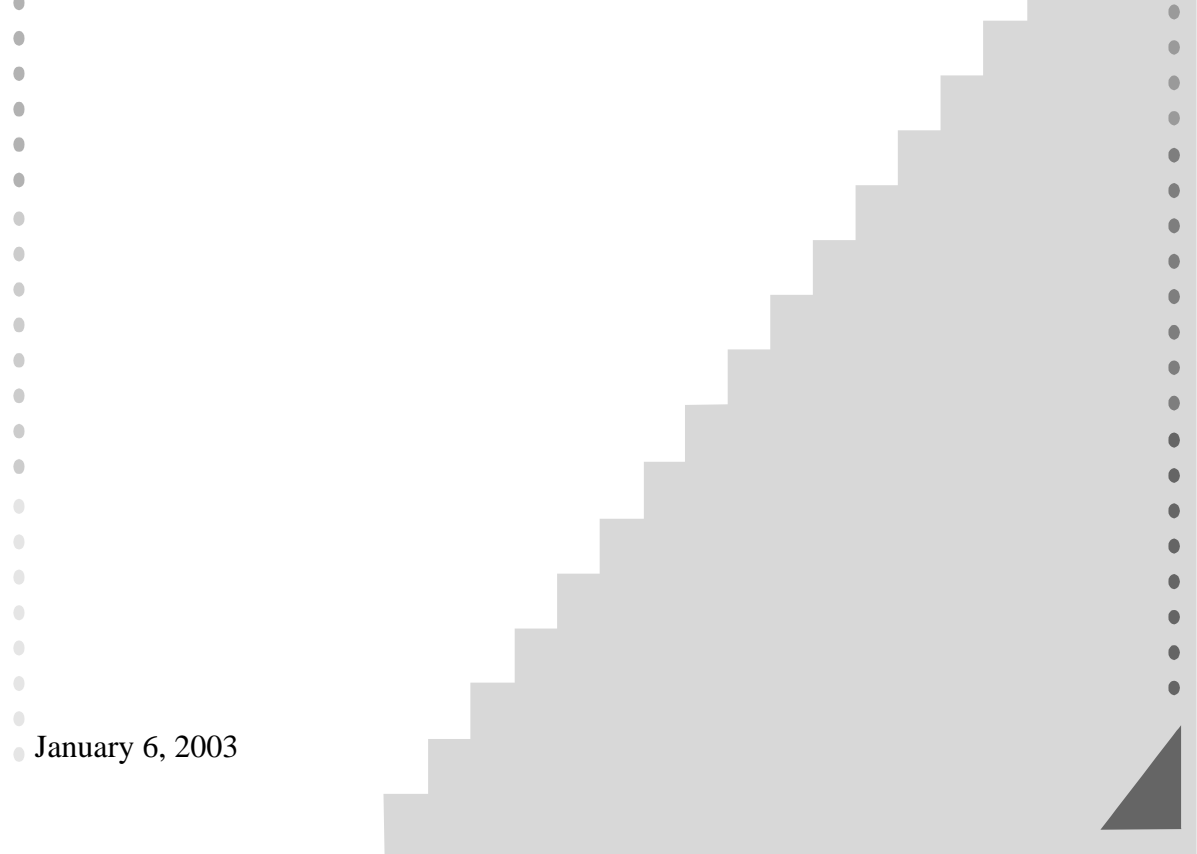# PCI 32 BIT
Multi I/O Cards
Linux Kernel 2.4
Installation Guide

January 6, 2003

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◆ *Installation Guide for PCI Serial Ports*

This installation guide describes the procedure required to install PCI serial ports on Linux platforms.

[Linux Platform]

● Operating System   : RedHat V8.0 (Kernel 2.4.18)

[Installation Steps]

Plug in the PCI card and start the system. While booting, kudzu (RedHat's hardware detection and configuration tool) will show up a dialog to configure the new hardware found. Please ignore the dialog. The additional serial ports will be detected and configured automatically by the Linux system. You don't have to configure anything manually or even add device nodes.

After the boot process is finished, login to the system and check the status of the PCI card:

 # lspci –v

…

```
00:0a.0 Serial controller: Timedia Technology Co Ltd PCI2S550 (Dual 16550 UART)
^^^^^
(rev 01) (prog-if 02 [16550])
      Subsystem: Timedia Technology Co Ltd: Unknown device 4037
      Flags: stepping, medium devsel, IRQ 9
                              ^^^^
      I/O ports at d400 [size=32]
            ^^^^
```

…

Note: ^^ means the output produced on your machine could be different from the example given above.

If the output contains something like the above your PCI card was correctly detected by the system.

Show a list of the available serial ports:

```
# more /proc/tty/driver/serial

serinfo:1.0 driver:5.05c revision:2001-07-08

0: uart:16550A port:3F8 irq:4 baud:9600 tx:33 rx:0

1: uart:16550A port:2F8 irq:3 baud:9600 tx:33 rx:0

4: uart:16550A port:D400 irq:9 tx:0 rx:0

5: uart:16550A port:D408 irq:9 tx:0 rx:0
```

ttyS0 and ttyS1 are the mother board's built-in 16550 controllers. ttyS2 and ttyS3 are reserved. ttyS4 and ttyS5 are the serial ports on the PCI card (this can vary depending on the number of ports your card provides).

The serial ports on the PCI card are now ready to use.

◆ *Installation Guide for PCI Parallel Ports*

This installation guide describes the procedure required to install PCI parallel ports on Linux platforms.

[Linux Platform]

- Operation System: RedHat V8.0 (Kernel 2.4.18)

[Installation steps]

Plug in the PCI card and start the system. While booting, kudzu (RedHat's hardware detection and configuration tool) asks you to configure new devices connected to your parallel port. Please ignore this. You can run kudzu later to configure your devices.

Check which modules are loaded:

```
# lsmod
Module             Size    Used by           Not tainted
…
parport_pc         19108    2  (autoclean)
lp                  8996    0  (autoclean)
parport            37152    2  (autoclean) [parport_pc lp]
…
```

The modules "parport.o", "parport_pc.o" and "lp.o" are needed for parallel port support. They should be loaded automatically by the system.
If this is not the case type

```
# modprobe lp
```

to load the modules. If modprobe cannot resolve the module dependencies automatically then you can try to load the modules manually:

```
# find /lib –name parport.o
/lib/modules/2.4.18-14/kernel/drivers/parport/parport.o
# insmod /lib/modules/2.4.18-14/kernel/drivers/parport/parport.o
# find /lib –name parport_pc.o
/lib/modules/2.4.18-14/kernel/drivers/parport/parport_pc.o
```

```
# insmod /lib/modules/2.4.18-14/kernel/drivers/parport/parport_pc.o
# find /lib -name lp.o
/lib/modules/2.4.18-14/kernel/drivers/char/lp.o
# insmod /lib/modules/2.4.18-14/kernel/drivers/char/lp.o
```

If you watch the logfile /var/log/messages (e.g. by running the command `tail -f /var/log/messages`) while loading the modules you should see something like this:

(with no devices connected)
localhost kernel: parport0: PC-style at 0x378 (0x778) [PCSPP,TRISTATE]
localhost kernel: parport_pc: Via 686A parallel port: io=0x378
localhost kernel: PCI: Found IRQ 9 for device 00:09.0
localhost kernel: PCI: Sharing IRQ 9 with 00:0d.0
localhost kernel: parport1: PC-style at 0xd400 (0xd000) [PCSPP,TRISTATE]
localhost kernel: lp0: using parport0 (polling).
localhost kernel: lp0: console ready
localhost kernel: lp1: using parport1 (polling).

(with a printer connected to the second parallel port)
localhost kernel: parport0: PC-style at 0x378 (0x778) [PCSPP,TRISTATE]
localhost kernel: parport_pc: Via 686A parallel port: io=0x378
localhost kernel: PCI: Found IRQ 9 for device 00:09.0
localhost kernel: PCI: Sharing IRQ 9 with 00:0d.0
localhost kernel: parport1: PC-style at 0xd400 (0xd000) [PCSPP,TRISTATE]
localhost kernel: parport1: Printer, HEWLETT-PACKARD DESKJET 840C
localhost kernel: lp0: using parport0 (polling).
localhost kernel: lp0: console ready
localhost kernel: lp1: using parport1 (polling).

The parallel ports on the PCI card are now ready to use.