

Installing a Parallel Port in Linux

(A) GETTING THE RESOURCES FOR THE PARALLEL CARD

For ISA Card

If you are installing an ISA card the resource assignments are configured by the jumpers. Consult the documentation for that card to obtain the resource assignments associated with the jumper settings.

For PCI Card

Linux can report the resource assignments of PCI cards. To obtain this information type in the following command.

```
lspci -v
```

The output will list all the resources being used by all the PCI devices on the system.

The following are examples of a possible output for the lava Parallel PCI cards.

Lava Parallel PCI

00:0a.0 Parallel controller: Lava Computer mfg Inc Lava Parallel (prog-if 01 [BiDir])

**Flags: slow devsel, IRQ 12
I/O ports at 6100**

Lava Dual Parallel PCI port A

00:0b.0 Parallel controller: Lava Computer mfg Inc Lava Dual Parallel port A (prog-if 01 [BiDir])

**Flags: slow devsel, IRQ 12
I/O ports at 6400**

Lava Dual Parallel PCI port B

00:0b.1 Parallel controller: Lava Computer mfg Inc Lava Dual Parallel port B (prog-if 01 [BiDir])

**Flags: slow devsel, IRQ 12
I/O ports at 6500**

On this system there is a single Lava parallel PCI at port address 0x6100 and IRQ 12, and a Lava Dual Parallel PCI port A at port address 0x6400 and IRQ 12 and port B at port address 0x6500 and IRQ 12. The '0x' signifies that this port address is in hexadecimal.

(B) CONFIGURING THE RESOURCES FOR THE LPs

Linux holds the resource assignments of the parallel ports in the system. These resource assignments are in ‘**/etc/conf.modules**’ file as well as resource assignments of other cards such as network cards.

The following is an example of the parallel port assignments in that file.

```
alias parport_lowlevel parport_pc  
options parport_pc io=0x378 irq=7
```

io=0x378 is the I/O assignment of the first (onboard) parallel port, and **irq=7** is the IRQ assignments of the first parallel port.

Initially, the Lava resource assignments will not be in this file. It is necessary to manually edit this file to add the resource assignments obtained from step (A) above.

The following is an example the dual parallel PCI’s resource assignments added to this file.

```
alias parport_lowlevel parport_pc  
options parport_pc io=0x378,0x6400,0x6500 irq=7,auto,auto
```

io=0x378,0x6400,0x6500 are the IO assignments of the first, second and third parallel port respectively. These IO assignments are obtained from step (A) above.

The second and third parallel port being the Port A and B of the dual parallel PCI respectively.

irq=7,auto,auto are the IRQ assignments of the first, second and third parallel port respectively. These IRQ assignments are obtained from step (A) above. The second and third parallel port being the Port A and B of the dual parallel PCI respectively or auto can be used instead.

At this point the parallel ports are enabled and are ready to be used. Linux already has support for lp0 lp1 and lp2, below is the procedure for adding the 4th + parallel port in Linux.

1) Creating the **lp3** (lpt4) device in **/dev**: `./mknod -m 666 /dev/lp3 c 6 3`

-m = mode

666 gives read and write permission for every one

/dev/lp3 is the 4th lpt

c = character device

6 = Major; I think it stands for what kind of device it is.

3 = Minor; which is the lp #, so if lp3 is needed then this is 3, for lp4 this is 4 etc.

2) Changing it to Daemon type `chgrp daemon /dev/lp3`

This enables this device we added as a daemon, which is a program that runs in the background to perform critical system tasks. In our case parallel port functions.

3) Repeat these steps (1,2) for each parallel that needs to be added incrementing the lp and the Minor as each port is added.

4) Add the IO port assignments and IRQs to Linux as instructed in step (A) above.

5) Now that there is a 4th lpt, the IO port assignments and IRQs can be added to the `/etc/conf.modules`:

```
alias parport_lowlevel parport_pc
```

```
options parport_pc io=0x378,0x6400,0x6500,0x6100 irq=7,auto,auto, auto
```

^^^^^^

^^^^

(**0x6100** is the I/O for the single Lava Parallel, and irq set to **auto**)

The parallel ports are now enabled and are ready to be used.