SUNIX Serial Communication Board User Manual

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Safety Information

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

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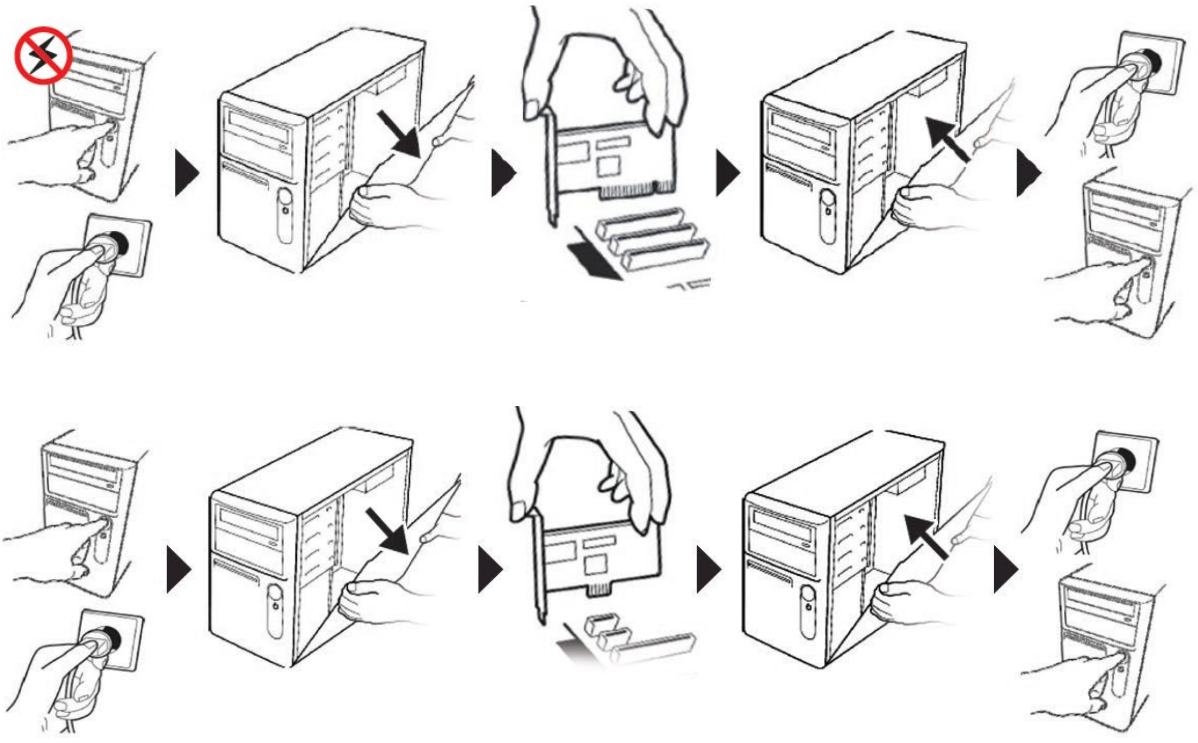
1. Hardware Installation

1-1 PCI / PCI Express Serial Card

The hardware installation of PCI Express Industrial I/O Control Board is easy to carry out. Before inserting the card into the PCIe bus, please follow the detailed steps given below to install the board in your computer.

SAFETY FIRST To avoid damaging to the computer, make sure to remove any power connection before card installation.

Step 1: Turn your PC's power off, and shut off the power to any peripheral.
Step 2: Remove the power plug from the plug socket.
Step 3: Remove the cover from the computer case.
Step 4: If fitted. Remove the metal cover plate on the rear of a free PCIe slot.
Step 5: Insert PCI Express Industrial I/O Control Board into the free PCIe slot and screw it firmly on the bracket side.
Step 6: Place the cover back onto the computer.
Step 7: Insert the plug into the plug socket.



1-2 M.2 PCIe Serial Card

The hardware installation of M.2 PCI Express Industrial I/O Control Board is easy to carry out. Before inserting the card into M.2 slot, please follow the detailed steps given below to install the boards in your computer.

SAFETY FIRST To avoid damaging to the computer, make sure to remove any power connection before card installation.

Step 1: Remove the screw attached to the motherboard.

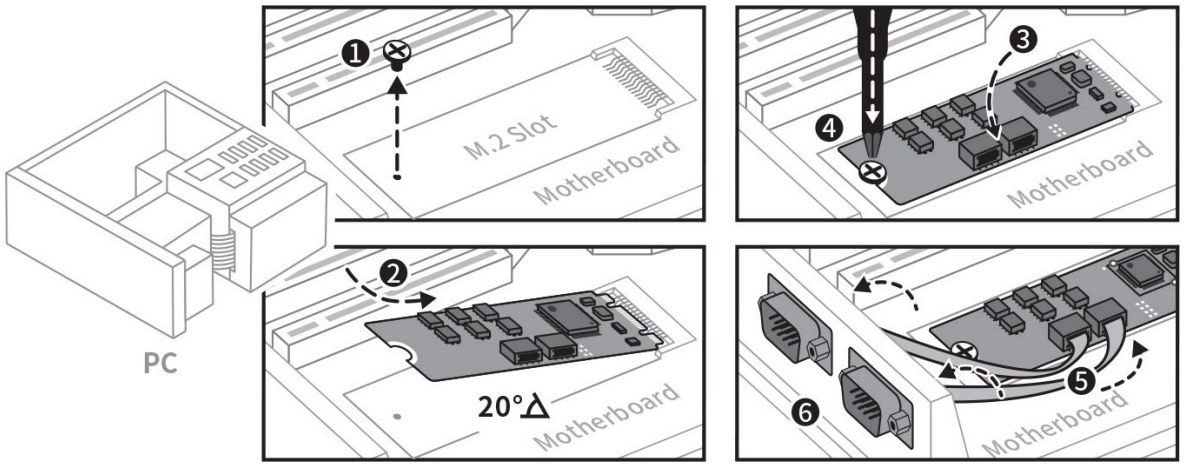
Step 2: Insert M.2 Card tightly into the M.2 slot with 20° angle. (SUNIX M.2 Card supports Key-M and Key-B slot)

Step 3: Push the M.2 card down to the screw hole.

Step 4: Lock screw on M.2 card that you remove from motherboard in step1.

Step 5: Connect ribbon cable

Step 6: Secure the extension board to PC chassis.

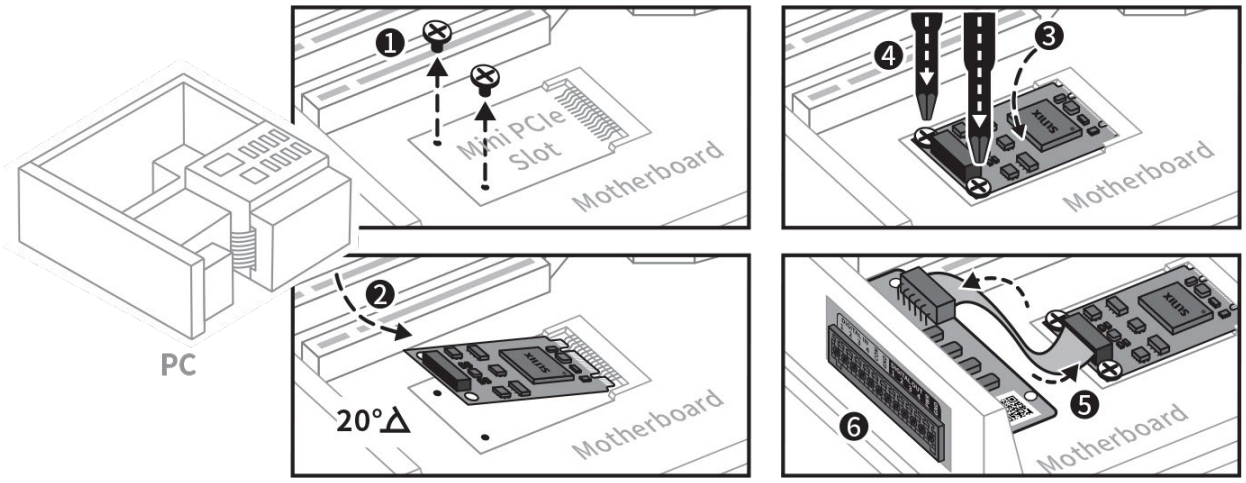


1-3 Mini PCIe Serial Card

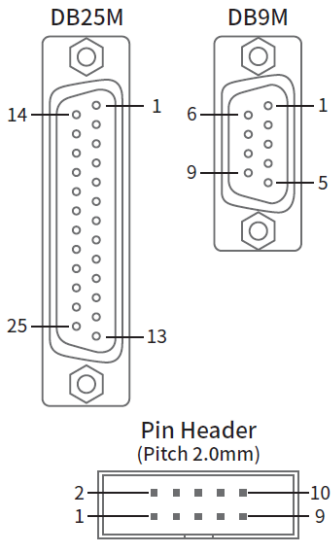
The hardware installation of Mini PCI Express Industrial I/O Control Board is easy to carry out. Before inserting the card into Mini PCI-E slot, please follow the detailed steps given below to install the boards in your computer.

SAFETY FIRST To avoid damaging to the computer, make sure to remove any power connection before card installation.

Step 1: Remove the screw attached to the motherboard.
Step 2: Insert Mini PCI-E Card tightly into the Mini PCI-E slot.
Step 3: Push the Mini PCI-E card down to the screw hole.
Step 4: Lock screw on Mini PCI-E card that you remove from motherboard in step1.
Step 5: Connect ribbon cable
Step 6: Secure the extension board to PC chassis.



2. Pin Assignment

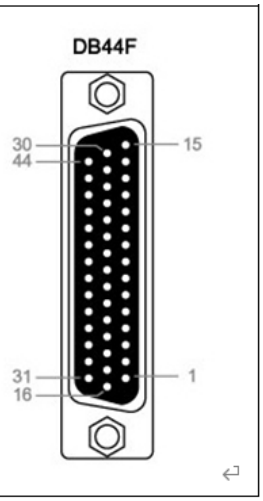


	PIN	DB9M	DB25M	Pin Header
RS-232	DCD	1	8	1
	RxD	2	3	3
	TxD	3	2	5
	DTR	4	20	7
	GND	5	7	9
	DSR	6	6	2
	RTS	7	4	4
	CTS	8	5	6
	RI	9	22	8
RS-422 or 4-Wire RS-485	Tx+	2	3	3
	Tx-	1	8	1
	Rx+	3	2	5
	Rx-	4	20	7
	GND	5	7	9
2 Wire RS-485	Data+	2	3	3
	Data-	1	8	1
	GND	5	7	9

Note: 8-port RS-232/422/485 Multi-Port communication board does not build RI signal under the RS-232 communication.

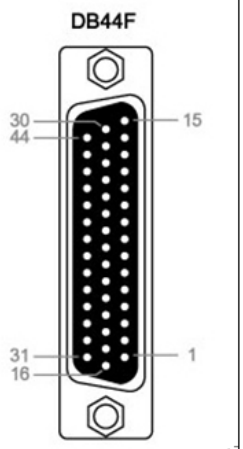
SUNIX 2 ports DB44 Female Pin Assignment

Signal \ Port	1	2
TxD	11	15
RxD	40	44
RTS	10	14
CTS	39	43
DSR	38	42
GND	25	29
DCD	26	30
DTR	9	13
RI	24	28



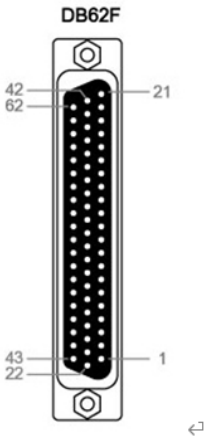
SUNIX 4 ports RS-232 DB44 Female Pin Assignment

Signal \ Port	1	2	3	4
TxD	3	7	11	15
RxD	32	36	40	44
RTS	2	6	10	14
CTS	31	35	39	43
DSR	18	34	38	42
GND	4	21	25	29
DCD	17	22	26	30
DTR	1	5	9	13
RI	16	20	24	28



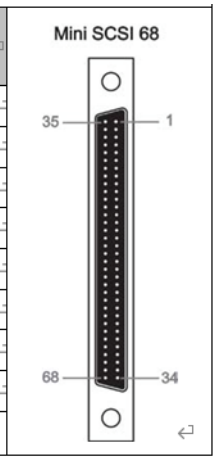
SUNIX 8 ports RS-232 DB62 Female Pin Assignment

Signal \ Port	1	2	3	4	5	6	7	8
DCD	24	45	8	50	11	55	58	21
RxD	44	47	49	52	54	57	60	62
TxD	23	26	28	31	34	36	39	41
DTR	2	5	7	10	13	15	18	20
DSR	1	4	6	9	12	14	17	19
RTS	22	25	27	30	33	35	38	40
CTS	43	46	48	51	53	56	59	61
GND	GND	GND	GND	GND	GND	GND	GND	GND



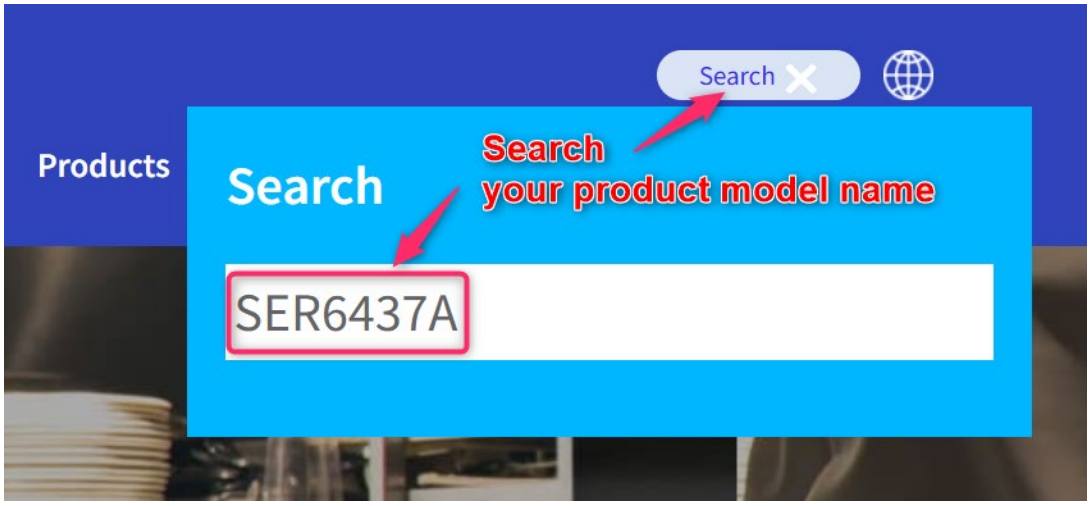
SUNIX 8 ports RS-232 DB68 Female Pin Assignment

Signal \ Port	1	2	3	4	5	6	7	8
TxD	6	15	24	33	63	54	45	36
RxD	3	12	21	30	66	57	48	39
RTS	7	16	25	34	62	53	44	35
CTS	4	13	22	31	65	56	47	38
DSR	2	11	20	29	67	58	49	40
GND	8	9	26	27	61	60	43	42
DCD	1	10	19	28	68	59	50	41
DTR	5	14	23	32	64	55	46	37
RI	-	-	-	-	-	-	-	-



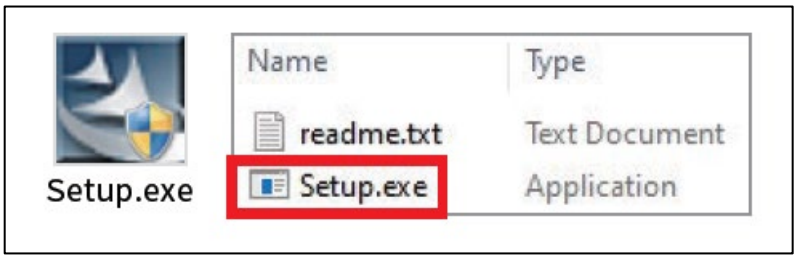
3. Driver Installation

(1) You can download the latest driver from SUNIX official website (http://www.sunix.com)



(2) Please execute Setup.exe to install driver. Driver InstallShield Wizard will show up and please wait for driver install procedure running.

Please plug the board in an available I/O slot first, before installing the driver.
Unzip the software file and run setup.exe under Windows operating system.

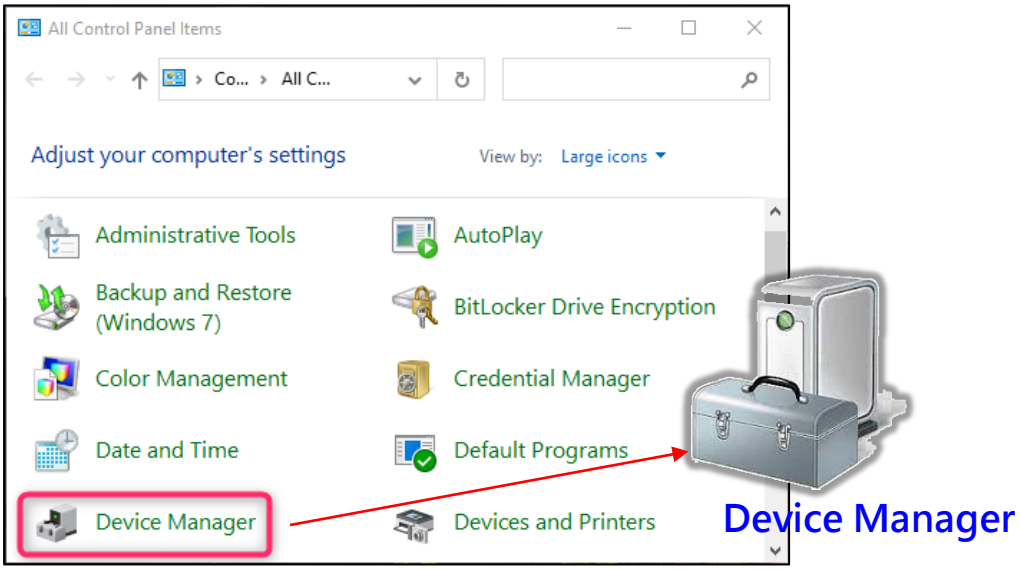


4. Hardware Verification

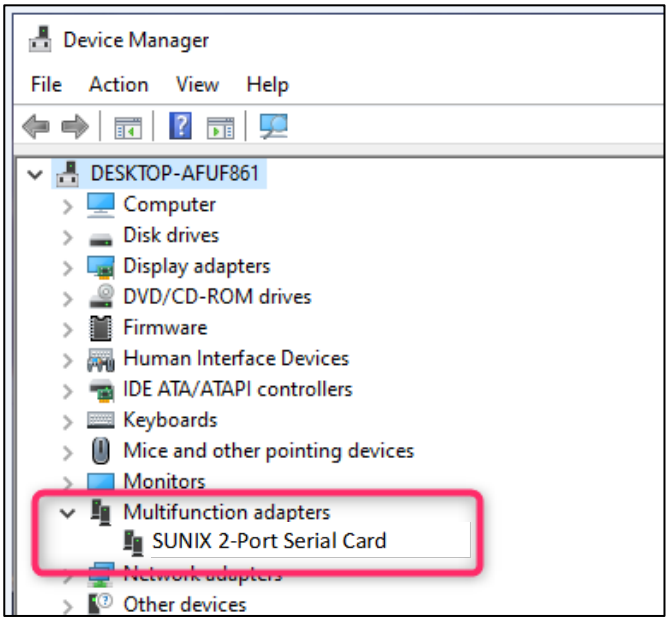
You can use Windows “**Device Manager**” to verify proper installation.

(1) Select Device Manager in the in the Windows Control Panel.

Controller Panel > All Control Panel Items > Device Manager



(2) In the Device Manager window, you would read **SUNIX PCI Express Industrial I/O Control Board** under **Multifunction adapters** catalog

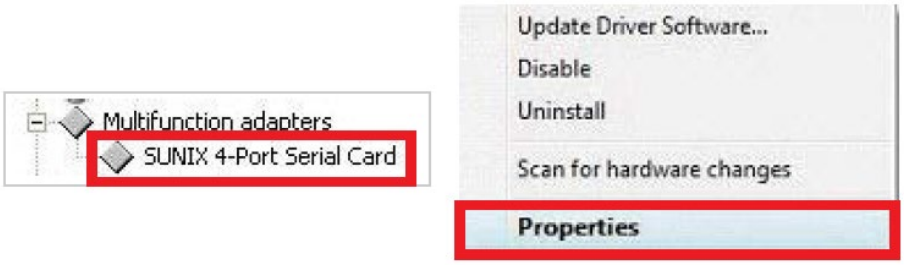


5. Port Configuration

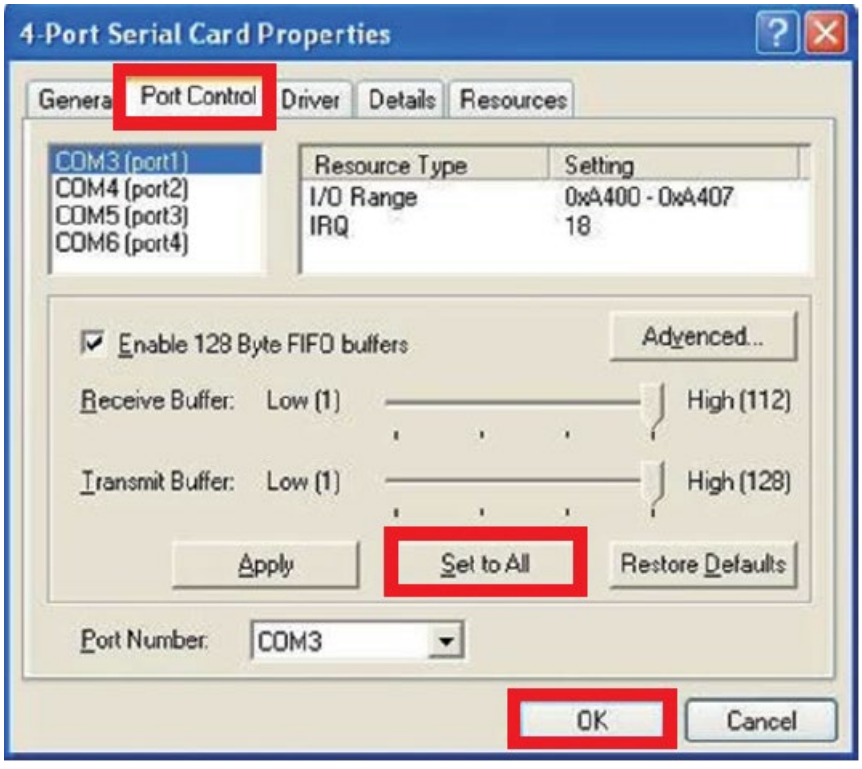
5-1 Configure Serial Port Settings

After the board and serial port drivers are installed, please refer to following instructions to configure Serial COM settings.

(1) Please launch the “Device Manager”.
(2) Right click the “SUNIX Serial Card” item from the “Multifunction adapters” sub-tree and click “Properties”.

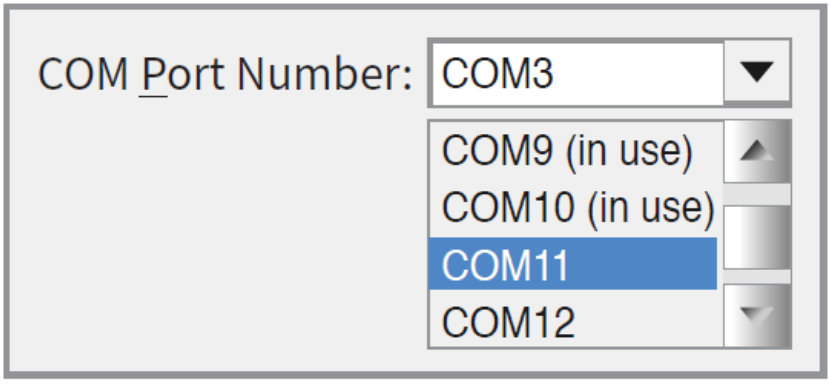


(3) On the “Port Control” tab, select a port to configure.
* Click “OK” to approve the settings for the selected port.
* Click “Set to All” to approve the settings for all COM ports.



5-2 COM Port Number Settings

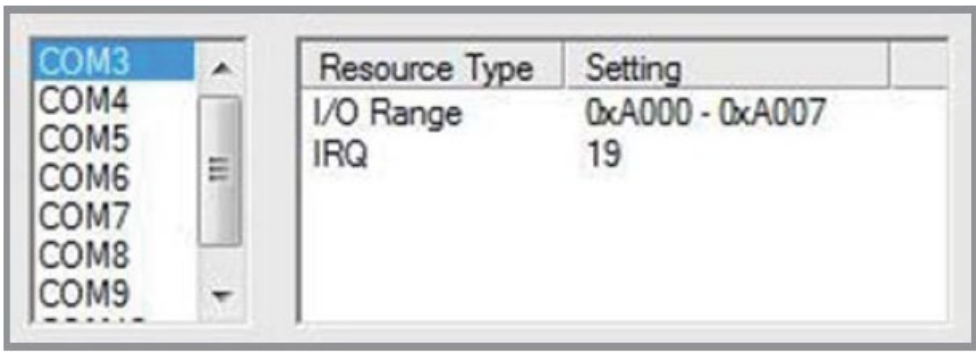
Under Port Number, select a COM number to assign to the serial port.
Click “OK” to approve the settings for the selected port.



Note: In order to prevent system resource conflict, do not select **“in use”** port.

5-3 COM I/O Resource

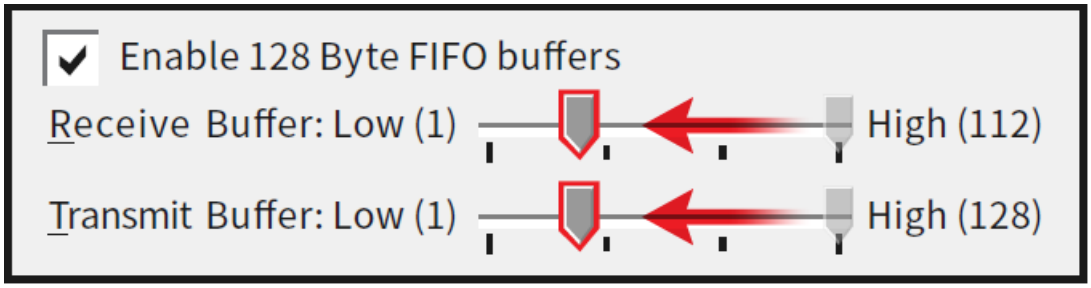
User can read the COM “IO Range” and “IRQ” located in system by selecting COM port.



IRQ and I/O address is automatically assigned by the mainboard PCI (PCI Express) BIOS automatically (before COM card driver installing). User can NOT assign legacy ISA address (3F8, 3E8, 2F8, 2E8) for the specific COM port. But for IRQ setting, user can set specific IRQ value for this PCI Express bus slot via mainboard’s BIOS settings (not via SUNIX driver). But all COM ports will share one IRQ value.

5-4 FIFO Settings

Select an Rx FIFO Trigger and Tx FIFO Size.
The default Rx FIFO Trigger is 112 bytes. The default Tx FIFO Size is 128 bytes. Click “Set to All” to change this setting for all serial ports on the board. Then click “OK” to save the settings.



Receive FIFO interrupt trigger level：
When the level of data in the receiver FIFO reaches this value, a receiver data interrupt is triggered.

Transmit FIFO interrupt trigger level：
When the level of data in the transmit FIFO falls below this value, a transmitter interrupt is triggered. Setting this value to zero will not trigger an interrupt until the transmitter is completely idle.

The FIFO trigger levels can be fine tuned to gain optimum performance, depending on system performance, baud ra te used, levels of serial traffic etc.

6. Troubleshooting

Q 1. System fails to find the Industrial I/O Control Board.

Ans: It may cause by following issue:

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

b. Please clean the golden finger.

c. The M.2 slot is defective. Please try other slots until you find one that works.

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

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

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

Ans: It may cause by following issue:

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

b. Please check driver update from your vendor.