PC Specialist's Handbook

SCENIC

xDp
xSp

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FUJITSU COMPUTERS SIEMENS

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LITHIUM BATTERY

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer's instructions. Dispose of used batteries according to the manufacturer´s instructions.

Eksplosionsfare ved fejlaktig håndtering. Udskiftning måkun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage til leverandøren.

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Eksplosionsfare. Ved udskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparat leverandøren.

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danger d'explosion en cas de remplacement incorrect de la batterie. Remplacer uniquement avec une batterie de même type ou d'un type recommendé par le constructeur. Jeter les batteries usagées conformément aux instructions du fabricant. Explosionsgefahr bei unsachgemässigem Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

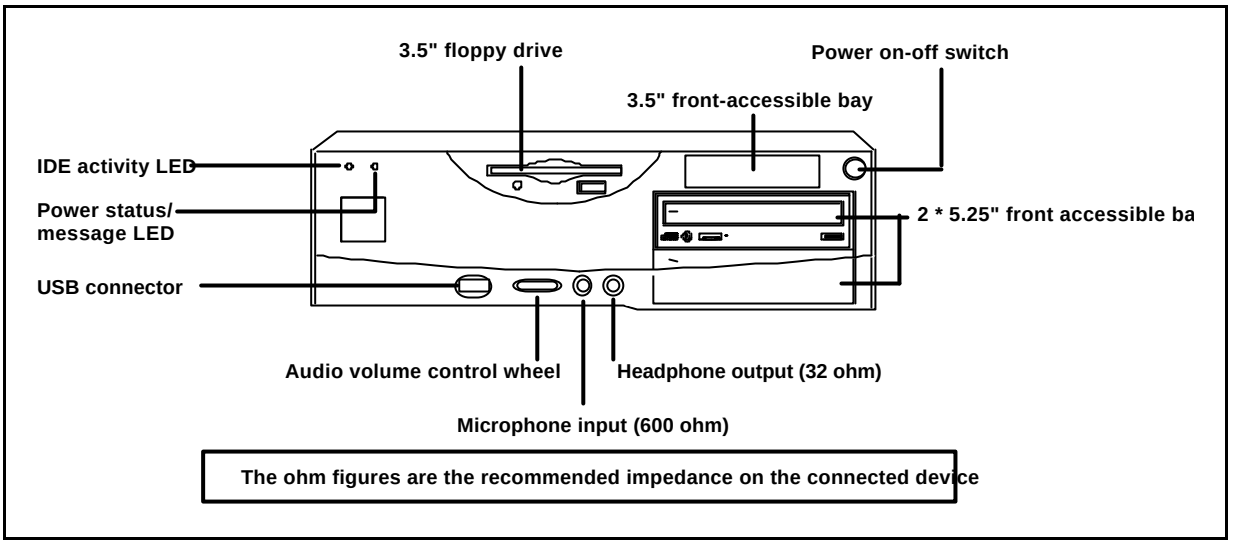
Section 1 :

Disassembling the system units

xD, xDi, xDp, xS, xSi and xSp models

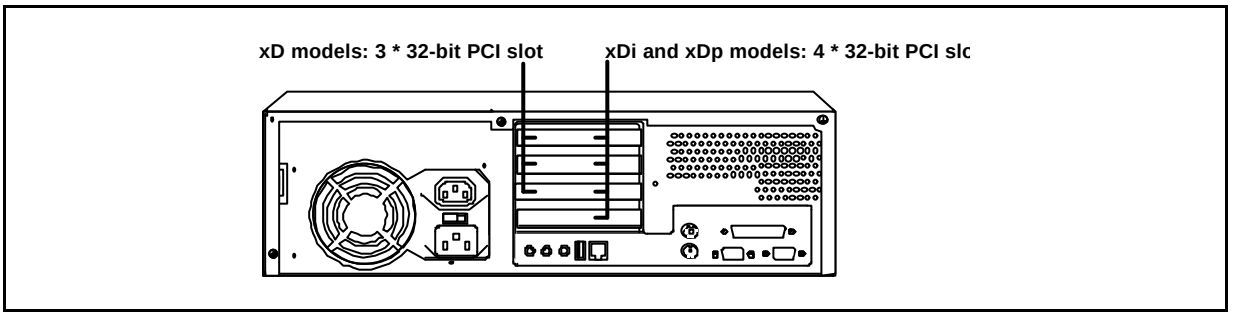
System unit xD, xDi and xDp models

Front panel



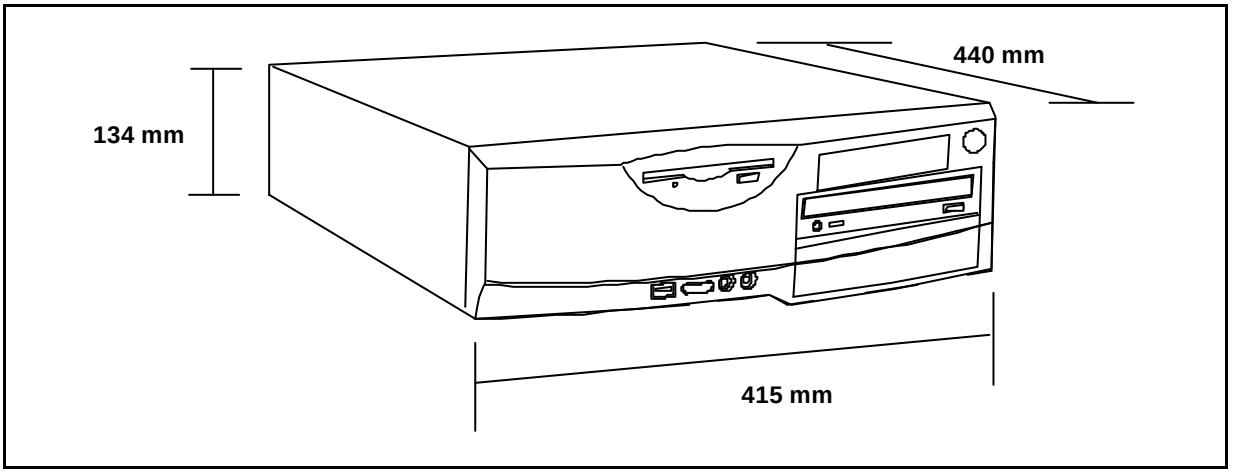
Picture 1 : Front panel of the xD, xDi and xDp models

Rear panel



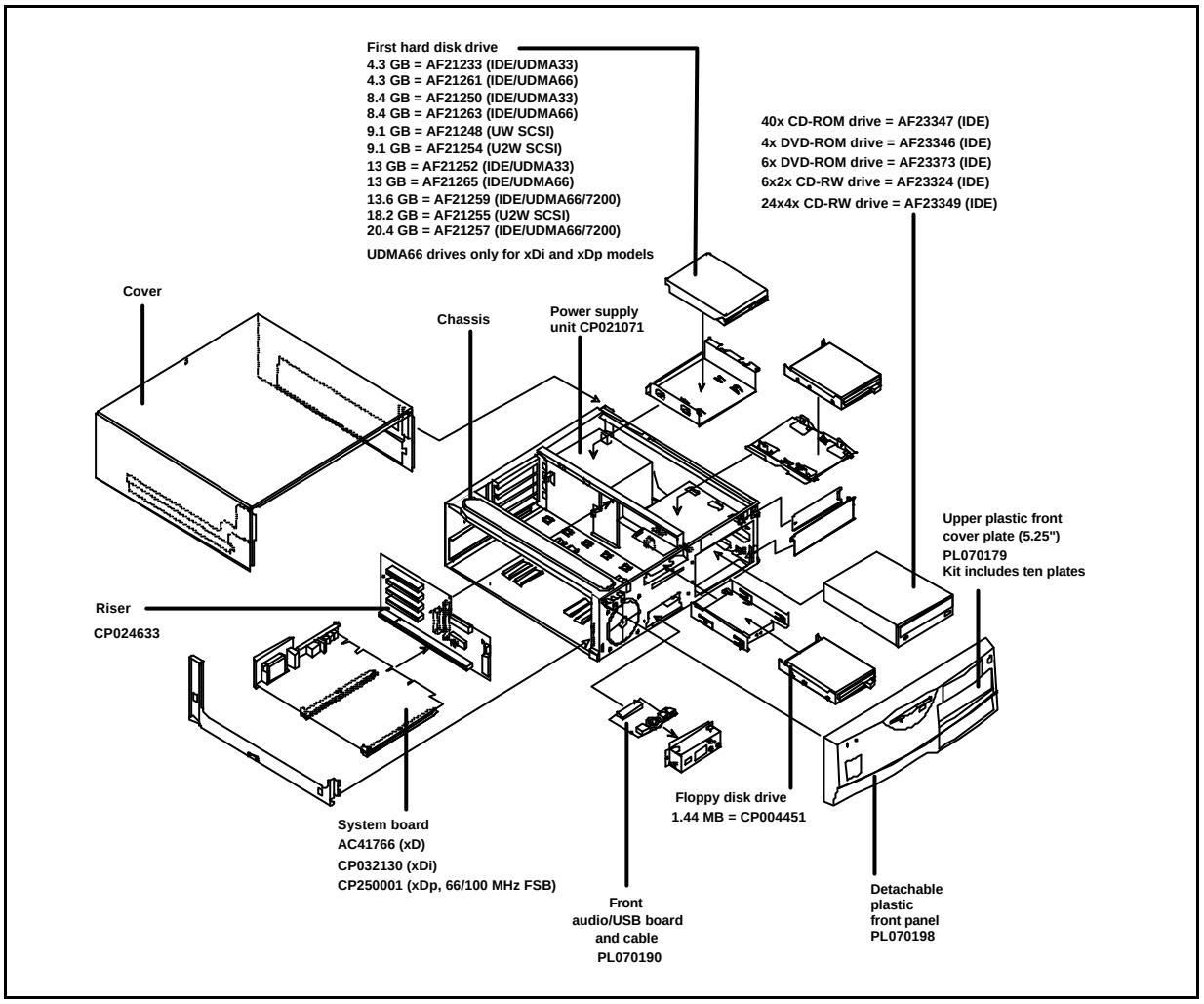
Picture 2: Rear panel of the xD, xDi and xDp models

Dimensions



Picture 3: Dimensions of the xD, xDi and xDp models

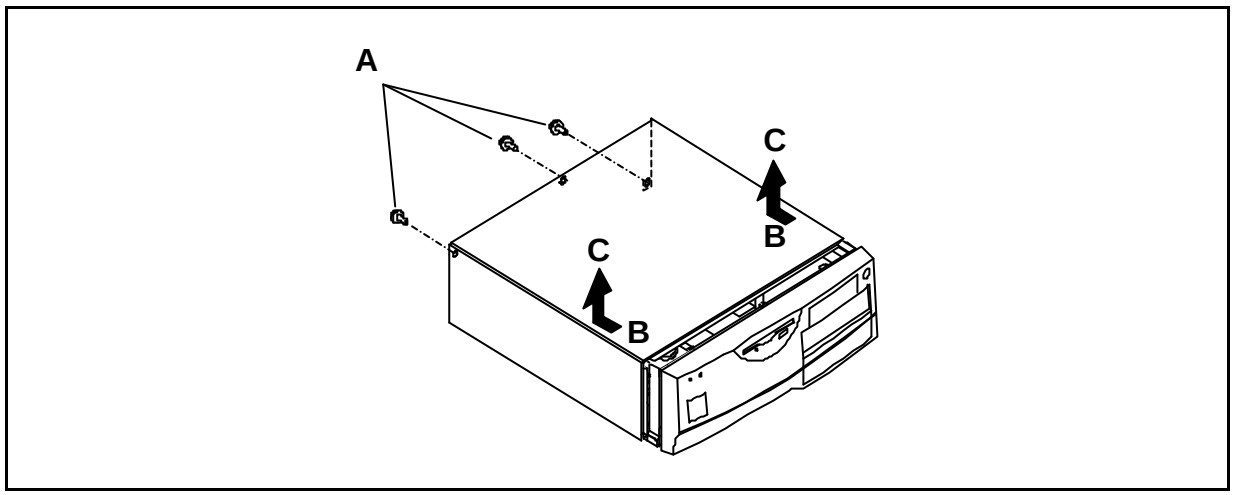
Main components



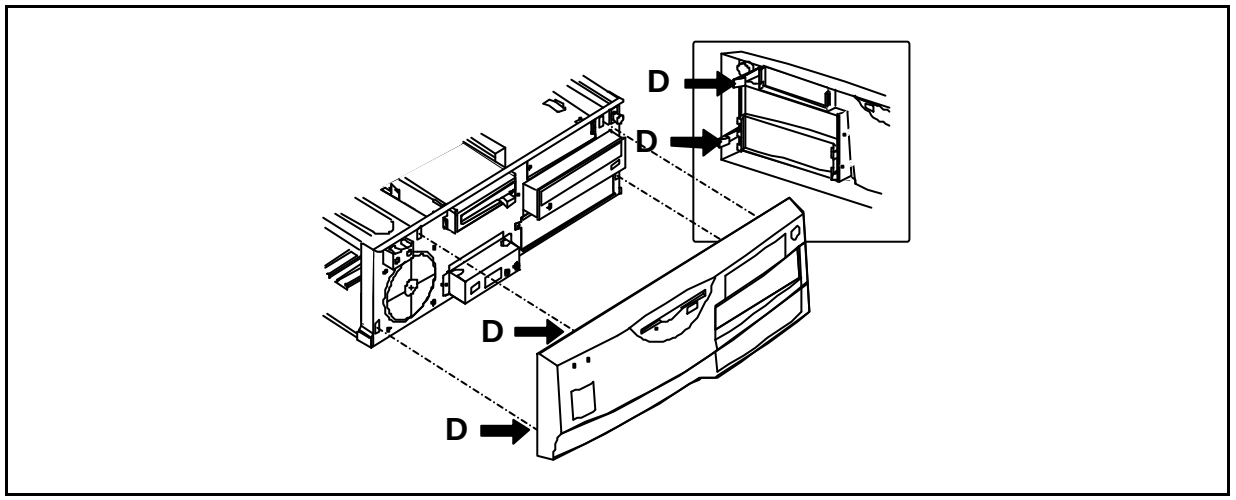
Picture 7: Main componets of the xD, xDi and xDp models

Opening the system unit cover

1. Turn off the display unit, system unit (after shutting down the operating system properly), and all other attached separately powered peripherals.
2. Unplug the power cables of the system unit and other attached cables from their outlets.
3. Push the power button once to make sure that the power supply is completely discharged.
4. If there is a security lock or an antitheft cable, unlock the computer chassis.
5. Remove the three screws (A) at the back of the computer.
6. Slide the cover about 10 mm (B) towards the rear panel of the system unit, and then lift it straight up (C).

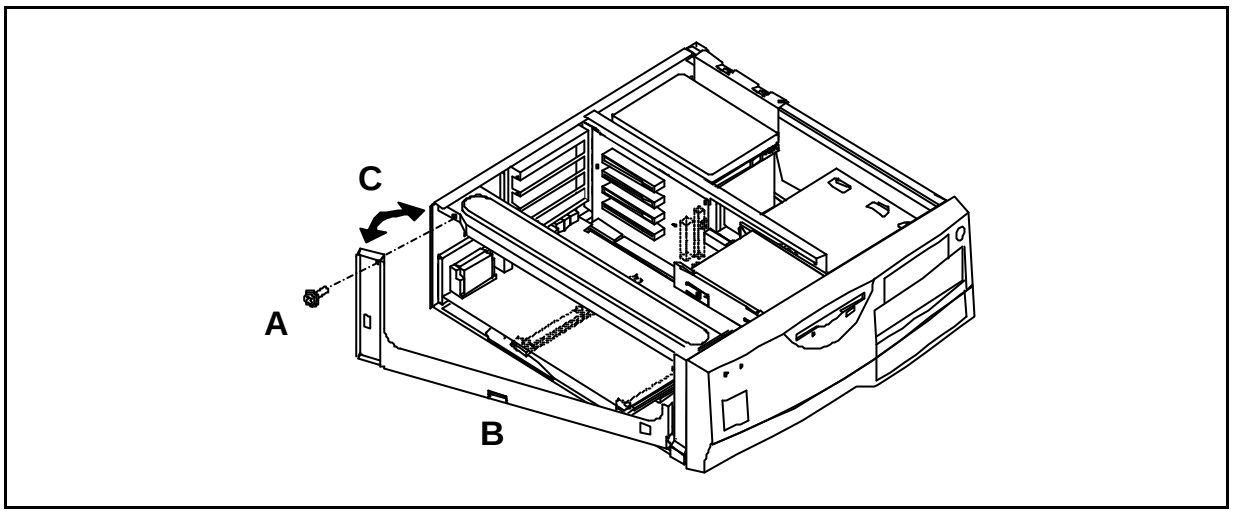


7. To remove the plastic front panel, locate the plastic hooks (D) securing the front panel in its place.

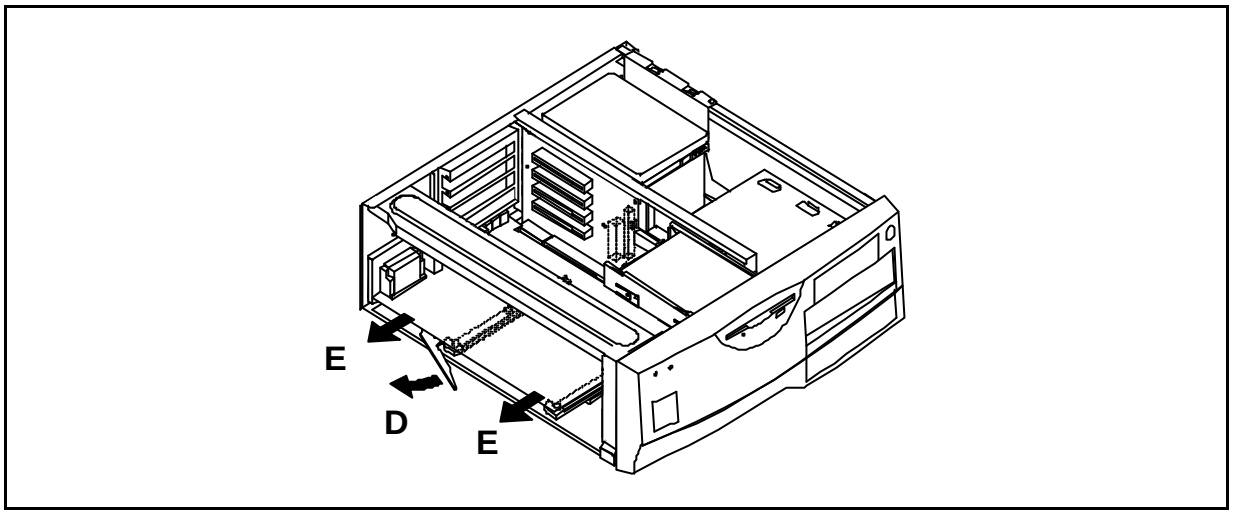


Removing the system board

1. Remove the screw (A) securing the detachable metal side bar (B). Pull (C) the bar carefully out of the chassis.

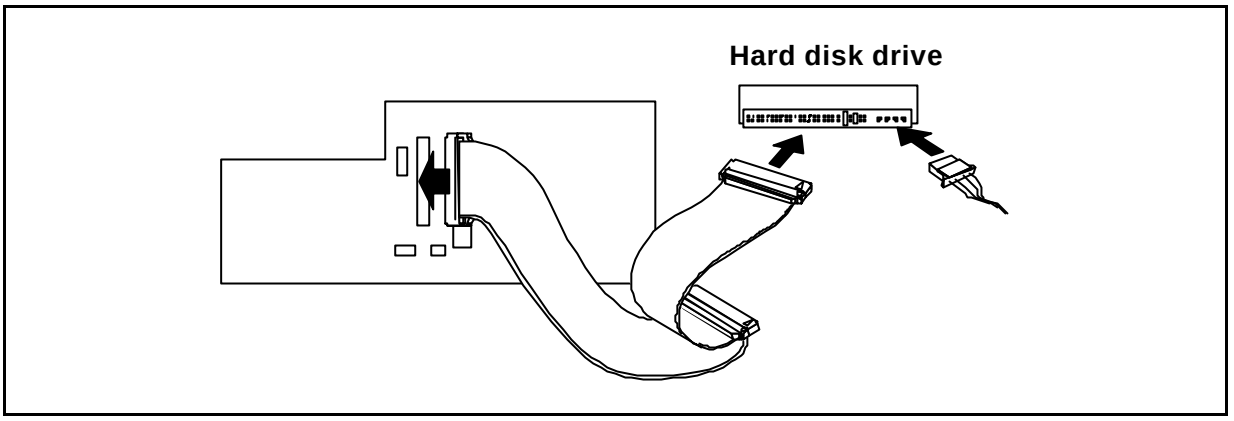


2. Locate the lever (D) underneath the system board and pull (E) the lever towards yourself to release the board, and slide the system board out of the chassis.

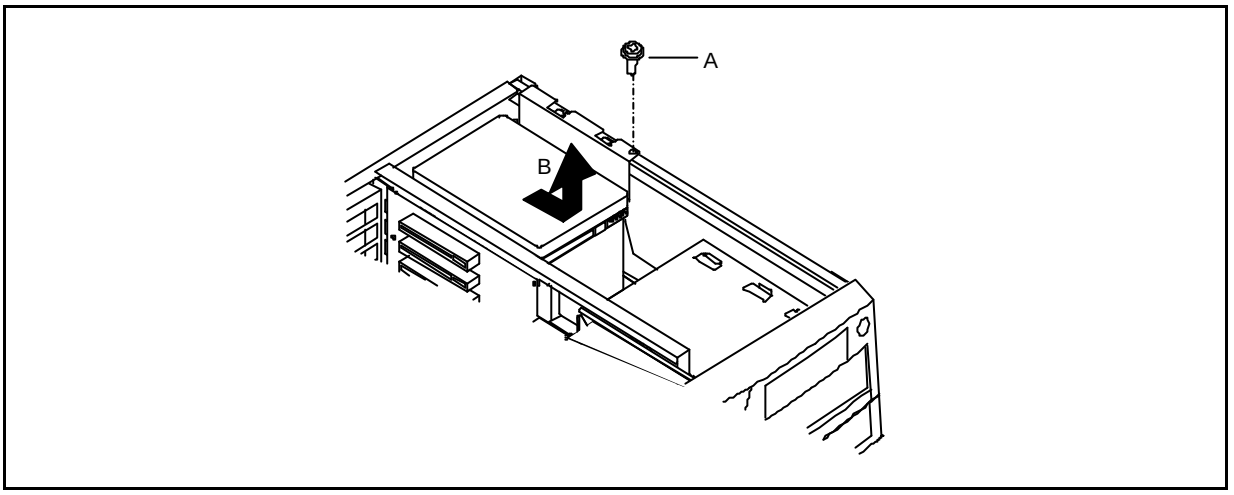


Removing the disk drive

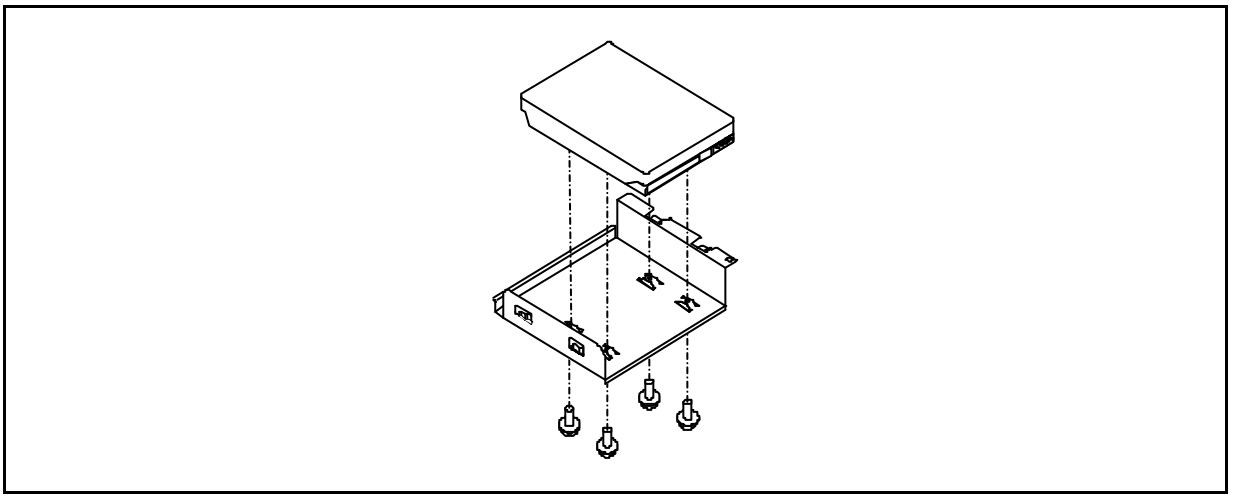
1. Disconnect all cables connected to the drive.



2. The hard disk drive is fastened into a removable hard disk drive carriage frame. Remove the screw (A) securing the carriage frame and lift (B) the frame out.

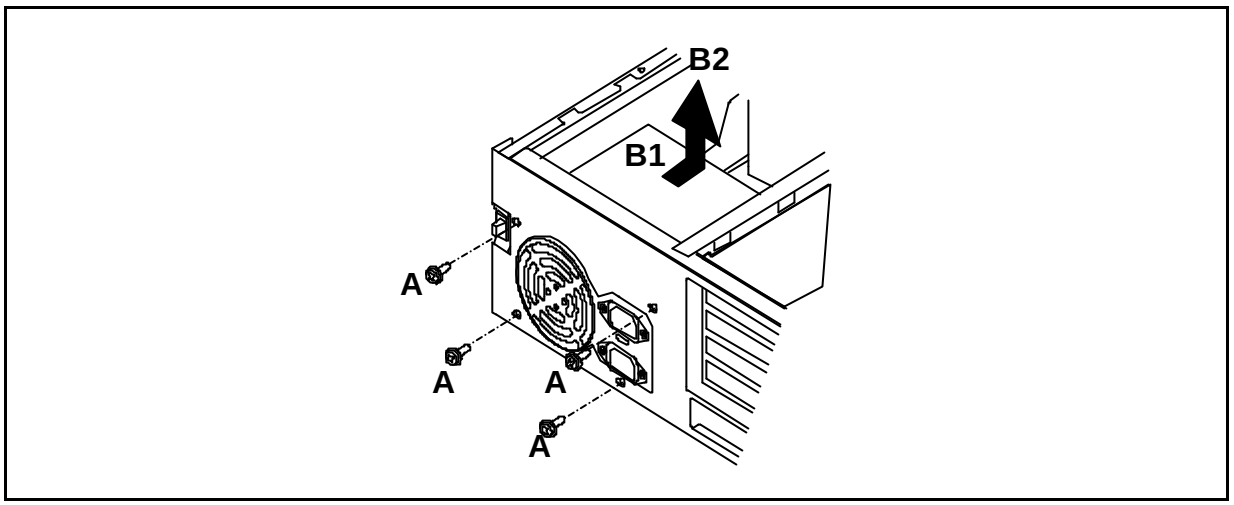


3. The hard disk drive is fastened to the carriage frame with four screws. Remove the screws and detach the drive from the carriage frame.



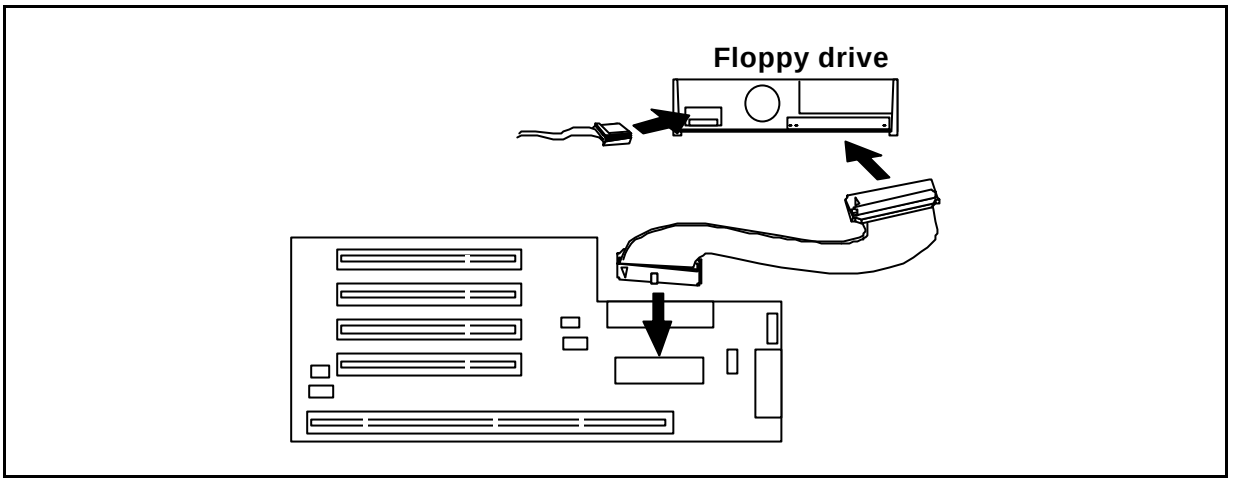
Removing the power supply unit

1. Disconnect all power supply cables.
2. Remove the four screws (A) securing the power supply in its place.
3. Slide (B1) the power supply towards the front panel and lift (B2) the power supply out.

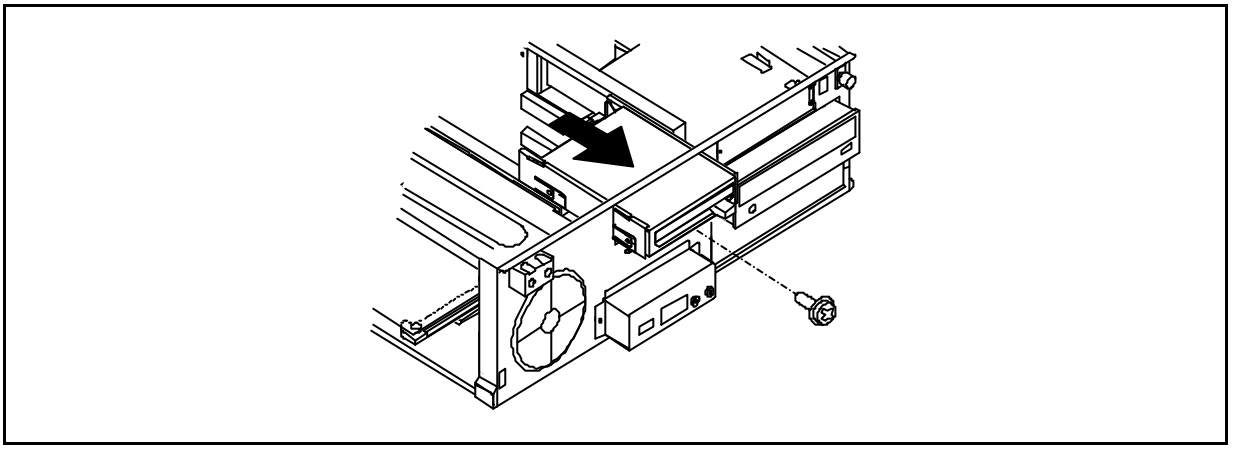


Removing the diskette drive

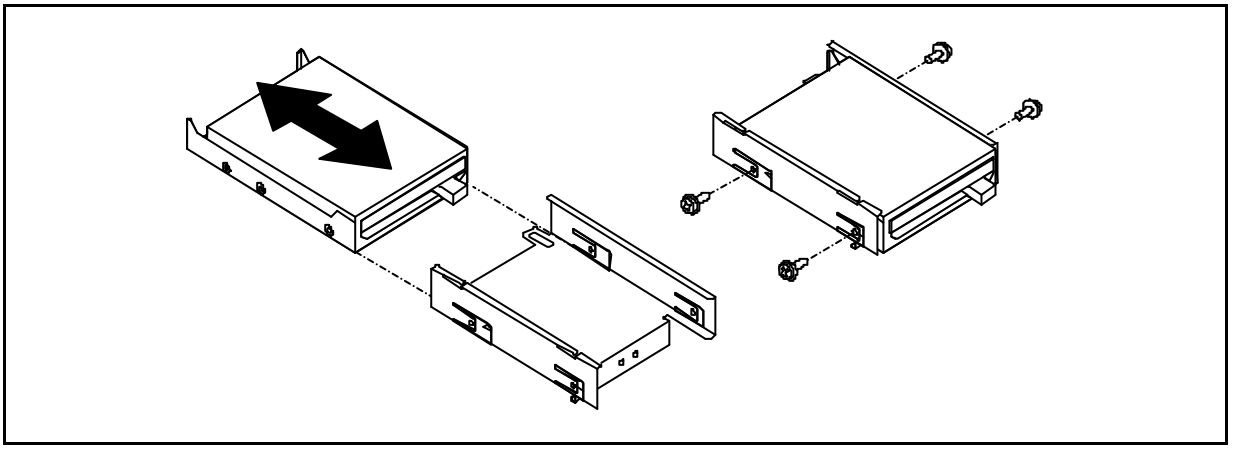
1. Disconnect all cables connected to the diskette drive.



2. The diskette drive is fastened into a removable diskette drive carriage frame. Remove the screw (A) securing the carriage frame and pull the frame out.

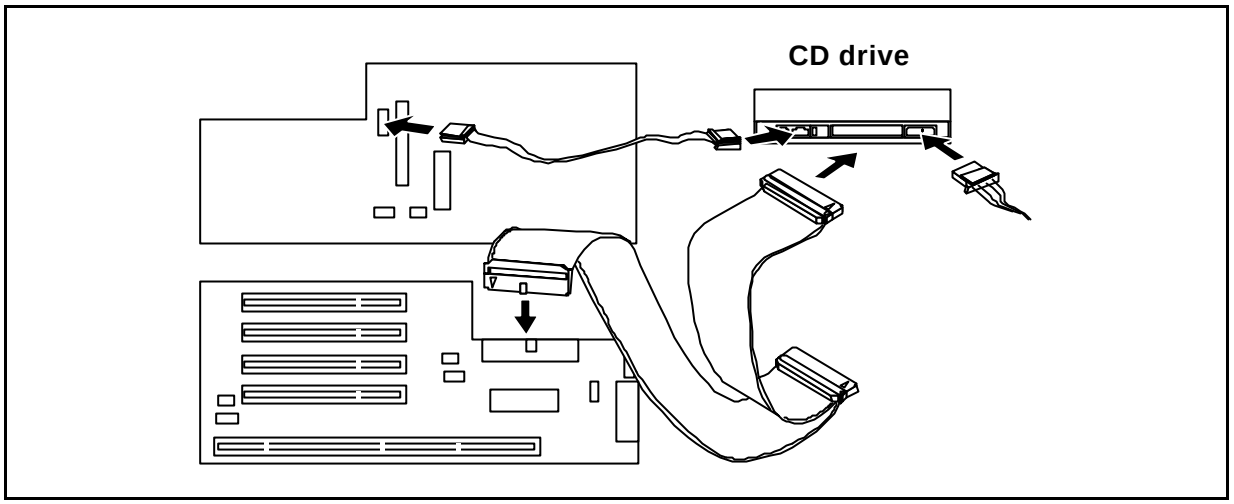


3. The diskette drive is fastened to the carriage frame with four screws. Remove the screws and detach the drive from the carriage frame.

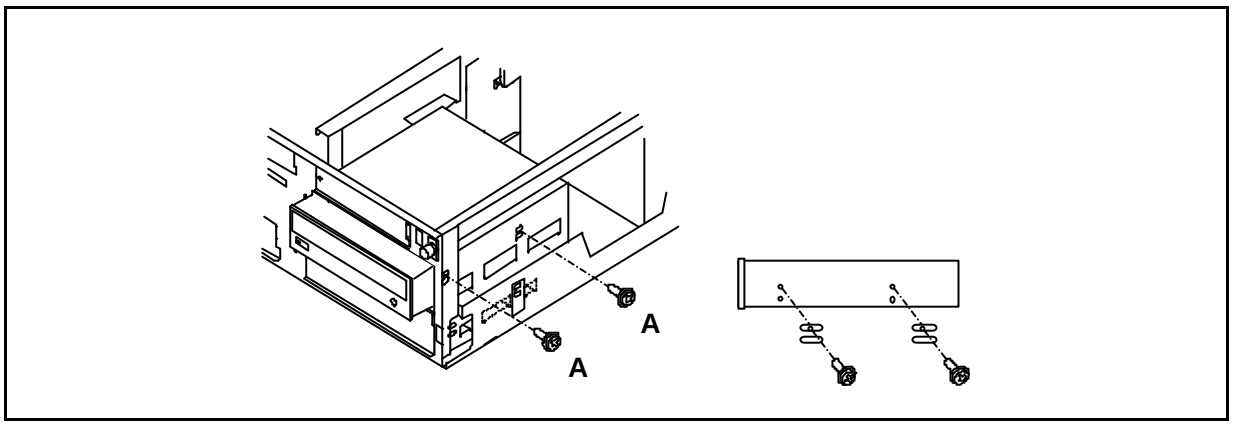


Removing the 5.25" drives

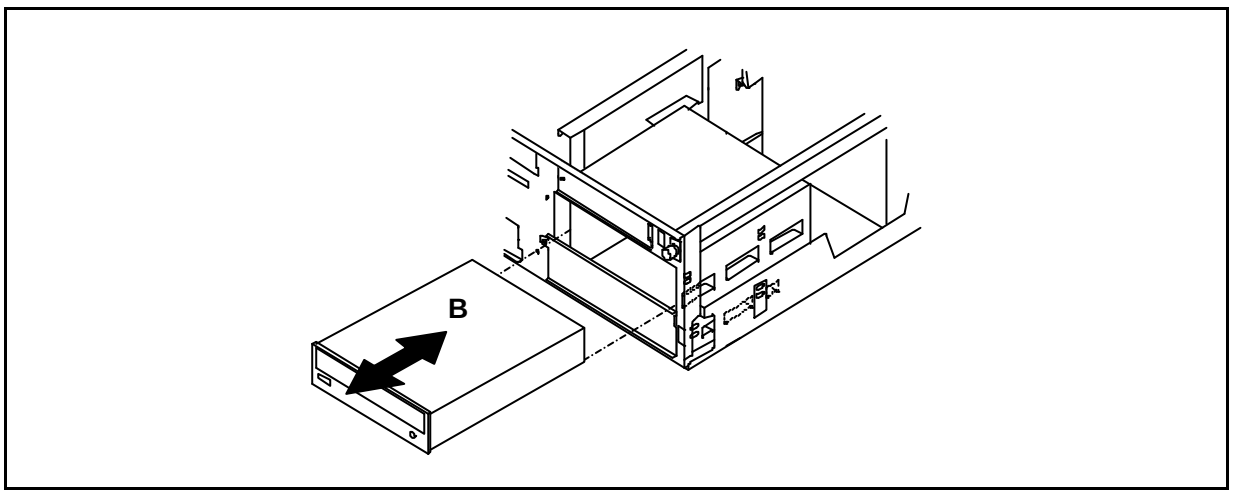
1. Disconnect all cables connected to the drive.



2. Remove the two screws (A) securing the current device (procedure is the same for the upper and lower device).

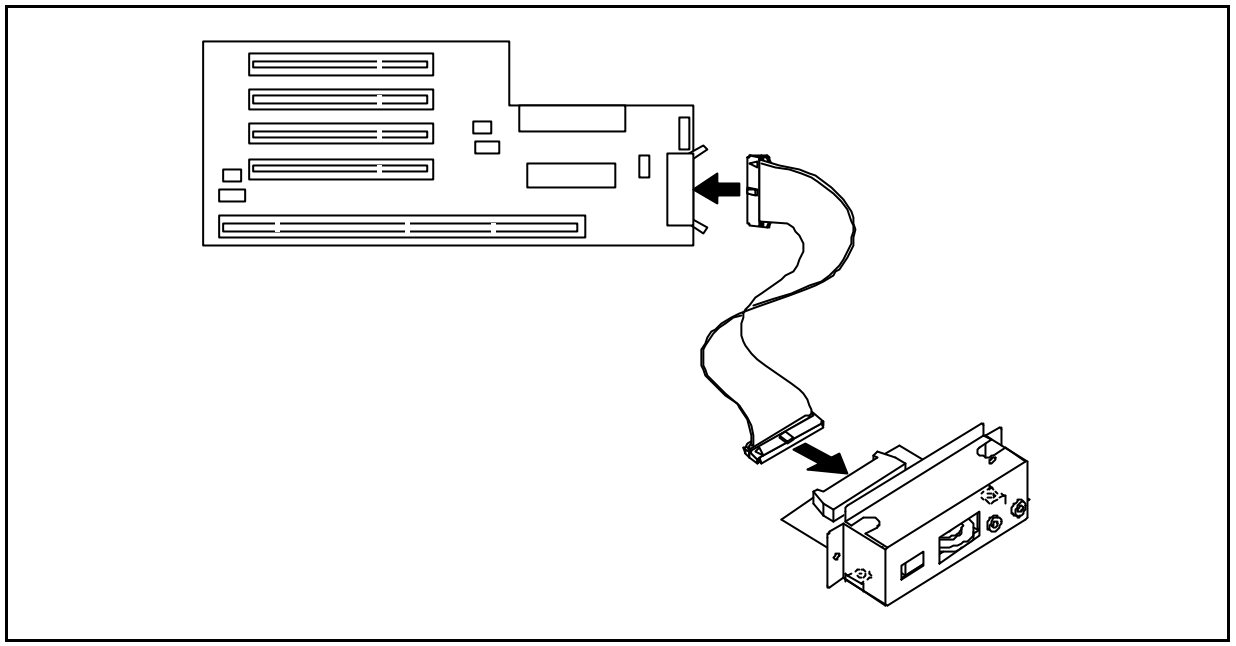


3. Slide (B) the device out.

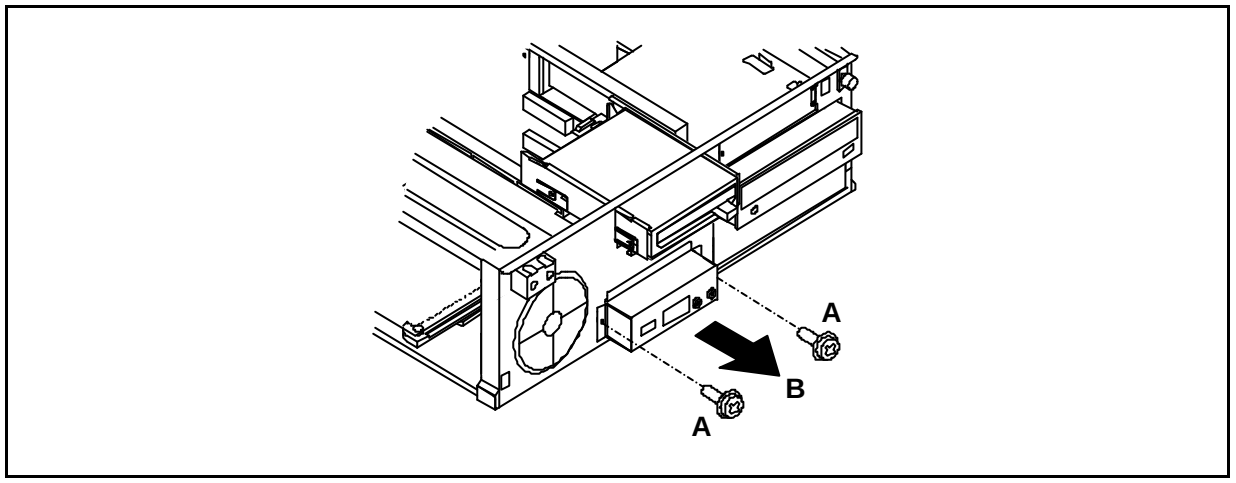


Removing the front audio/USB assembly

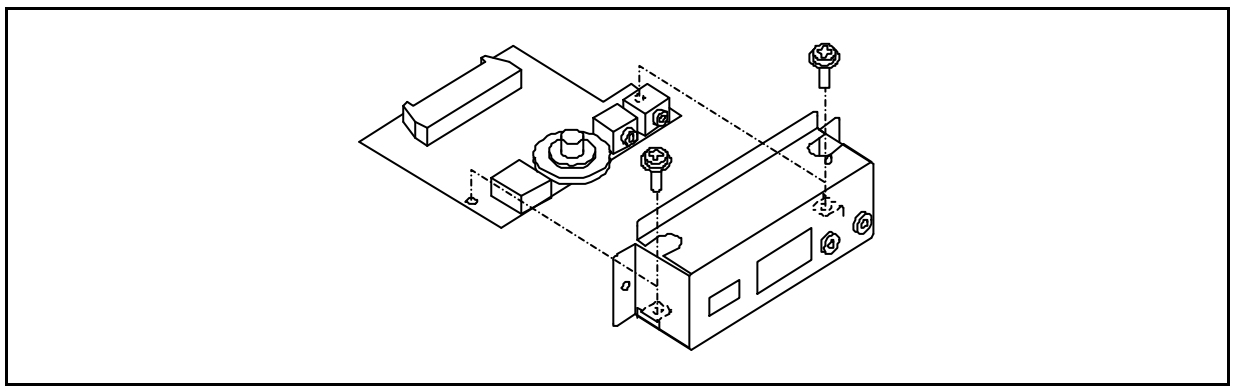
1. Disconnect the cable connected to the front audio/USB board.



2. Remove the two screws (A) securing the front audio/USB assembly in its place and pull (B) it out.

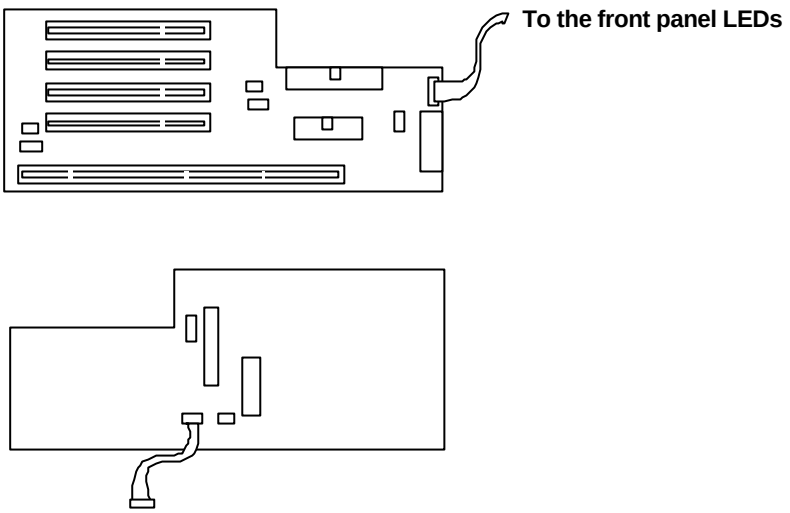


3. The front audio/USB board is fastened to the frame with two screws. Remove the screws and detach the board from the frame.

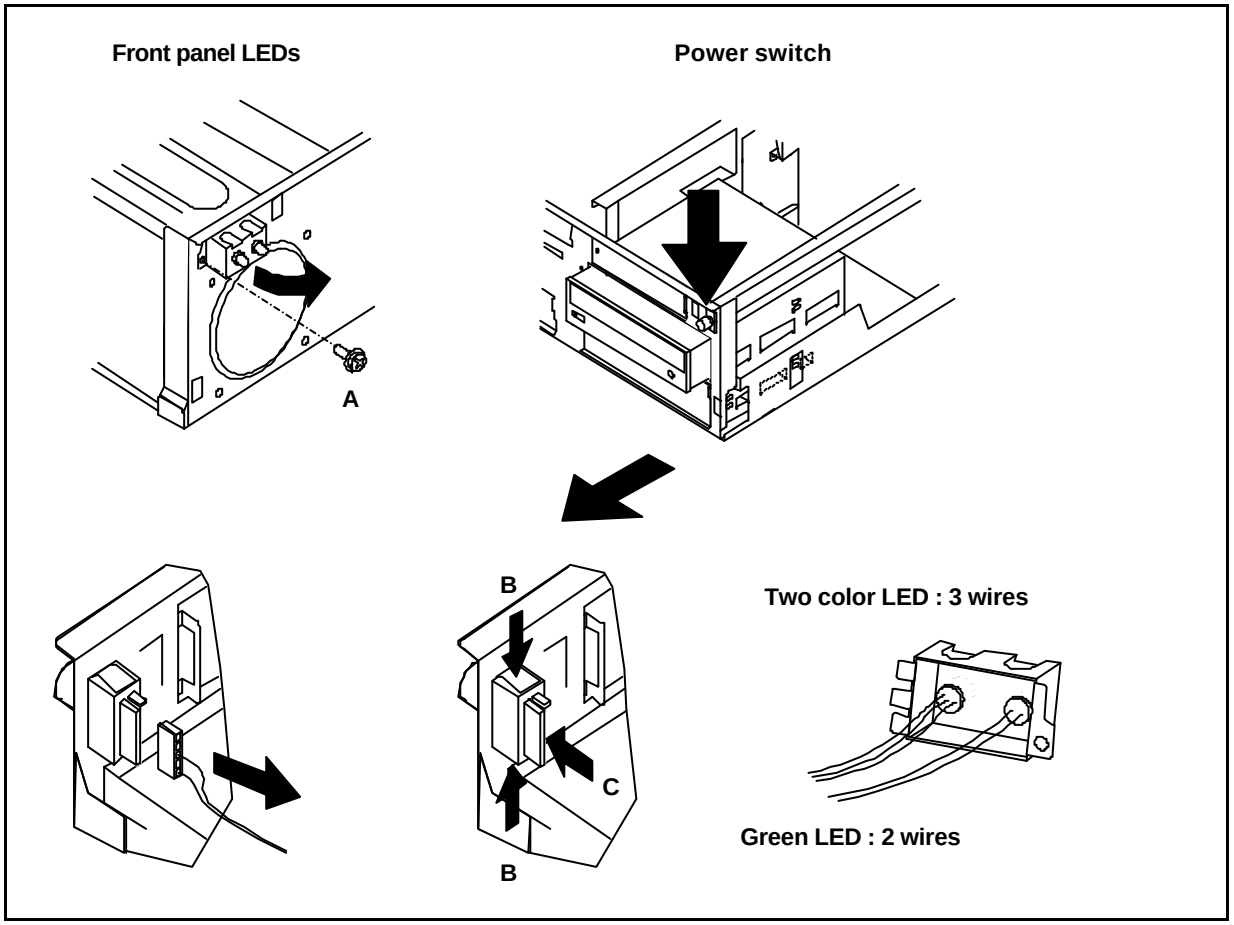


Removing the power switch and front panel LEDs

1. Disconnect all cables connected to the power switch and front panel LEDs.

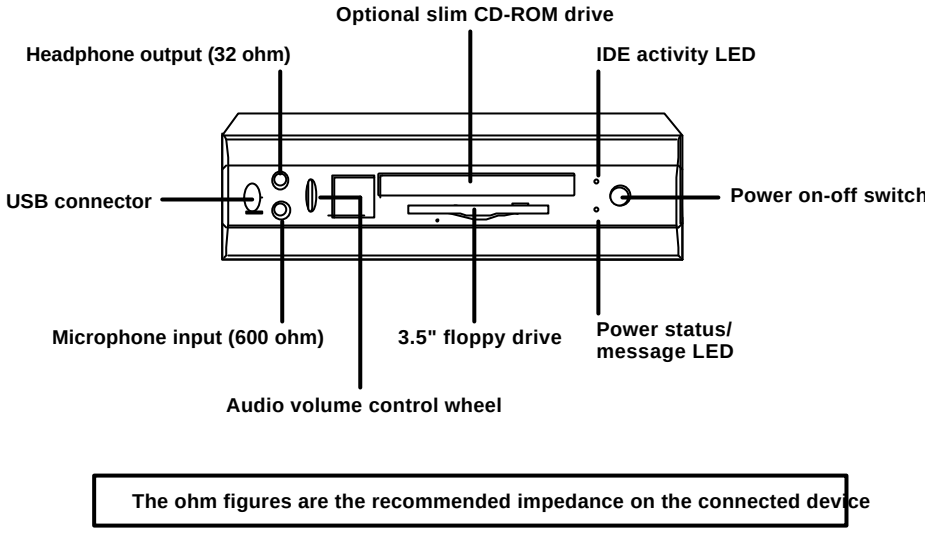


2. Remove the screw (A) securing the front panel LEDs assembly in its place. Pull the assembly out.
3. Squeeze (B) the lock strips of the power switch against the actual power switch so that the power switch can be pushed (C) out.



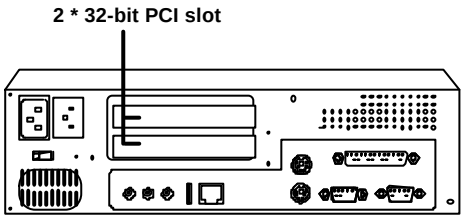
System unit xS, xSi and xSp models

Front panel



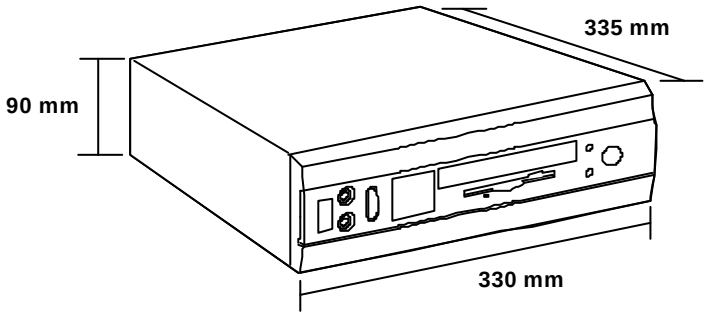
Picture 4 : Front panel of the xS, xSi and xSp models

Rear panel



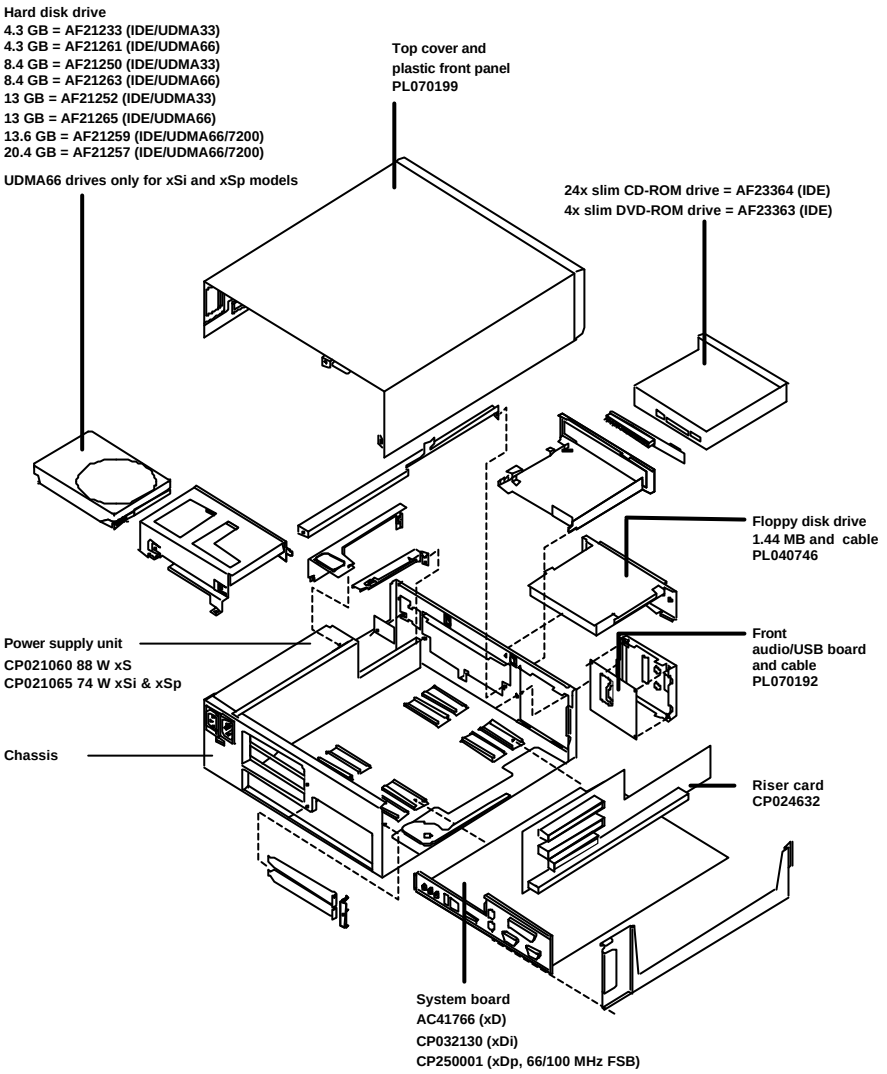
Picture 5: Rear panel of the xS, xSi and xSp models

Dimensions



Picture 6: Dimensions of the xS, xSi and xSp models

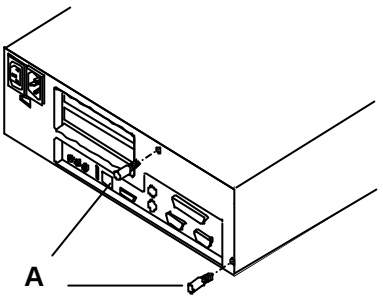
Main components



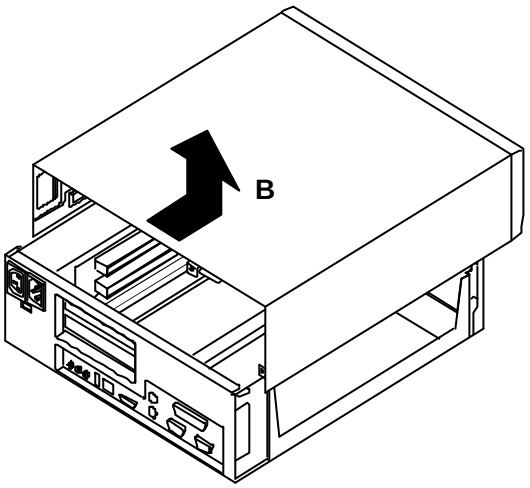
Picture 8: Main componets of the xS, xSi and xSp models

Opening the system unit cover

1. Turn off the display unit, system unit (after shutting down the operating system properly), and all attached separately powered peripherals.
2. Unplug the power cables of the system unit and other attached cables from their outlets.
3. Push the power button once to make sure that the power supply is completely discharged.
4. If there is a Kensington lock, unlock the computer chassis.
5. Remove the two screws (A) at the back of the computer.

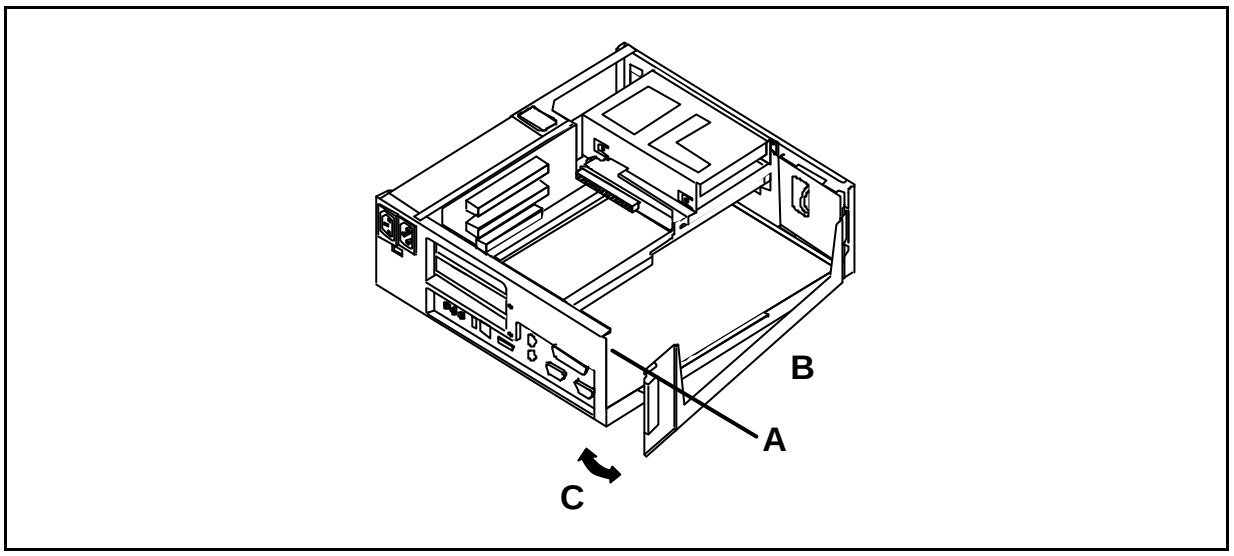


6. Slide the cover about 30 mm (B) towards the rear panel of the system unit, and then lift it straight up.

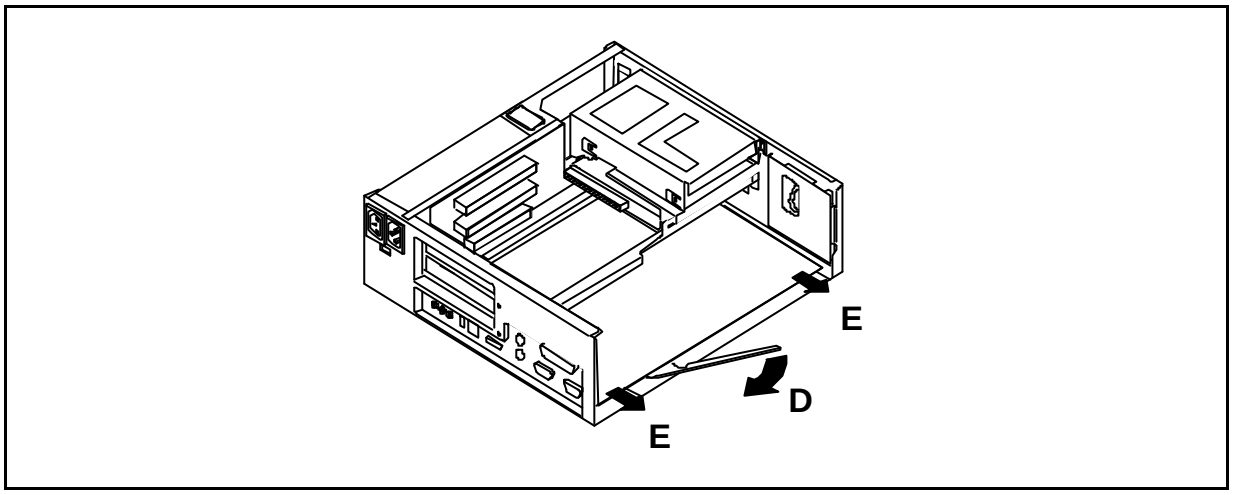


Removing the system board

1. Remove the screw (A) securing the detachable metal side bar (B). Pull (C) the bar carefully out of the chassis

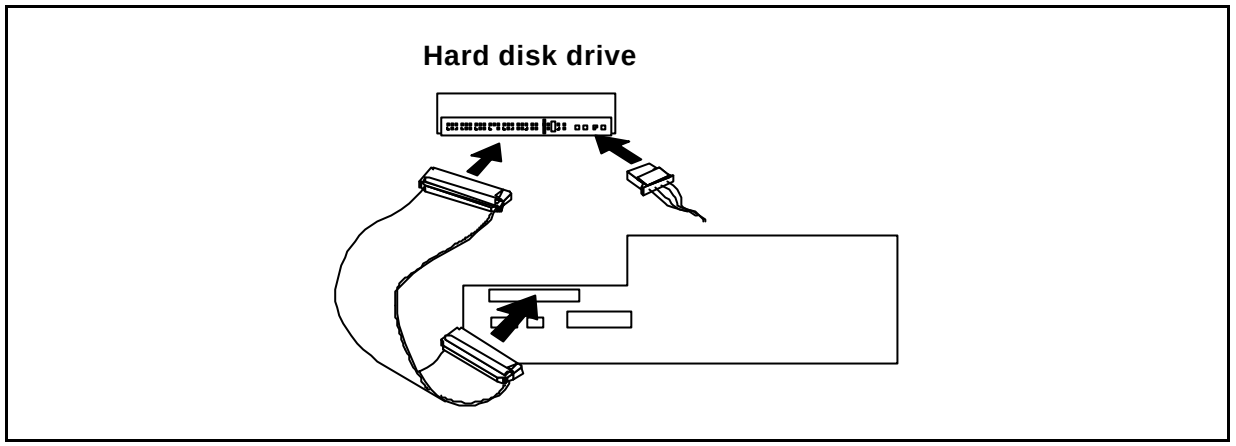


2. Locate the lever (D) underneath the system board and pull (E) the lever towards yourself to release the board, and slide system board out of the chassis.

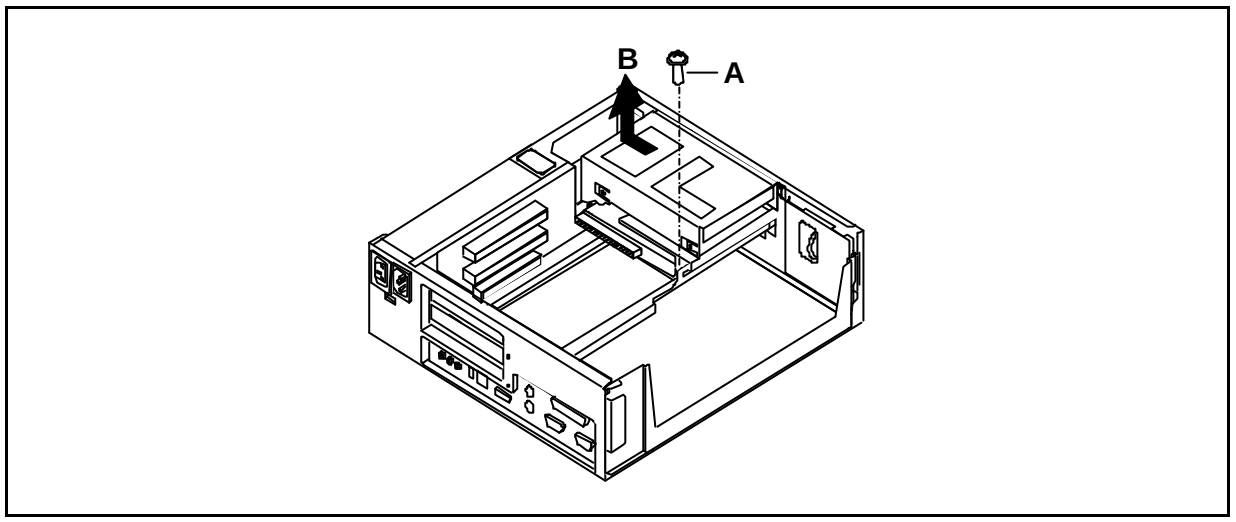


Removing the hard disk drive

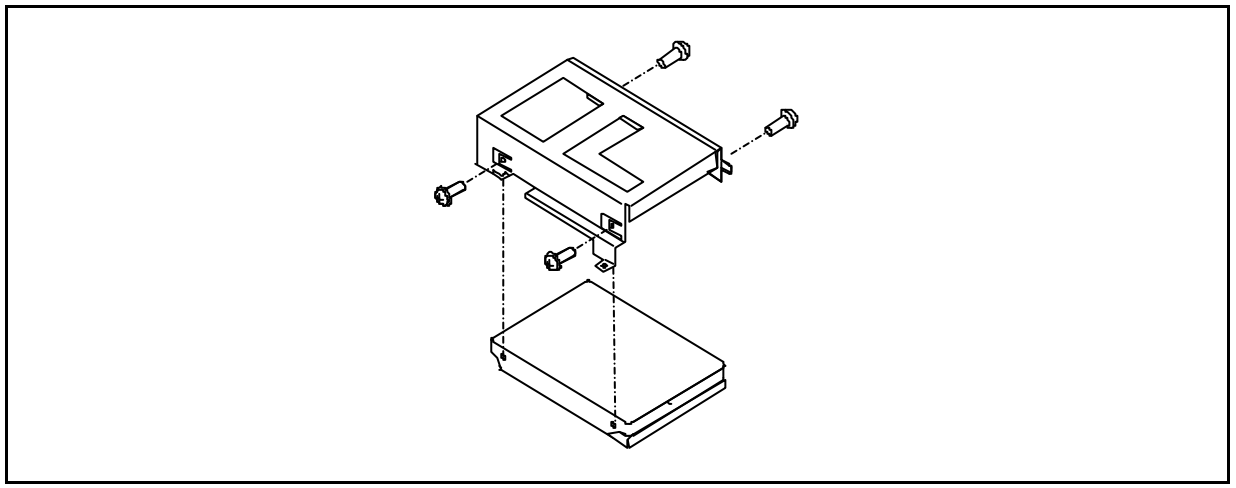
1. Disconnect all cables connected to the hard disk drive.



2. The hard disk drive is fastened into a removable hard drive carriage frame. Remove the screw (A) securing the carriage frame to the support bar and lift the frame out (B).

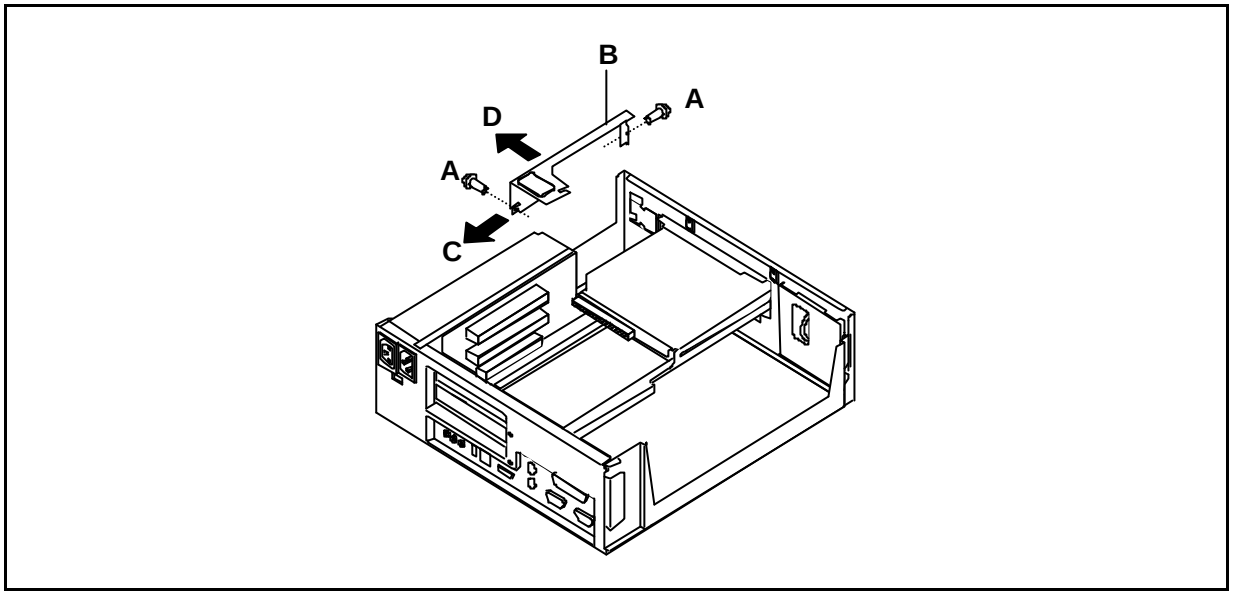


3. The hard disk drive is fastened to the carriage frame with four screws. Remove the screws and detach the drive from the carriage frame.

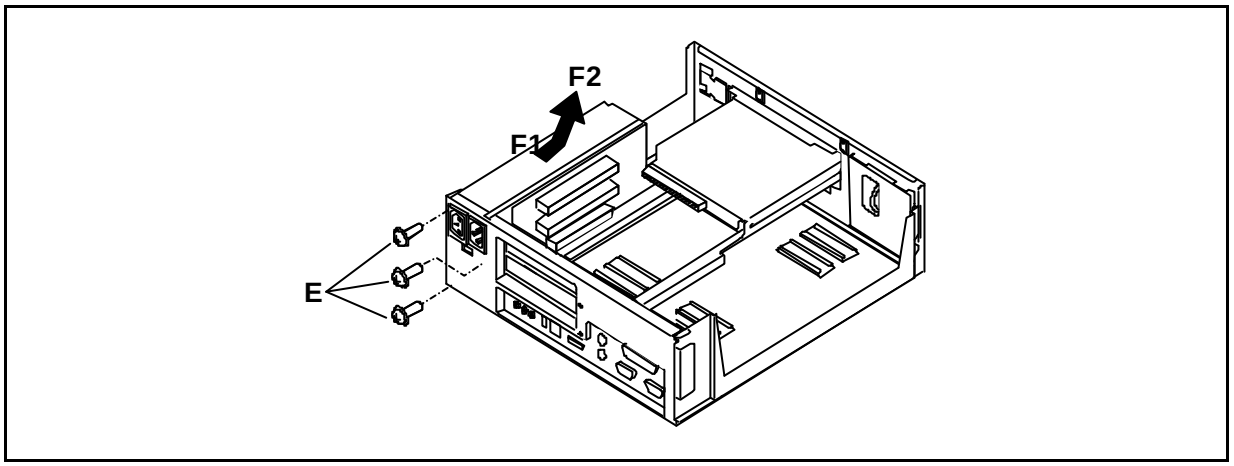


Removing the power supply unit

1. Disconnect all cables power supply cables.
2. Remove the two screws (A) securing the power supply support bar (B) in its place.
3. Slide (C) the support bar about 7 mm towards the back panel and lift (D) the support bar out.

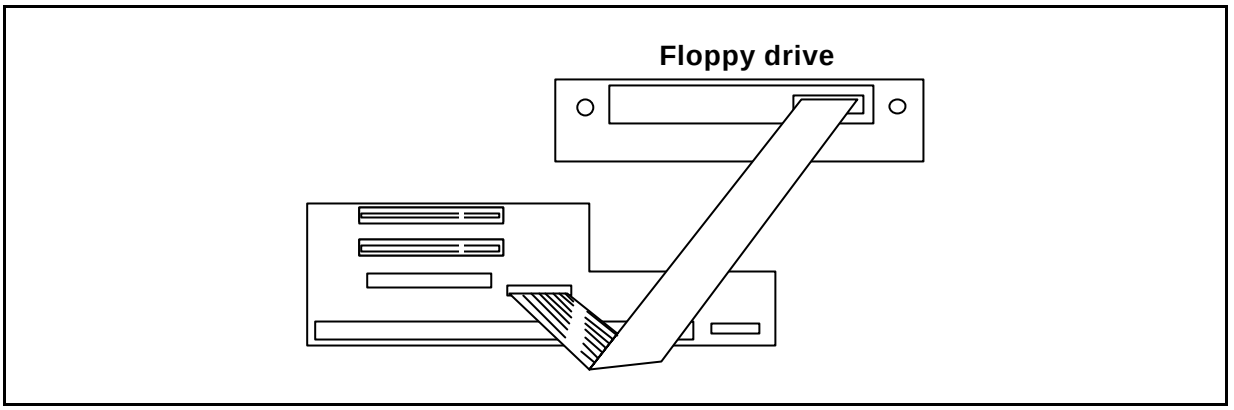


4. Remove the three screws (E) securing the power supply in its place.
5. Slide (F1) the power supply towards the front panel and lift (F2) the power supply out.

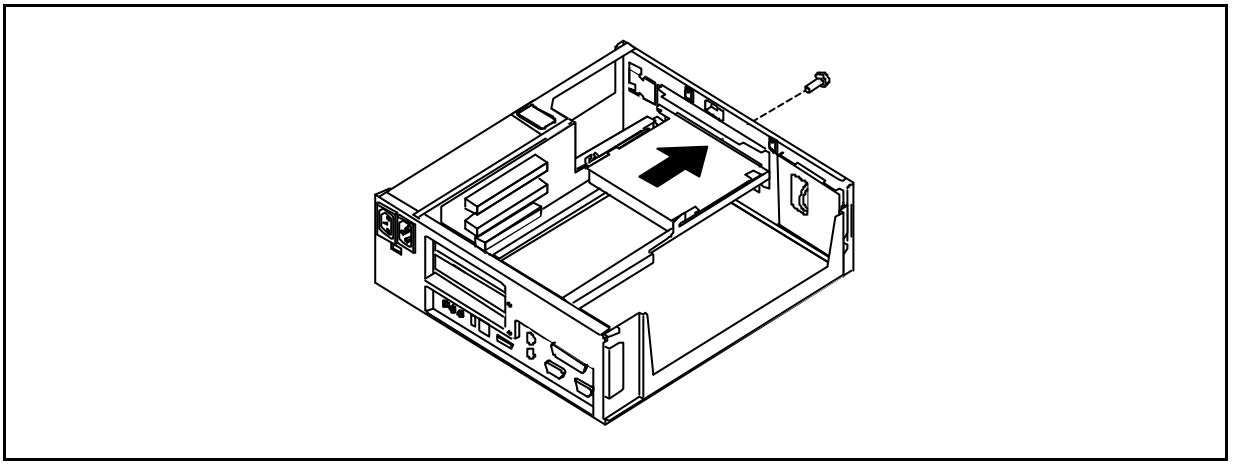


Removing the diskette drive

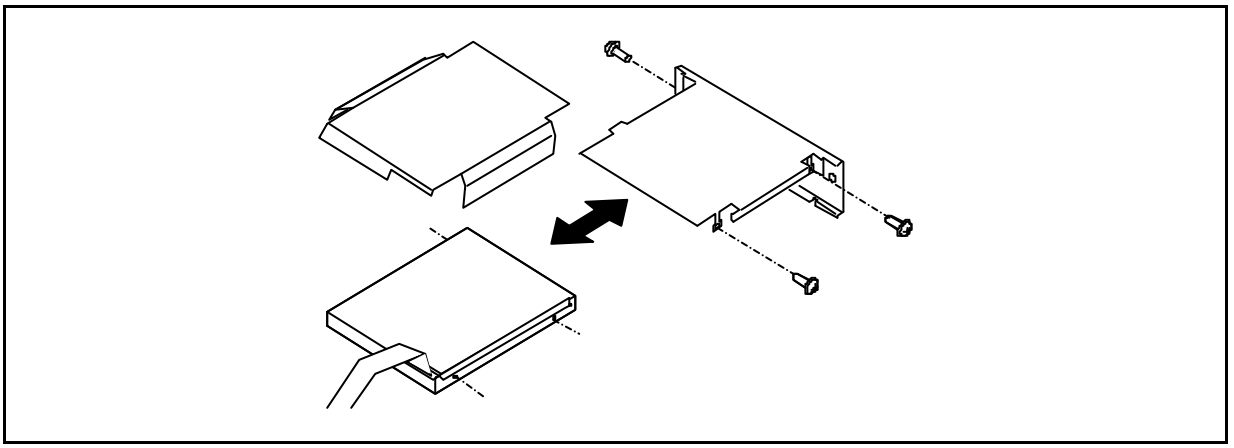
1. Disconnect all cables connected to the diskette drive.



2. The diskette drive is fastened into a removable diskette drive carriage frame. Remove the screw securing the carriage frame and slide the frame out.

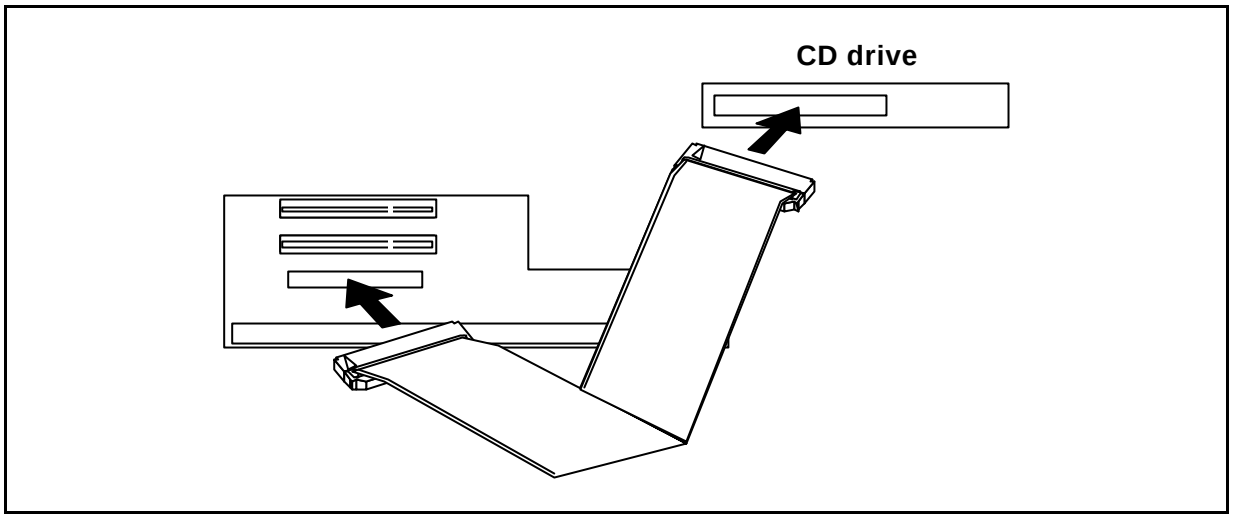


3. The diskette drive is fastened to the carriage frame with three screws. Remove the screws and detach the drive from the carriage frame.

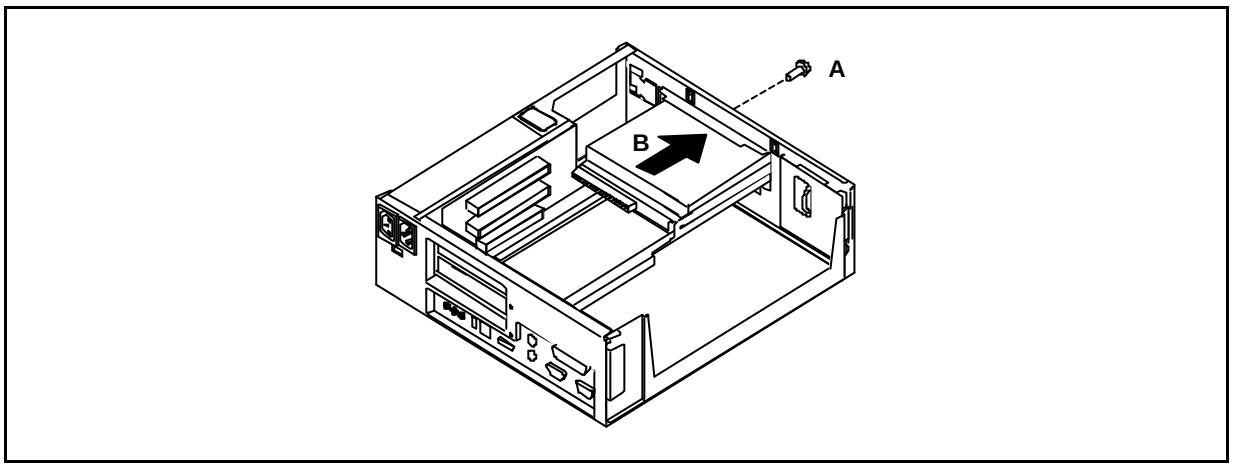


Removing the 5.25" drives

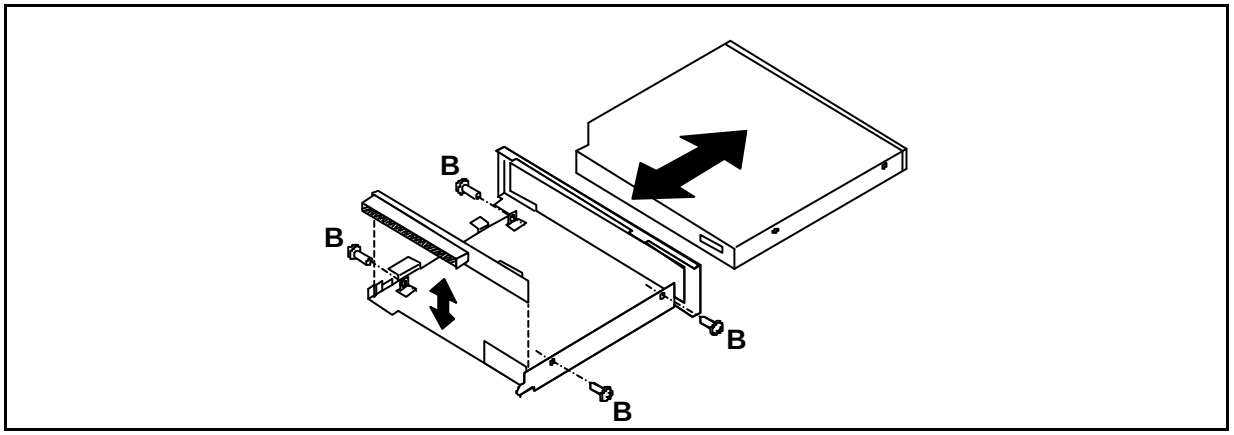
1. Disconnect all cables connected to the drive.



2. The existing drive is fastened into a removable 5.25-inch drive carriage frame. Remove the screw (A) securing the carriage frame and slide (B) the frame out.

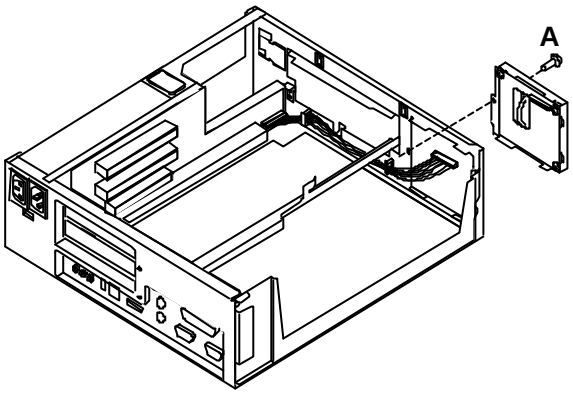


3. The drive is fastened to the carriage frame with four screws (B). Remove the screws. The connector for the interface cable is on the separate removable board. Carefully detach the drive from the board and slide it out of the carriage frame.

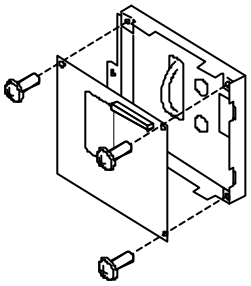


Removing the front audio/USB assembly

1. Disconnect the cable connected to the front audio/USB board.
2. Remove the screw (A) securing the front audio/USB assembly in its place. Pull the assembly out.

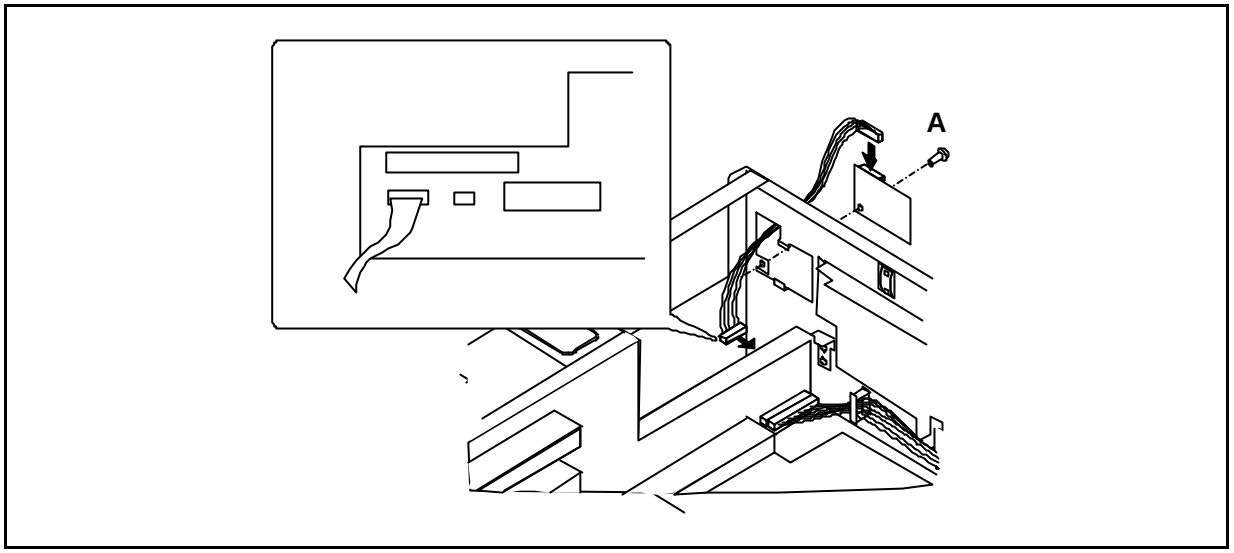


3. The front audio/USB board is fastened to the frame with three screws. Remove the screws and detach the board from the frame



Removing the power switch and front panel LEDs

1. Disconnect the cable connected to the power switch and front panel LED board.
2. Remove the screw (A) securing the power switch and front panel LED board in its place. Pull the board out.



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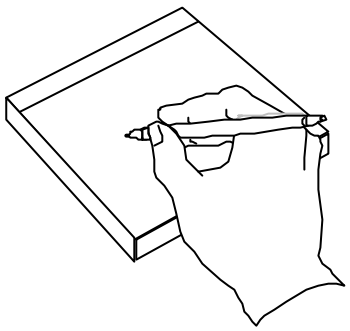
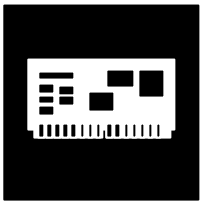




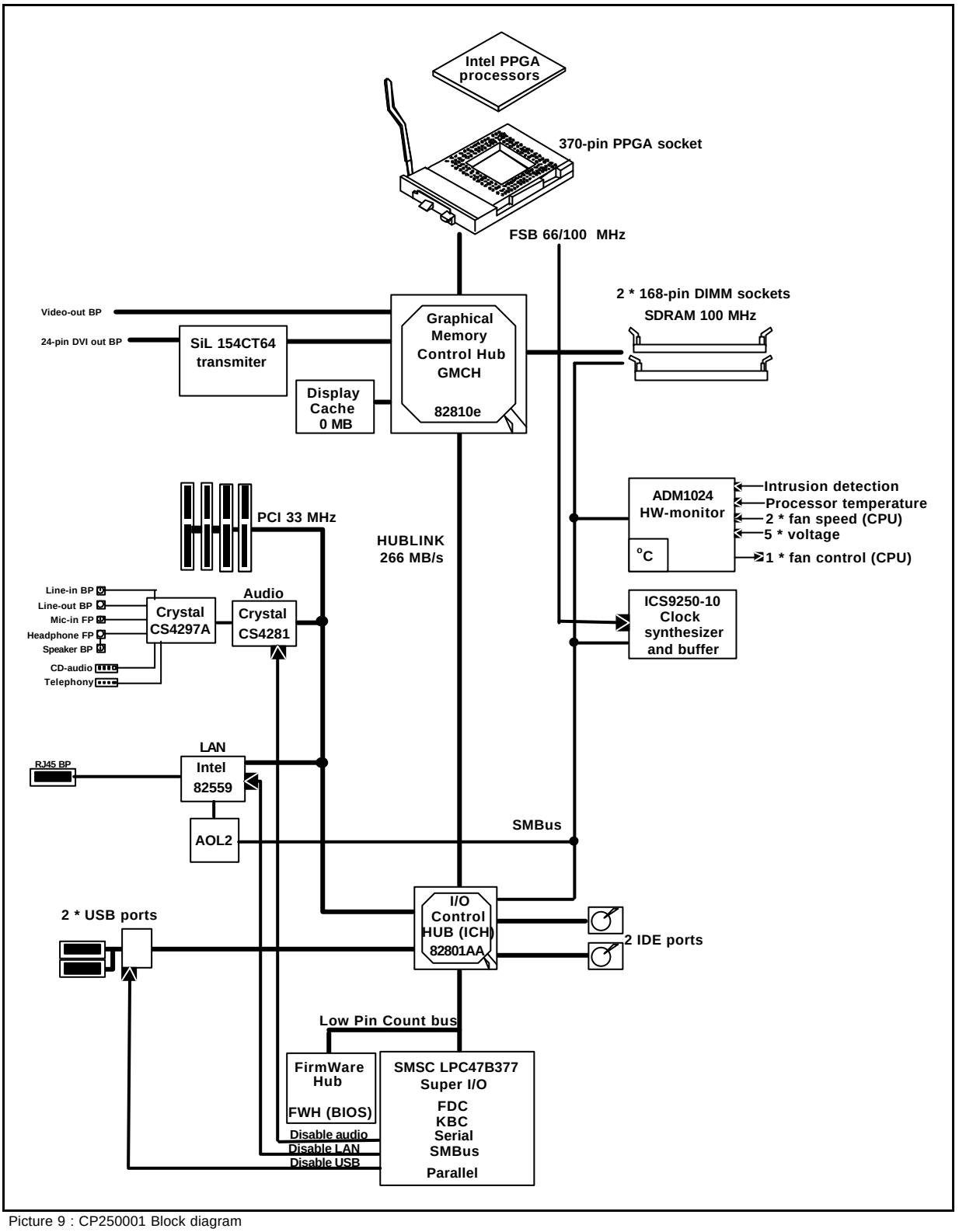
Section 2 :

Boards & Jumper settings

xDp and xSp models

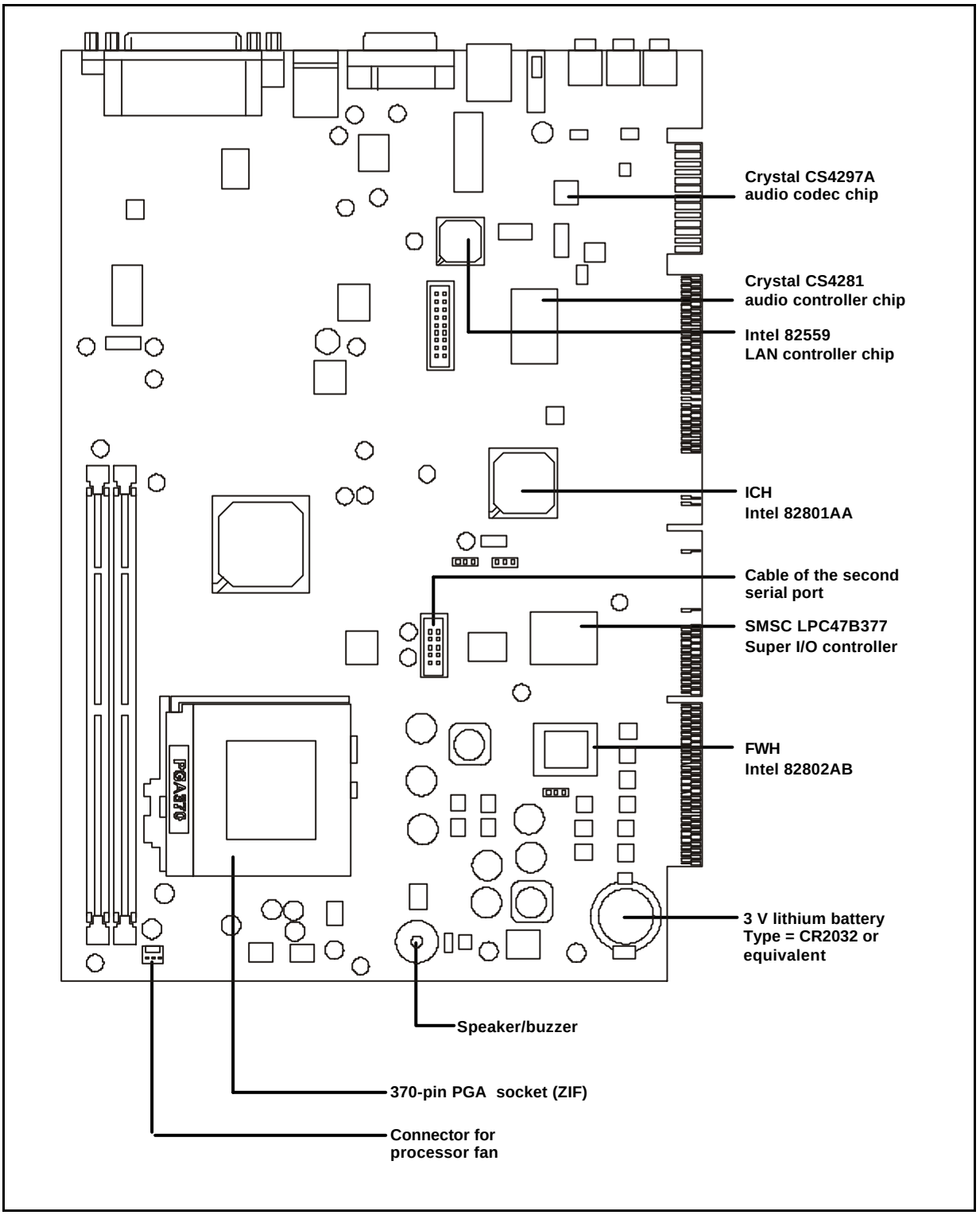
System board CP250001 for xDp and xSp models

Block diagram

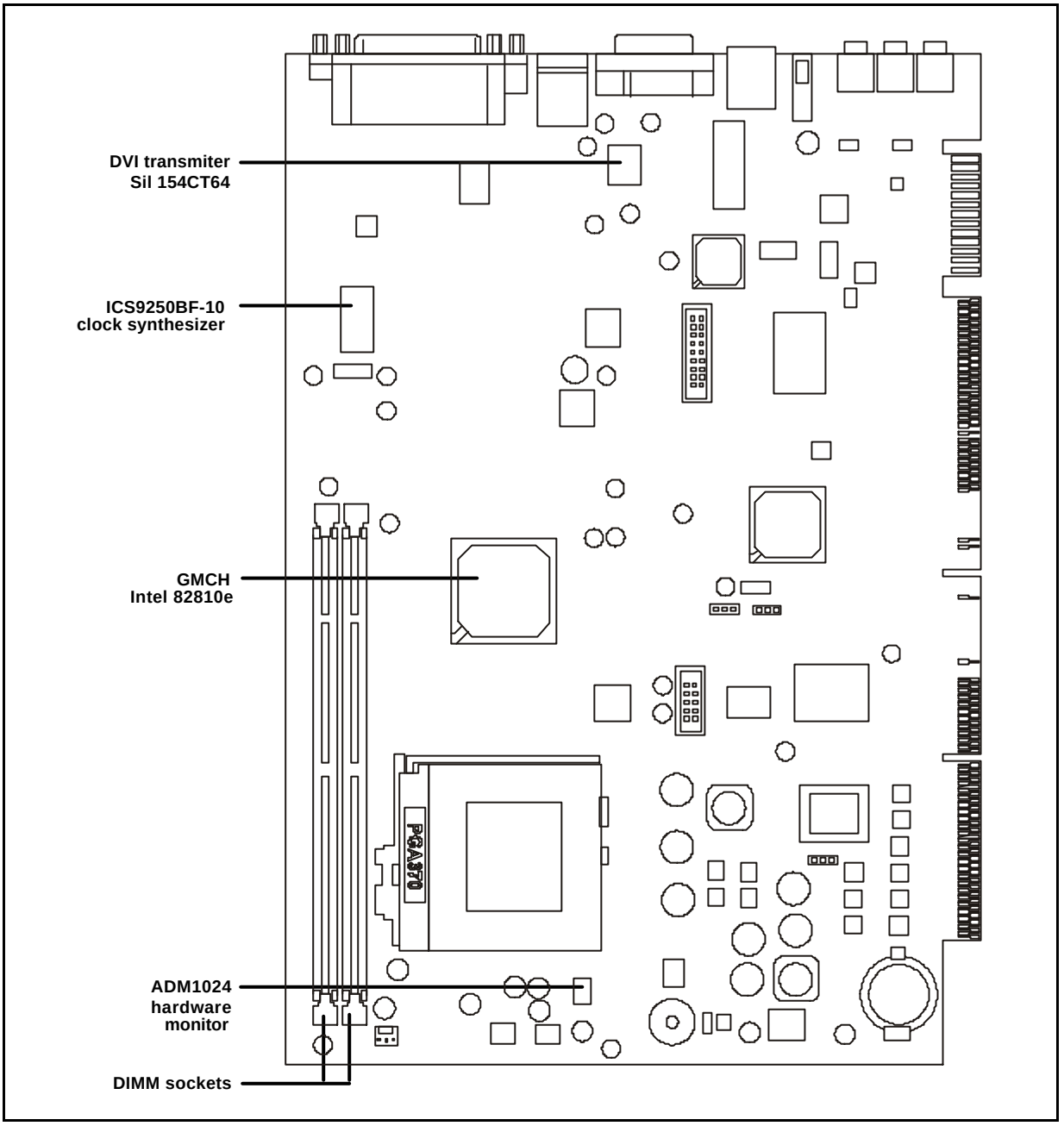


Picture 9 : CP250001 Block diagram

System board layout CP250001 for xDp and xSp models

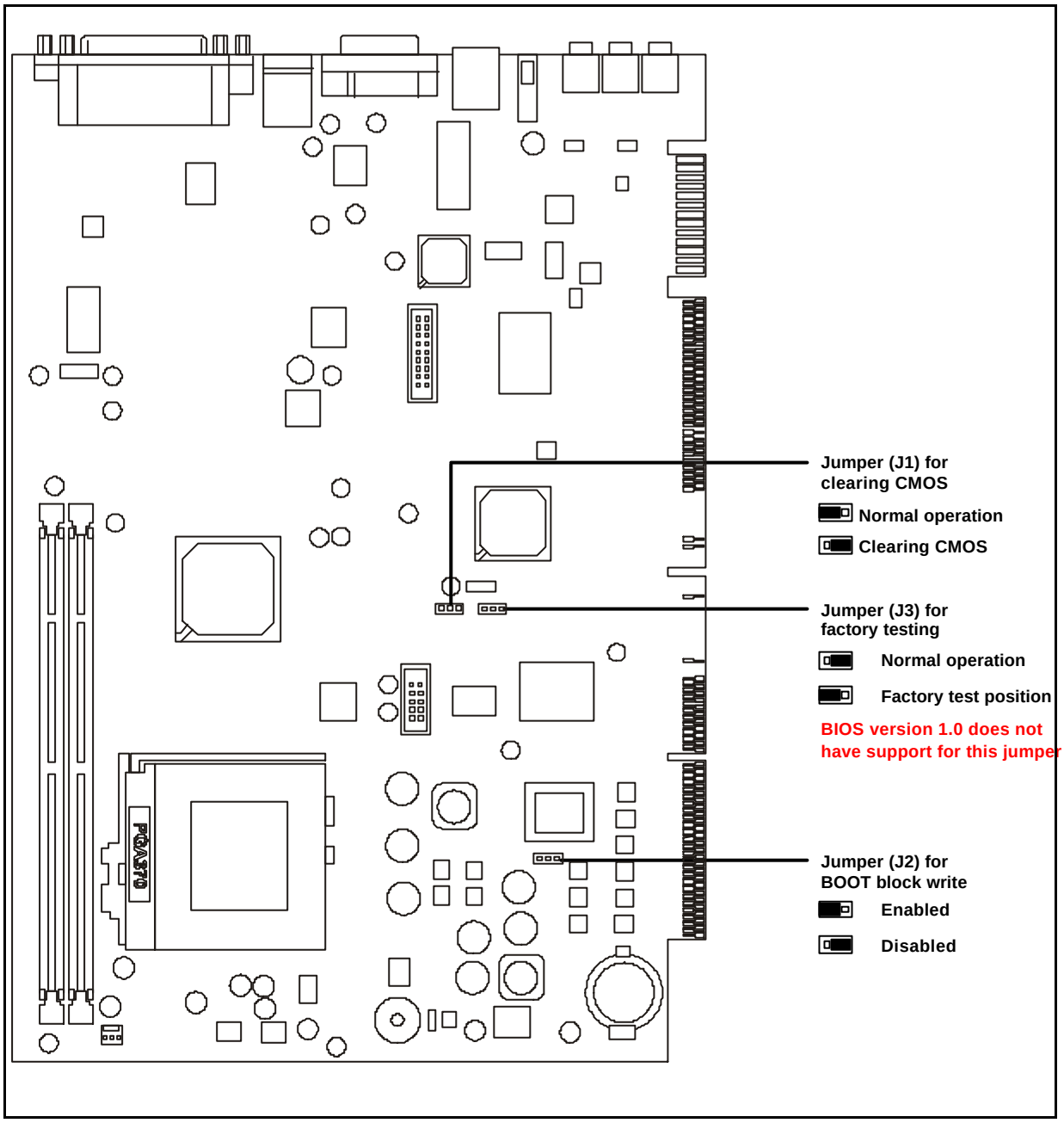


Picture 10 : System board layout CP250001



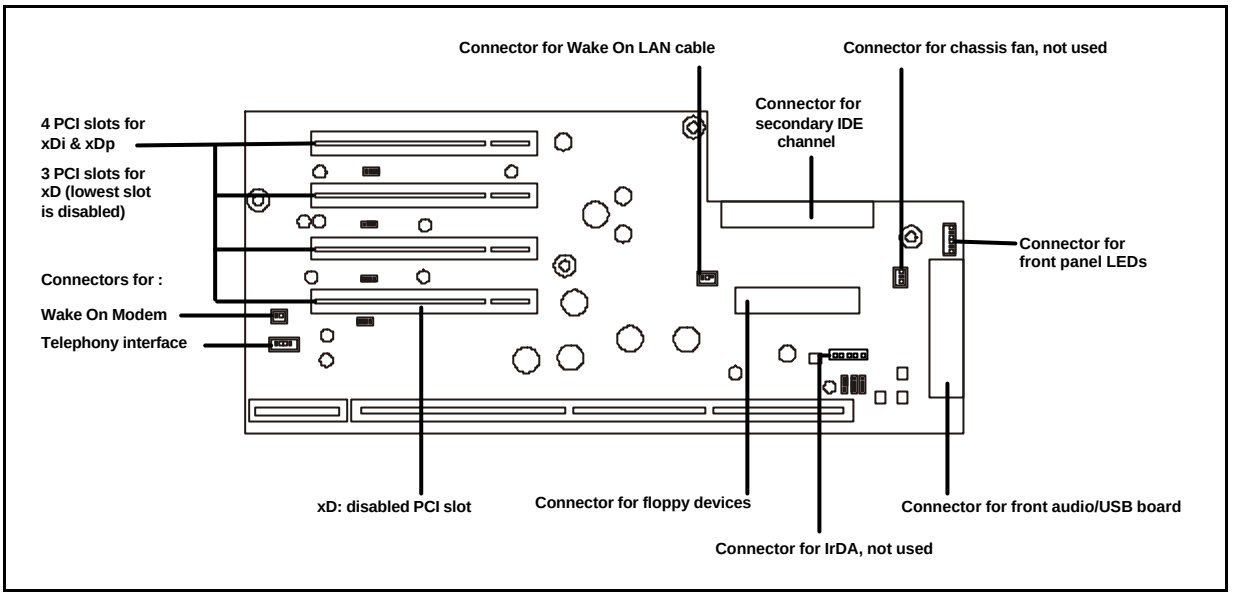
Picture 11 : System board layout CP250001

System board layout CP250001 (jumpers) for xDp and xSp models



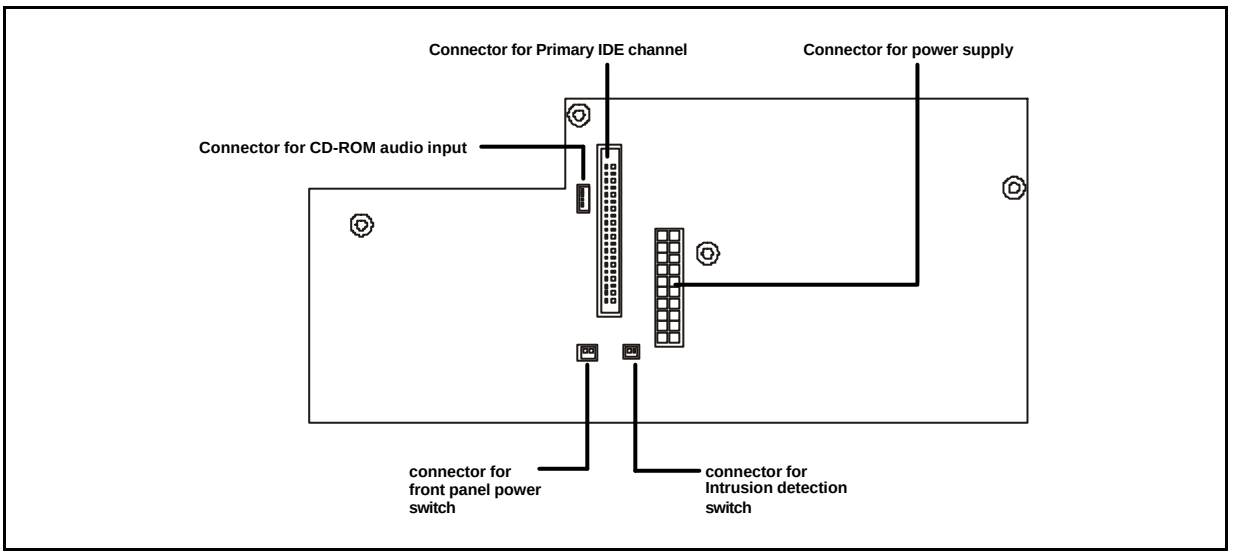
Picture 12 : System board jumpers

4-slot riser card (CP024633) for xD, xDi and xDp models



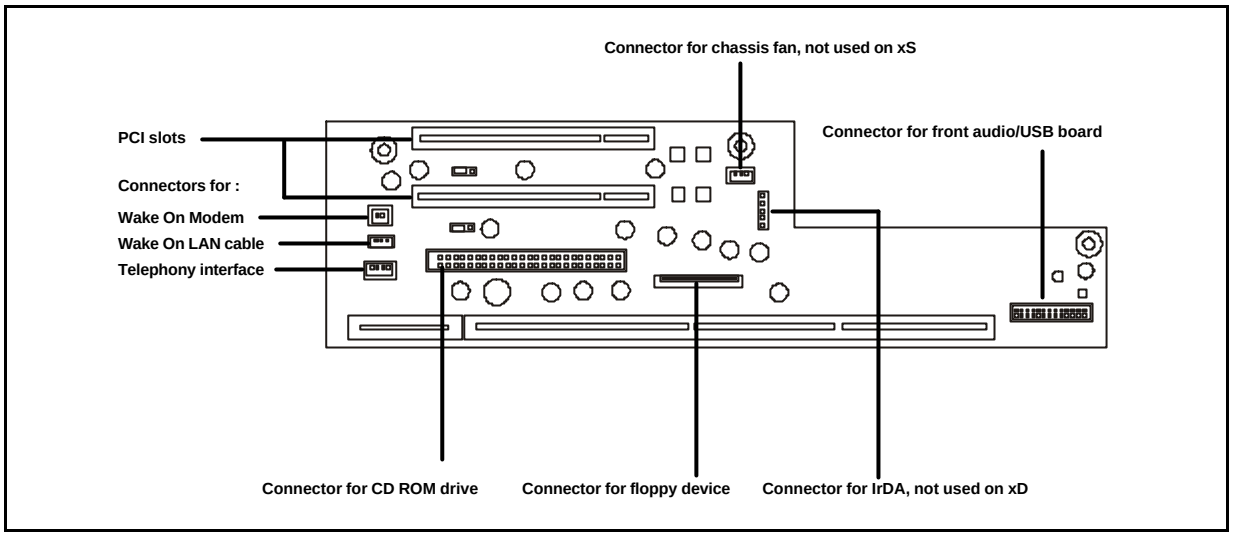
Picture 13 : 4-slot backplane board (CP024633)

4-slot riser card (CP024633) for xD, xDi and xDp models



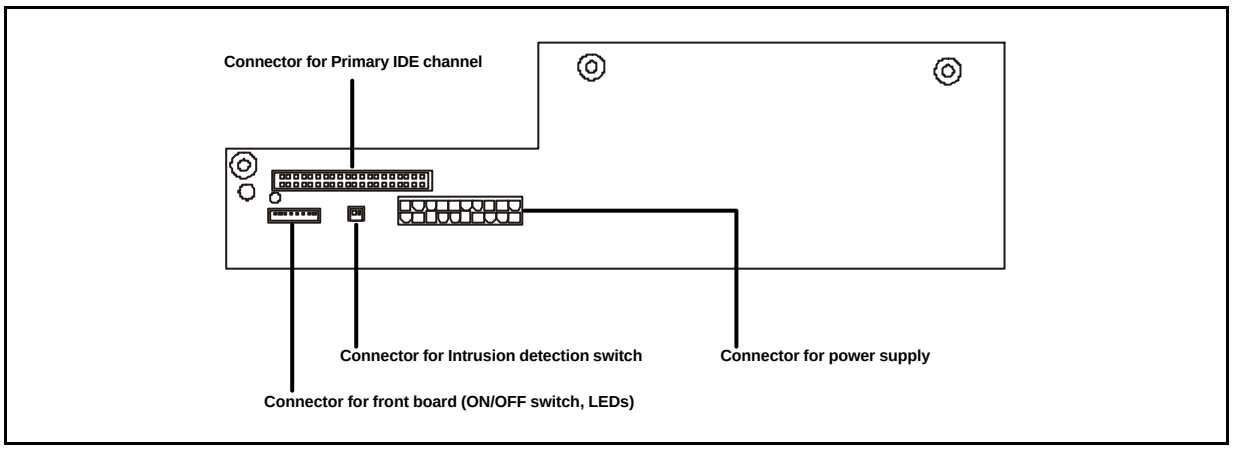
Picture 14 : 3-slot backplane board (CP024633)

2-slot riser card (CP024632) for xS, xSi and xSp models



Picture 15 : 3-slot backplane board (CP024632)

2-slot riser card (CP024632) for xS, xSi and xSp models



Picture 16 : 2-slot backplane board (CP024632)

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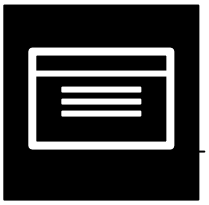


Section 3 :

System Setup

xDp and xSp models

Entering Setup

Close all open files and leave your application program before entering Setup. You cannot exit back into an application. The system automatically reboots when you leave Setup.

To enter SETUP, do as follows:

1. Turn on the power to the system, or if the system is already on, restart it.
2. As the system starts, the message ´Press <Esc> key for diagnostic screen <F12> boot menu or <F2>Bios Setup´ appears at the bottom of the screen. Immediately press function key <F2> once.

Moving around in SETUP

There are two levels in the BIOS Setup Utility, the "main" menu and possible sub menus. Use the LEFT ARROW and RIGHT ARROW keys to move to and highlight the desired "main" menu, and then use UP ARROW or DOWN ARROW key to select the paramter or a sub-menu.

Press <Esc> to exit each parameter and each level.

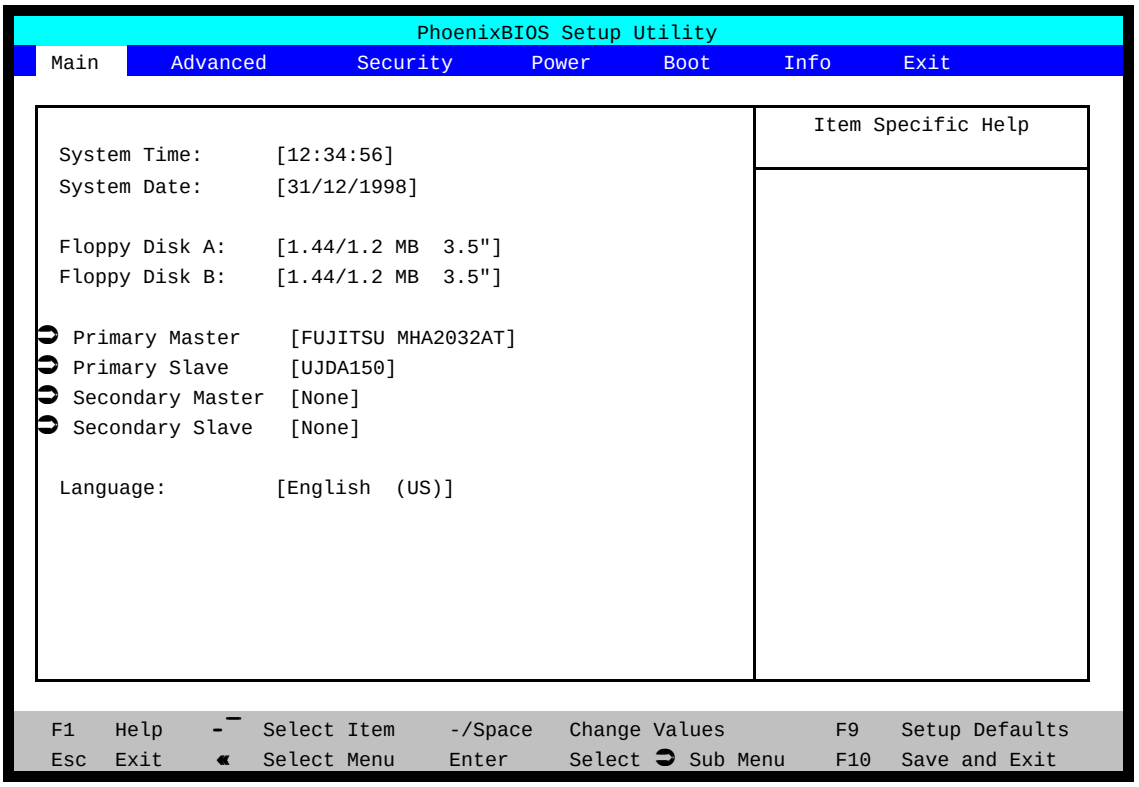
Exiting SETUP

You can exit SETUP from any level of the utility by pressing ESC until this Exit menu appears on the screen.

SETUP screens and parameters

The screens and the parameters of the SETUP Utility are described in detail on the following pages.

Main menu



System Time

The date of the battery-powered system calendar is displayed on this line. To set the time:

1. Use the UP or DOWN ARROW keys to move to the System time parameter.
2. Use <+> and <-> keys to set the correct value for the field. Use Enter key to move to the next field.

System Date

The date of the battery-powered system clock is displayed on this line. To set the date:

1. Use the UP or DOWN ARROW keys to move to the System time parameter.
2. Use <+> and <-> keys to set the correct value for the field. Use Enter key to move to the next field.

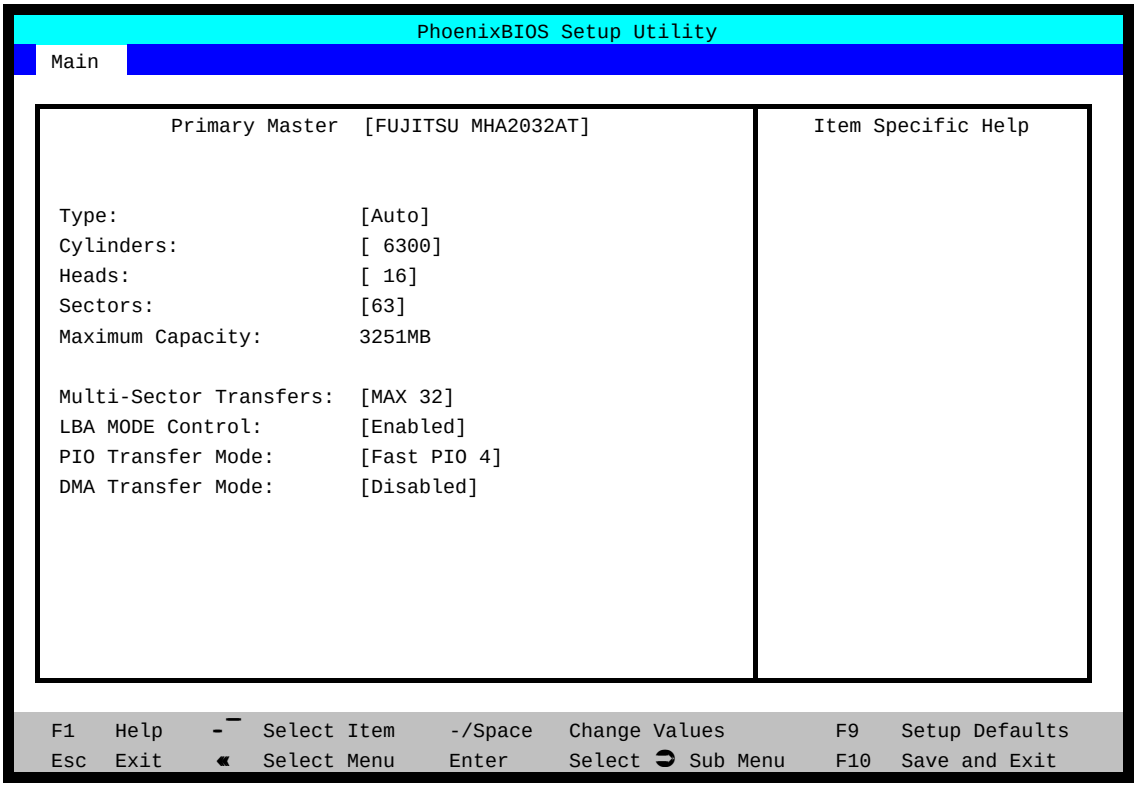
Floppy disk A, (Floppy disk B)

This parameter describes the type of diskette drive(s) installed in the system unit. In standard configurations floppy disk A is a 3.5-inch, 1.44 MB drive. Thus, the correct value for Floppy disk A is 3.5" 1.44 MB. If your system unit has no second diskette drive (drive B), the correct value for Floppy disk B is disabled (parameter for drive B is not available on all the BIOS versions). If you install an optional device such as a tape streamer unit in drive B, use the value disabled for Floppy disk B.
Optional values for floppy disk A and B are: disabled, 360 kB 5.25", 1.2 MB 5.25", 720 kB 3.5" and 1.44/1.2 MB 3.5". 1.2 MB 3.5" refers to a Japanese media format (1024 bytes/sector).

Language

By setting this parameter to English (US) the BIOS Setup Utility screens are displayed in english. Optional setting for this parameter is Japanese, in which case the BIOS Setup Utility screens are displayed with kanji sings.

Primary Master, Primary Slave, Secondary Master and Secondary Slave



Type
Select the type of the ATA/ATAPI installed to the interface.
[Auto]: The BIOS auto detects the device at boot time.
[CD-ROM]: Enables user to set the parameters for the device
[Hard Disk]: Enables user to set the parameters for the device
[LS-120]: Enables user to set the parameters for the device
[other ATAPI]: Enables user to set the parameters for the device
[None]: The Interface is disabled.

Cylinders
Specifies the number of Cylinders (0 to 65535) for the device.
If 'Type' = [Auto], the BIOS selects the optimum value.

Heads

Specifies the number of Heads (1 to 16) for the device.
If 'Type' = [Auto], the BIOS selects the optimum value.

Sectors
Specifies the number of Sectors (0 to 63) for the device.
If 'Type' = [Auto], the BIOS selects the optimum value.

Maximum Capacity

Multi-Sector Transfers
Specifies the maximum number of sectors (Disabled, 2, 4, 8 or 16) per block for multiple sector transfer.
If 'Type' = [Auto], the BIOS selects the optimum value.

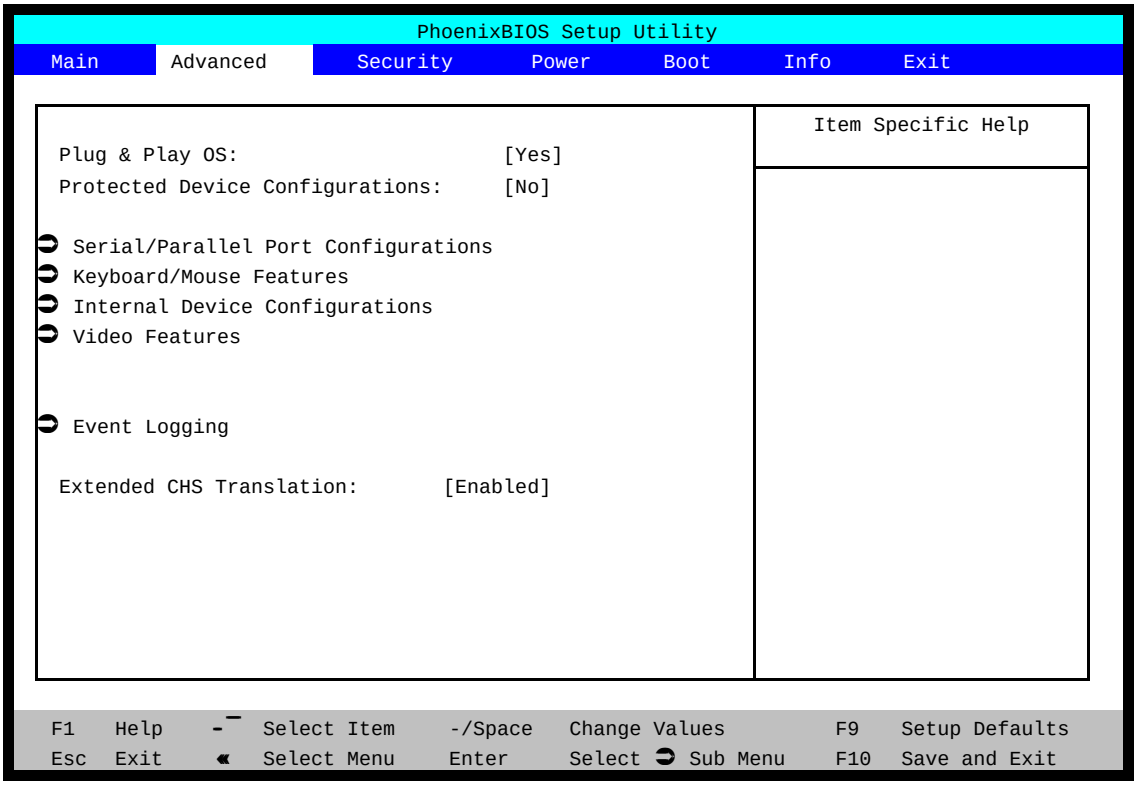
LBA MODE Control
[Disabled]: Cylinders, Heads & Sectors are used.
[Enabled]: Logical Block Addressing is used.
If 'Type' = [Auto], the BIOS selects the optimum mode.

Transfer Mode

Select the mode (Standard, Fast PIO 1, Fast PIO 2, Fast PIO 3 or Fast PIO 4) of moving data to/from the device.
If 'Type' = [Auto], the BIOS selects the optimum mode.

DMA Mode
Select the DMA mode (Disabled, Multiword DMA 1, Multiword DMA 2, Ultra DMA 0, Ultra DMA 1 or Ultra DMA 2) of moving data to/from the drive.
If 'Type' = [Auto], the BIOS selects the optimum mode.

Advanced menu

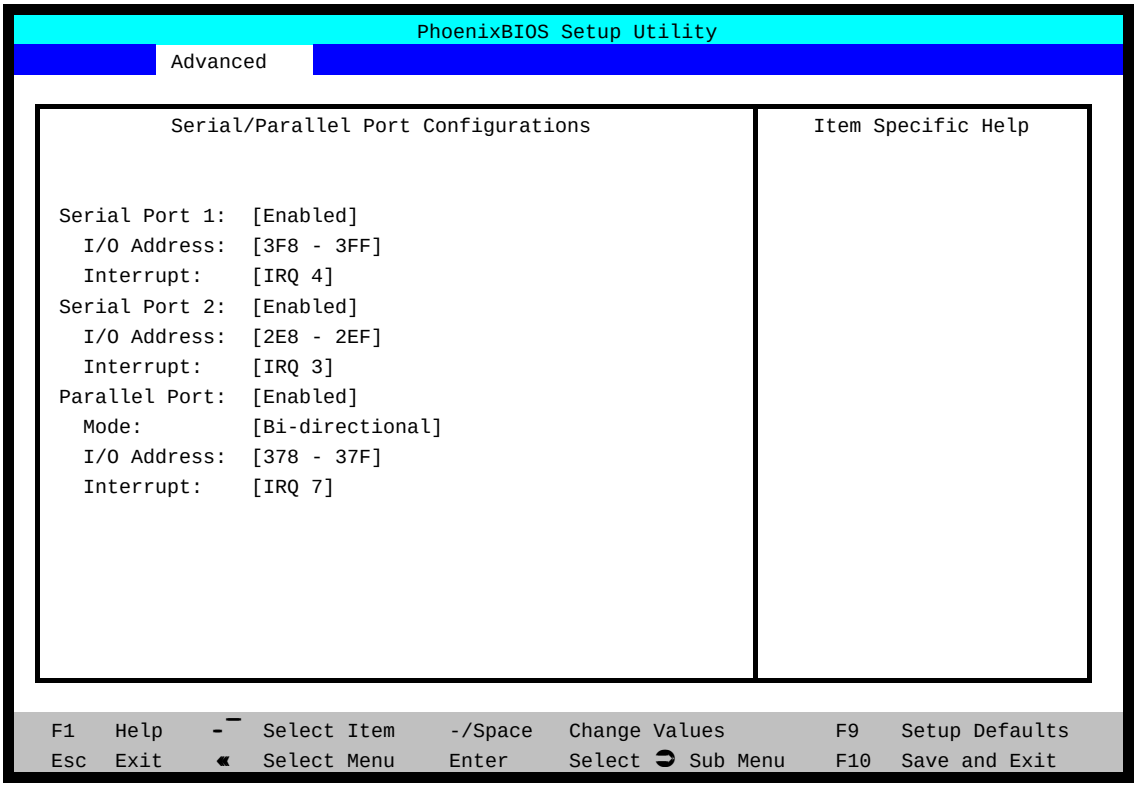


Plug & Play OS
[Yes]: The BIOS configures only boot devices.
[No]: The BIOS configures also non-boot devices. Select if you are using a non-Plug & Play OS or a non-ACPI OS.

Protected Device Configurations
[No]: Allows a Plug & Play OS to change device settings of the BIOS.
[Yes]: Prevents a Plug & Play OS to change device settings of the BIOS.
* ACPI OS ignores this setting.

Extended CHS Translation
[Enabled]: Select if the operating system needs CHS translation.
[Disabled]: Select if the operating system rejects CHS translation.

Serial/Parallel Port Configurations



Serial Port 1 & 2

[Enabled]: The port is enabled with user configuration.
[Auto]: A Plug & Play OS or an ACPI OS will configure the port.
[Disabled]: The port is disabled.

I/O Address

Select the I/O address for the port.
Options for Serial ports 1 and 2 are: 3F8 - 3FF, 2F8 – 2FF, 3E8 – 3EF and 2E8 – 2EF

Interrupt

Select the interrupt number for the port.
Options for Serial ports 1 are: IRQ 3, IRQ 4 and IRQ 11
Options for Serial ports 2 are: IRQ 3, IRQ 4 and IRQ 10

Parallel Port

[Enabled]: The port is enabled with user configuration.
[Auto]: A Plug & Play OS or an ACPI OS will configure the port.
[Disabled]: The port is disabled.

Mode

Select the mode for the parallel port. Output only, Bi-directional, ECP and EPP

I/O Address

Select the I/O address for the port. Options are: 378 - 37F, 278 - 27F and 3BC - 3BF

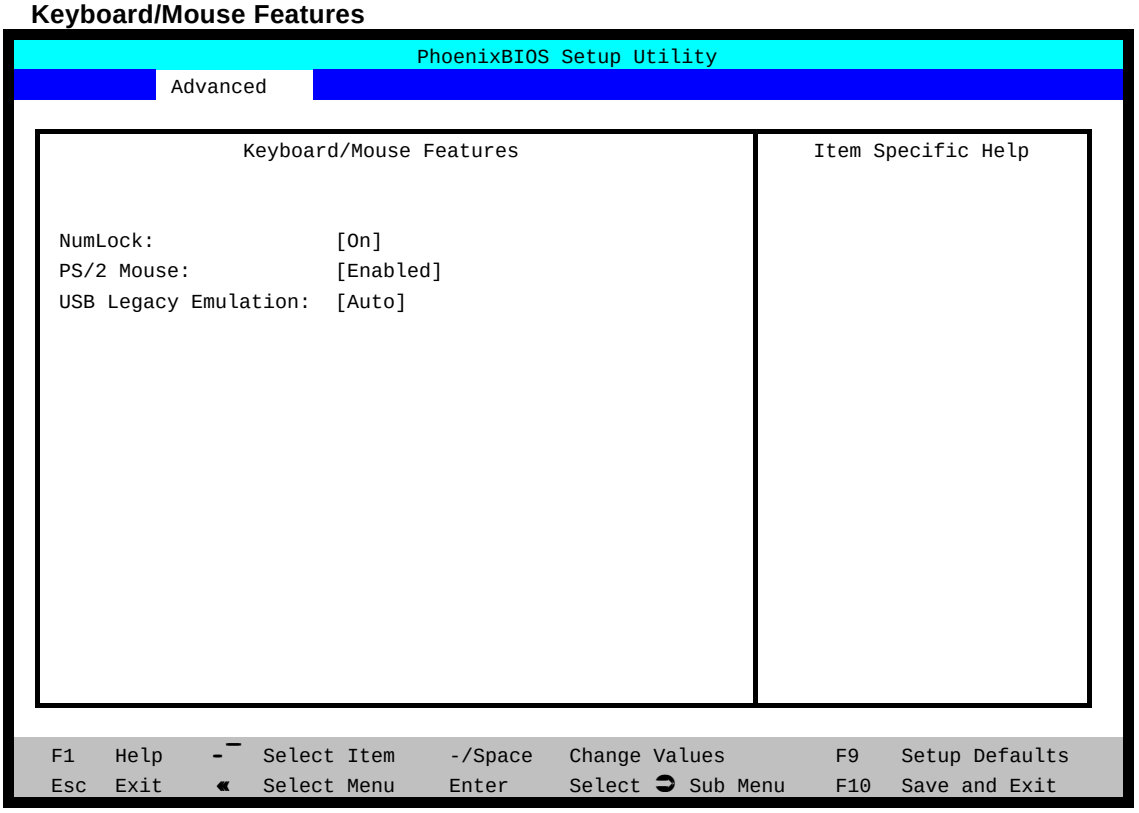
Interrupt

Select the interrupt number for the port. Options are: IRQ 5 and IRQ 7

DMA Channel

Select the DMA channel for the parallel port, available only in ECP mode. Options are: DMA 1 and DMA 3

Keyboard/Mouse Features



Numlock

This parameter determines whether the numeric keypad is in numeric mode when you start the system. Set the parameter to Enabled or Disabled according to the way your operating system works; some operating systems automatically use the numeric mode when loaded..

PS/2 Mouse

[Enabled]: PS/2 mouse port is enabled.

[Disabled]: PS/2 mouse port is disabled and IRQ 12 may be used by other devices.

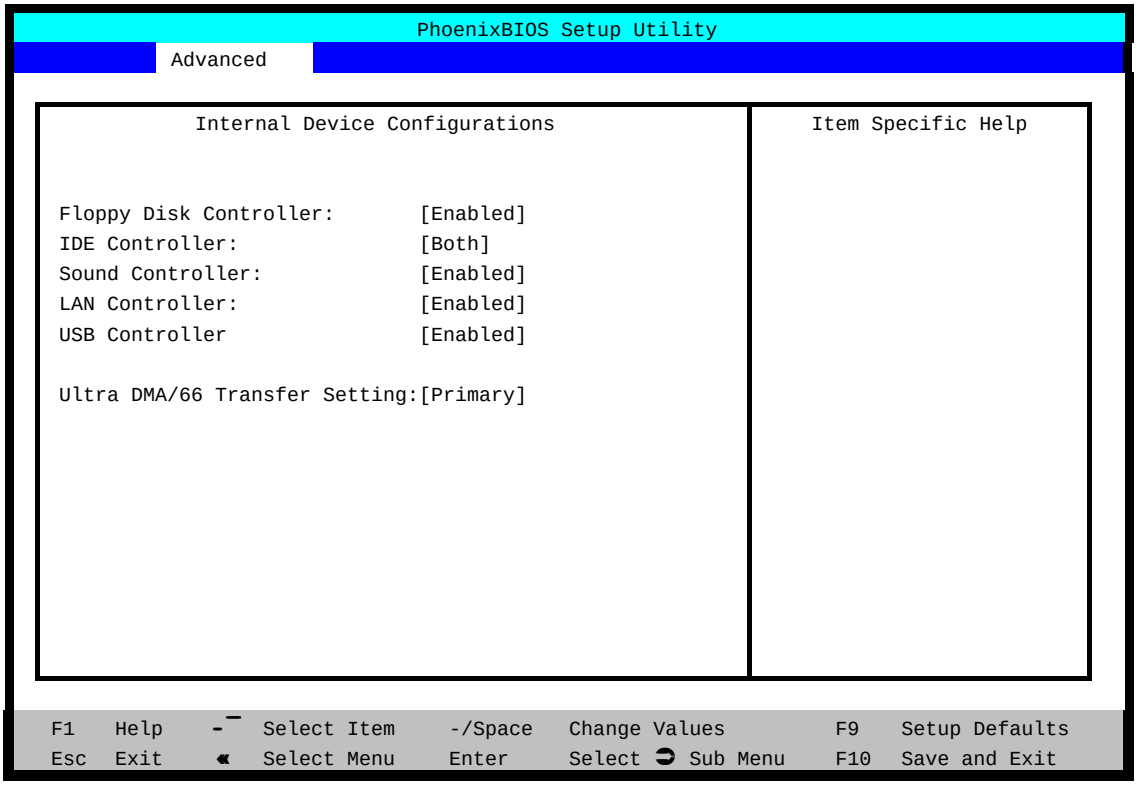
USB Legacy Emulation

[Enabled]: USB keyboard/mouse emulates Legacy(PS/2) keyboard/mouse.

[Auto]: If USB keyboard/ mouse is connected on boot, this feature is enabled, else disabled.

[Disabled]: USB keyboard/mouse can not be available without USB aware OS.

Internal Device Configurations



Floppy Disk Controller

[Enabled]: Floppy disk drives are enabled.
[Disabled]: Floppy disk drives are disabled and IRQ6 may be used by other devices.

IDE Controller

[Both]: Primary and Secondary IDE ports are enabled.
[Primary]: Only primary IDE port is enabled and IRQ15 may be used by other bevices.
[Disabled]: No IDE ports are enabled, IRQ14 and 15 may be used by other devices.

Sound Controller

[Enabled]: On-board sound system is enabled.
[Disabled]: On-board sound system is disabled.

LAN Controller

[Enabled]: On-board LAN controller is enabled.
[Disabled]: On-board LAN controller is disabled

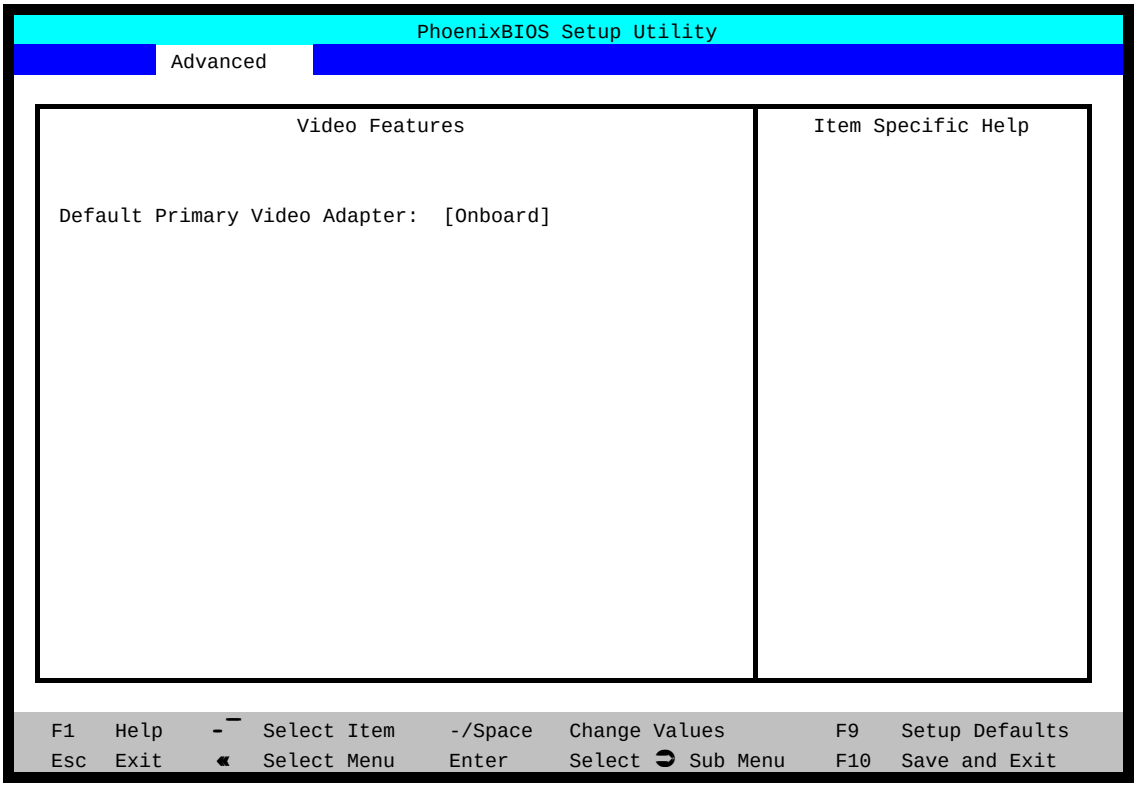
USB Controller

[Enabled]: USB peripherals are enabled.
[Disabled]: USB peripherals (communication to USB devices) are disabled.

Ultra DMA/66 Transfer Setting

[Primary]: Ultra DMA/66 transfer is activeted only for primary IDE port.
[Both]: Ultra DMA/66 transfer is activeted for both primary and secendary IDE ports.

Video Features

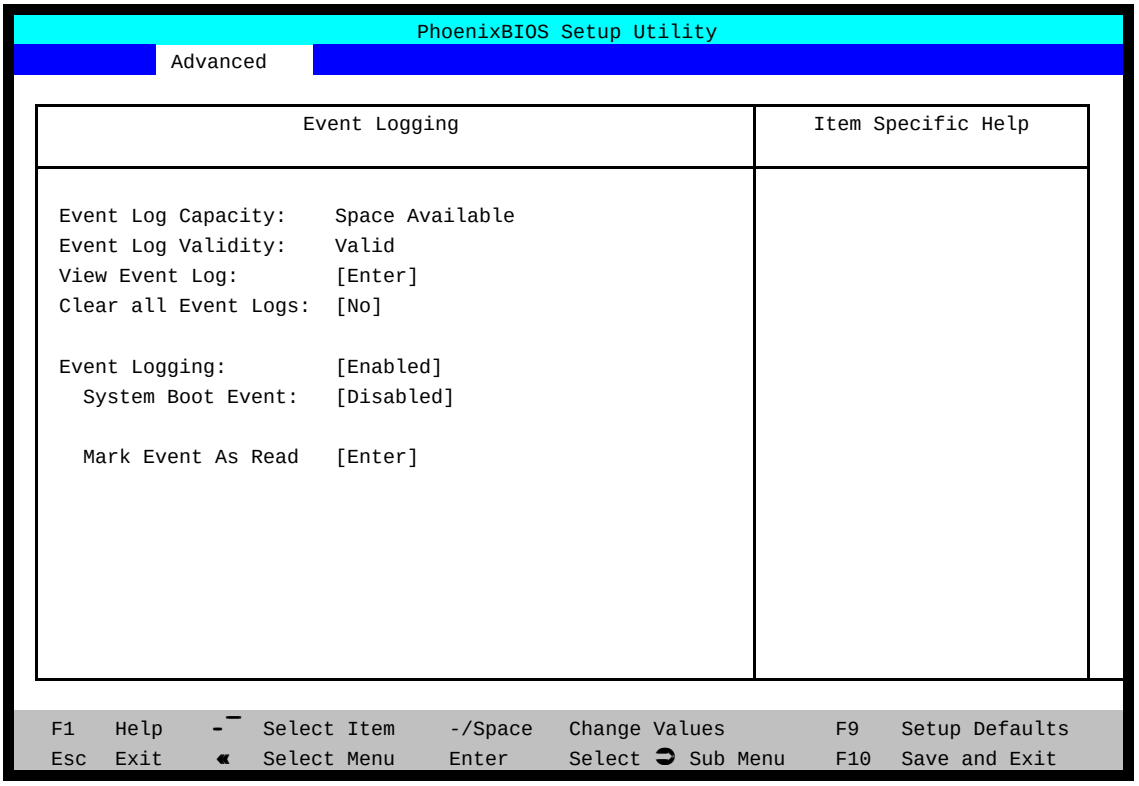


Default Primary Video Adapter
Select primary display. AGP is standard internal video device.

[PCI]: The BIOS searches video device from PCI slot 4-3-2-1.to Onboard.
[Onboard]: Internal video device may be primary display.

AGP Aperture Size
Select aperture size for AGP video device, optional values are (8, 16, 32, 64, 128 and 256) MB.

Event Logging



Event Log Capacity
Displays the status of the event log area
Space available: There is still free space for new events to be stored.
Full: Area reserved for event logging is full and new events can not be stored.

Event Log Validity

View event log

Press <Enter> key to veiw the contents of event log

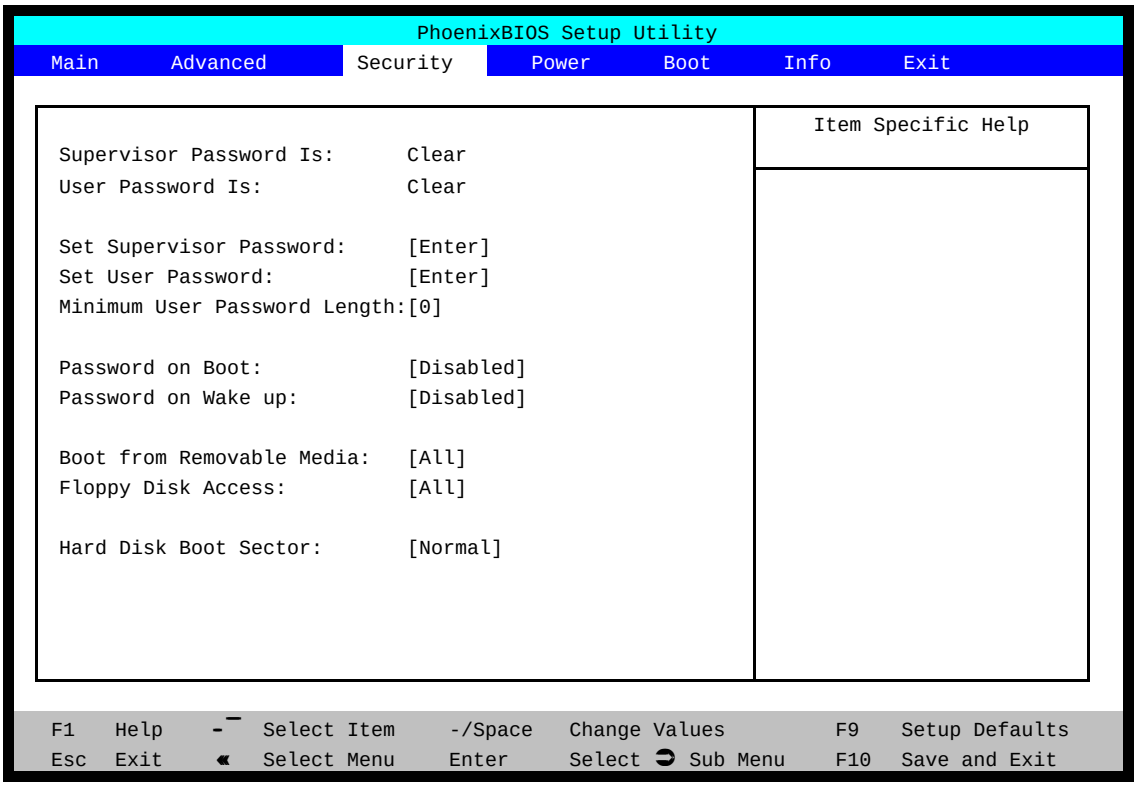
Clear all Event Logs
[Yes]: All event logs are cleared at next boot. The value is reset to [No] after clearing.
[No]: Event logs will not be cleared.

Event Logging
[Enabled]: Event logging is enabled.
[Disabled]: Feature is disabled.

System Boot Event
[Enabled]: Events are logged.
[Disabled]: Events are ignored.

Mark Events as Read
Press <Enter> key to mark all events currently in the event log as read.
Marked events will not be displayed from the next ´view event log´.

Security menu



Supervisor Password Is
Displays the status of Supervisor password (Clear, Set, Disabled)

User Password Is
Displays the status of User password (Clear, Set, Disabled)

Set Supervisor Password
Press <Enter>key to set Supervisor Password to enable any password features.
Then password entry is required to enter BIOS Setup.

Set User Password
Press <Enter>key to set User Password. Entering BIOS Setup with User Password, you cannot change most items.

Minimum User Password Length
Set user password minimal length (0 - 16).

Password on Boot
The feature just works with power switch, not automatic wake up.
[Every Boot]: Password entry is required before OS boot and also reboot.
[First Boot]: Entry is required just once after power on.
[Disabled]: The feature is disabled.

Password on Wake up
The feature just works with automatic wake up, not power switch.
[Enabled]: Keyboard and mouse inputs are locked out until entering either password.
[Disabled]: The feature is disabled.

Boot from Removable Media

[Supervisor Only]: Using Password on Boot, only Supervisor can boot from removable media. In case of automatic wake up or not using Password on Boot, removable media boot is forbidden.

[All]: Removable media boot is not restricted.

Floppy Disk Access

[Supervisor Only]: Using Password on Boot, only Supervisor can access floppy disk. In case of automatic wake up or not using Password on Boot, floppy disk access is forbidden.

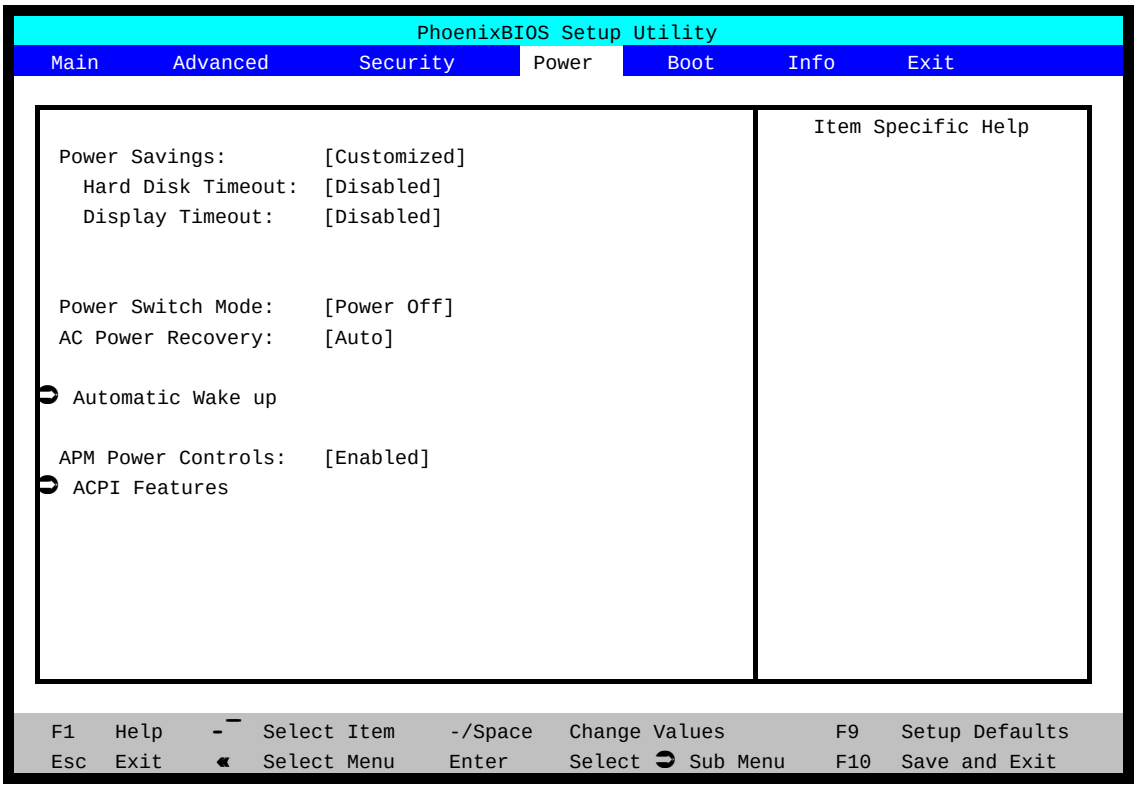
[All]: Floppy disk access is not restricted.

Hard Disk Boot Sector

[Write protected]: Write protects boot sector on hard disk to protect from viruses.

[Normal]: Boot sector on hard disk can be written normally.

Power menu



Power Savings

[Customized]: Alter each settings individually.
[Maximum Power Savings]: Minimize power consumption.
[Maximum Performance]: Maximize performance.
[Disabled]: The feature is disabled. * APM OS can override this setting. * ACPI OS ignores this setting.

Hard Disk Timeout

[? minutes]: The motor of Hard Disk stops after specified time from last access.
[Disabled]: The motor will not stop.
* APM OS can override this setting.
* ACPI OS ignores this setting.

Display Timeout

[? minutes]: The display turns off after specified time from last access of user input device.
[Disabled]: The display will not turn off.
* APM OS can override this setting.
* ACPI OS ignores this setting.

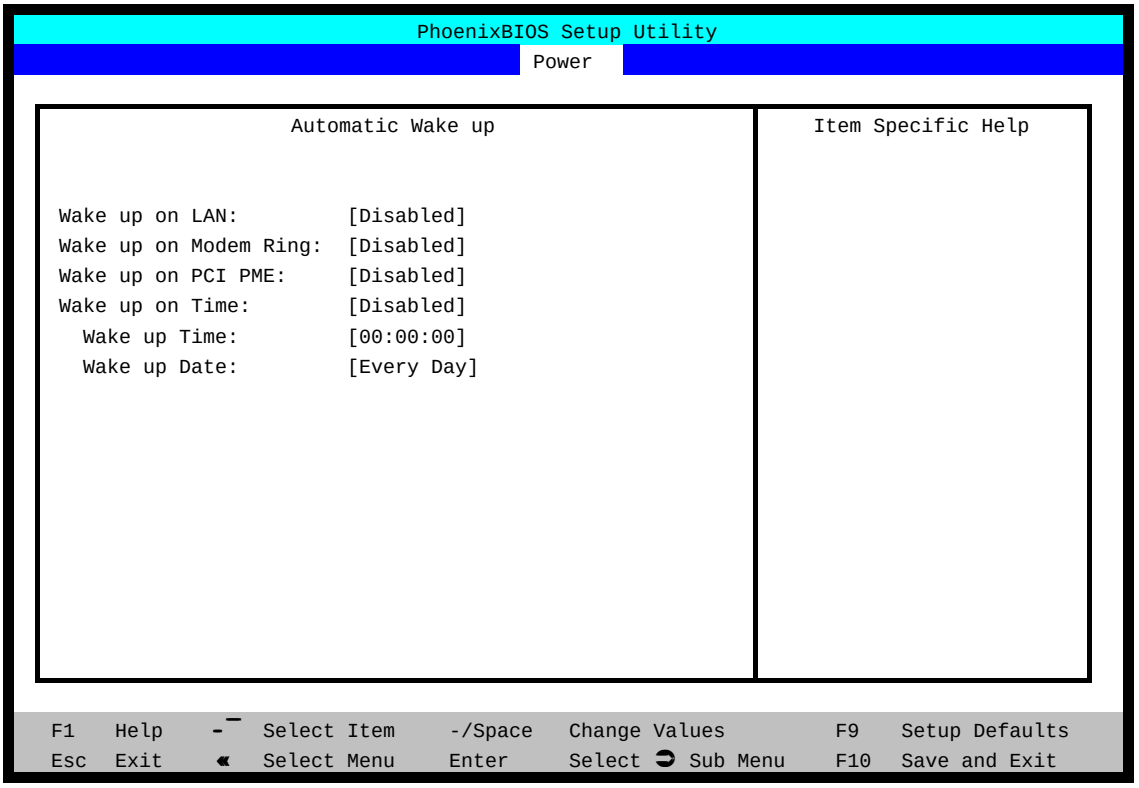
Power Switch Mode

[Power Off]: Power switch behaves as Power Off Switch.
[Suspend]: Power switch behaves as Suspend Switch.
* ACPI OS ignores this setting.

APM Power Controls

[Enabled]: Power control by APM aware OS is enabled. The Power Settings of BIOS may be overridden by OS.
[Disabled]: Power control by APM aware OS is disabled. The Power Settings of BIOS are preserved.
* ACPI OS ignores this setting.

Automatic Wake up



Wake up on LAN

[Enabled]: The system will wake up when internal LAN Device receives a magic packet in Suspend mode or Power off.

[Disabled]: The feature is disabled. * ACPI OS ignores this setting.

Wake up on Modem Ring

[Enabled]: The system will wake up when a Modem on the serial port receives a incoming call in Suspend mode or Power off.

[Disabled]: The feature is disabled. * ACPI OS ignores this setting.

Wake up on PCI PME

[Enabled]: The system will wake up when a PCI card issues a Power Management Event in Suspend mode or Power off.

[Disabled]: The feature is disabled. * ACPI OS ignores this setting.

Wake up on Time

[Enabled]: The system will wake up at a specific time in Suspend mode or Power off.

[Disabled]: The feature is disabled. * ACPI OS ignores this setting.

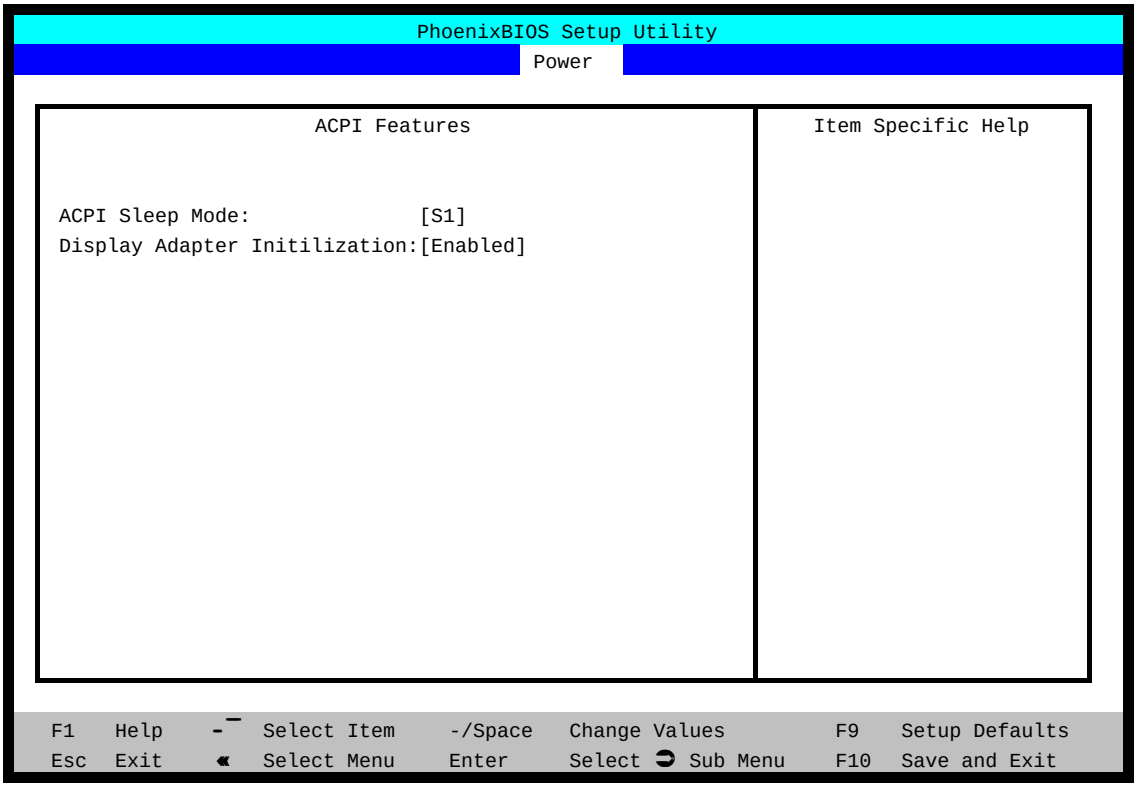
Wake up Time

Specify the day (every day, 1 to 31) when the system is to wake up.

Wake up Date

Specify the time (00:00:00 to 23:59:59) when the system is to wakes up.
<Tab>,<Shift-Tab> or <Enter> selects field.

ACPI Features



ACPI Sleep Mode

[S1]: CPU Stop is selected as sleep state for ACPI.

[S3]: Suspend to RAM is Selected as Sleep state for ACPI. APM OS ignores this setting

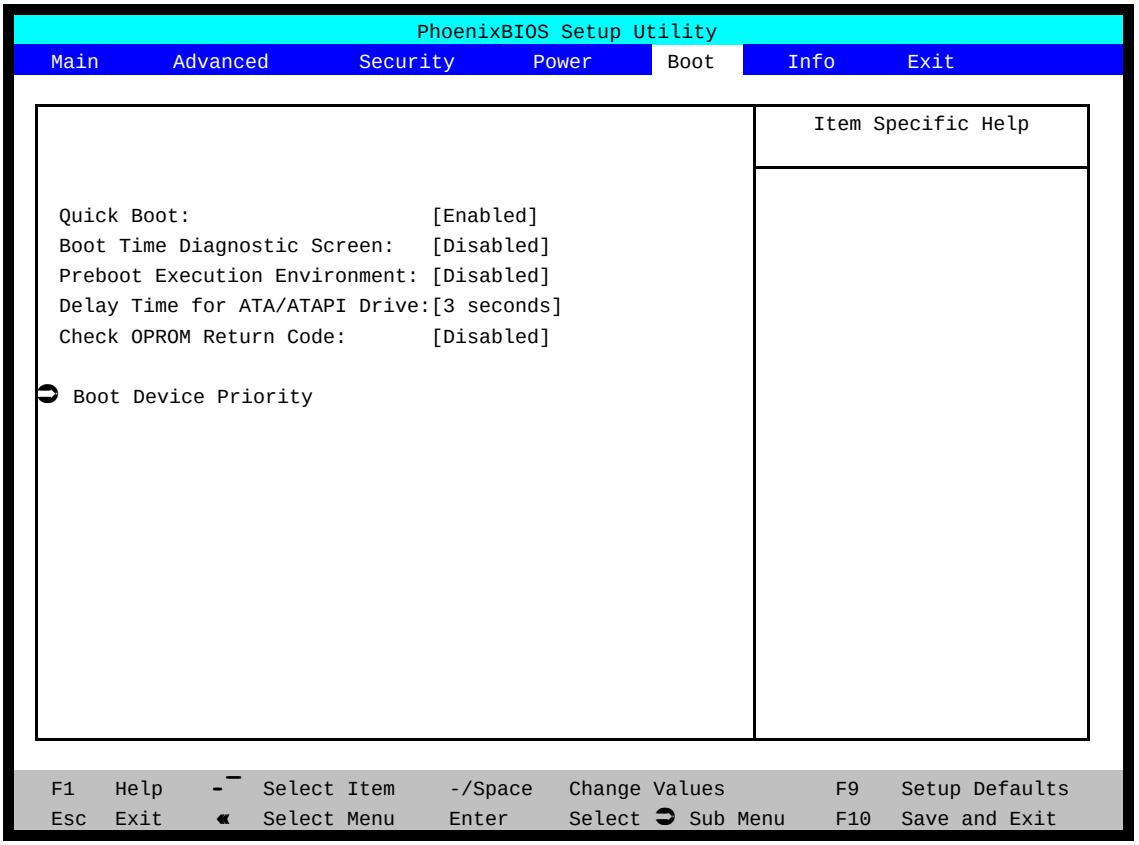
Diplay Adapter Initialization

Setting of display Adapter Initialization when resuming from ACPI S3 state.

[Enabled] This function is enabled.

[Disabled] This function is disabled.

Boot menu



QuickBoot

[Enabled]: Some diagnostic tests may be skipped while booting to speed up.
[Disabled]: All diagnostic tests will be done.
[Auto]: Diagnostic tests will be automatically skipped or done according to the order of the ACPI OS.

Boot Time Diagnostic Screen

[Disabled]: Display the logo screen during boot.
[Enabled]: Display the diagnostic screen during boot.

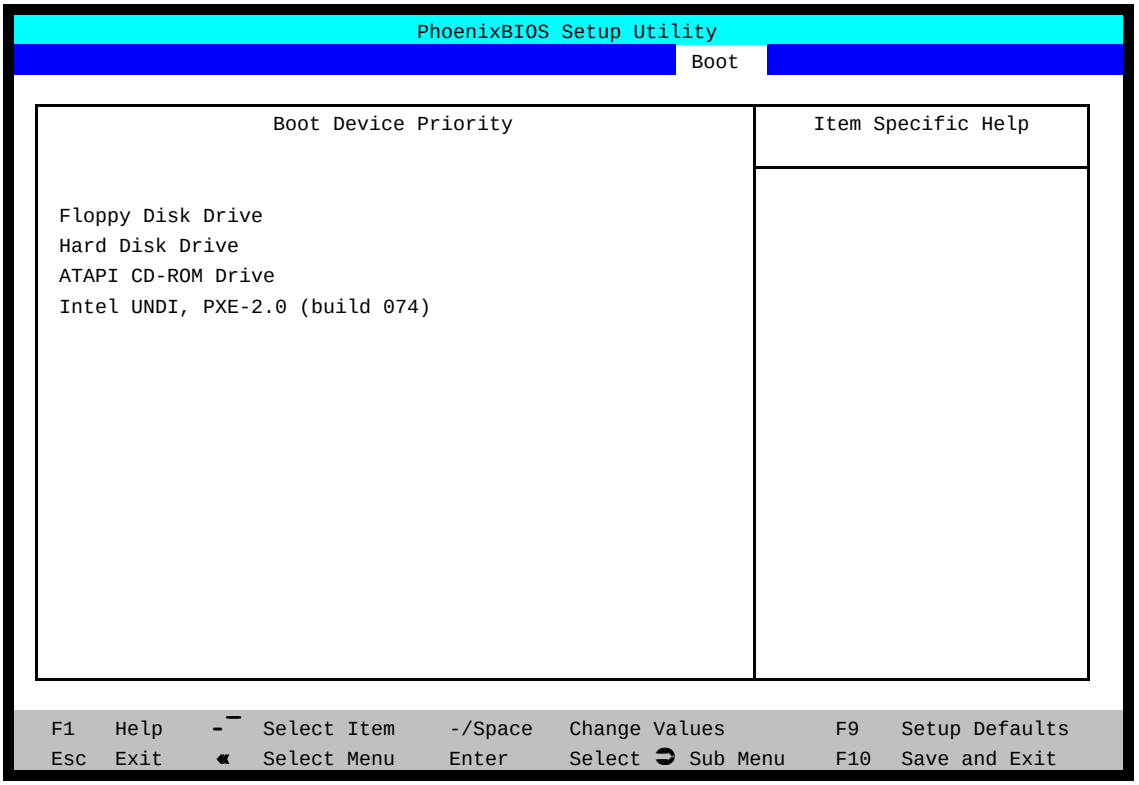
Preboot Execution Environment

[Enabled]: Boot from network server (Preboot Execution Environment) is enabled. Once exit and re-enter BIOS Setup to change boot device priority.
[Disabled]: The feature is disabled.

Delay Time for ATA/ATAPI Drive

[Time in seconds]: Wait for specified time (3, 5, 10, 15, 30) at auto detection of ATA/ATAPI drive.
[None]: No wait for auto detection of ATA/ATAPI drive.

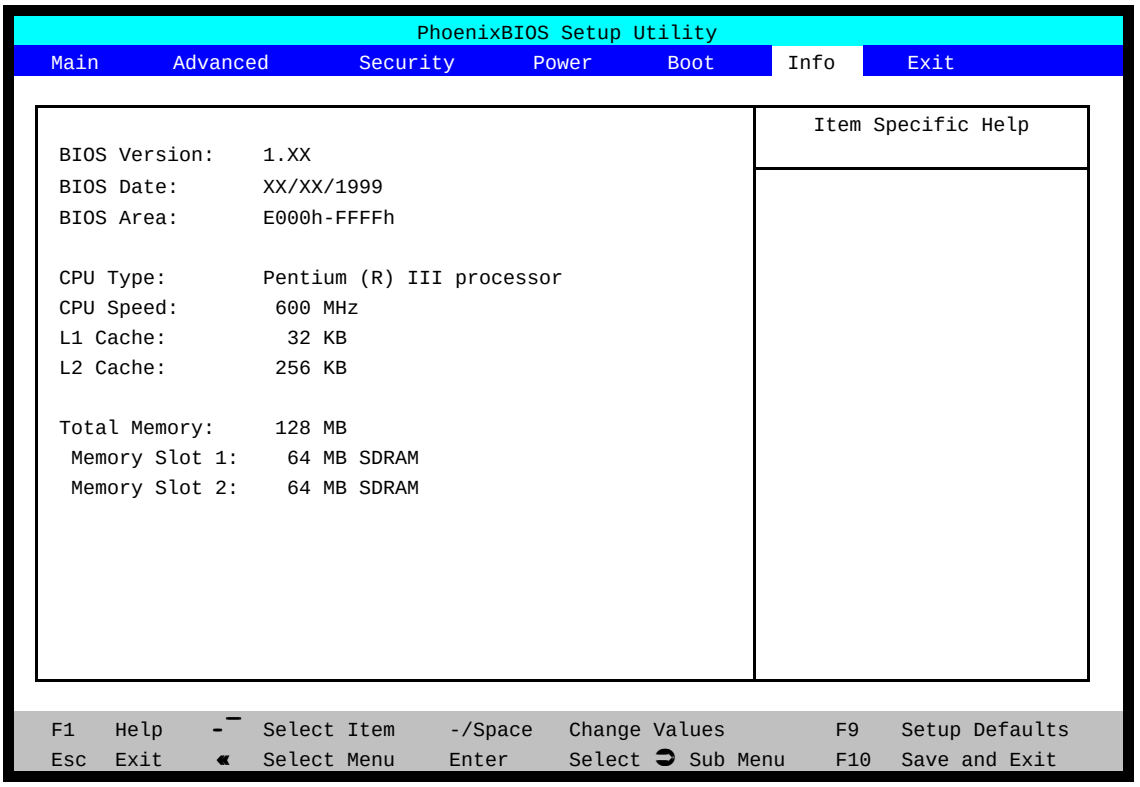
Boot Device Priority



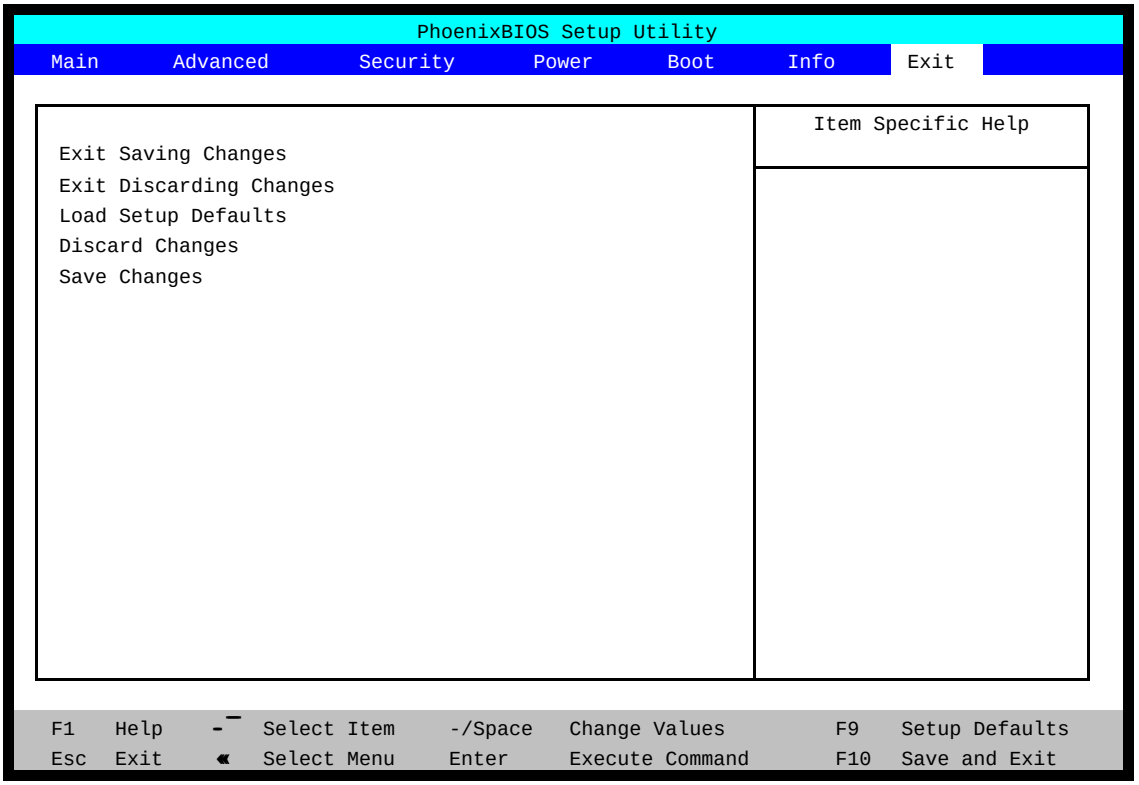
Floppy Disk Drive
Hard Disk Drive
ATAPI CD-ROM Drive
Intel UNDI, PXE-2.0 (build 074)
Use <↑> or <↓> to select a device, then press <+> or <Space> to move it up the list, or <-> to move it down the list. Press <Esc> to exit this menu.

Info menu

The Info menu has no sub menus, and the parameters cannot be modified; this menu serves mainly as a source of general information on your system.



Exit menu



Exit Saving Changes

Exit System Setup Utility and save your changes to CMOS.

Exit Discarding Changes

Exit utility without saving Setup data to CMOS.

Load Setup Defaults

Load default values for all SETUP items.

Discard Changes

Load previous values from CMOS for all SETUP items.

Save Changes

Save Setup Data to the CMOS.

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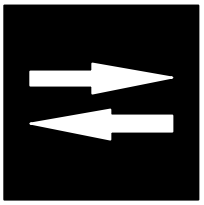


Section 4:

Input, Output & Special functions

xDp and xSp models

Audio

The integrated audio interface on the system board is controlled by the Crystal CS4281 PCI audio controller with Crystal CS4297A AC '97 codec. Legacy support of the CS4281 provides compatibility with the Sound Blaster Pro interface. In addition to the legacy support the system board implementation of the CS4281 chip takes atvantage of the CS4281 internal FM synthesizer. The CS4297A includes an analogue mixer, 18-bit stereo Analogue to Digital Converter (ADC) and a 18-bit stereo Digital to Analogue Converter (DAC). CS4297A codec is connected to the CS4281 controller via 5-wire digital interface (AC-link). Both The CS4281 and the CS4297A are compliant with Microsoft's PC´98 and PC´99 audio requirements.

Connectors

External	Internal
600 ohm mono microphone input (in the front panel)	Stereo CD-ROM audio input on the riser board
32 ohm stereo headphone output (in the front panel)	Telephony input/output on the riser board
Stereo speaker output (in the back panel). Output is disabled if headphone output is in use.	
10 kohm Stereo line-in (in the back panel)	
10 kohm Stereo line-out (in the back panel)	

Resource allocation

Device	IRQ	DMA	Memory	I/O
Crystal CS4281 PCI Audio	9	-	F4111000 . F4111FFF F4100000 - F410FFFF	
Crystal Sound Fusion (tm) Joystick Note! Joystick interface is not available	-	-	-	0200 - 0207

Audio interface can be disabled from the BIOS Setup (Advanced/Internal Device Configurations/Sound controller).

Floppy disk controller

The on-board (system board) floppy disk controller, is build in the SMSC's LPC47B377 Enhanced Super I/O Controller chip. The controller has 765B floppy disk controller core and it is software and register compatible with the 82077AA floppy disk controller. It can handle the following floppy drive types: 360 kB, 1.2 MB, 720 kB, and 1.44 MB.

Connectors

External	Internal
None	xD: One 34-pin (with key pin) flat cable connector on the backplane board (riser board). xS: One film cable connector on the backplane board (riser board).

Resource allocation

Device	IRQ	DMA	I/O
Floppy disk controller	6	2	03F0 - 03F5, 03F7

Floppy interface can be disabled (Advanced/Internal Device Configurations/Floppy disk controller) and the type of the floppy (Main menu) can be set through the BIOS Setup.

Front panel LEDs

There are two indicators that are located on the front panel:

POWER status: Green when the system is switched ON.
Amber when in power save mode.
Blinking green or amber when message waitting.

Hard drive activity: Green during IDE hard drive activity activity.

Graphics (integrated)

The integrated graphics is controlled by an Intel 82810e Graphics Memory Controller Hub (GMCH) that uses the system memory as a frame buffer (front and back buffers), texturing and z-buffer. Legacy (standard VGA) memory allocation is done during the POST and 1 MB of system memory is reserved for graphics. For this reason system memory is reported to be 1 MB less that actual installed physical memory. Intel GMCH has a build-in RAMDAC, which can handle pixel frequencies up to 230 MHz.

Intel 82810e integrates 3D/2D direct AGP video engine which utilizes 64-bit, PC-100 connection to the graphics buffers in the system memory. Intel 82810e supports the following features: direct AGP, texturing and pipelining. The graphics interface is DDC2B compatible.

Refresh rates

Maximum defined refresh rates for the graphics chip:

Video controller	Video memory	Resolution				
		640*480	800*600	1024*768	1280*1024	1600*1200
Intel 82810e	Dynamically taken from the system memory					
	VGA connector	85/24	85/24	85/24	85/24	85/8
	DVI connector	60/24	60/24	60/24	N/A	N/A

85/24 = Refresh rate is 85 Hz and there are 24 Bits per Pixel

Note! The actual refresh rate is directly related to the monitor in use (do not exceed monitor specifications), and may vary between operating systems.

Graphics memory upgrades for the integrated adapter

Graphics memory on the system board	Memory upgrade module	Module code for the upgrade module	Kit code for the upgrade module	Total video memory	System board
Dynamically taken from the system memory	N/A[1]	N/A[1]	N/A[1]	Dynamically taken from the system memory	CP25001

[1] N/A = Not Available; the memory of the integrated graphics controller can not be upgraded

Connectors

External	Internal
One 15-pin (standard) VGA connector at the back panel of the system unit	None
One 24-pin digital only DVI connector at the back panel of the system unit	

Resource allocation

Device	IRQ	DMA	Memory	I/O

Intel(R) 810e Chipset Graphics Driver (DC133)	10	None	000A0000 - 000AFFFF 000B0000 - 000BFFFF 000C0000 - 000C7FFF F4000000 - F407FFFF F8000000 - FBFFFFFF	03B0 - 03BB 03C0 - 03DF

The integrated graphics controller can be deactivated (but not disabled) by using a PCI video adapter, and by setting the Default Primary Video Adapter parameter to the PCI value in the BIOS Setup utility's Video Feature submenu (in the Advanced menu).

IDE interface

There are two IDE controllers/interfaces on the system board (build in the Intel I/O Control Hub (82801AA)) which can handle up to four IDE devices. The 82801AA supports PIO modes 0 to 4, DMA multiword mode 2 timing, Ultra DMA 33 and Ultra DMA 66 modes. Both the primary and the secondary IDE bus can handle up to 2 hard drives or other IDE devices. The BIOS has support for ATAPI devices and it also supports booting from the CD-ROM.

Connectors

External	Internal
None	xDp: Two 40-pin (with key pin) flat cable connectors on the riser board. xSp: One 50-pin (with key pin) flat cable connector and one on the riser board.

Resource allocation

Device	IRQ	DMA	I/O
Primary IDE channel	14	None	01F0 - 01F7 03F6 1020 - 1027
Secondary IDE channel	15	None	0170 - 0177 0376 1028 - 102F

The on-board IDE interface(s) can be disabled from the BIOS Setup Utility (Advanced menu: Internal Device Configurations/IDE controller).

Parallel port communication

There is one multi-mode parallel port build in the LPC47B377 Enhanced super I/O chip, which supports following modes:

Output only :

Bi-directional (SPP) : IBM PC/XT, PC/AT, and PS/2 compatible bi-directional parallel port.

EPP (Enhanced mode) : Enhanced Parallel Port (EPP 1.9), and is IEEE1284 compliant.

ECP (High speed mode) : Microsoft and Hewlett Packard Extended Capabilities Port, and is IEEE1284 compliant.

Connectors

External	Internal
One standard 25-pin D-type connector in the back panel of the system housing (on the system board)	None

Resource allocation

Device	IRQ	DMA	I/O
Printer port LPT1 (output only, bi-directional and EPP modes)	7	None	0378 - 037F
Optional settings	5	None	0278 - 027F 03BC - 03BF
Printer port LPT1 (ECP mode)	7	1	0378 - 037F 0778 - 077B
Optional settings	5	3	0278 - 027F 0678 - 067B 03BC - 03BF 07BC - 07BF

The on-board parallel port can be configured / disabled through the BIOS Setup (Advanced menu: Serial/Parallel port configurations).

PS/2 type Keyboard & mouse

The controller of the PS/2-type keyboard and mouse is build in the SMSC's LPC47B377 super I/O controller, and provides software compatibility with the 8042A microcontrollers. Combined maximum output current for the keyboard and mouse ports is 1 A.

Connectors

External	Internal
One 6-pin PS/2 type connector for keyboard	None
One 6-pin PS/2 type connector for mouse	None

Resource allocation

Device	IRQ	DMA	I/O
PS/2 Keyboard	1	None	0060 0064
PS/2 Mouse	12	None	None

Serial port communication

It comprises 2 high speed NS16C550 compatible UARTs with send/receive 16 Byte FIFOs. The UARTs are placed in the LPC47B377.

The maximum transfer speed supported by the BIOS functions is 19200 bps, and by the HW 115 kbps. Instant on-function wakes up the system when the modem generates the Ring Indicator signal.

Connectors

External	Internal
One standard 9-pin D-type connector (RS-232C) in the back panel of the system housing (on the system board)	One 10-pin cable connector for optional second serial port

Resource allocation

Device	IRQ	DMA	I/O
Serial port 1 (COM1)	4	None	03F8 - 03FF
Optional settings	3, 10, 11	None	02F8 - 02FF, 03E8 - 03EF, 02E8 - 02EF
Serial port 2 (COM2), note that additional hardware is needed to activate the second serial port.	3	None	02F8 - 02FF
Optional settings	4, 10, 11	None	03F8 - 03FF, 03E8 - 03EF, 02E8 - 02EF

The on-board serial ports can be configured / disabled through the BIOS Setup (Advanced menu: Serial/Parallel port configurations).

Peripheral Component Interconnect (PCI interface)

The PCI bus controller build in the Intel 82801AA chip (I/O Control Hub) connects the HUB bus to the PCI bus and provides the maximum speed of 33 MHz for the PCI bus. The hardware and the BIOS are compliant to the version 2.2 of the PCI specification (+ 3.3 V / +5 V 33 MHz) and has support for six PCI master devices and PCI to PCI bridge.

Connectors

External	Internal
None	xDp/*** models Four 32-bit PCI bus slots xSp/*** models Two 32-bit PCI bus slots

USB

In the system there are two 4-pin USB connectors (ports), one in the front panel and another in the rear panel, for serial transfers at 12 or 1.5 Mbps, controlled by the USB Host Controller (HC) built-in the 82801AA (I/O Control Hub) chip. The Host Controller includes the root hub with two USB ports and it supports the standard Universal Host Controller Interface (UHCI).

If more than two USB devices are required, an external hub can be connected to either of the USB ports.

Connectors

External	Internal
Two 4-pin USB connectors, one at the back panel of the system unit and another in the front panel.	None

Resource allocation

Device	IRQ	DMA	Memory	I/O
USB	11	None	None	1000 - 101F

USB peripherals (communication to USB devices) can be disabled from the BIOS Setup (Advanced/Internal Device Configurations/USB controller).

Ethernet controller (integrated)

The integrated PCI Fast Ethernet LAN (Local Area Network) controller is compatible with the Intel EtherExpress PRO/100+ adapter. The controller is build around the Intel 82559 Fast Ethernet multifunction PCI bus LAN controller chip (3.3 V) with build-in 10BASE-T and 100BASE-TX Physical layer units (PHY), 3 kB transmit and 3 kB receive FIFOs, 32-bit glueless PCI master interface and a Magic Packet (Wake On LAN) support.

The Ethernet interface can be connected to a Twisted Pair (TP) cable through an 8-pin RJ45 connector. It is possible to use the module in 10 Mbps or 100 Mbps Twisted Pair Ethernet LAN by simply connecting the network adapter to a 10BASE-T or 100BASE-TX hub port. By default the Fast Ethernet module automatically identifies the speed of the hub port and configures itself to the right speed without any hardware or software changes.

Wake On LAN support is provided by the integrated Magic Packet filter of the Intel 82559 chip. The + 3.3 volt stand-by voltage (+5 V generated from +5 V stand-by voltage) is always supplied for this intel chip.

In addition to previous features, Alert On LAN 2 (AOL2) function is made available by integrating the Mitel (MVT203011) AOL2 chip to the system board.

Remote Boot options:

The system BIOS includes LANDesk Service Agent (LSA) and provides Intel Preboot eXecution Environment (PXE). When network boot is enabled (Boot menu), the system tries to load the boot image from a remote server.

Connectors

External	Internal
8-pin RJ45 connector	None

Resource allocation

Device	IRQ	DMA	Memory	I/O
Intel 8255X-based PCI Ethernet Adapter (10/100)	7	None	F4100000 - F41FFFFF F4200000 - F4200FFF	2000 - 203F

The network interface can be disabled from the BIOS Setup (Advanced/Internal Device Configurations/LAN controller).

Section 5 :

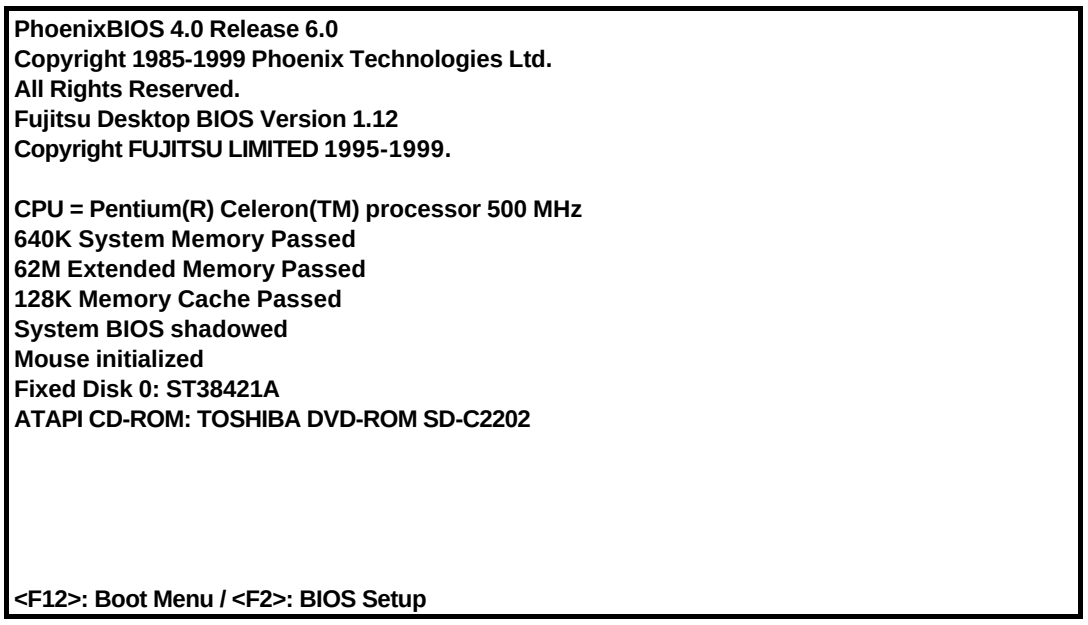
Power-on self test and error indications

xDp and xSp models

Power On Self Test (POST)

After the power has been turned on, the system performs a power on self-test to check that all parts are working properly. If the test does not find any faults you will hear one short beep (.).

During the POST Fujitsu Siemens computers logo is shown on the screen until Operating System starts and shows it's own logo.
If <ESC> key is pressed while the Fujitsu logo is shown on the screen, the logo screen is changed to the following text screen (basic settings) that is shown on the screen until Operating System starts. The information shown on the screen is updated line by line and the information shown may vary between different hardware configurations and BIOS settings.



The text screen indicates the BIOS version (1.12), type and speed of the CPU, total amount of system (640 kilo bytes) and extended (62 mega bytes) memory installed and the size of the cache (128 kB) in the system. It also indicates if PS/2 type mouse has been found and initialized.

If the self-test finds any faults, indication of that is shown one of the following two ways:

- You will hear two short beeps (• •) and see a message on the screen.
- You will hear a sequence of long and short beeps immediately after you have started the system.

The following pages describe the steps that you should take if either fault situation should occur.

Two short beeps and a message

The format these messages take is:

TYPE	**--->**	Error
CODE: short description	**--->**	02B0: Diskette drive A error

or

Short description	**--->**	Operating system not found

Where “TYPE” refers to the type of the message (ERROR) and “CODE” to the number of the message

If you see a message that does not have this format, it probably comes from an additional board installed in the system unit. For further information, refer to the documentation of the board .

If the keyboard is concerned, the start-up procedure will continue after a while. Otherwise, you will see this message:

Press <F1> to resume, <F2> to Setup.

Pressing F1 allows you to bypass the fault without correcting it. Enter SETUP by pressing F2 , and check that the configuration parameters are correct.

Should the message persist, check the following list, and contact service as instructed below.

List of "no-type" and Error messages:

Error
0251: System CMOS checksum bad - Default configuration used

System CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS - BIOS automatically restores default values. Run Setup and reconfigure the system by making your own selections, if needed.

Error
0271: Check date and time settings

Error
02B0: Floppy disk drive A error

Drive A: is present but fails the POST diskette tests. Check that the drive is defined with the proper diskette type in Setup and that the controller is enabled and that the diskette drive is installed correctly.

Failure Hard Disk n

Fixed disk is not working or not configured properly. Check to see if fixed disk is installed properly. Run Setup be sure the fixed-disk type is correctly identified.

Keyboard controller error

The keyboard controller failed test. Try replacing the keyboard.

Keyboard error

Keyboard not working.

Operating system not found

Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified

Real time clock error

Real-time clock fails BIOS test. May require motherboard repair.

System cache error - Cache disabled

RAM cache failed the BIOS test. BIOS disabled the cache.

System Memory Failed at offset: nnnn
Failing Bits: zzzz

System memory failed at offset nnnn of the 64 KB block at which the error was detected.

Extended Memory Failed at offset: nnnn
Failing Bits: zzzz

Extended memory failed at offset nnnn of the 64 KB block at which the error was detected.

System timer error

The timer test failed. May require repair of system motherboard.

Sequences of long and short beeps

If you hear a sequence of long and short beeps immediately after you have started the system, the self-test has detected an equipment failure. Turn all units off, check their connections, and try again. If you hear the sequence again, write it down, and call our local service representative.

The following list contains the signal sequences. Short beeps are indicated with •, long beeps with **-** and space between beeps with _. I/O port 80h message numbers are shown in brackets.

Short beeps		
•	1	(B4h) No errors found during POST, operating system will be loaded.
•_••_••_•••	1-2-2-3	(16h) BIOS ROM checksum.
•_•••_•_•	1-3-1-1	(20h) Test DRAM refresh.
•_•••_•_•••	1-3-1-3	(22h) Test keyboard controller
•_•••_•••_•	1-3-3-1	(28h) Autosize DRAM.
•_•••_••••_•	1-3-4-1	(2Ch) RAM failure on address line.
•_•••_••••_•••	1-3-4-3	(2Eh) RAM failure on data bits of low byte of memory bus.
•_••••_•_•	1-4-1-1	(30h) RAM failure on data bits of high byte of memory bus.
••_•_••_•••	2-1-2-3	(46h) Check ROM copyright notice.
••_••_•••_•	2-2-3-1	(58h) Test for unexpected interrupts.

Long and short beeps		
- _••	1-2	(98h) Search for option ROMs, checksum error.

BIOS check points

This table shows the checkpoint number (hex) and what BIOS is doing while this checkpoint is displayed :

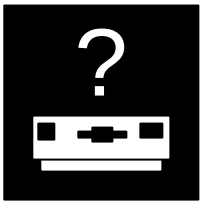
If the code is not shown on this list, contact FUJITSU Service Provider.

Checkpoint	
02h	Verify real mode
03h	Disable non-maskable interrupt (NMI)
04h	Get processor type
06h	Initialize system hardware
08h	Initialize chipset with initial POST values
09h	Set IN POST flag
0Ah	Initialize processor registers
0Bh	Enable processor cache
0Ch	Initialize caches to initial POST values
0Eh	Initialize I/O component
0Fh	Initialize the local bus IDE
10h	Initialize power management
11h	Load alternate registers with initial POST valuesnew
12h	Restore CPU control word during warm boot
13h	Initialize PCI bus mastering devices
14h	Initialize keyboard controller
16h	BIOS ROM checksum
17h	Initialize cache before memory autosize
18h	8254 timer initialization
1Ah	8237 DMA controller initialization
1Ch	Reset programmable interrupt controller
20h	Test DRAM refresh
22h	Test keyboard controller
24h	Set ES segment register to 4 GB
26h	Enable A20 line
28h	Autosize DRAM
29h	Initialize POST memory manager
2Ah	Clear 512 kB base RAM
2Ch	RAM failure on address line xxxx*
2Eh	RAM failure on data bits xxxx* of low byte of memory bus
2Fh	Enable cache before system BIOS shadow
30h	RAM failure on data bits xxxx* of high byte of memory bus
32h	Test processor bus-clock frequency
33h	Initialize POST dispatch manager

Checkpoint	
36h	Warm start shut down
38h	Shadow system BIOS
3Ah	Autosize cache
3Ch	Advanced configuration of chipset registers
3Dh	Load alternate registers with CMOS values
42h	Initialize interrupt vectors
45h	POST device initialization
46h	Check ROM copyright notice
48h	Check video configuration against CMOS RAM data
49h	Initialize PCI bus and devices
4Ah	Initialize all video adapters in system
4Bh	QuietBoot start
4Ch	Shadow video BIOS ROM
4Eh	Display BIOS copyright notice
50h	Display processor type and speed
52h	Test keyboard
54h	Set key click if enabled
58h	Test for unexpected interrupts
59h	Initialize POST display service
5Ah	Display prompt "Press F2 to enter SETUP"
5Bh	Disable processor cache
5Ch	Test RAM between 512 and 640 kB
60h	Test extended memory
62h	Test extended memory address lines
64h	Jump to UserPatch1
66h	Configure advanced cache registers
67h	Initialize multiprocessor APIC
68h	Enable external and processor caches
69h	Setup System Management Mode (SMM) area
6Ah	Display external L2 cache size
6Bh	Load custom defaults
6Ch	Display shadow-area message
6Eh	Display possible high address for UMB recovery
70h	Display error messages
72h	Check for configuration errors
76h	Check for keyboard errors
7Ch	Set up hardware interrupt vectors
7Eh	Initialize coprocessor if present
80h	Disable onboard Super I/O ports and IRQs

81h	Late POST device initialization
82h	Detect and install external RS232 ports
83h	Configure non-MCD IDE controllers
84h	Detect and install external parallel ports
85h	Initialize PC-compatible PnP ISA devices
86h	Re-initialize onboard I/O ports
87h	Configure motherboard configurable devices
88h	Initialize BIOS Data Area
89h	Enable Non-Maskable Interrupts (NMIs)
8Ah	Initialize extended BIOS data area
8Bh	Test and initialize PS/2 mouse
8Ch	Initialize floppy controller
8Fh	Determine number of ATA drives
90h	Initialize hard-disk controllers
91h	Initialize local-bus hard-disk controllers
92h	Jump to UserPatch2
93h	Build MPTABLE for multiprocessor boards
95h	Install CD ROM for boot
96h	Clear huge ES segment register
97h	Fix up multiprocessor table
98h	Search for option ROMs
99h	Check for SMART Drive
9Ah	Shadow option ROMs
9Ch	Set up power management
9Dh	Initialize security engine
9Eh	Enable hardware interrupts
9Fh	Determine number of ATA and SCSI drives
A0h	Set time of day
A2h	Check key lock
A4h	Initialize typematic rate
A8h	Erase F2 prompt
AAh	Scan for F2 key stroke
ACh	Enter SETUP
AEh	Clear boot flag
B0h	Check for errors
B2h	POST done - prepare to boot operating system
B4h	One short beep before boot
B5h	Terminate QuietBoot
B6h	Check password (optional)
B9h	Prepare boot

BAh	Initialize DMI parameters
BBh	Initialize PnP Option ROMs
BCh	Clear parity checkers
BDh	Display MultiBoot menu
BEh	Clear screen (optional)
BFh	Check virus and backup reminders
C0h	Try to boot with INT 19
C1h	Initialize POST Error Manager (PEM)
C2h	Initialize error logging
C3h	Initialize error display function
C4h	Initialize system error handler
C5h	PnPnd dual CMOS
C8h	Force check
C9h	Extended checksum
D2h	Unknown interrupt
E0h	Initialize the chipset
E1h	Initialize the bridge
E2h	Initialize the processor
E3h	Initialize system timer
E4h	Initialize system I/O
E5h	Check force recovery boot
E6h	Checksum BIOS ROM
E7h	Go to BIOS
E8h	Set huge segment
E9h	Initialize multiprocessor
EAh	Initialize OEM special code
EBh	Initialize PIC and DMA
ECh	Initialize memory type
EDh	Initialize memory size
EEh	Shadow boot block
EFh	System memory test
F0h	Initialize interrupt vectors
F1h	Initialize runtime clock
F2h	Initialize video
F3h	Initialize System Management Mode
F4h	Output one beep before boot
F5h	Boot to mini-DOS
F6h	Clear huge segment
F7h	Boot to full DOS



Section 6:

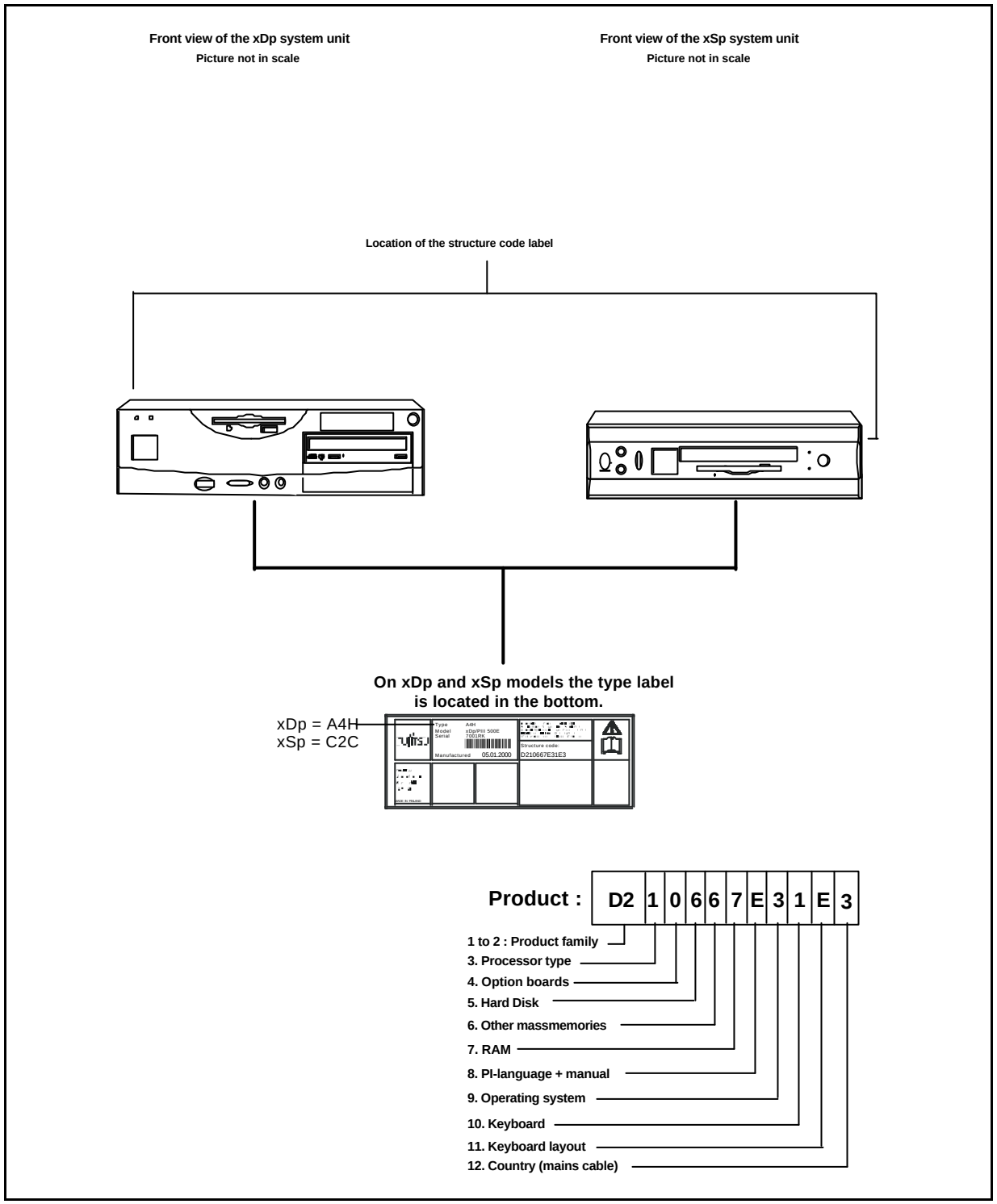
Machines identification

xDp and xSp models

xDp and xSp models structure codes

Every unit has an identification label located in the system unit. The picture below shows the location of the identification label on xDp and xSp-housings.

This code can be divided into eleven parts, indicating that way the exact configuration of the machine. The following pages are explaining those codes.



Identification codes

The following code information should be used for product identification only. The information should not be used to build up an ordering code.

1-2. PRODUCT FAMILY

The letter(s) in brackets () is/are for the third digit		System board code
D2	xDp/***	CP250001 + CP021071 PSU
C2	xSp/***	CP250001 + CP021065 PSU

3. PROCESSOR & HEATSINK

W	433 MHz PPGA Celeron	AF33930 + A6701793
P	466 MHz PPGA Celeron	AF33932 + A6701793
Y	500 MHz PPGA Celeron	AF33933 + A6701793
V	500E MHz Pentium III	210 000220 + A6701798
X	550E MHz Pentium III	210 000221 + A6701798

4. OPTION BOARDS

0	No option board(s)		
1	Olicom OC-3140	PN011111	
2	3COM 3C905B-TX	PN010295	
4	3COM 3C905C-TX-M	130 000210	

5. HARD DRIVE

3	4.3 GB IDE hard drive, UDMA66	AF21261	
4	8.4 GB IDE hard drive, UDMA66	AF21263	
5	13 GB IDE hard drive, UDMA66	AF21265	
6	13.6 GB IDE hard drive, UDMA66, 7200 RPM	AF21259	
V	20.4 GB IDE hard drive, UDMA66, 7200 RPM	AF21257	
H	18.2 GB u2w SCSI + Adaptec 2940U2W LVD	AF21255 + AF31086	xDp only
L	9.1 GB u2w SCSI + Adaptec 2940U2W LVD	AF21254 + AF31086	xDp only

6. OTHER MASSMEMORIES

0	No other massmemories		
4	Travan 5 tape streamer	AF23256	xDp only
6	40x IDE CD-ROM drive	AF23347	xDp only
7	24x slim IDE CD-ROM drive	AF23364	xSp only
8	6x IDE DVD-ROM drive	AF23373	xDp only
	4x slim IDE DVD-ROM drive	AF23363	xSp only
E	4x24x IDE CD-RW drive	AF23349	xDp only

7. RAM

6	1 * 64 MB PC-100 (MHz) SDRAM DIMM (non-ECC)	1 * AF33863P
7	1 * 128 MB PC-100 (MHz) SDRAM DIMM (non-ECC)	1 * AF33864P
8	1 * 256 MB PC-100 (MHz) SDRAM DIMM (non-ECC)	1 * AF33865P

8. PI-LANGUAGE + MANUAL

A	Hungarian	Win 98
E	English	Win 98 & Win NT
F	Danish	Win 98 & Win NT
G	German	Win 98 & Win NT
H	Spanish	Win 95, Win 98 & Win NT
J	French	Win 98 & Win NT
K	Dutch	Win 98 & Win NT
L	Norwegian	Win 98 & Win NT
M	Finnish	Win 98 & Win NT
N	Swedish	Win 98 & Win NT
P	Portuguese	Win 98
S	Italian	Win 98 & Win NT
V	Czech	Win 98
Y	Polish	Win 98

9. OPERATING SYSTEM

3	Windows NT 40
6	Windows 98

10. KEYBOARD

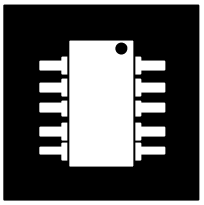
0	No keyboard	
1	e105	PK0408XX
3	105	PK040951 - 99

11. KEYBOARD LAYOUT

0	No keyboard
A	Hungarian
B	Swiss
E	English
F	Danish
G	German
H	Spanish
J	French
K	Dutsh
L	Norwegian
M	Finnish
N	Swedish
P	Portuguese
S	Italian
V	Czech
Y	Polish
2	Belgium
3	USA

12 COUNTRY (MAINS CABLE + MOUSE)

1	EU cable, Wheel mouse	A7100210 + PK080131
3	GB cable, Wheel mouse	A7100222 + PK080131
5	DK cable, Wheel mouse	A7100216 + PK080131
6	CH cable, Wheel mouse	A7100228 + PK080131
7	US cable, Wheel mouse	A7100269 + PK080131
8	IT cable, Wheel mouse	A7100232 + PK080131



Section 7:

Specification tables
Memory tables

xDp and xSp models

Machine specifications xDp and xSp models

Processor related information / Intel Celeron and Pentium III					
Used on	**xDp/CL 433 (D2W...) xSp/CL 433 (C2W...)**	**xDp/CL 466 (D2P...) xSp/CL 466 (C2P...)**	**xDp/CL 500 (D2Y...) xSp/CL 500 (C2Y...)**	**xDp/PIII 500E (D21...) xSp/PIII 500E (C21...)**	**xDp/PIII 550E (D22...) xSp/PIII 550E (C22...)**
Processor & speed	Intel ® Celeron ™			Intel ® Pentium III ™	
	433 MHz PPGA[1]	466 MHz PPGA	500 MHz PPGA	500 MHz FC-PGA[2]	550 MHz FC-PGA
Fujitsu code	AF33930	AF33932	AF33933	210 000220	210 000221
Heatsink	Detachable active (with fan) low noise heatsink (A6701793 Celeron, A6701798 PIII)				
Technology	0.25			0.18	
MMX ™ support	Yes				
External clock (Front Side Bus)	66 MHz			100 MHz	
Clock multiplier	6.5	7.0	7.5	5.0	5.5
System clock	33 MHz (PCI)				
Operating voltage	PSU/regulator is automatically adjusted to the right voltage level by the VID pins of the processor				
V_{CC} processor core	2.00 V			1.60 V	
Maximum power consumption of the processor module (total)	24.1 W	25.6 W	27.0 W	16.0 W	17.6 W
1st level cache	Built-in the Celeron and the Pentium III processor: 16 kB, non blocking for code 16 kB, non blocking for data				
2nd level cache	128 kB			256 kB, ECC	
	433 MHz	466 MHz	500 MHz	500 MHz	550 MHz
Co-processor	Floating Point Unit built-in to the Celeron and Pentium III processor				
Overdrive	Not available				

[1] PPGA = Plastic Pin Grid Array
[2] FC-PGA = Flip Chip Pin Grid Array

General information for xDp and xSp models

General	xDp	xSp
System board	CP250001	
"Socket" type	370-pin ZIF socket (PGA) for Intel PPGA Celeron and Pentium III (FC-PGA) processors	
Used on (structure)	D2	C2
Form factor	NLX (1.2), 285 mm * 210 mm	
BIOS ID	Not available	
Audio	On the system board. Based on Crystal CS4281 PCI audio controller chip with legacy audio support and CS4297A AC '97 codec	
Floppy drive interface	On the system board (connector on the backplane board), PC82077 compatible	
Floppy drive(s)	One 3.5" floppy drive (1.44 MB), BIOS support for two drives (A & B): 720kB and 1.44 MB (3.5"), 360kB and 1.2MB (5.25")	
Graphics	On the system board. Build-in the Intel 82810e chip using system memory as graphics memory. Display Cache not available. 15-pin VGA and 24-pin Digital only DVI connectors.	
	No AGP slot on the system board	
IDE interface	On the system board, PCI bus enhanced IDE interface with two connectors (connectors on the backplane board), supporting Ultra ATA/66, PIO 4 and DMA 2 mode IDE hard disks and ATAPI devices	On the system board, PCI bus enhanced IDE interface with one standard connector (for hard drive) and another proprietary connector for CD-ROM (connectors on the backplane board), supporting Ultra ATA/66, PIO 4 and DMA 2 mode IDE hard disks and ATAPI devices
IDE hard disks (Ultra ATA/66)	4.3 GB, 8.4 GB, 13 GB, 13.6 GB (7200 RPM) and 20.4 GB (7200 RPM)	
SCSI interface	Optional PCI adapter: Adaptec 2940U2W (Ultra2 SCSI)	Not available
SCSI hard disks	9.1 GB and 18.2 GB Ultra Wide	Not available
LAN	On the system board. Based on Intel 82559 fast ethernet (10/100 Mbps) multifunction PCI controller with RJ45 connector.	
Parallel port(s)	On the system board, one bi-directional parallel port with 25-pin female connector (supported modes SPP, ECP and EPP)	
Serial port(s)	On the system board, one 16C550 compatible serial port with one 9-pin male connector (16-bytes FIFO)	
USB	Controller on the system board. Two USB connectors, one in the rear panel and another in the front panel	

Architecture & Configuration for xDp and xSp models

	xDp and xSp
System board	CP250001
Chip set	Intel 82810e
DIMM memory banks	Two (2) banks for SDRAMs with SPD (PC100 only), one DIMM module/bank
SIMM memory banks	Not available
RIMM memory banks	Not available
BIOS	4 Mb Firm Ware Hub (FWH), Phoenix/Fujitsu platform with PnP (1.0a), ACPI (1.0b) and PCI (2.2) support
Keyboard controller	On the system board. Built-in SMSC's LPC47B377 super I/O controller
Theft prevention, AntiTheft	Alert on LAN2
Power Management	APM rev. 1.2 compliant (Windows 95), ACPI 1.0b compliant (Windows 98) with S3 support
Desktop / system Management	SMBIOS 2.3
Hardware monitoring	On the system board. Based on Analog Devices ADM1024 hardware monitor device
HD silencer	No

	xDp-mechanics	xSp-mechanics
Architecture / Expansion slots	4 * PCI (32 bit) Lowest PCI slot	2 * PCI (32 bit)
Max length of option boards	3 * PCI = 230 mm 1 * PCI = 340 (lowest slot)	1 * PCI = 180 mm (upper slot) 1 * PCI = 140 mm (lower slot)
Mass memory bays	2 * 3.5" front accessible (floppy drive) 1 * 3.5” no front access (HD) 2 * 5.25” front accessible	1 * 3.5" front accessible (floppy drive) 1 * 3.5” no front access (HD) 1 * 5.25” front accessible (ultra slim)
Power supply	142 W 90 V to 132 V 180 V to 264 V, 58 Hz to 61 Hz & 48 Hz to 51 Hz (CP021071)	74 W 90 V to 132 V 180 V to 264 V, 58 Hz to 61 Hz & 48 Hz to 51 Hz (CP021065)
	Voltage output for monitor, controlled by the power switch	
Fans	Two, one on the heatsink of the processor with three state speed control (off, medium, high) and another temperature controlled (linear) fan in the PSU (air out from the PSU/housing). Speed detection available for the processor fan through management software (f. ex. LDCM).	
Dimensions		
Width	415 mm	330 mm
Heigth	134 mm	90 mm
Depth	440 mm	335 mm
Weigth	14 kg (approximately)	7 kg (approximately)

Memory configurations for xDp and xSp models

Bank 0	Bank 1	Total memory
1 * 64 MB DIMM	-	64 MB
1 * 64 MB DIMM	1 * 64 MB DIMM	128 MB
1 * 128 MB DIMM	-	128 MB
1 * 64 MB DIMM	1 * 128 MB DIMM	192 MB
1 * 128 MB DIMM	1 * 128 MB DIMM	256 MB
1 * 256 MB DIMM	-	256 MB
1 * 64 MB DIMM	1 * 256 MB DIMM	320 MB
1 * 128 MB DIMM	1 * 256 MB DIMM	384 MB
1 * 256 MB DIMM	1 * 256 MB DIMM	512 MB

DIMM recommendations

DIMM size (MB)	Description	Speed	Voltage	Type	Clock lines	Pins	Module	Kit code
64	8 M * 64-bit	100 MHz	3.3V	SDRAM	4	168	AF33863P	PL060205
128	16 M * 64-bit	100 MHz	3.3V	SDRAM	4	168	AF33864P	PL060206
256	32 M * 64-bit	100 MHz	3.3V	SDRAM	4	168	AF33865P	PL060207

The modules delivered in the memory upgrade kits have another code than the memories delived from the factory. Memory modules delivered in upgrade kits (and as spare parts) have extenssion -GENC (AF33863-GENC)

Power supply

Characteristics

Power supply	74 W (xSi and xSp) CP021065	88 W (xS) CP021060	142 W (xD, xDi and xDp) CP021071
Input voltage	100 to120 V / 200 to 240 V (90 to132 V / 180 to 264 V)		
Input frequency	58 to 61 Hz 48 to 51 Hz		
Max power input (peak)	113 W (200 W)	135 W (200 W)	218 W (244 W)
Max power output (peak)	74 W (130 W)	88 W (130 W)	142 W (159 W)
Switch-on input surge current (w/o monitor)	Max 50 A (115 V) Max 75 A (230 V)		
Max output current :			
+ 3.3 V (peak)	5 A[1] (6 A)	6 A[1]	6 A[2] (7 A)
+5 V (peak)	8 A[1] (12 A)	10 A[1] (12 A)	13 A[2] (15 A)
-5 V (peak)	0.1 A (0.5 A)		0.3 A (0.5 A)
+12 V (peak)	1 A (4.8 A)	1.5 A (4.8 A)	3.5 A (4.2 A)
-12 V (peak)	0.1 A (0.2 A)	0.2 A	0.3 A (0.5 A)
+5 VSB	0.8 A (1.5 A)	1.5 A	2.0 A
Max ground leakage current			
230 V/50 Hz	< 3.5 mA, Class I device (measured maximum value: 0.62 mA)[3]		< 3.5 mA, Class I device (measured maximum value: 0.48 mA)[3]
Connectors			
Backplane board	1 * 20 pin		1 * 20 pin
Mass memories	1 * 4-pin (for mass storage devices)		1 * 4-pin (for floppy drive) 4 * 4-pin (for mass storage devices)
Air flow (fan of the power supply)	21.0 m^3/h (max)	25.8 m^3/h (max)	29.3 m^3/h (max)

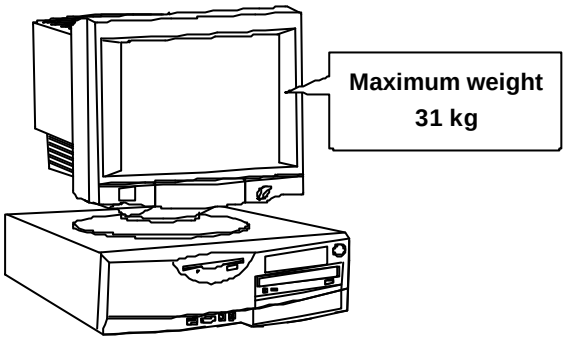
[1] Maximum combined output power for 3.3 V and 5 V is 60 W.
[2] Maximum combined output power for 3.3 V and 5 V is 90 W.
[3] Based on a limited quantity of checked power supplies.

Power consumption (without monitor)

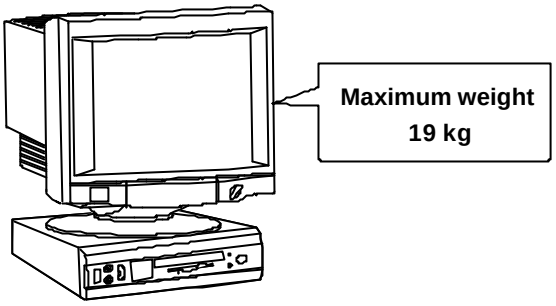
System unit	Memory (RAM)	Hard drive	Mass memories	Typical power consumption	Power Save Mode
xDp/PIII 550	128 MB	13 GB IDE		TBA	TBA
xSp/CL 500	64 MB	8.4 GB IDE		TBA	TBA

Installation recommendations

Maximum weight of the display unit set on the system unit



xDp models

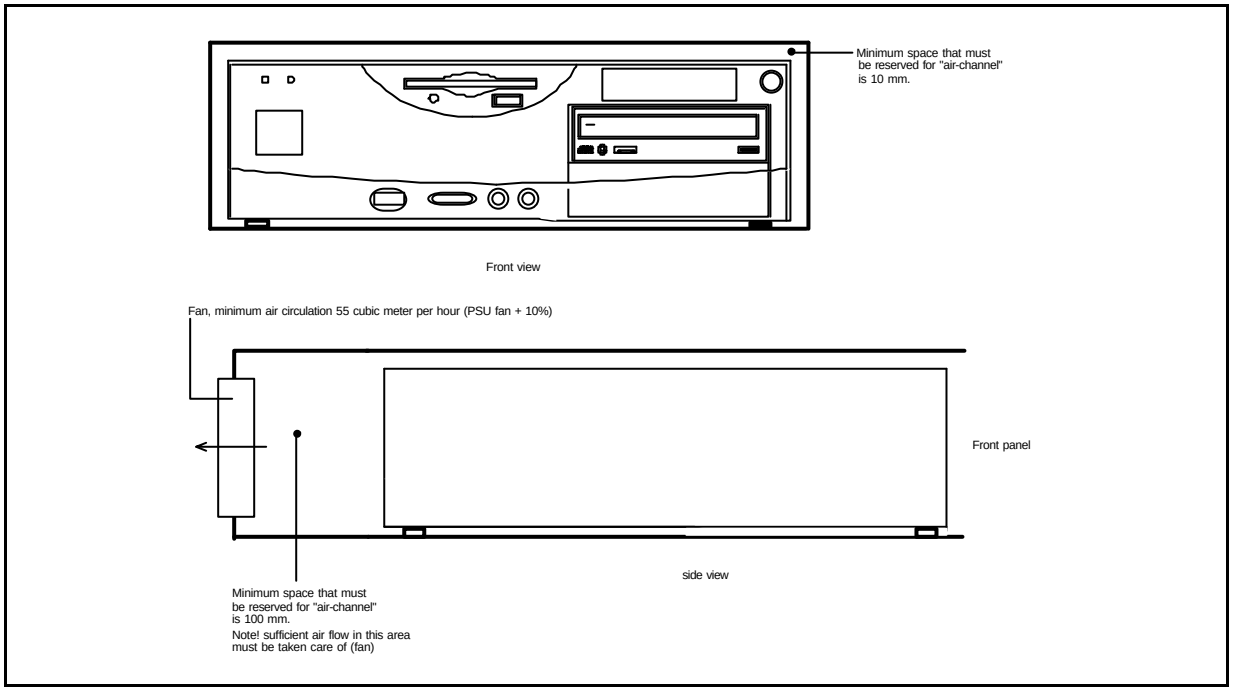


xSp models

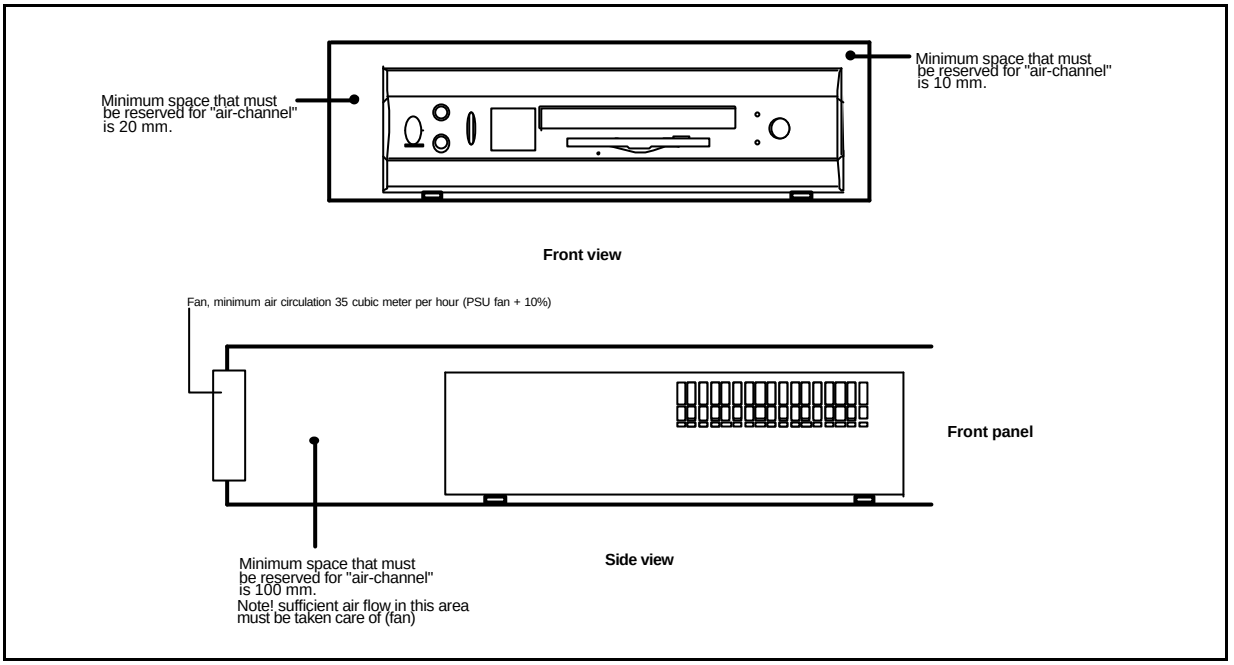
Recommended installation space (preliminary information)

The following pictures show the minimum space that must be reserved for the system unit, when installed in a shelf or in a box.

xDp models



xSp models


Minimum space that must be reserved for "air-channel" is 20 mm.
Minimum space that must be reserved for "air-channel" is 10 mm.
Front view
Fan, minimum air circulation 35 cubic meter per hour (PSU fan + 10%)
Front panel
Minimum space that must be reserved for "air-channel" is 100 mm.
Note! sufficient air flow in this area must be taken care of (fan)
Side view

Section 8:

Spare parts

xDp and xSp models

Spare parts xDp and xSp models

Part No	Description	MTBF	Note
xDp models specific parts			
CP021071	Power Supply 146 W (fan attached)	140 000	
CP024633	Backplane board (riser) with 4 PCI slots	2 000 000	
AF31086	Adaptec 2940U2W PCI SCSI adapter		
AF21254	9.1 GB Ultra2 SCSI hard drive		
AF21255	18.2 GB Ultra2 SCSI hard drive		
AF23347	40x IDE CD-ROM drive		
AF23373	6x IDE DVD-ROM drive		
AF23349	24x4x IDE CD-RW drive		
AF23256	Travan 5 tape streamer		
CP004451	1.44 MB 3.5" floppy drive	100 000	
PL070198 !	Detachable plastic front panel		
PL070179	5.25" cover plate kit (upper cover plate, EMI shield, screws...)	-	10 cover plates per kit
PL070190	Front panel audio board xD/xDi/xDp (board and cable)	2 000 000	One board/cable
PL070191	Front panel LEDs, power switch and intrusion detection switch	-	One of each in the kit
PL070196	Ultra ATA 66 - IDE cable for two devices (cable select) Length of the cable is 245 mm	-	10 cables per kit (CP018023)
xSp models specific parts			
CP021065	Power Supply 74 W (fan attached)	97 000	
CP024632	Backplane board (riser) with 2 PCI slots	2 000 000	
AF23364	24x slim IDE CD-ROM drive	50 000	
AF23363	4x slim IDE DVD-ROM drive	50 000	
PLXXXXXXX	CD/DVD-ROM cable adapter kit for xS, xSi and xSp.		Cable (CP016154-01) and adapter board (CA72001-1729), 5 of each

PL040746	1.44 MB 3.5" floppy drive kit	100 000	Drive, cable, screws & mech. (CA01950-0048)
PL070199 !	Plastic front panel and top cover		
PL070192	Front panel audio board and cable for xS/xSi/xSp	2 000 000	One board/cable
PL070193	Front panel LEDs and power switch board and cable for xS/xSi/xSp	2 000 000	One board/cable
PL070194	Intrusion detection assembly	-	Switch and cable
PL070184	Slim cover plate kit for non CD/DVD-ROM installations	-	10 cover plates per kit
PL070185	Kit of xS stands (vertical)	-	5 stands per kit
PL070197	Ultra ATA 66 - IDE cable for one devices (hard drive). Length of the cable is 100 mm	-	10 cables per kit (CP018040)

Part No	Description	MTBF	Note
Common parts for xDp and xSp models			
CP250001	System Board with on-board PCI audio, PCI LAN and AGP graphics (w/o AGP slot). Support for 66/100 MHz FSB.	250 000	
AF33863-GENC	64 MB PC100 DIMM (non-ECC, for xD, xDp, xS & xSp)	800 000	
AF33864-GENC	128 MB PC100 DIMM (non-ECC, for xD, xDp, xS & xSp)	800 000	
AF33865-GENC	256 MB PC100 DIMM (non-ECC, for xD, xDp, xS & xSp)	800 000	
AF33930	Intel PPGA Celeron 433 MHz		
AF33932	Intel PPGA Celeron 466 MHz		
AF33933	Intel PPGA Celeron 500 MHz		
A6701793 !	Detachable heatsink with low noise fan for Celeron		
210 000221	Intel FC-PGA Pentium III 500E MHz		
210 000225	Intel FC-PGA Pentium III 550E MHz		
A6701798 !	Detachable heatsink with low noise fan for FC-PGA PIII		
AF21261	4.3 GB IDE Hard drive (Ultra ATA/66)		
AF21263	8.4 GB IDE Hard drive (Ultra ATA/66)		
AF21265	13 GB IDE Hard drive (Ultra ATA/66)		
AF21259 !	13.6 GB IDE Hard drive (Ultra ATA/66, 7200 RPM)		
AF21257	20.4 GB IDE Hard drive (Ultra ATA/66, 7200 RPM !)		
PK080131 !	Wheel mouse		
PL070174	Second serial port cable kit		10 cables per kit
PL070195	A kit of standard jumpers (U shunts, height 6 mm, pin pitch 2.5 mm) and medium-size jumpers (height 3.5 mm, pin pitch 2.5 mm)		100 pcs of each