD-ROM drive. Specify the "Search removable media(floppy, CD-ROM..)" and press the "Next" button.



8. Press the "Continue Anyway" button. The dialog is not an error but normal installation process.



9. Press the "Finish" button.



10. Specify the "Install from a list or specific location" and press the "Next" button.



11. Specify the “Search removable media(floppy, CD-ROM...)” and press the “Next” button.



12. Press the “Continue Anyway” button.



13. Press the “Finish” button. Another new wizard dialog will be appeared at this time.

14. Repeat the 10th to the 13th process until the installation process is finished..

15. After all installations are completed, you can check like the information below in [Setting]→[Control Panel]→[System]→[Hardware]→[Device Manager]



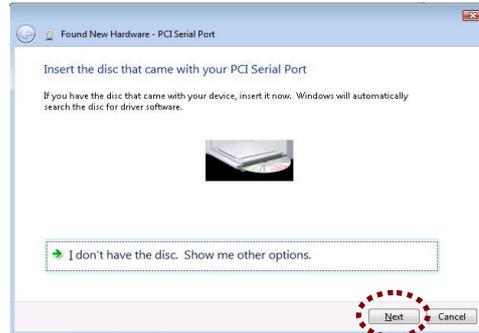
- If Windows ask you which device driver is to be installed while device driver installing or you would like to install the driver manually, please use these locations:
“[CD-ROM]\DRIVERS\PCI\Win98,2000,XP,2003,Vista\” (for 32bit version of Windows)
“[CD-ROM]\DRIVERS\PCI\Win2003,XP x64\” (for 64bit version of Windows)

- Windows Vista

- Windows Vista Business x64 Edition driver is to be supported on next version driver updates.
1. Turn off your PC and insert MultiPort/PCI board into anyone of PCI slots.
 2. Connect the external port box to the board.
 3. Turn on the PC power.
 4. Start Windows Vista.
 5. Pop-up message “New Hardware found” will appear. Select “Locate and install driver software (recommended)”. If pop-up message “New Hardware found” does not appear, please proceed as instructed on #9.



6. “Insert the disc” message window will appear. Insert the driver CD into the CD-ROM and click “Next”. Device driver will start automatic installation.



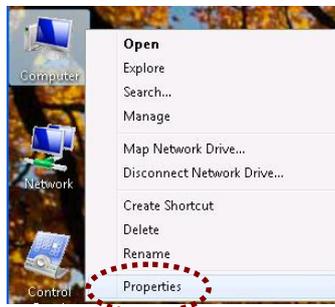
7. “Windows Security” window will appear. Click “Install this driver software.”



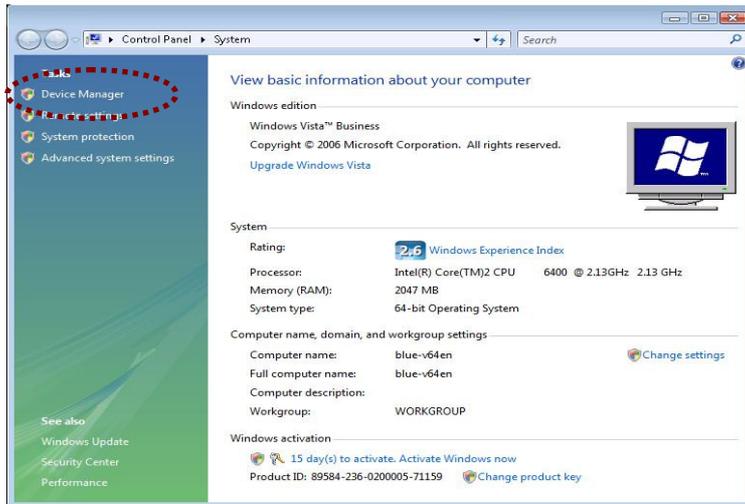
8. "Software successfully installed" message box will appear. Click "Close". PCI Serial Port has now been installed. Next step is to install driver for each separate ports. Proceed as instructed on #16.



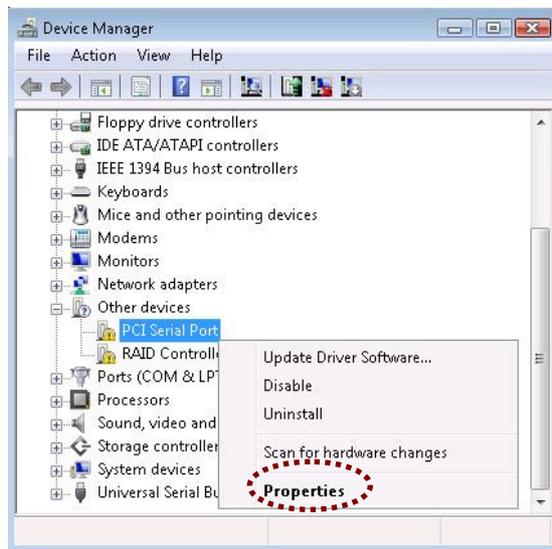
9. In case "New Hardware found" window does not appear, driver must be installed manually. Right click on "My Computer" icon and then click "properties"



10. "Systems window" will appear. Click "Device Manager"

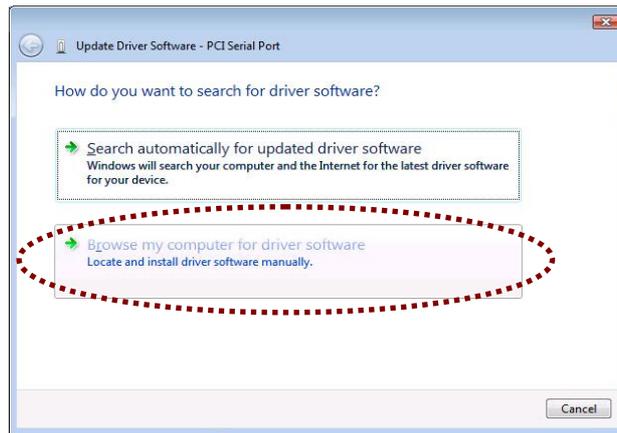


11. "Device Manager" will appear and Right click "PCI Serial Port" and then click "properties"

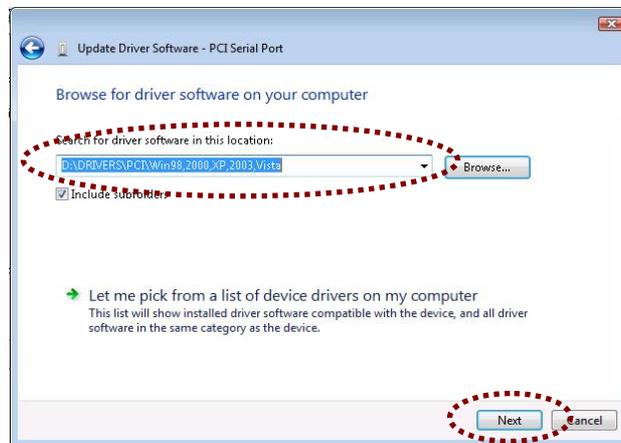


12. The following window will appear. Click "Find driver software from selected location"





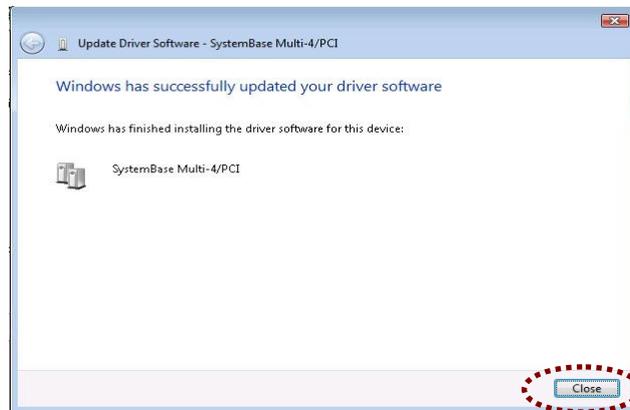
13. "Find driver software from selected location" window will appear. Click "Find" and select "[CDROM]:/DRIVERS/PCI/Win98,2000,XP,2003,Vista" for its location. Then click "Next"



14. "Windows Security" window will appear. Click "Install this driver software."



15. Once installation is complete, "Driver software has been updated." Message box will appear. "PCI Serial Port" is now successfully installed. Click "Close". Next step is to install driver for each separate ports.

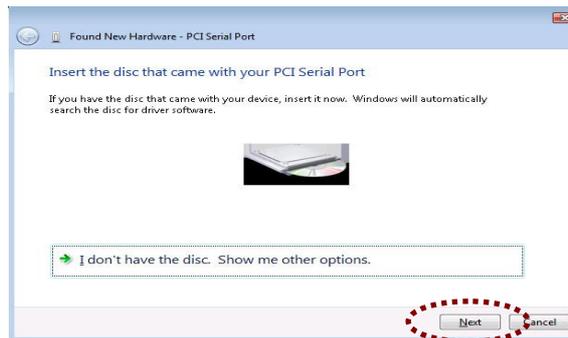


16. If "PCI Serial Port" has been successfully installed, "New Hardware found" Message box will appear. Click "Find & Install driver software."

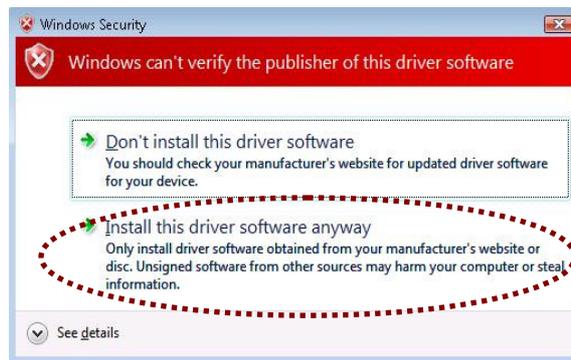
Driver Installation



17. "Insert the disc that came with your PCI Serial Port" Message box will appear.
Click "Next"



18. "Windows Security" window will appear. Click "Install this driver software."

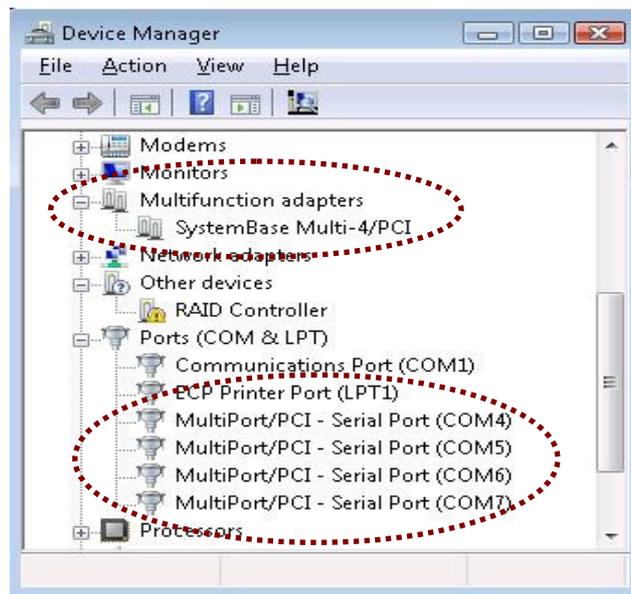


19. "Software has been successfully installed for this device." Message box will appear. Click "Close"



20. Your Multiport Vista driver is successfully installed if following items can be found under “Device Manager”.(Follow steps #8 ~ #11 to enable “Device Manager”)

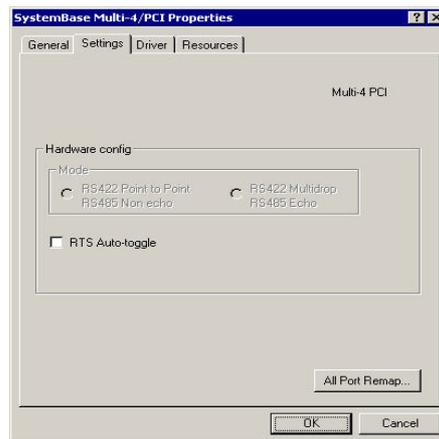
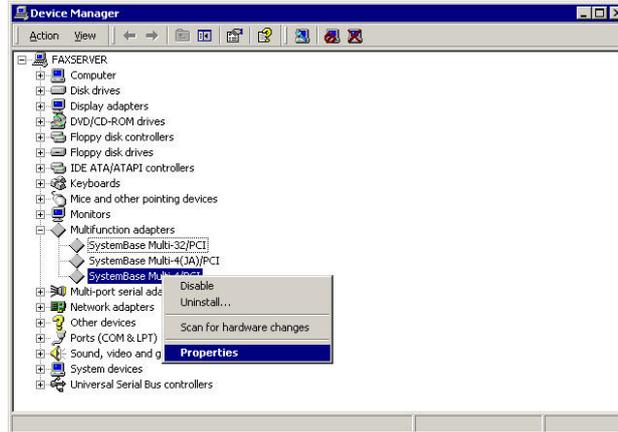
- “SystemBase Multi-4/PCI” under “Multi-functioned Adaptor” category
- “MultiPort/PCI-Serial Port(COM #)” under “Port” category
- Recurrence of Serial Port should equal to the number of serial ports



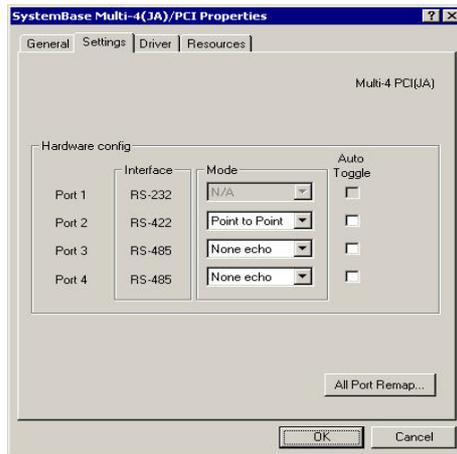
- Property settings for Windows 2003/XP/Vista x64 drivers follow the same procedures below.

MultiPort Card Setting

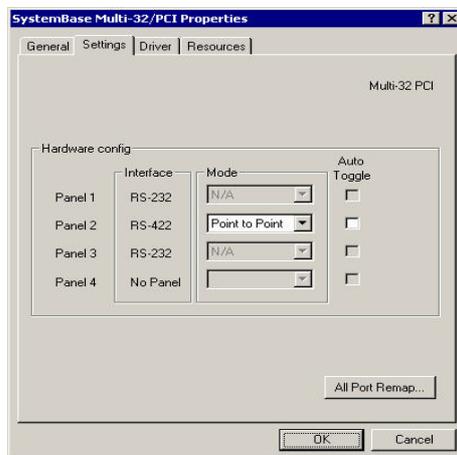
1. If you want to change the configurations of ports and MultiPort card, Click the right button of your mouse when you locate that mouse in “SystemBase Multi-*/PCI” item of “Multifunction adapters” category like this view below, and press the “Properties”.



(Multi-4/PCI Card Installation Setting View)



(Multi-4JA/PCI Card Installation Setting View)



(Multi-32/PCI Card Installation Setting View)

- Click "Settings" tab and you can see like a view above. In case of RS422 port or panel, you can change and select point-to-point or multi-drop mode. In case of RS485 port or panel, you can change and select non-echo or echo mode. When you use multi-drop mode or RS485 card, if you select "RTS Auto-toggle" our device driver processes Output Control (RTS toggling) automatically.

3. When you press the “All Port Remap...” button, you can see like a view below. If you want to change port name of all ports sequentially, modify it. Specify this port name as you want and click the “OK” button. The port names of the device will be rearranged.

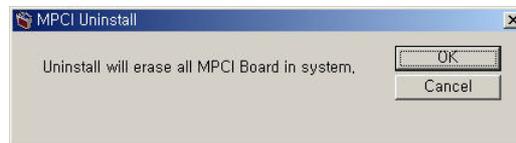


- You can use changed ports right now unless you reboot your system.

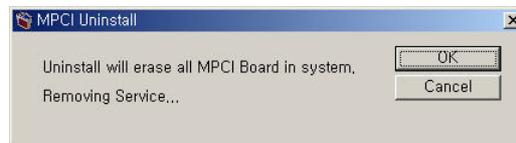
Device Driver Removal

- Windows 2000/XP/2003/Vista

- If you want to remove device driver in Windows 2003,XP x64 Edition, please refer to next page.
1. Insert the provided device driver disk into the CD-ROM drive. (If you see auto-run program of driver disk, terminate it.)
 2. Execute the uninstaller program.
(“\DRIVERS\PCI\Win98,2000,XP,2003,Vista\UNINSTALL_W2K.EXE”)



3. Press the "OK" button.



4. The removal process will be in progress.

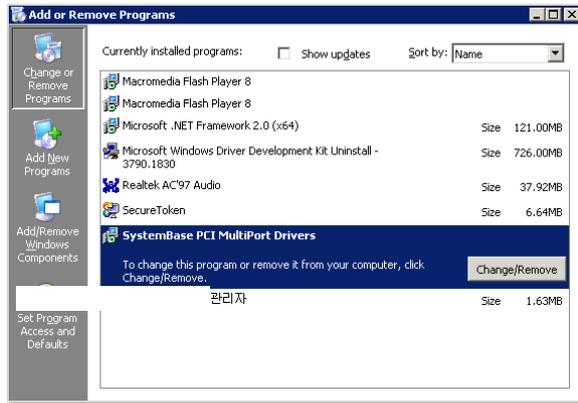


5. When you press the "OK" button, the removal process is completed.

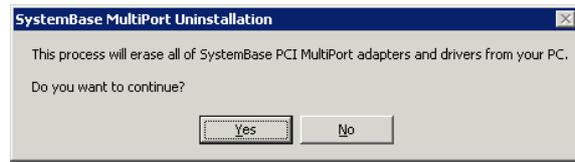
- Windows XP/2003 x64 Edition

- If you want to remove device driver in 32bit versions of Windows 2003,XP please refer to previous page.
- Vista x64 driver is to be supported on next driver updates.

1. Run “Add or Remove Programs” in Control Panel.



2. Select “SystemBase PCI MultiPort Drivers” and click the “Change/Remove” button.



3. Press the “Yes” button.



4. The system will be turned off after you click “OK”. Then, you may remove the MultiPort adapters.

Windows NT

- Device Driver Installation

1. Turn off your PC.
2. Insert MultiPort/PCI board into anyone of PCI slots.
3. Connect the port box to the board.
4. Turn on the PC.
5. Start Windows NT 4,0 and logon with the account which has the Administrator author.
6. Insert the provided MultiPort/PCI Installation Disk into the CD-ROM drive. You may see the auto-run program like this. If the installer application doesn't appear, Please execute "Setup.exe" file in root directory of CD-ROM manually.



7. Press the "PCI Multiport / Modem" button.



8. Press the “Install Device Driver” button. The driver installer will be appeared like below:

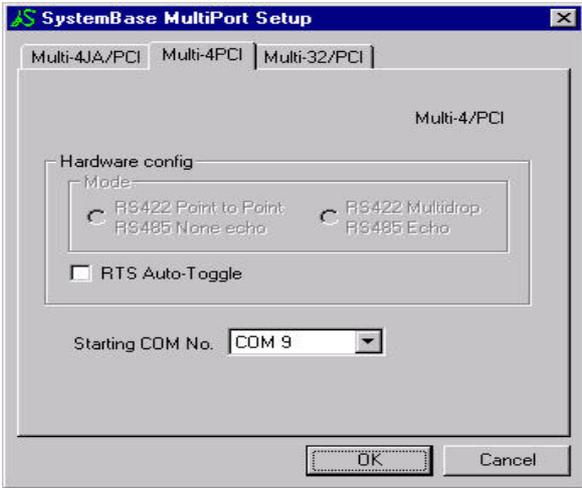


9. Press the “Install” button and Auto-Files-Copied.

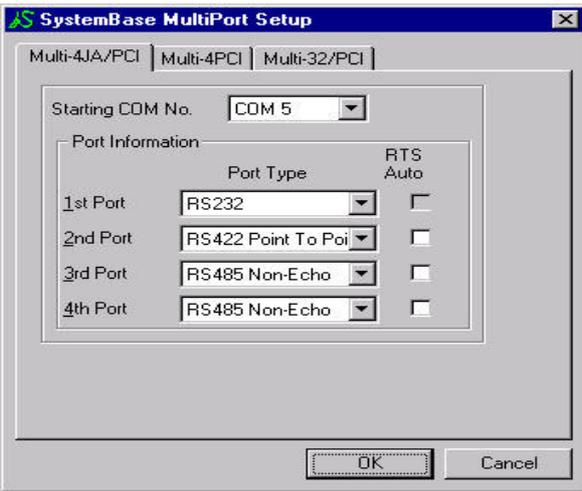


10. Press the “OK” button to register configuration utility to Program Group. MultiPort Setup program is executed at this time. The program shows the

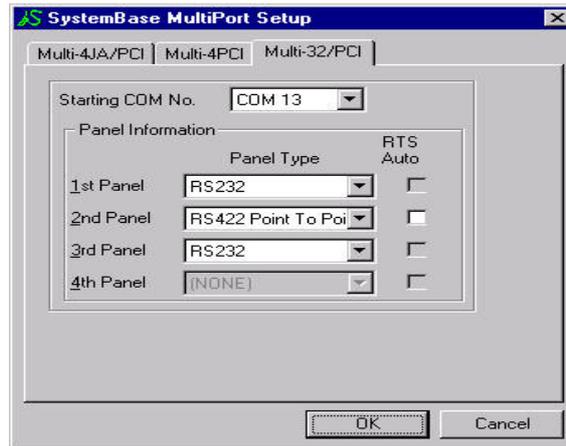
information of cards you installed.



(Multi-4/PCI Card Installation Setting View)

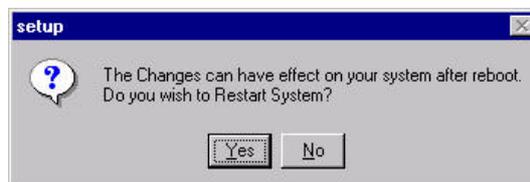


(Multi-4JA/PCI Card Installation Setting View)



(Multi-32/PCI Card Installation Setting View)

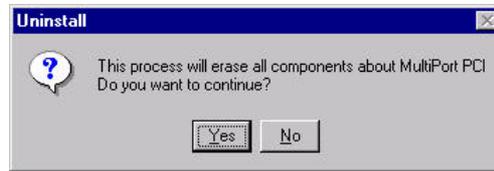
11. In case of RS422 port or panel, you can change and select point-to-point or multi-drop mode. In case of RS485 port or panel, you can change and select non-echo or echo mode. When you use multi-drop mode or RS485 card if you select “RTS Auto-toggle” our device driver processes Output Control (RTS toggling) automatically,
12. Set the starting-port-number as you want. The serial port names are allocated sequentially by this name.
13. Press the “OK” button to finish MultiPort Setup program.



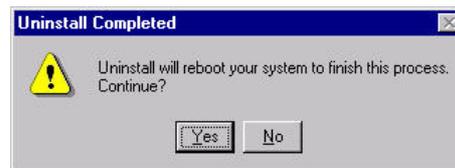
14. Press the “Yes” button to reboot your system.
 - If you want to modify your MultiPort adapters after this time, please execute configuration utility (Setup) from “SystemBase MultiPort PCI” program group of “Start” menu.

- Device driver Removal

1. Execute uninstaller program registered in “SystemBase MultiPort PCI” program group of “Start” Menu.



2. Press the “Yes” button.



3. Press the “Yes” button to reboot your system.

Linux

- Downloading Linux Device Drivers

- Please download the proper MultiPort driver files for each MultiPort on our website and follow the procedures below.
1. Download the proper versioned MultiPort driver for each MultiPorts on our website. eg) To download Multi-4 PCI Linux driver: main page → Serial Multiports → PCI MultiPort → Multi -4 PCI Series → Download → Linux driver
 2. Unzip the downloaded file.
 3. Check your Linux Kernel version and save the proper file to a storage device.(※ If saved to a floppy disk, please note all previously stored data will be deleted.)

Device driver installation / removal for Linux

1. Turn off the power of PC.
2. Install the board to the option slot of PC.
3. Connect the port box (panel) to the board.
4. Turn on the power of PC.

```
LILO :
```

5.

```
loading linux...  
.  
.  
.  
login:
```

6. root

```
..  
..  
#
```

7. Unzip your driver file if not already unzipped

```
# tar zxvf /dev/fd0 enter (If driver file is located in floppy disk)  
# tar zxvf Filename enter (If driver file is located in hard disk)
```

8. Execute "Install"

```
# ./Install
```

9. Linux driver is properly installed if ports are detected under the path /dev.

```
# ls /dev/ttyMP*  enter
/dev/ttyMP0
.
.
/dev/ttyMPx
```

10. To remove the drivers, execute 'Remove' in the driver unzipped folder.
Type 'ls' to check proper removal.

```
# ./Remove

#ls /dev/ttyMP* enter
(Nothing should be listed)
```

11. To test proper removal of the driver, use 'cat' command below and check if
Tx LED turns on.

```
# cat > ttyMP*
(when typed in from another path: cat > /dev/ttyMP*) enter
```

SCO Open Server Release 5

- Device Driver Installation

- Please make a floppy disk for device driver installation. To make this, boot Windows O/S, put formatted floppy into the FDD and run "Install.bat" file in "[CD-ROM]\Drivers\PCI\SCO" folder.
1. Turn off the power of PC.
 2. Install the board to the option slot of PC.
 3. Connect the port box(panel) to the board.
 4. Turn on the power of PC.

```
SCO OpenServer (TM) Release 5
```

```
Boot :
```

5. <Enter>

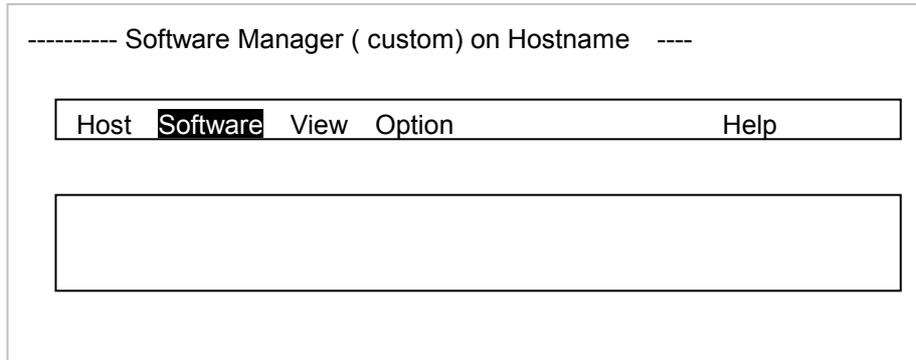
```
INIT : SINGLE USER MODE
```

```
Type CONTROL-d to Proceed with normal startup,  
( or give root password for system maintenance) :
```

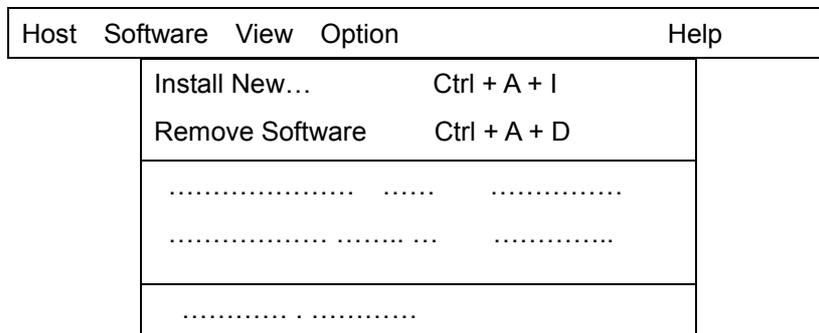
6. Enter Password to go into the "Maintenance mode" (<Enter> if there is no password.)

```
.  
.
```

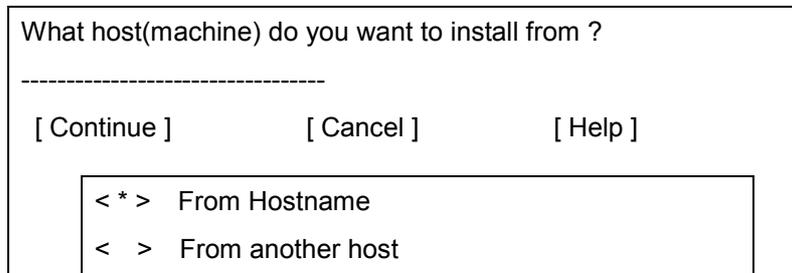
7. # custom ↵



8. Select the 'Software' by using the arrow key



9. Select "Install New" by using the arrow Key.



Begin Installation on Hostname

10. Select 'From Hostname'

Select Media

Insert media, and select media device.		
Media Device :	Floppy Disk Drive 0	:v

[Continue]	[Cancel]	[Help]

11. After Inserting floppy drive 'A:', Select 'Floppy Disk Drive 0' by using the arrow Key.
12. After you check 'Multiport/PCI Device Driver Version 1.0', Select 'Install' by using the arrow Key.

Multiport / PCI Device Driver Installation

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All rights Reserved.

Installation Multiport / PCI Device Driver Version 1.0

Rebuild the kernel now (y/n) ? :

13. Enter 'y' for building kernel.

The UNIX Operating System will now be rebuilt.

This will take a few minutes. Please wait.

Root for this system build is /

The UNIX kernel has been rebuilt.

Do you want this kernel to boot by default? (y/n)

14. Type 'y' <ENTER>

Backing up unix to unix.old

Installing new unix on the boot file system

The kernel environment includes device node files and /etc/inittab.

The new kernel may require change to /etc/inittab or device nodes.

Do you want the kernel environment rebuilt? (y/n)

15. Type 'y' <ENTER>

Setting up new kernel environment

Driver installation complete.

Please remove the floppy now.

Press <Enter> to continue :

16. After removing the floppy driver disk, <Enter>.

Message

Installation complete [OK]

17. <Enter>

18. # sync ↵

19. # init 6 ↵

20. Check the screen below after system rebooting.

Multiport / PCI Board Installation

Copyright(c) SystemBase Co., Ltd.

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Email : tech@sysbas.com

1 board(s) installed 8 ports available.

Board No. 0 (multi-8) ttymp0 ~ ttymp7 using IRQ 3

Board No. 0 (multi-8) ttyMP0 ~ ttyMP7 using IRQ 3

- ttymp means "Not-Using modem signals" and ttyMP means "Using modem Signals".

- Device Driver Removal

1. # custom ↵

-----Software Manager (custom) on Hostname -----

Host	Software	View	Option	Help
------	----------	------	--------	------

--

2. Select 'Software' by using the arrow Key.

Host	Software	View	Option	Help
------	----------	------	--------	------

Install New...	Ctrl + A + I
Remove Software	Ctrl + A + D
.....
.....
.....

3. Select 'Remove Software' by using the arrow Key.

----- Software Manager (custom) on Hostname -----

Host	Software	View	Option	Help
------	----------	------	--------	------

All software on Hostname

* Multiport / PCI Device Driver Version 1.0 (ver 1.0)
.....
.....

4. Select "Multiport/PCI Device Driver Version 1.0(ver1.0)".

5. After you check device driver name, select 'Remove'.

Removing the Multiport / PCI device driver...!!

Rebuild the kernel now (y/ n) :

6. Enter 'y' for building kernel.

The UNIX Operating System will now be rebuilt.

This will take a few minutes. Please wait.

Root for this system build is /

The UNIX kernel has been rebuilt.

Do you want this kernel to boot by default? (y/n)

7. Type 'y' <ENTER>

Backing up unix to unix.old

Installing new unix on the boot file system

The kernel environment includes device node files and /etc/inittab.

The new kernel may require change to /etc/inittab or device nodes.

Do you want the kernel environment rebuilt? (y/n)

8. Type 'y' <ENTER>

Setting up new kernel environment

Press <Enter> to continue :

9. <ENTER>

Message

Removal complete

[OK]

10. <ENTER>, and driver removal is completed..

Solving Problems

- General Issues

- **The MultiPort does not work properly even after it has been successfully installed**

One of major reasons MultiPort boards do not work properly is mostly interrupt collisions. This is not a frequent problem because PCI boards are automatically assigned interrupts. However, reasons for interrupt collisions or abnormal operation of PCI boards can be classified into free:

Since there are no reserved resources in the system, PCI may use an already assigned interrupt number. It is required to install MultiPorts again by disabling IRQ numbers (such as IRQ3 and IRQ7) that have been assigned but not used in the CMOS setup program in order to make those interrupts available.

PCI boards may use IRQ numbers occupied by ISA boards. In such a case, the PCI bus does not recognize the interrupt number assigned to the ISA board, resulting in malfunction of the PCI board. To solve such a problem, you should change the interrupt number of the ISA board or change the slot position of the PCI board.

There may be a specific motherboard that assigns interrupt numbers on each slot in the CMOS set up program, or sets ISA/PCI PnP by interrupt numbers. At this time, PCI board is not successfully working if the PCI slot has a wrong IRQ number assigned or all IRQ numbers are set to ISA. As a solution to this problem, unused IRQ numbers should be set to PCI PnP.

- Windows

- **When any device driver is installed under Windows operating systems, information of the boards and external port boxes in the system is not identical to the data displayed by the setup program.**

Windows 98/NT is designed to automatically get the number of boards and even the interface type of port boxes for multi-32/PCI in order to show the data on the setup screen. If the screen is not normally displayed, it is not allowed to use MultiPorts. This is caused by low quality products or connectors that may experience problems connecting the board and external port box or between external port boxes. First, turn the system off and check the connection status again to verify if the connection is poor. If this problem persists even if the connector is fault free, please contact us.

- Linux

- **Q3 When any device driver is installed under Linux environment, a kernel version error message appears.**

Linux has a variety of kernel versions. It is not a rare case that the kernel used is not consistent with that of the driver system. This can be easily solved changing the kernel version in the source file(drivers). However, version 2.0.x is not compatible with 2.2.x. Accordingly, you can upload the source file(drivers) using vi editor first and update the kernel version information(e.g. 2.2.5->2.2.10)

- Linux, SCO Unix

- **Under SCO UNIX or Linux environment, any MultiPort serving as a terminal is not logged to the appropriate port.**

First, be sure to review the details in Q1. Use the cat command to check if the port is available. If there is no trouble, check the details of the /etc/inittab files. Change to respawn the getty program of the appropriate port. If this has also no trouble, it is considered as poor cable connection or that Baud rate, Data bits and Parity bit are not properly set on the port. At this time, check the cable connection and the port of gettydefs(getty used) file.

- **Any MultiPort serving as a terminal under SCO UNIX environment is not logged to the appropriate port even after you entered your user ID and password(while the message notifying successful logging to the port appears).**

This happens when the appropriate port is locked. Especially, if it frequently occurs when the system is not normally terminated after logging to the port, that's why the SCO UNIX kernel locks the specific port. To solve the problem, use the following procedure.

1. #scoadmin [ENTER]
2. Select SYSTEM from the menu.
3. Select Terminal Manager from the menu.
4. Execute Unlock on the menu.
5. Select the port name to be unlocked.
6. Quit

- **When the printer is used through the connection to the port under the SCO UNIX or Linux environment, the printer does not work or the data is not correct.**

First, be sure to review the details in Q1. Use the cat command to check if the port is available. If not available, the problem is caused by unmatched speed between the port for and printer or troublesome flow control. Please check the Baud rate of the port for /etc/gettydefs (getty used) file and add Flow Control (IXON, IXOFF) flag.

- **It is not available to answer the phone when the modem is used through a connection to the port under the SCO UNIX or Linux environment.**

First, be sure to review the details in Q1. Use /etc/inittab file to check if the getty program of each port is set to respawn, and also use the cat command to check if the port is available. If not available, it is because the modem has not been set in auto answer mode. The auto answer mode is the default value but it may be changed by unexpected problems or events. The setting ATSO=1 should be achieved at the environment where AT Command is available (cu, minicom etc).