List of Slides

– General Linux 1 –

Configure Fundamental BIOS Settings

[3]

(Linux Professional Institute Certification)

a


```
   .~.
   /V\      by: geoffrey robertson
  // \\          geoffrey@zip.com.au
  @._.@
```



```
$Id: gl2.101.1.slides.tex,v 1.2 2003/08/29 14:36:14 waratah Exp $
```

Configure BIOS Fundamental Settings [3]

(1.1) 101 Hardware & Architecture [11]

2.101.1 **Configure BIOS Fundamental Settings [3]**

2.101.2 Setup SCSI devices [2]

2.101.3 Setup different PC expansion cards [2]

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Configure BIOS Fundamental Settings [3]

Objective

Candidates should be able to configure fundamental system hardware by making the correct settings in the system BIOS. This objective includes a proper understanding of BIOS configuration issues such as the use of LBA on IDE hard disks larger than 1024 cylinders, enabling or disabling integrated peripherals, as well as configuring systems with (or without) external peripherals such as keyboards. It also includes the correct setting for IRQ, DMA and I/O addresses for all BIOS administrated ports and settings for error handling.

Configure Fundamental BIOS Settings [3]

Key files, terms, and utilities

```
/proc/ioports
/proc/interrupts
/proc/dma
/proc/pci
```

Configure Fundamental BIOS Settings [3]

Resources of interest

Large Disk HOWTO by Andries Brouwer

`http://www.linuxdoc.org/HOWTO/Large-Disk-HOWTO.html`

The PC Firmware—BIOS

Responsible for bring the hardware to a state at which it is ready to boot an Operating System.

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- Locating an operating system
- The BIOS may have password access enabled

The PC Firmware—BIOS

Accessing BIOS Setup

The various vendors have different ways of entering the BIOS menu system

- Del
- F2
- Fn Setup
- Special Boot Floppy
-

The PC Firmware—BIOS

Boot devices

- Floppy
- CDROM / DVD
- IDE Disk
- SCSI Disk
- Network
- Zip / Jazz
- USB Disk

The PC Firmware—BIOS

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- PCI devices may share a common interrupt

The PC Firmware—BIOS

Common Device Settings

Device	I/O Address	IRQ	DMA
ttyS0	3F8	4	NA
ttyS1	2F8	3	NA
ttyS2	3E8	4	NA
ttyS3	2E8	3	NA
lp0	378-37F	7	NA
lp1	278-27F	5	NA
fd0, fd1	3F0-3F7	6	2
fd2, fd3	370-377	10	3

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- Older versions of LILO must have `/boot` (the kernel) entirely below cylinder 1024
- The Grub bootloader does not have these restrictions

Viewing /proc/*

/proc/dma

```
$ cat /proc/dma ↩
4: cascade
```

/proc/interrupts

```
$ cat /proc/interrupts ↩
           CPU0
  0:    2623139          XT-PIC  timer
  1:      11619          XT-PIC  keyboard
  2:          0          XT-PIC  cascade
  5:      73992          XT-PIC  Maestro3(i)
  8:          1          XT-PIC  rtc
 11:        308          XT-PIC  usb-uhci,
Texas Instruments PCI4451 PC card Cardbus Controller,
Texas Instruments PCI4451 PC card Cardbus Controller, eth0
 12:     926438          XT-PIC  PS/2 Mouse
 14:     504452          XT-PIC  ide0
NMI:          0
ERR:          0
```

/proc/ioports

```
$ cat /proc/ioports ↩
 0000-001f : dma1
0020-003f : pic1
0040-005f : timer
0060-006f : keyboard
0070-007f : rtc
0080-008f : dma page reg
00a0-00bf : pic2
00c0-00df : dma2
00f0-00ff : fpu
01f0-01f7 : ide0
02f8-02ff : serial(auto)
0378-037a : parport0
03c0-03df : vga+
```

/proc/pci

```
$ cat /proc/pci ↩
PCI devices found:
  Bus  0, device   0, function  0:
    Host bridge: Intel Corp. 82815 815 Chipset Host Bridge
                             and Memory Controller Hub (rev 2).
    Prefetchable 32 bit memory at 0xe4000000 [0xe7ffffff].
  Bus  0, device   1, function  0:
    PCI bridge: PCI device 8086:1131 (Intel Corp.) (rev 2).
      Master Capable.  Latency=32.  Min Gnt=12.
  Bus  0, device  30, function  0:
    PCI bridge: Intel Corp. 82820 820 (Camino 2) Chipset
                                          PCI (-M) (rev 3).
      Master Capable.  No bursts.  Min Gnt=6.
```

The End