Digital
Human Machine Interface

Pro-face

PL3000 Series

Reference Manual

NOTES

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(4) Differences may occur between the descriptions found in this manual and the actual functioning of PL. Therefore, the latest information on PL is provided in data files (i.e. Readme.txt files, etc.) and in separate documents. Please consult these sources as well as this manual prior to using the product.

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Information Symbols

This manual uses the following icons:

IMPORTANT	Indicates a warning or a product limitation. Be sure to follow the instructions given with this icon to ensure the safe operation of the PL.
NOTE	Contains additional or useful information.
(1) (2)	Indicates steps used to accomplish a given task. Be sure to follow these steps in the order they are written.
*1	Indicates useful or important supplemental information.
SEE→	Indicates pages containing related information.

Contents

Chapter 3   PL Monitoring Features

Chapter 4   Troubleshooting

Appendices

Setup operation flow

The following shows the flow of the setup operation from the purchase of the PL to the completion of the required setup before use.

PL with no pre-installed OS

1	Connect peripheral devices and wiring to the PL unit. Connect a commercially available USB keyboard and, when no CD/DVD drive is pre-installed, a commercially available USB CD-ROM drive to the PL unit.	(SEE→)	*PL3000 Series Hardware Manual* *3 Hardware Installation*

2	Turn the PL's power ON.	Set the power switch on the rear of the PL to ON.

3	Configure the BIOS settings. Under [Boot priority order] on the [Boot] menu, move [IDE CD/DVD] (when using the pre-installed CD/DVD drive) or [USB CD/DVD] (when using a commercially available USB CD/DVD-ROM drive) to the top of the list. Save the setting and exit the BIOS setting screen.	(SEE→)	*2.1 System Setup Screen Operation (page2-2)* *2.2.4 Boot (page2-28)* *2.2.5 Exit (page2-29)*

4	Insert the OS setup media into the drive. Install the OS by following the messages on the screen.	(SEE→)	*Refer to the manual of the OS to be installed.*

5	Download and install the necessary drivers and utility software.	(SEE→)	*Visit the download page at the Otasuke Pro! site.* URL http://www.pro-face.com/otasuke/ *1.4 PL Dedicated Software (page1-14)*

6	Install the necessary application programs.	(SEE→)	*Refer to the manual of the software to be installed.*

7	Install the PL unit.	

PL with pre-installed OS

1	Connect peripheral devices and wiring to the PL unit. Connect a USB keyboard (commercially available).	**SEE→**	*PL3000 Series Hardware Manual* *3 Hardware Installation*

2	Turn the PL's power ON.	Set the power switch on the rear of the PL to ON.

3	To change the BIOS settings, go to the system setting screen. Skip this step when you use the factory (default) settings.	**SEE→**	*2.1 System Setup Screen Operation (page2-2)*

4	Set up the pre-installed OS.	**SEE→**	*1.3.1 Setting Up OS (page1-9)*

5	Install the PL unit.

IMPORTANT
- After hardware setup is completed, the OS must be used to create partitions and format (initialize) the HDD before any data or applications can be saved to the hard disk drive. For details concerning these procedures, refer to the OS manufacturer's instruction manual.
- Whenever you turn the PL unit's power OFF, wait until the internal HDD stops spinning (approximately 5 seconds) before turning the power ON again.
- The PL's hard disk is designed for use with the Windows®2000, Windows®XP. Other operating systems do not support this driver software, etc

NOTE
- Use of an uninterrupted power supply is recommended to protect your data from accidental power failures.
  An uninterrupted power supply that supports Windows® will give you sufficient time to shut down your system safely by changing into the power supply for the backup in case of a power failure, and can even be set up to automatically shut down your Windows® OS.
  The PL unit, however, cannot be used with a 2-Step Inverter Output type uninterrupted power supply. Be sure the unit is a sine-output type power supply. For details, consult your local UPS system dealer.
- When using a Pro-face flat panel monitor, depending on the destination signal and the touch panel data transmission cable, you must set the flat panel DIP switch.
  For instructions regarding DIP switch settings, refer to the manual that came with the flat panel. You can connect two monitors to the PL unit using a DVI-D/RGB branch cable (model: CA7-CBLCVDVI/RGB-01) and display the same screen on each monitor, or display the same screen across both monitors.
  For instructions regarding multi-display settings and other details, refer to the Pro-face support site, "Otasuke Pro!".
  URL http://www.pro-face.com/otasuke/

1 | Setting Up Software

This chapter describes the setting procedures for the PL dedicated programs and the setting parameters.
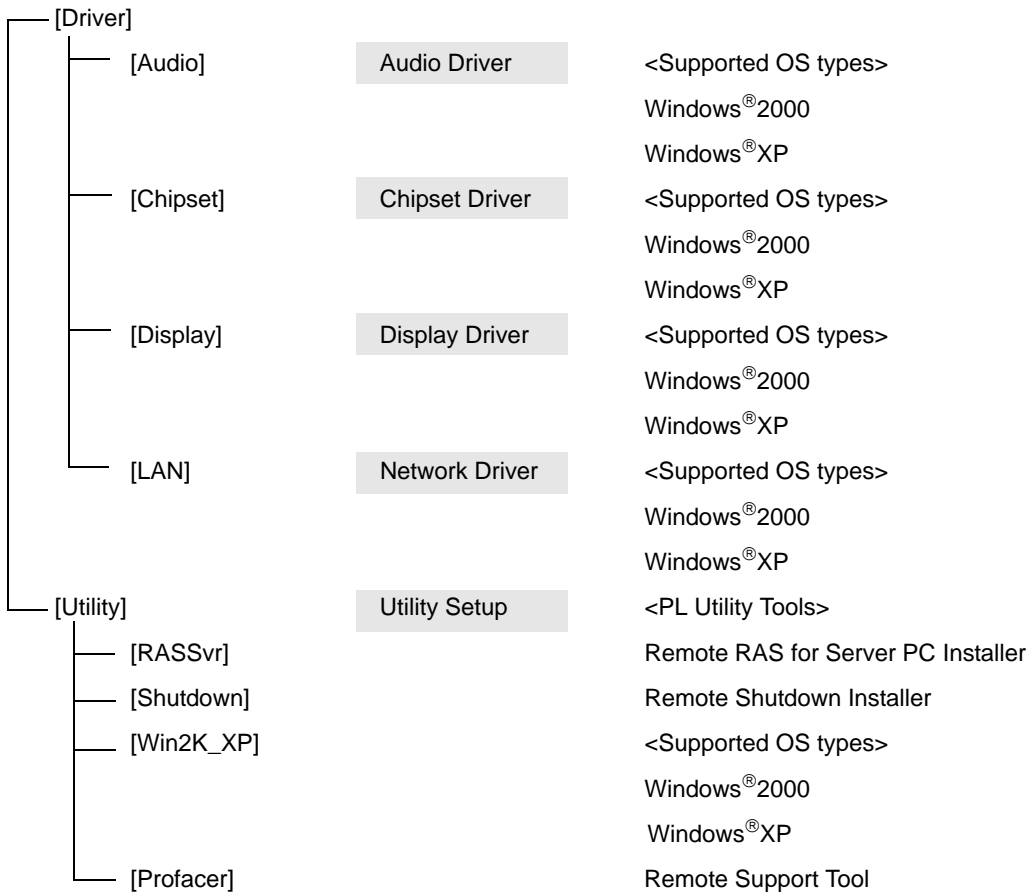
1.1 Software Configuration

The folder composition diagram shown below explains the type of software that can be used with the PL.

If you purchased the PL unit with pre-installed OS, all the software has been installed already.

If you purchased the PL unit with no pre-installed OS, you can download the software from the Pro-face support site "Otasuke Pro!".

(SEE→)   *1.2.2 Setting Up the PL Dedicated Software (page1-3)*

[Driver]		
[Audio]	Audio Driver	<Supported OS types> Windows®2000 Windows®XP
[Chipset]	Chipset Driver	<Supported OS types> Windows®2000 Windows®XP
[Display]	Display Driver	<Supported OS types> Windows®2000 Windows®XP
[LAN]	Network Driver	<Supported OS types> Windows®2000 Windows®XP
[Utility]	Utility Setup	<PL Utility Tools>
[RASSvr]		Remote RAS for Server PC Installer
[Shutdown]		Remote Shutdown Installer
[Win2K_XP]		<Supported OS types> Windows®2000 Windows®XP
[Profacer]		Remote Support Tool

1.2 Setting Up an HDD with no Pre-installed OS

First, when you use a PL with no pre-installed OS, you will need to install either Windows®2000 or Windows®XP. You also need to install any required utility software.

1.2.1 Setting Up the OS

Install your operating system. For the setup procedures about the OS, refer to that product's installation manual.

IMPORTANT

- Specify [Disabled] for the USB2.0 Controller of the BIOS when you install commercial Windows®, using a USB CD/DVD-ROM drive.

  SEE→   ■ *USB Controller Configuration (page2-23)*

- The PL unit supports Windows®2000 Service Pack 4 and Windows®XP Service Pack 2. The PL unit performance cannot be guaranteed when any other operating system is used.
- Installing the OS with [AHCI Configuration] set to [Enable] requires Intel® Matrix Storage Manager.

  SEE→   *AHCI Configuration (page2-19)*

1.2.2 Setting Up the PL Dedicated Software

(1)   Download the necessary drivers and utility software from the Pro-face support site "Otasuke Pro!".

URL http://www.pro-face.com/otasuke/   Click here!

(2)   Decompress the downloaded data, then the [Proface] folder has been created in drive C.
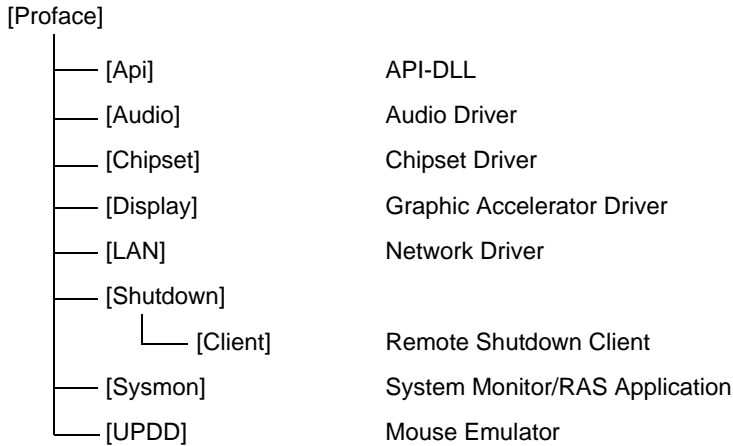
NOTE

- The setup requires a USB keyboard.
- For details about the drivers and utility software, refer to the following section.

  SEE→   *1.4 PL Dedicated Software (page1-14)*

■ [Proface] Folder Configuration

The following diagram describes the configuration of this folder. (For all Windows® versions)

[Proface]

```
├── [Api]            API-DLL
├── [Audio]          Audio Driver
├── [Chipset]        Chipset Driver
├── [Display]        Graphic Accelerator Driver
├── [LAN]            Network Driver
├── [Shutdown]
│        └── [Client]    Remote Shutdown Client
├── [Sysmon]         System Monitor/RAS Application
└── [UPDD]           Mouse Emulator
```

NOTE
- The actual organization may differ from the above depending on your PL unit's OS.
- Setting up the PL unit's utilities automatically copies the hardware control driver (Sysmon.sys) to the system folder.
- When a LAN or a printer is added, you need to change the Windows® system configuration using the following procedure.

    (1) When the Windows® system configuration settings are changed, the following message appears. When your media is DVD-ROM, replace "CD-ROM" with "DVD-ROM".

    > Insert the CD labeled "Windows® xx[*1] Professional CD-ROM" in the CD-ROM drive (D:), and click [OK].
    > When copying the file from other locations such as a floppy disk or network server, also click the [OK] button.

    [*1] "xx" is your OS.

    Example) When using Windows®XP: "Windows®XP Professional CD-ROM"

    (2) Select the folder where you will change the system configuration and click [OK].
    Double-click the [I386] folder in the Windows® installation media.
    D:\I386 (When the drive is "D")

NOTE • The UPDD device driver has a driver to connect to USB devices built in by default.
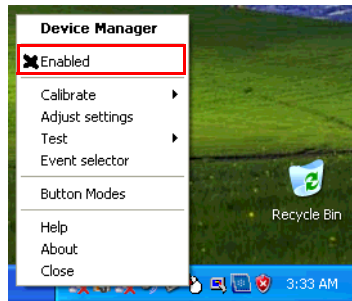
<Connecting to the FP Series via USB>
UPDD settings are disabled by default for the ALP3000 box type. When connecting the unit to the FP Series, these setting should be enabled.
<Procedure>

Click the icon shown above.
Change the Enabled check mark from ✕ to ✓.

UPDD [USB Connection] settings disabled   UPDD [USB Connection] settings enabled

<Using the PL unit with a serial connection>
It is necessary to install the UPDD Serial driver when using the PL unit with a serial connection.
<Procedure>
From the [Start] menu, click [Programs], [UPDD], and then [Settings].
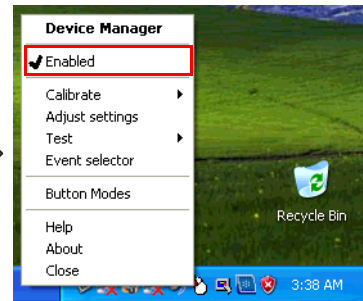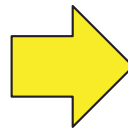
Click [Add].

Select [Digital TSC-1310D Series, Serial], and click [Next].
Follow the on-screen instructions to install the driver.

1.3   Setting Up an HDD with Pre-installed OS

In the PL with pre-installed OS, the following software has been installed in advance.

■ PL with Windows® 2000 Pre-installed

- Windows® 2000 Professional operating system manufactured by Microsoft Corporation
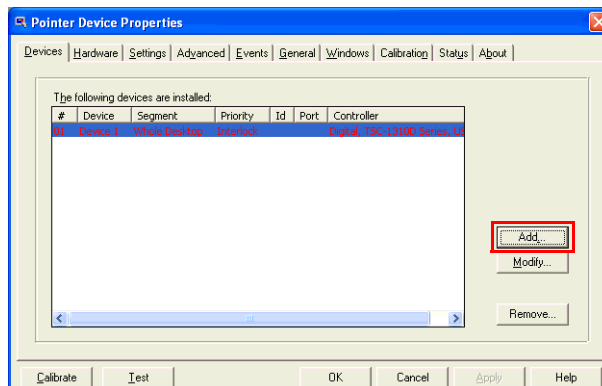
- PL dedicated utility software and drivers manufactured by Pro-face

■ PL with Windows® XP Pre-installed

- Windows® XP Professional operating system manufactured by Microsoft Corporation

- PL dedicated utility software and drivers manufactured by Pro-face

NOTE

- Each pre-installed operating system on the hard disk in the PL unit is designed specially for PL3000.

- For details about the drivers and utility software, refer to the following section.

  SEE→ *1.4 PL Dedicated Software (page1-14)*

■ [Proface] Folder Configuration

A [Proface] folder is prepared on the C drive. The following diagram describes the configuration of this folder.

[Proface]

	[Api]	API-DLL
	[Audio]	Audio Driver
	[Chipset]	Chipset Driver
	[Display]	Graphic Accelerator Driver
	[LAN]	Network Driver
	[Profacer]	Remote Support Tool
	[Setup]	Media Image
	[Shutdown]	
	[Client]	Remote Shutdown Client
	[Sysmon]	System Monitor/RAS Application
	[UPDD]	Mouse Emulator

NOTE

- The actual organization may differ from the above depending on your PL unit's OS.
- The hardware control driver (Sysmon.sys) is prepared in the system folder on the hard disk of the PL unit.
- When a LAN or a printer is added, you need to change the Windows$^®$ system configuration using the following procedure.

  (1) When the Windows$^®$ system configuration settings are changed, the following message appears. When your media is DVD-ROM, replace "CD-ROM" with "DVD-ROM".

  > Insert the CD labeled "Windows$^®$ xx[1] Professional CD-ROM" in the CD-ROM drive (D:), and click [OK].
  > When copying the file from other locations such as a floppy disk or network server, also click the [OK] button.

  [1] "xx" is your OS.

  Example) When using Windows$^®$XP: "Windows$^®$XP Professional CD-ROM"

  (2) Select the folder where you will change the system configuration and click [OK].

  C:\Proface\Setup\I386

NOTE   • The UPDD device driver has a driver to connect to USB devices built in by default.

<Connecting to the FP Series via USB>
UPDD settings are disabled by default for the ALP3000 box type. When connecting the unit to the FP Series, these setting should be enabled.
<Procedure>

Click the icon shown above.
Change the Enabled check mark from ✖ to ✔.

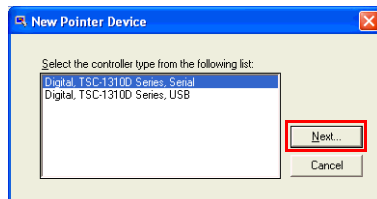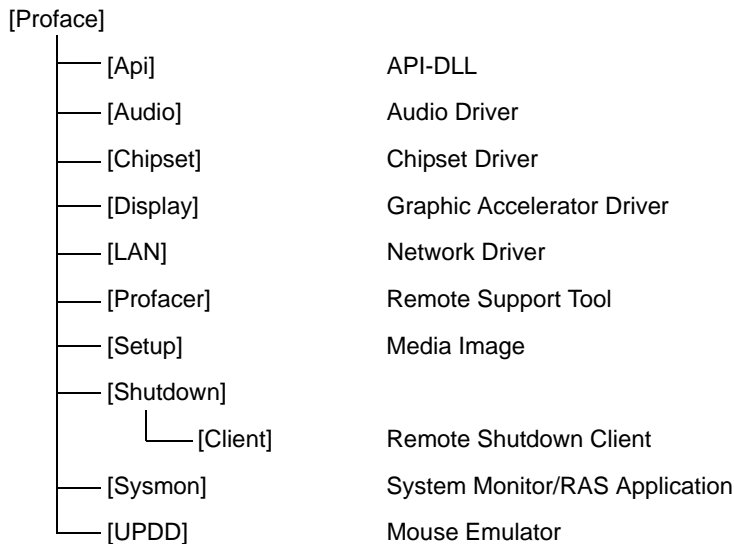UPDD [USB Connection] settings disabled   UPDD [USB Connection] settings enabled

<Using the PL unit with a serial connection>
It is necessary to install the UPDD Serial driver when using the PL unit with a serial connection.
<Procedure>
From the [Start] menu, click [Programs], [UPDD], and then [Settings].
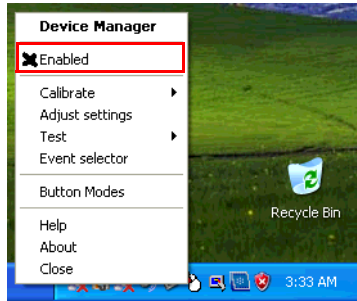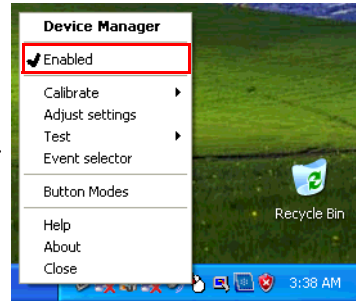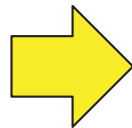
Click [Add].

Select [Digital TSC-1310D Series, Serial], and click [Next].
Follow the on-screen instructions to install the driver.

1.3.1   Setting Up OS

Set up the Pre-installed OS in the PL unit.

■ Windows® 2000 Setup Procedure

This section describes the setup procedure for Windows® 2000. The setting parameters vary depending on

your environment. Ask your network administrator for the appropriate parameters.

NOTE

- The README file stored on the hard disk explains the details of the software and the

  information provided and changes made after this manual was printed. Be sure to read the file

  before starting this procedure.

- The OS setup operation requires a keyboard.

(1)   Once the PL unit's power is turned ON, this HDD unit's [Windows 2000 Professional Setup] screen, and

then the [Welcome to the Windows 2000 Setup Wizard] will appear. Click the [Next] button.

(2)   The [License Agreement] screen will appear.

After reading the contracts, press [I accept this agreement] if you agree, and click the [Next] button.

(3)   The [Regional Settings] screen will appear.

After entering the data for your area, click the [Next] button.
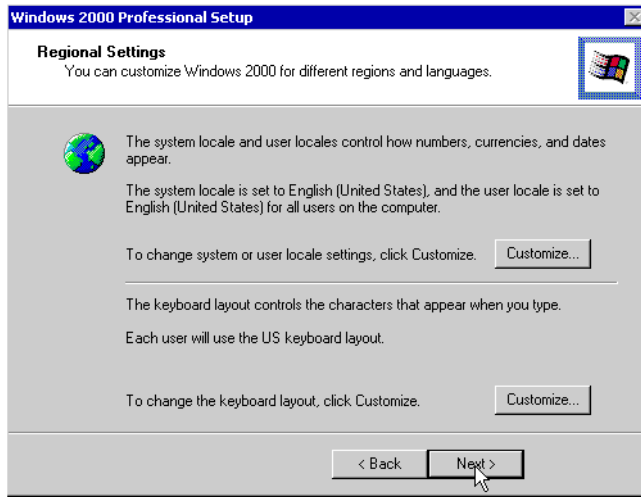
(4)   The [Personalize Your Software] screen will appear.

After entering your name [Name] and [Organization], click the [Next] button.
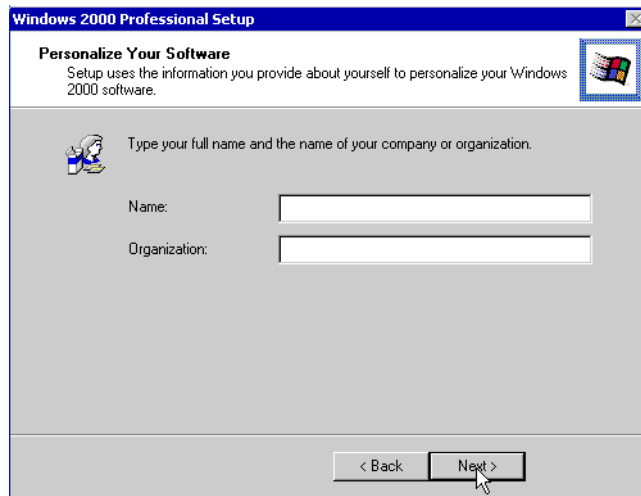
(5)   The [Your Product key] screen will appear.

After entering the product key data on the license sticker, click the [Next] button.

(6)   The [Computer Name and Administrator Password] screen will appear.

Enter the [Computer Name and Administrator Password], and [Confirm Password], then click the [Next]
button.

When entering the [Computer Name], if the name shown on the display is not correct, you can enter
another name. When the computer is connected to a network, be sure to ask your network manager what
is the correct name for this field.

(7)   The [Date and Time Settings] screen will appear.

After entering these settings, click the [Next] button.

(8)   The [Network Settings] screen will appear.

Choose whether to use typical or custom settings depending on your PC circumstantce.
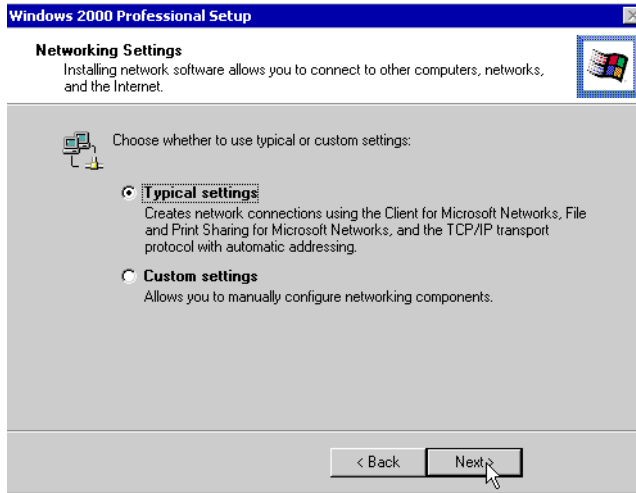
(9)   The [Workgroup or Computer Domain] screen will appear.

Choose whether to make your PC on a network or not depending on your PC circumstance.

(10) [Performing Final Tasks] is automatically done by the PL.

The [Completing the Windows 2000 Setup Wizard] will appear. Press the [Finish] button and the system

will automatically restart.

(11) When the [Network Identification Wizard] and the [Welcom to the Network Identification Wizard] is

started, please press the [Next] button. The [Users of This Computer] screen will appear. After entering

the desired settings, press the [Next] button and then press the [Finish] button.

■ Windows® XP Setup Procedure

This section describes the setup procedure for Windows® XP. The setting parameters vary depending on your environment. Ask your network administrator for the appropriate parameters.

NOTE
- The README file stored on the hard disk explains the details of the software and the information provided and changes made after this manual was printed. Be sure to read the file before starting this procedure.
- The OS setup operation requires a keyboard.

(1) Once the power of the PL unit with Windows® XP pre-installed is turned ON, the [Welcome to Microsoft Windows] screen will appear. Click [Next].
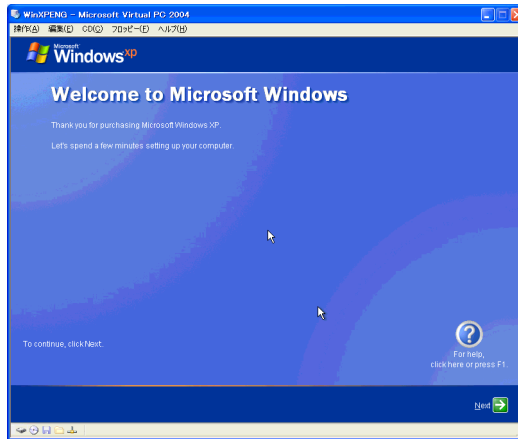
(2) The [The End User License Agreement] screen will appear.

After reading the contents, press [Yes, I accept] if you agree, and click [Next] to continue.

(3) The [Help protect your PC] screen will appear.

Choose whether to update Windows® automatically. To enable the Automatic Updates, check on [Help protect my PC by turning on Automatic Updates now (recommended)]. To disable it, check [Not right now]. Click [Next] to continue.
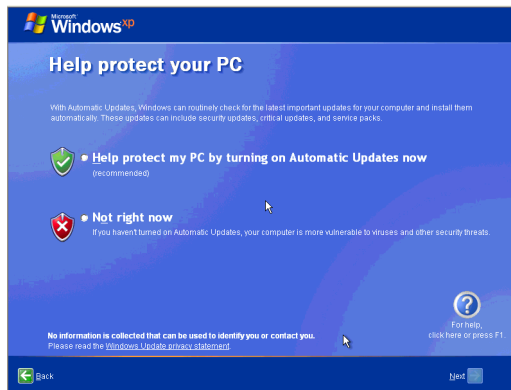
(4)   The [What's your computer's name?] screen will appear.

After entering the computer's name, click [Next] to continue. At default, the computer's name has been

entered. If it's not necessary to change it, click [Skip].

(5)   The [What's your Administrator password?] screen will appear.

If the password is set, enter the password in [Administrator password:] and [Confirm password:] and

click [Next]. If the password is not set, click [Skip].

(6)   The [Is this computer in a domain?] screen will appear.

To join the domain, select [Yes, make this computer a member of the following domain:] and enter the

domain's name. Not to join the domain, click [Next] to continue.

(7)   The [Checking your internet connectivity?] screen will appear and your internet connectivity will be

automatically checked.
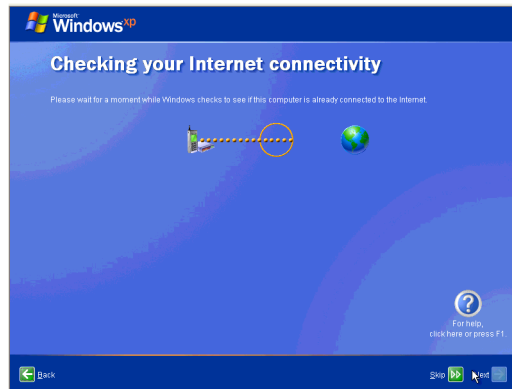
(8)   The [Ready to register with Microsoft?] screen will appear. If you register, check [Yes, I'd like to regis-

ter with Microsoft now]. If not, check [No, not at this time]. Press [Next].
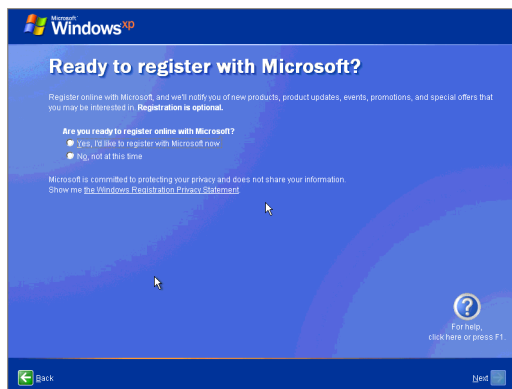
(9)   The [Who will use this computer?] will appear. Up to 5 names can be entered for a user's name. After

entering the user's name, click [Next] to continue.

(10) The [Thank you!] screen will appear. Click [Finish] to complete the setting.

1.4 PL Dedicated Software

1.4.1 Driver

Four types of dedicated PL drivers (Audio, Chipset, Graphic Accelerator and LAN) are available.

If you purchased the PL with no pre-installed OS, download the drivers from the Pro-face support site "Ota-suke Pro!". (A PL unit that has been recovered using the Recovery Media DVD will have all the required drivers installed). This explanation given in this section assume that the [Proface] folder has been created.

IMPORTANT
• Once drivers are installed in the PL unit, they cannot be uninstalled.

NOTE
• For the installation procedure and cautions, refer to the download page at the Otasuke Pro! site.

■ Installing the Chipset Driver

Installing the Chipset driver adds the Chipset feature to the OS.

Double-click on the "Setup.exe" file located in the following folder. Follow the instructions given on the screen to install the driver.

C:\Proface\Chipset\Setup.exe

■ Installing the Audio Driver

Installing the Audio driver enables the OS' Audio feature.

Double-click on the "Setup.exe" file located in the following folder. Follow the instructions given on the screen to install the driver.

C:\Proface\Audio\Setup.exe

■ Installing the Graphic Accelerator Driver

Installing the Graphic Accelerator Driver will accelerate the screen refresh speed, using special hardware features.

Start "C:\Proface\Display\Setup.exe" file.

Follow the instructions given on the screen to install the driver.

■ Installing the LAN Driver

Installing the LAN Driver enables LAN1 and LAN2 to be available.

Double-click on the "Setup.exe" file located in the following folder. Follow the instructions given on the screen to install the driver.

C:\Proface\LAN\PRO2KXP.exe

◆ Starting the PL over the LAN

You can turn on the PL from a remote location over the LAN.

(1)   Start up the OS and write down the MAC address of LAN.

(2)   Connect the network cable to LAN, and shut down the OS. Leave the PL turned on.

(3)   Send MagicPacket to the MAC address noted in (1).

NOTE
- The tool used to send MagicPacket is available at the Pro-face support site "Otasuke Pro!". Visit the download page of the site and download "Remote Shutdown Server".

■ Installing the Mouse Emulator

Install the Touch Panel Driver in the PL unit. It's necessary to agree to DMC's Mouse Emulator Software (TSC-1310D/DD) License in advance.

SEE → *Appendices 4 License Agreement (pageA-6)*

(1)   Start "C:\Proface\UPDD\Setup.exe" file.

(2)   Follow the instructions given on the screen to install the Touch Panel Driver.

For the detailed setteings,refer to C:\Proface\UPDD\Readmee.pdf

NOTE
- You can open "Touch Panel Property" by selecting the [Start] -> [Programs] -> [UPDD] -> [Settings]. In this dialog box, you can specify the details of the touch panel operation.
- If the touch position recognized in the panel deviates from the actual touch, you need to calibrate the touch panel. Select the [Start] -> [Programs] -> [UPDD] -> [Calibration]. When a cross appears on the screen, press it. Then click [OK] in the [Confirmation after calibration] dialog box to finish the calibration.

1.4.2   Special Application Program Features

The special programs designed for the PL unit are located in the following folders. Here, it is assumed that the [Proface] folder has already existed on the hard disk of the PL unit.

File Name	Windows®XP	Windows®2000
Smonras.dll	C:\Windows\System32	C:\Winnt\System32
Ioctl.dll		
SystemMonitor.exe	C:\Proface\Sysmon\GUI	
SmSRvCPL.cpl	C:\Windows\System32	C:\Winnt\System32
Sysmon.sys	C:\Windows\System32\Drivers	C:\Winnt\System32\Drivers

NOTE
- To uninstall the utility software you installed, select [Add/Remove Programs] from [Control Panel], and delete the software from [PL3000 Series Driver and Utility].

■ API-DLL

These dynamic link libraries allow users to access RAS features that operates on the PL via custom-made applications. The following three types are available.

For details, refer to the API Reference Manual which can be downloaded from the Pro-face support site "Ota-suke Pro!" (URL http://www.pro-face.com/otasuke/).

◆ Shared Memory Access: Smonras.dll

This dynamic link library allows users to access shared memory via remote RAS features.

◆ RAS Features: Ioctl.dll

This dynamic link library allows users to access RAS features that operates on the PL via custom-made PL applications.

■ System Monitoring/RAS Application: SystemMonitor.exe

The RAS and System Monitoring features allow users to monitor temperature, voltage, and fan operation alarms. This program runs on Windows®.

◆ System Monitoring Program: SystemMonitor.exe

$\left(\text{SEE}\rightarrow\right)$ ■ *When an Error Occurs (page3-13)*

◆ Watchdog Parameter Setup Program: System Monitor Property

$\left(\text{SEE}\rightarrow\right)$ *3.3.1 Description (page3-10)*

■ System File: Sysmon.sys

This system file allows use of the RAS and System Monitoring features. This file should not be modified. If it is modified, the RAS and System Monitoring features may not operate correctly.

2 | System Setup

1. System Setup Screen Operation
2. System Parameters Setting

This chapter describes how to operate the system setup screen and how to set system parameters.

2.1 System Setup Screen Operation

This section describes the operation of the BIOS setup screen.

IMPORTANT

• Normally, use only the factory (default) settings.

(1) Connect a USB keyboard to the PL.

(2) Turn the PL's power ON.

(3) After the boot-up screen comes up, press the [F2] key. The setup utility starts and the following screen
appears.

Menu

```
                 PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
    Main     Advanced    Security    Boot    Exit

                                                                        Item Specific Help
    System Time:                     [00:00:00]
    System Date:                     [2007-09-28]

    ▶  IDE Channel 0 Master
    ▶  IDE Channel 0 Slave
    ▶  IDE Channel 1 Master
    ▶  IDE Channel 1 Slave
    ▶  SATA Port 0
    ▶  SATA Port 1

    System Memory:                   [XXXX KB]
    Extended Memory:                 [XXXX KB]




    F1    Help     ↑↓   Select Item    -/+      Change Values      F9    Setup Defaults
    Esc   Exit     ↔    Select Menu     Enter    Select ▶ Sub-Menu  F10   Previous Values
```

KEYBOARD ACTION KEYS
Provides a summary of the keyboard keys used to carry out the set-up.
Press the [F1] key to display the help for the system setup.
Press the [F9] key to reset all settings to the default settings.
Press the [F10] key to save the settings and exit the system setup menu.

Help area
Shows the information of
the items you selected.

SYSTEM SETTING SELECTION AREA
Each of the titles (areas) listed here contains system setting items.

(4) To use the [←] [→] arrow keys, change the menu contents. A setting screen of each system will be
displayed.

(5) To use the [↑] [↓] arrow keys, move up and down the cursor to select an item of the system, then con-
firm it by the [Enter] key.

(6) Change the value of the confirmed item with the [-] and [+] keys.

(7) To return from the sub layer to the main layer, press the [Esc] key.

■ BIOS Setup Screen Configuration

MAIN
☞*2-4 page*
Specify the drive/date.

IDE Channel/SATA Port
☞*2-5 page*
Display the information for the connected devices.

Advanced
☞*2-7 page*
Set the system details.

Processor Configuration
☞*2-10 page*
Set the CPU.

CPU Thermal Configuration
☞*2-11 page*
Set the CPU temperature monitoring feature.

Power-ON Configuration
☞*2-12 page*
Set the PL operations at power-on.

Video (Intel IGD) Configuration
☞*2-14 page*
Set the graphics details.

Cache Memory
☞*2-16 page*
Set the cache memory-related items.

Integrated Device Configuration
☞*2-18 page*
Set the integrated devices.

I/O Device Configuration
☞*2-20 page*
Set the I/O address/interrupt No.

PCI Configuration
☞*2-21 page*
Set PCI.

USB Controller Configuration
☞*2-23 page*
Set the USB controller.

DMI Even Logging
☞*2-25 page*
Set the DMI event logging options.

Soft Mirror Status
☞*2-26 page*
Display the soft mirror status.

Security
☞*2-27 page*
Set the password/security options.

Boot
☞*2-28 page*
Specify the boot order of devices.

Exit
☞*2-29 page*
Exit the BIOS screen.

2.2 **System Parameters Setting**

Select the items to set up the system information. Here, we introduce the system parameters of each item.

IMPORTANT • Normally, use only the factory (default) settings.

NOTE • An item in **[ ]** indicates the factory default setting.

2.2.1 Main
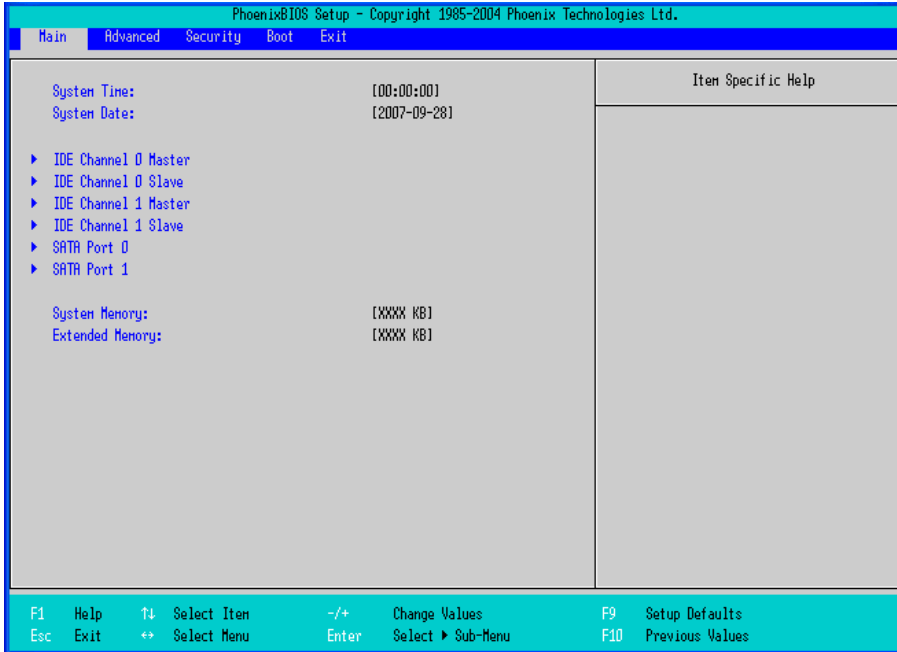
System Time

Shows the time which the PL currently recognizes. Move the cursor by the [Tab]key and set a proper time for the PL by the [Tab], [+] and [-] keys because the factory default setting is the Japan's Standard Time (GMT+09:00).

System Date

Shows the date which the PL currently recognizes. Set a proper date for the PL by the [+] and [-] keys.

IDE Master Channel 0 Master /

IDE Slave Channel 0 Slave /

IDE Channel 1 Master /

IDE Channel 1 Slave /

SATA HDD Port 0 /

SATA HDD Port 1

Displays the name of devices connected to the PL. Pressing the [Enter] key will call up the Parameter settings menu.

SEE → ■ *IDE Channel / SATA Port (page2-5)*

System Memory

Shows the capacity of the "System Memory".

Extended Memory

Shows the capacity of the "Extended Memory". It is the loaded memory - the size of the Video Memory.

■ IDE Channel / SATA Port

Point out the cursor at the [IDE Channel 0 Master], [IDE Channel 0 Slave], [IDE Channel 1 Master], [IDE Channel 1 Slave], [SATA Port 0], [SATA Port 1] on the "Main screen", and then press the [Enter] key, so that the following screen is shown.
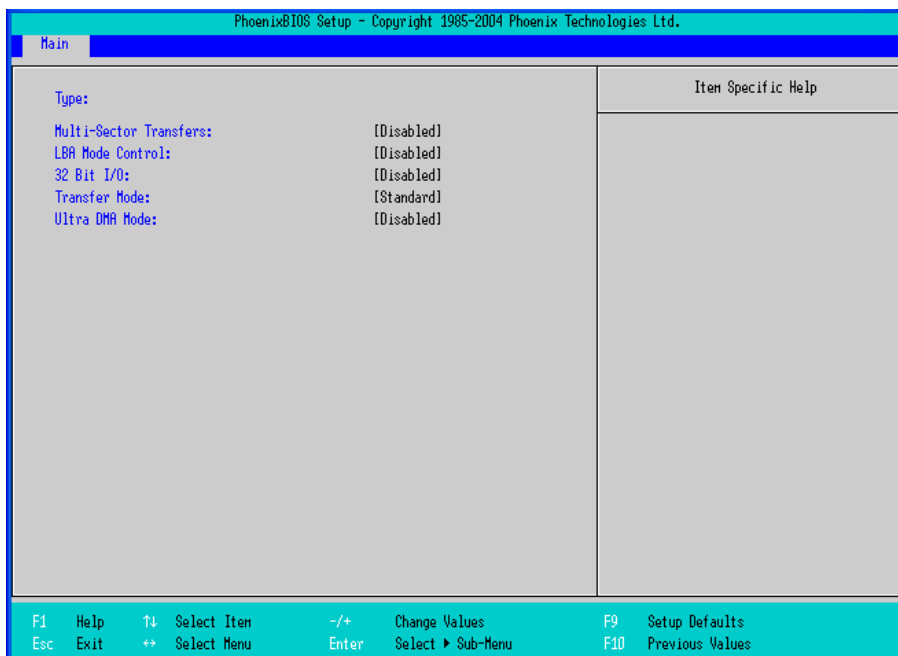
Type

Specifies a type of drive which you use.

[Auto]	Automatically specifies whether to connect to the drives and the type of drive that you use.
[None]	Specifies that all the drives are not used.
[ATAPI Removable]	Connects the ATAPI removable drive.
[CD-ROM]	Connects the CD-ROM drive.
[IDE Removable]	Connects the IDE removable drive.
[Other ATAPI]	Connects other ATAPI devices.
[User]	You can directly specify the number of cylinders, heads and sectors.

IMPORTANT • Select **[Auto]** to have the PL recognize the hardware properly.

Multi Sector Transfers

Specifies the number of sectors per block, which are transferred to the memory. When [Type] is [None] or [Auto], the selection is disabled.

[Disabled]	Transfers by sector.
[2 Sectors]	Transfers 2 sectors at a time.
[4 Sectors]	Transfers 4 sectors at a time.
[8 Sectors]	Transfers 8 sectors at a time.
[16 Sectors]	Transfers 16 sectors at a time.

LBA Mode Control

Enables or disables the Logical Block Address (LBA) instead of the Cylinders, Headers, and Sectors. When [Type] is [None] or [Auto], the selection is disabled.

[Disabled]	Does not use LBA mode.
[Enabled]	Uses LBA mode.

32 Bit I/O

Specifies an enabled/disabled state for the 32 bit transferring between CPU and IDE controller.

When the [Type] is [None], nothing is displayed.

[Enabled]	Uses 32 bit transfer.
[Disabled]	Does not use 32 bit transfer.

Transfer Mode

Specifies a method of transferring data. When the [type] is [None], nothing is displayed. When [Type] is [None] or [Auto], the selection is disabled.

[Standard]	Specifies Transfer Mode to PIO Mode 0.
[Fast PIO 0 to Fast PIO 4]	Specifies Transfer Mode to Fast PIO Mode 1 - Mode 4.
[FPIO 3/DMA 1]	Uses Fast PIO Mode 3 or DMA Mode 1.
[FPIO 4/DMA 2]	Uses Fast PIO Mode 4 or DMA Mode 2.

Ultra DMA Mode

Specifies a Ultra DMA mode for the Hard drive. When [Type] is [None] or [Auto], the selection is disabled.

[Disabled]	Does not use Ultra DMA mode.
[Mode 0 to Mode 5]	Specifies the Ultra DMA mode.

2.2.2   Advanced

```
                PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
      Main     Advanced    Security    Boot    Exit

                                                                   Item Specific Help
      ▶  Processor Configuration
      ▶  Power-ON Configuration
      ▶  Video (Intel IGD) Configuration
      ▶  Cache Memory Configuration
      ▶  Integrated Device Configuration
      ▶  DMI Event Logging
      ▶  Soft Mirror Status

         Installed O/S:                     [Win2K/XP]
         Reset Configuration Data:          [No]
         Large Disk Access Mode:            [DOS]
         Local Bus IDE adapter:             [Enabled]

         RAS Reset Port Mask:               [Enabled]
         Show CMOS Error:                   [Disabled]
         Summary screen:                    [Disabled]
         Enable memory gap:                 [Disabled]
         Extended Memory Testing            [Just zero it]




      F1    Help      ↑↓   Select Item      -/+      Change Values        F9    Setup Defaults
      Esc   Exit      ↔    Select Menu       Enter   Select ▶ Sub-Menu    F10   Previous Values
```

Processor Configuration

Point the cursor to [Advanced Processor Configuration] and press the [Enter] Key to go to the CPU set-up screen.

SEE →   ■ *Processor Configuration (page2-10)*

Power-ON Configuration

Point the cursor to [Power-ON Configuration] and press the [Enter] Key to go to the set-up screen for the PL

operations at power-on.

SEE →   ■ *Power-ON Configuration (page2-12)*

Video (Intel IGD) Configuration

Point the cursor to [Video (Intel IGD) Configuration] and press the [Enter] Key to go to the display set-up screen.

SEE →   ■ *Video (Intel IGD) Configuration (page2-14)*

Cache Memory Configuration

Point the cursor to the [Cache Memory] and press the [Enter] Key, so that you can go to the set-up screen for

Cache Memory.

SEE →   ■ *Cache Memory Configuration (page2-16)*

Integrated Device Configuration

Point the cursor to [Integrated Device Configuration] and press the [Enter] Key to go to the integrated device

set-up screen.

SEE →   ■ *Integrated Device Configuration (page2-18)*

DMI Event Logging

Point the cursor to [DMI Event Logging] and press the [Enter] Key to go to the DMI event logging set-up screen.

(SEE→)   ■ *DMI Event Logging (page2-25)*

Soft Mirror Status

Point the cursor to [Soft Mirror Status] and press the [Enter] Key to go to the display screen for the soft mirror status.

(SEE→)   ■ *Soft Mirror Status (page2-26)*

Installed O/S

Specifies a type of OS of the unit.

[Other]	Set when using a non-Plug and Play OS.
[Win2K/XP]	Set when using a Plug and Play OS.

Reset Configuration Data

Specifies whether you want to reset the Plug & Play information which is recorded in the Extended System Configuration Data (ESCD) Block of the CMOS RAM, when the system boots up next time.

[Yes]	Initializes data the next time the system boots up.
	Automatically reset to [No] after the data is initialized.
[No]	Does not initialize data.

Even when [Yes] is selected, the selection automatically returns to **[No]** after the data is initialized.

Large Disk Access Mode

Specifies the access mode. When you use UNIX or NetWare for OS, the setting should be [Other].

[Dos]	Use this setting normally.
[Other]	Use this setting when using Linux, UNIX, or a similar OS.

Local Bus IDE adapter

Specifies whether to use the IDE adapter.

[Enabled]	Uses the Local Bus IDE adapter.
[Disabled]	Does not use the Local Bus IDE adapter.

RAS Reset Port Mask

Specifies whether to enable or disable the RAS Reset Port feature.

[Enabled]	Enables the Mask feature, and disables the RAS Reset Port feature.
[Disabled]	Disables the Mask feature, and enables the RAS Reset Port feature.

Show CMOS Error

Specifies whether to display the CMOS Checksum Error message when the error occurs.

[Enabled]	Shows error message.
[Disabled]	Does not show error message.

The error messages that can be shown/hidden in this setting are as follows:

CMOS Checksum Error

CMOS Battery Failure

CMOS Time Not Set

Summary Screen

Specifies whether the configuration information of the running system (Summary Screen) is displayed.

[Enabled]   Shows the Summary Screen.

[Disabled]   Does not show the Summary Screen.

Enable Memory gap

Specifies an enabled/disabled state for the Memory gap.

[Enabled]   Reserves a memory gap for an expansion card.

[Disabled]   Use this setting normally.

Extended Memory Testing

Specifies whether a test for the Extended Memory needs to be executed at the system starting-up. The test
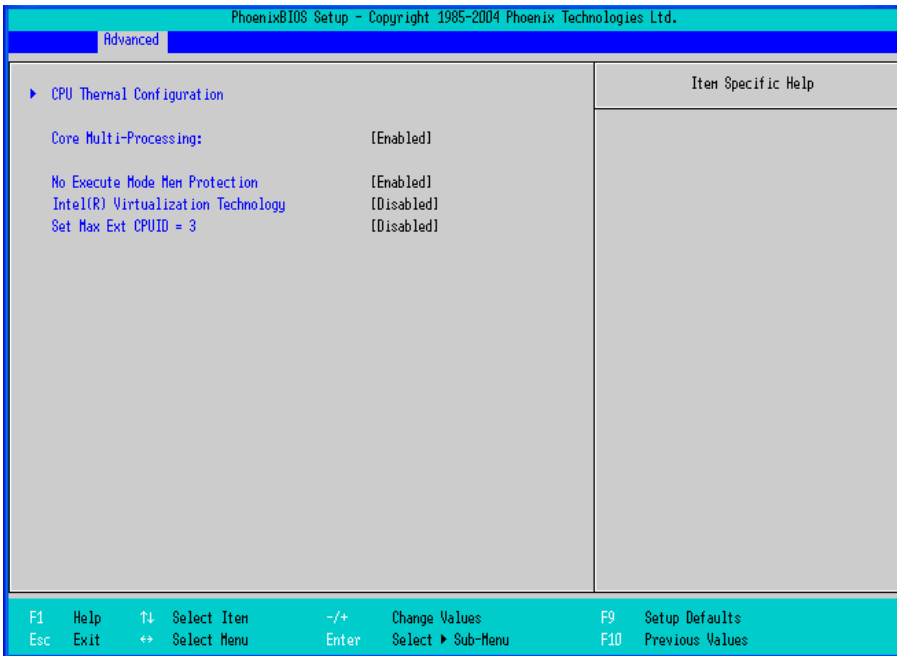
types are listed below.

[Normal]   Normal test

[Just Zero it]   Simple test

[None]   No test

■ Processor Configuration

Specifies the settings for the CPU. Point the cursor to [Processor Configuration] on the [Advanced] screen and press the [Enter] Key to display the following screen.

```
           PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
     Advanced

   ▶ CPU Thermal Configuration                              Item Specific Help

     Core Multi-Processing:              [Enabled]

     No Execute Mode Mem Protection      [Enabled]
     Intel(R) Virtualization Technology  [Disabled]
     Set Max Ext CPUID = 3               [Disabled]




   F1   Help    ↑↓  Select Item    -/+    Change Values       F9   Setup Defaults
   Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu   F10  Previous Values
```

CPU Thermal Configuration

Point the cursor to [CPU Thermal Configuration] and press the [Enter] Key to go to the set-up screen for CPU temperature monitoring.

Core Multi-Processing

Specifies whether to distribute processing using multiple processor cores.

[Enabled]	Distributes processing.
[Disabled]	Does not distribute processing. Operates as a single core.

No Execute Mode Mem Protection

Specifies whether to use the data execution prevention feature.

[Enabled]	Uses the data execution prevention feature.
[Disabled]	Does not use the data execution prevention feature.

Intel(R) Virtualization Technology

Specifies whether to run multiple OSs simultaneously on the PL unit.

[Enabled]	Uses multiple OSs simultaneously.
[Disabled]	Does not use multiple OSs simultaneously.

Set Max Ext CPUID = 3
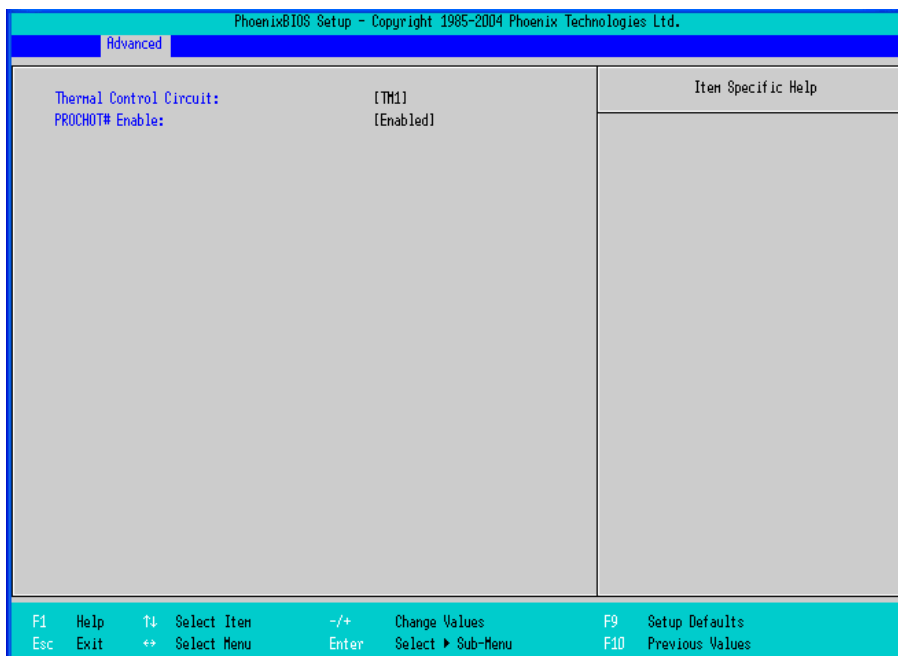
Specifies the maximum value of the CPUID basic information which can be recognized with the CPUID instruction.

[Enabled]	The maximum value is fixed to "3". Select this option when you use an OS which does not support more than "3" pieces of extended CPUID basic information.
[Disabled]	The maximum value is set to the allowable maximum value of the CPU.

■ CPU Thermal Configuration

Specifies the settings for the CPU temperature monitoring. Point the cursor to [CPU Thermal Configuration] on the [Advanced Processor Configuration] screen and press the [Enter] Key to display the following screen.

```
                 PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

                                                                    Item Specific Help
     Thermal Control Circuit:           [TM1]
     PROCHOT# Enable:                   [Enabled]






     F1   Help     ↑↓  Select Item     -/+    Change Values        F9   Setup Defaults
     Esc  Exit     ↔   Select Menu     Enter  Select ▶ Sub-Menu    F10  Previous Values
```

Thermal Control Circuit

Specifies whether to use the CPU temperature protection feature.

[Disabled]   The CPU temperature protection feature is not used.

[TM1]   The CPU is operated at 50% duty ratio.
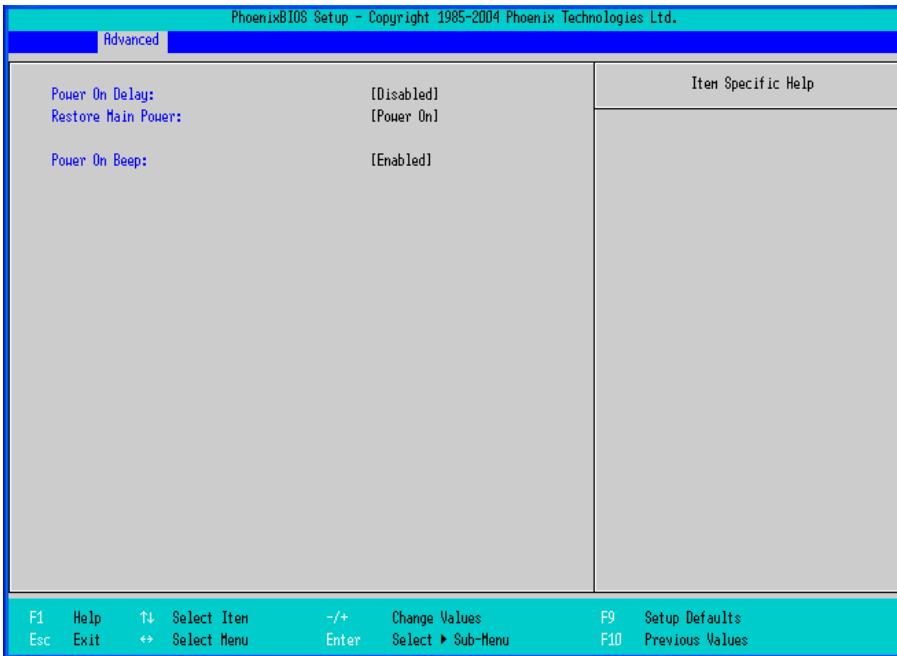
PROCHOT# Enable

Specifies whether to issue a "PROCHOT#" signal when the CPU's temperature reaches the maximum safe operating temperature.

[Enabled]   Issues a "PROCHOT#" signal when the maximum safe operating temperature is reached.

[Disabled]   Does not issue a "PROCHOT#" signal when the maximum safe operating temperature is reached.

■ Power-ON Configuration

Specifies the PL operations at power-on. Point the cursor to [Power-ON Configuration] on the [Advanced] menu and press the [Enter] Key to display the following screen.

```
                     PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

    Power On Delay:              [Disabled]                        Item Specific Help
    Restore Main Power:          [Power On]

    Power On Beep:               [Enabled]












    F1   Help    ↑↓  Select Item    -/+    Change Values     F9   Setup Defaults
    Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu F10  Previous Values
```

Power On Delay

Specifies whether to wait before operation when the system starts up.

[Enabled]   The system waits before operation for about 4 seconds at start-up.

[Disabled]   The system starts up normally.

NOTE
• If the PL unit is started while USB memory or another USB device is connected, the following phenomenon may occur depending on the device.
  • It takes about 1 minute before the OS starts up.
  • If the USB device is not recognized, set [Power on Delay] to [Enable]. This may solve the problem.

Restore Main Power

Specifies the operation when the main power is turned to ON. When [Power on Delay] is [Enabled], this option is not displayed.

[Stay Off]   The PL unit does not start when the reset switch is turned to ON.
                      It starts when the reset switch is pressed.

[Power On]   The PL unit starts when the main power is turned to ON.

NOTE
• Normally, specify [Power On] for use.
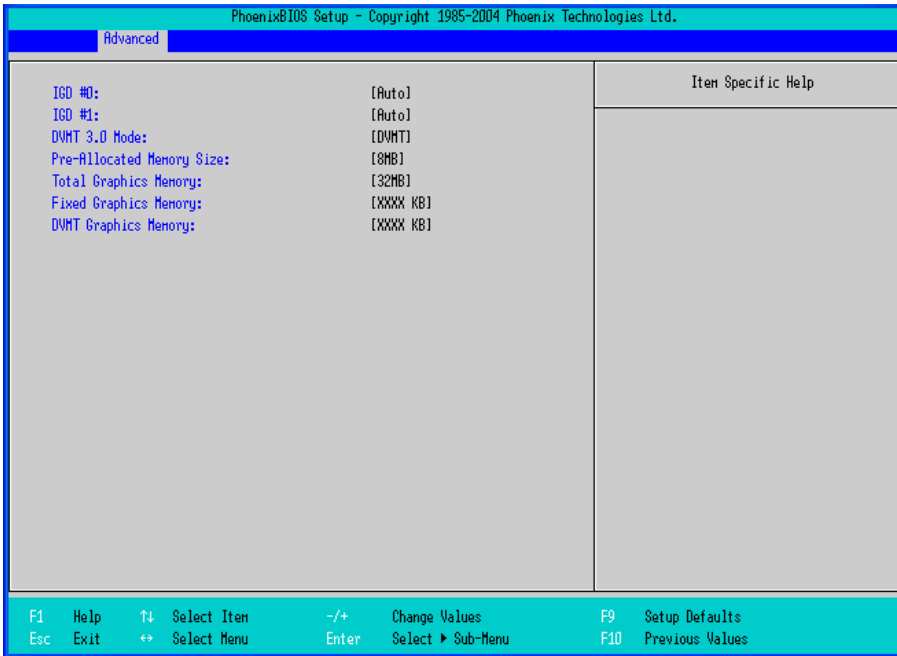• When you change the setting to [Stay off], launch the OS again without turning the main power OFF.

Power On Beep

Specifies whether to use beeps when the system starts up.

[Enabled]   The beep sounds at start-up.

[Disabled]   The beep does not sound at start-up.

■ Video (Intel IGD) Configuration

Specifies graphic-related settings. Point the cursor to [Video (Intel IGD) Configuration] on the [Advanced]

screen and press the [Enter] Key to display the following screen.

```
                    PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
         Advanced

                                                                        Item Specific Help
    IGD #0:                      [Auto]
    IGD #1:                      [Auto]
    DVMT 3.0 Mode:               [DVMT]
    Pre-Allocated Memory Size:   [8MB]
    Total Graphics Memory:       [32MB]
    Fixed Graphics Memory:       [XXXX KB]
    DVMT Graphics Memory:        [XXXX KB]












    F1   Help    ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
    Esc  Exit    ↔   Select Menu     Enter  Select ▶ Sub-Menu  F10  Previous Values
```

IGD #0

Shows an enabled/disabled state for graphics device 0 in the chipset.

[Disabled]   Shows that the embedded graphics device cannot be used.

[Auto]   Shows that the embedded graphics device can be used.

IGD #1

Specifies whether to enable or disable the graphics device 1 in the chipset.

When the IGD #0 is [Disabled], this option is not displayed.

[Disabled]   Does not use the embedded graphics device.

[Auto]   Uses the embedded graphics device.

DVMT 3.0 Mode

Specifies the form of the memory used by the graphic in the chipset.

When the IGD #0 is [Disabled], this option is not displayed.

[Fixed]   The fixed area is used as video memory.

[DVMT]   The DVMT (Dynamic Video Memory Technology) feature is used so that

                              video memory is dynamically allocated from main memory.

[Combo]   Combination of [Fixed] and **[DVMT]**.

Pre-Allocated Memory Size

Specifies the video memory size which BIOS allocates in advance as a fixed area at start-up.

When the IGD #0 is [Disabled], this option is not displayed.

[1MB]	Allocates 1 MB as video memory.
[8MB]	Allocates 8 MB as video memory.

Total Graphics Memory

Specifies the total memory size allocated to video memory. When [DVMT 3.0 Mode] is set to [Fixed] or

[Combo], the fixed value is displayed and cannot be changed.

When the IGD #0 is [Disabled], this option is not displayed.

[64MB]	Allocates 64 MB as video memory.
[128MB]	Allocates 128 MB as video memory.
[MaxDVMT] (224MB)	Allocates 224 MB as video memory.

Fixed Graphics Memory

Specifies the size of the video memory used as a fixed area.

When the IGD #0 is [Disabled], this option is not displayed. Also, when [DVMT 3.0 Mode] is either [Fixed]
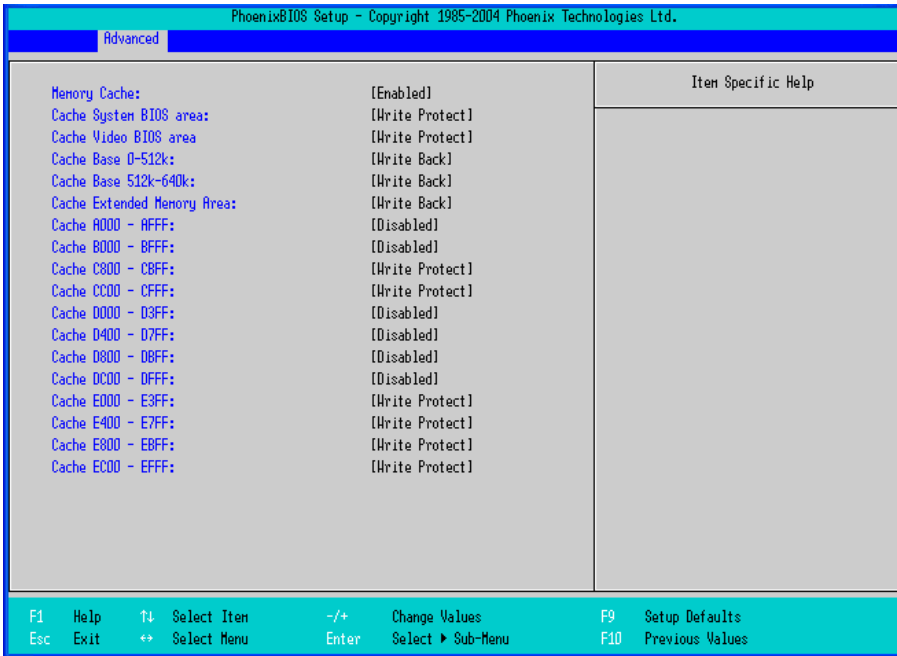
or [DVMT], this option is not displayed.

DVMT Graphics Memory

Displays the size of the video memory which can be dynamically allocated by using the DVMT feature.

When the IGD #0 is [Disabled], this option is not displayed.

■ Cache Memory Configuration

Specifies the parameters for the cache memory. Point the cursor to the [Cache Memory] on the [Advanced]

screen and press the [Enter] Key, so that the following screen will be displayed.

```
                    PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

                                                                        Item Specific Help
     Memory Cache:                      [Enabled]
     Cache System BIOS area:            [Write Protect]
     Cache Video BIOS area              [Write Protect]
     Cache Base 0-512k                  [Write Back]
     Cache Base 512k-640k:              [Write Back]
     Cache Extended Memory Area:        [Write Back]
     Cache A000 - AFFF:                 [Disabled]
     Cache B000 - BFFF:                 [Disabled]
     Cache C800 - CBFF:                 [Write Protect]
     Cache CC00 - CFFF:                 [Write Protect]
     Cache D000 - D3FF:                 [Disabled]
     Cache D400 - D7FF:                 [Disabled]
     Cache D800 - DBFF:                 [Disabled]
     Cache DC00 - DFFF:                 [Disabled]
     Cache E000 - E3FF:                 [Write Protect]
     Cache E400 - E7FF:                 [Write Protect]
     Cache E800 - EBFF:                 [Write Protect]
     Cache EC00 - EFFF:                 [Write Protect]




     F1   Help    ↑↓  Select Item   -/+   Change Values      F9   Setup Defaults
     Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu  F10  Previous Values
```

Memory Cache

Specifies an enabled/disabled state for the Memory Cache.

[Enabled]	Uses cache memory.
[Disabled]	Does not use cache memory.

Cache System BIOS area

Specifies the cache set-up for the System BIOS area.

[uncached]	Does not cache the System BIOS area.
[Write Protect]	Write protects the System BIOS area.

Cache Video BIOS area

Specifies the cache set-up for the VIDEO BIOS area.

[uncached]	Does not cache the System BIOS area.
[Write Protect]	Write protects the System BIOS area.

Cache Base 0-512k

Specifies the cache set-up for the Base Memory, 0 ~ 512k.

[uncached]	Does not cache the System BIOS area.
[Write Through]	Uses Write Through method.
[Write Protect]	Write protects the System BIOS area.
[Write Back]	Uses Write Back method.

Cache Base 512-640k

Specifies the cache set-up for the Base Memory, 512 ~ 620k.

[uncached]	Does not cache the System BIOS area.
[Write Through]	Uses Write Through method.
[Write Protect]	Write protects the System BIOS area.
[Write Back]	Uses Write Back method.

Cache Extended Memory Area

Specifies the cache set-up for the Extended Memory area.

[uncached]	Does not cache the System BIOS area.
[Write Through]	Uses Write Through method.
[Write Protect]	Write protects the System BIOS area.
[Write Back]	Uses Write Back method.

Cache xxxx-xxxx

Specifies the cache setting for each address.

[uncached]	Does not cache the System BIOS area.
[USWC Caching]	Uses USWC (Uncached Speculative Write Combining) method. (Only addresses A000-AFFF and B000-BFFF are available.)
[Write Through]	Uses Write Through method.
[Write Protect]	Write protects the System BIOS area.
[Write Back]	Uses Write Back method.

The factory default setting is as follows.

A000 - AFFF	Disabled
B000 - BFFF	Disabled
C800 - CBFF	Write Protect
CC00 - CFFF	Write Protect
D000 - D3FF	Disabled
D400 - D7FF	Disabled
D800 - DBFF	Disabled
DC00 - DFFF	Disabled
E000 - E3FF	Disabled
E400 - E7FF	Write Protect
E800 - EBFF	Write Protect
EC00 - EFFF	Write Protect

■ Integrated Device Configuration

Specifies the settings for the integrated devices. Point the cursor to [Integrated Device Configuration] on the

[Advanced] screen and press the [Enter] Key to display the following screen.

```
                  PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
       Advanced

    ▶  I/O Device Configuration                                        Item Specific Help
    ▶  PCI Configuration
    ▶  USB Controller Configuration

       SATA Operational Mode:          [Enhanced]
       AHCI Configuration:             [Enabled]
       ComINIT OOB-sequence issue:     [Enabled]

       LAN Controller 1:               [Enabled]
       LAN Controller 2:               [Enabled]
       High-Definition Audio (Azalia): [Auto]

    F1   Help    ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
    Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu  F10  Previous Values
```
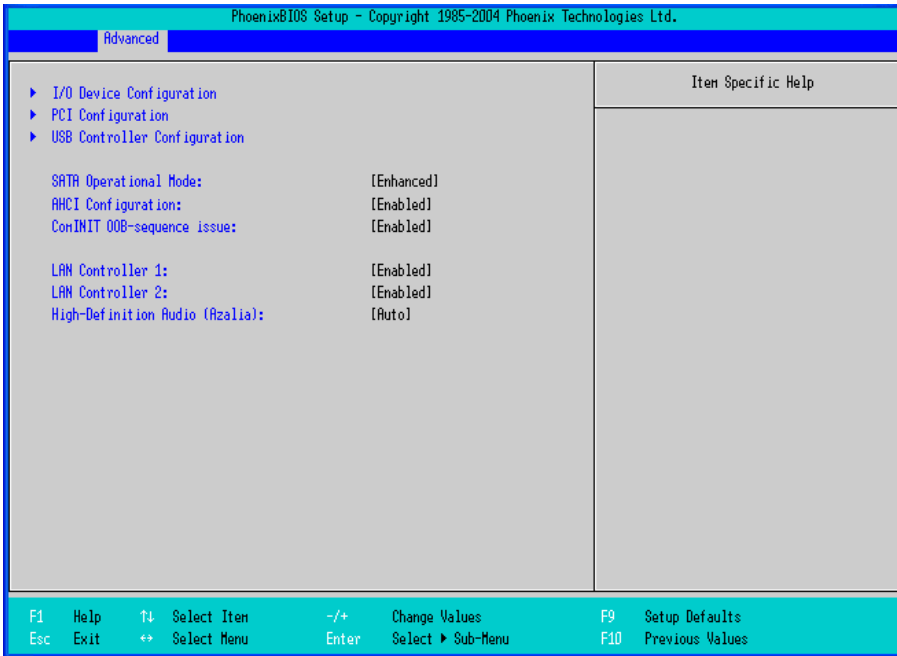
I/O Device Configuration

Point the cursor to [I/O Device Configuration] and press the [Enter] Key to go to the set-up screen for the I/O

addresses and interrupt Nos. of the integrated devices.

SEE→ ■ *I/O Device Configuration (page2-20)*

PCI Configuration

Point the cursor to [PCI Configuration] and press the [Enter] Key to go to the PCI resource set-up screen.

SEE→ ■ *PCI Configuration (page2-21)*

USB Controller Configuration

Point the cursor to [USB Configuration] and press the [Enter] Key to go to the USB controller set-up screen.

SEE→ ■ *USB Controller Configuration (page2-23)*

SATA Operational Mode

Specifies the operation mode of the SATA controller.

[Compatible]   Legacy mode is used.

[Enhanced]   Native mode is used.

AHCI Configuration

Specifies whether to use the AHCI mode for SATA. When [SATA Operational Mode] is [Compatible], this option is not displayed.

[Enabled]	Uses AHCI mode.
[Disabled]	Does not use AHCI mode.

IMPORTANT
- When installing the OS with [AHCI Configuration] set to [Enable], install Intel? Matrix Storage Manager onto floppy disk from the Pro-face support site, "Otasuke Pro!". For installation instructions, refer to the "Otasuke Pro!" site.
- Insert a floppy disk and begin the OS installation. As soon as you begin the installation a message will appear on the lower part of the screen saying "Press F6 if you need to install a third party SCSI RAID driver⋯". Press the [F6] key.
- During setup, a confirmation message for driver installation will appear. Press the [S] key and select "ICH7M DH".
- You cannot install the OS without performing the above procedure.

ComINIT OOB-sequence issue

Specifies whether to use an Intel BIOS Spec. 2.0. When [SATA Operation Mode] is [Compatible], or when [AHCI Configuration] is [Disabled], this option is not displayed.

[Enabled]	Uses Intel BIOS Spec. 2.0.
[Disabled]	Does not use Intel BIOS Spec. 2.0.

NOTE
- In AHCI mode, be sure to use an Intel-manufactured AHCI driver. When installing Windows Vista (not supported OS) on the SATA drive (in AHCI mode) on user authority, using a Microsoft-manufactured AHCI driver (which is included in the Vista Installer) causes the PL to hang up during the OS start-up process for installing.
  If you use a Microsoft-manufactured AHCI driver accidentally, change this setting to [Disabled] to install an Intel-manufactured AHCI driver, and then reset the setting to [Enabled].

LAN Controller 1

Displays the enabled/disabled status of the LAN controller 1.

[Enabled]	Indicates that LAN controller 1 is disabled.
[Disabled]	Indicates that LAN controller 1 is enabled.

LAN Controller 2

Specifies whether to enable or disable LAN controller 2.

[Enabled]	Indicates that LAN controller 2 is disabled.
[Disabled]	Indicates that LAN controller 2 is enabled.

High-Definition Audio (Azalia)

Specifies whether to use the HD audio feature.

[Disabled]	Does not use the HD audio feature.
[Auto]	Uses the HD audio feature.

■ I/O Device Configuration

Specifies the address and interrupt level of the I/O ports. Point the cursor to the [I/O Device Configuration] on the [Integrated Device Configration] screen and press the [Enter] Key, so that the following screen will be displayed.

```
              PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
       Advanced

                                                                  Item Specific Help
   COM Port 1:                    [Enabled]
   Base I/O address:              [3F8]
   Interrupt:                     [IRQ 4]
   COM Port 2:                    [Enabled]
   Base I/O address:              [2F8]
   Interrupt:                     [IRQ 3]
   COM Port 3:                    [Enabled]
   Base I/O address:              [3E8]
   Interrupt:                     [IRQ 11]
   COM Port 4:                    [Enabled]
   Base I/O address:              [2E8]
   Interrupt:                     [IRQ 10]




 F1    Help    ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
 Esc   Exit    ↔   Select Menu     Enter  Select ▶ Sub-Menu  F10  Previous Values
```
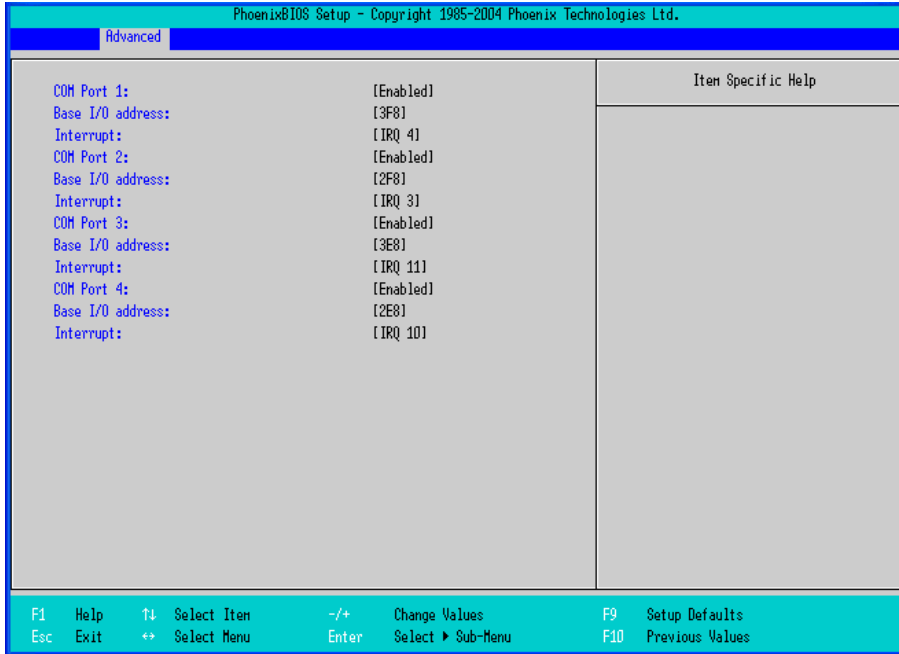
COM Port 1, 2, 3, 4

Specifies whether to enable or disable each COM port.

[Enabled]

[Disabled]

Base I/O Address

Specifies the base I/O address of the COM port. The base I/O address must be unique among the COM ports.

When [COM Port] is [Disabled], this option is not displayed.

[3F8] (Factory default setting for COM1)   The base I/O address is set to 03F8h-03FF.

[2F8] (Factory default setting for COM2)   The base I/O address is set to 02F8h-02FF.

[3E8] (Factory default setting for COM3)   The base I/O address is set to 03E8h-03EF.

[2E8] (Factory default setting for COM4)   The base I/O address is set to 02E8h-02EF.

Interrupt

Specifies the interrupt No. of the COM port. The interrupt No. must be unique among the COM ports. When

[COM Port] is [Disabled], this option is not displayed.

[IRQ3] (Factory default setting for COM2)   The interrupt No. is set to 3.

[IRQ4] (Factory default setting for COM1)   The interrupt No. is set to 4.

[IRQ10] (Factory default setting for COM4) The interrupt No. is set to 10.

[IRQ11] (Factory default setting for COM3) The interrupt No. is set to 11.

■ PCI Configuration

Specifies the PCI IRQ parameters. Point the cursor to the [PCI Configuration] on the [Integrated Device

Configration] screen and press the [Enter] Key, so that the following screen will be displayed.

```
                    PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

  ▶ PCI/PNP ISA IRQ Resource Exclusion                                    Item Specific Help

    PCI IRQ line 1:                       [Auto Select]
    PCI IRQ line 2:                       [Auto Select]
    PCI IRQ line 3:                       [Auto Select]
    PCI IRQ line 4:                       [Auto Select]
    PCI IRQ line 5:                       [Auto Select]
    PCI IRQ line 6:                       [Auto Select]
    PCI IRQ line 7:                       [Auto Select]
    PCI IRQ line 8:                       [Auto Select]




  F1   Help    ↑↓  Select Item     -/+    Change Values       F9   Setup Defaults
  Esc  Exit    ↔   Select Menu    Enter   Select ▶ Sub-Menu   F10  Previous Values
```
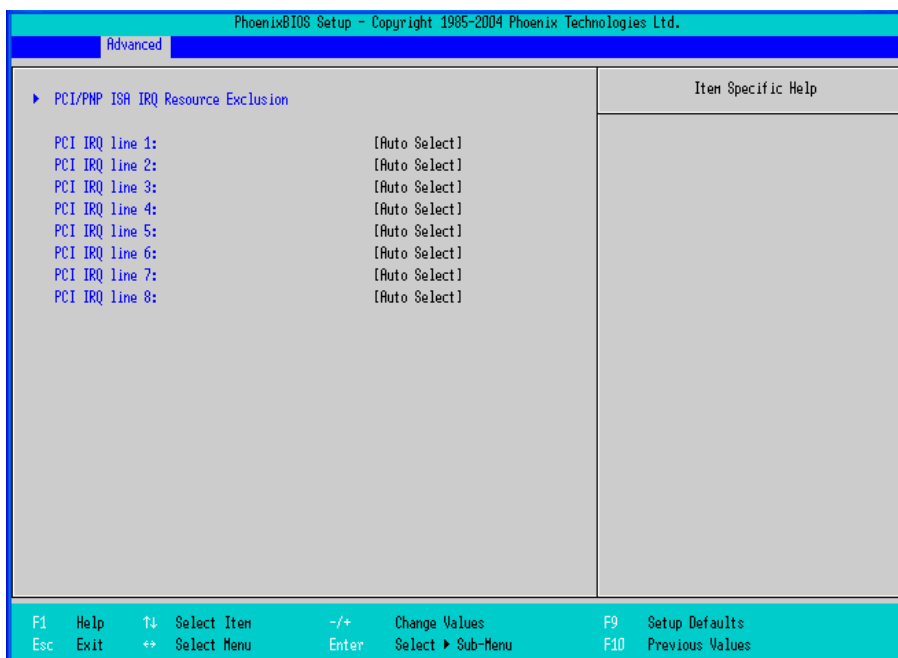
PCI/PNP ISA IRQ Resource Exclusion

Point the cursor to [PCI/PNP ISA IRQ Resource Exclusion] and press the [Enter] Key to go to the PCI/PNP

ISA IRQ screen.

PCI IRQ line 1 to PCI IRQ line 8

Specifies the interrupt No. of the PCI.

[Disabled]	The PCI is not used.
[Auto Select]	The interrupt No. is allocated automatically.
[3] to [15]	Each preset interrupt No. is used.

■ PCI/PNP ISA IRQ Resource Exclusion

Specifies the IRQ resource to be reserved for the ISA interrupt.

Point the cursor to [PCI/PNP ISA IRQ Resource Exclusion] on the [PCI Configuration] screen and press the

[Enter] Key to display the following screen.

```
                    PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

                                                                    Item Specific Help
     IRQ 3:                          [Available]
     IRQ 4:                          [Available]
     IRQ 5:                          [Available]
     IRQ 7:                          [Available]
     IRQ 10:                         [Available]
     IRQ 11:                         [Available]
     IRQ 15:                         [Available]
                                     [Available]



  F1   Help      ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
  Esc  Exit      ↔   Select Menu     Enter  Select ▶ Sub-Menu  F10  Previous Values
```
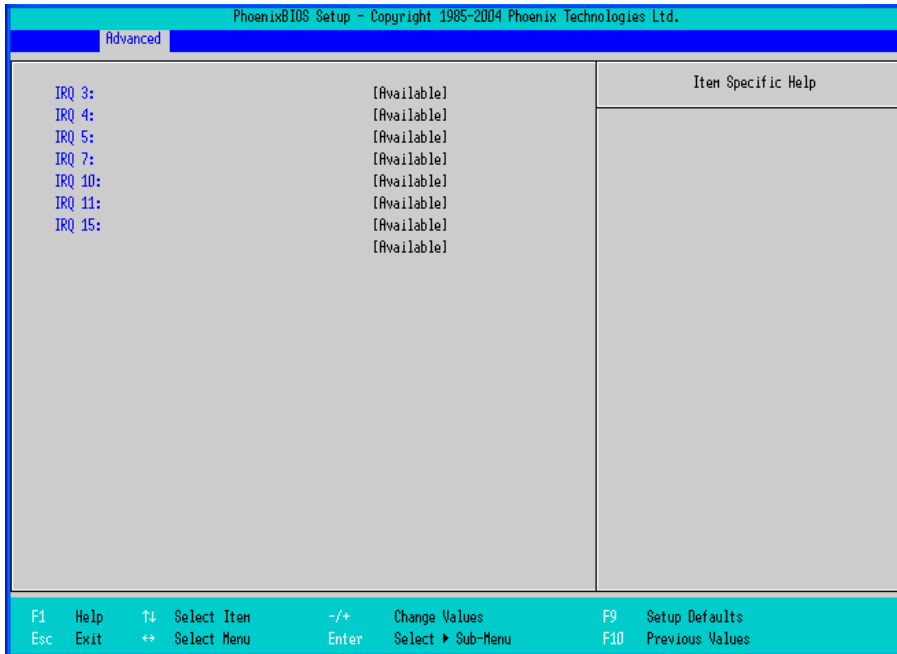
IRQ3, 4, 5, 7, 10, 11, 15

    [Available]   IRQ is not reserved.

    [Reserve]   IRQ is reserved.

■ USB Controller Configuration

Specifies the USB controller options. Point the cursor to [USB Controller Configuration] on the [Integrated Device Configuration] screen and press the [Enter] Key to display the following screen.

```
                    PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

        USB Controller #0:              [Enabled]              Item Specific Help
        USB Controller #1:              [Enabled]
        USB Controller #2:              [Enabled]
        USB Controller #3:              [Enabled]

        USB 2.0 Controller:             [Enabled]


    F1   Help    ↑↓  Select Item    -/+    Change Values         F9   Setup Defaults
    Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu     F10  Previous Values
```
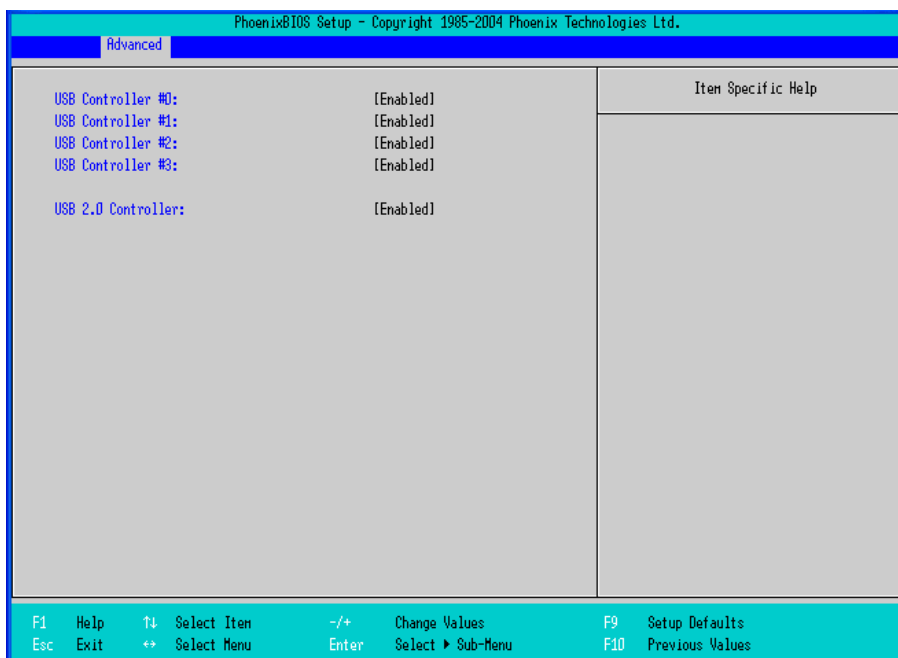
USB Controller #0

   Displays the enabled/disabled status of the USB controller #0.

   [Enabled]   USB controller #0 is enabled.

   [Disabled]   USB controller #0 is disabled.

USB Controller #1

   Specifies whether to enable or disable USB controller 1.

   When [USB Controller #0] is [Disabled], this option is fixed to [Disabled] and not displayed.

   [Enabled]   USB controller #1 is enabled.

   [Disabled]   USB controller #1 is disabled

USB Controller #2

   Specifies whether to enable or disable USB controller 2.

   When [USB Controller #0] or [USB Controller #1] is [Disabled], this option is fixed to [Disabled] and not displayed.

   [Enabled]   USB controller #2 is enabled.

   [Disabled]   USB controller #2 is disabled

USB Controller #3

Specifies whether to enable or disable USB controller 3.

When [USB Controller #0], [USB Controller #1] or [USB Controller #2] is [Disabled], this option is fixed to

[Disabled] and not displayed.

[Enabled]	USB controller #3 is enabled.
[Disabled]	USB controller #3 is disabled

USB 2.0 Controller

Specifies whether to enable or disable USB 2.0 controller.

When [USB Controller #0] is [Disabled], this option is fixed to [Disabled] and not displayed.

[Enabled]	Enables USB 2.0 controller.
[Disabled]	Disables USB 2.0 controller.

NOTE
• When installing Windows® 2000 using a USB CD-ROM drive compatible with USB 2.0,
leaving this setting on [Enabled] causes the installation to fail with a blue screen error. This
occurs because Windows® 2000 Installer does not support USB 2.0. To complete this installation
successfully, change the setting to [Disabled].

■ DMI Event Logging

Specifies the parameters related to DMI event logging. Point the cursor to the [DMI Event Logging] on the

[Advanced] screen and press the [Enter] Key, so that the following screen will be displayed.

```
                PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

                                                              Item Specific Help
     Event log validity
     Event log capacity

     View DMI event log

     Event Logging              [Enabled]
     ECC Event Logging          [Enabled]

     Mark DMI events as read
     Clear all DMI event logs   [No]








 F1    Help     ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
 Esc   Exit     ↔   Select Menu    Enter  Select ▶ Sub-Menu  F10  Previous Values
```
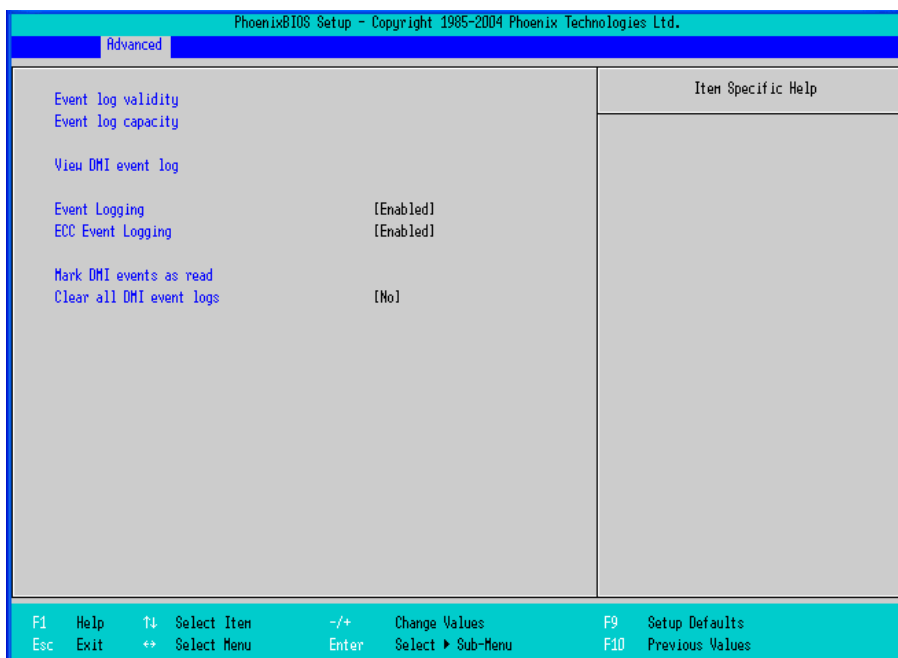
Event log validity

Shows the status of the event log storage area.

[Valid]	The status is normal.
[Not valid]	The status is abnormal.

Event log capacity

Shows the status of the area to which event logs are written.

[Full]	The area is full.
[Space Available]	The area is not full.

View DMI event log

Point the cursor to [View DMI event log] and press the [Enter] Key to view the DMI event logs.

Event Logging

Specifies whether event logs need to be recorded.

[Enabled]	Records event logs.
[Disabled]	Does not record event logs.

ECC Event Logging

Specifies whether the event logs related to memory ECC need to be recorded.

[Enabled]	Records ECC error related event logs.
[Disabled]	Does not record ECC error related event logs.

Mark DMI events as read

Point the cursor to [Mark DMI events as read] and press the [Enter] Key to mark unread event logs as read.

Clear all DMI event logs

Specifies whether all the recorded DMI event logs need to be deleted.

[No]	Does not delete event logs.
[Yes]	Deletes event logs.
	Automatically reset to [No] after the data is initialized.

■ Soft Mirror Status

Displays and specifies the soft mirror status. Point the cursor to the [Soft Mirror Status] on the [Advanced] screen and press the [Enter] Key to display the following screen.

```
PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
  Advanced

                                                        Item Specific Help
   Mirror System:
   Active Disk:

   Clear Mirror Status:              [No]




 F1   Help    ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
 Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu  F10  Previous Values
```
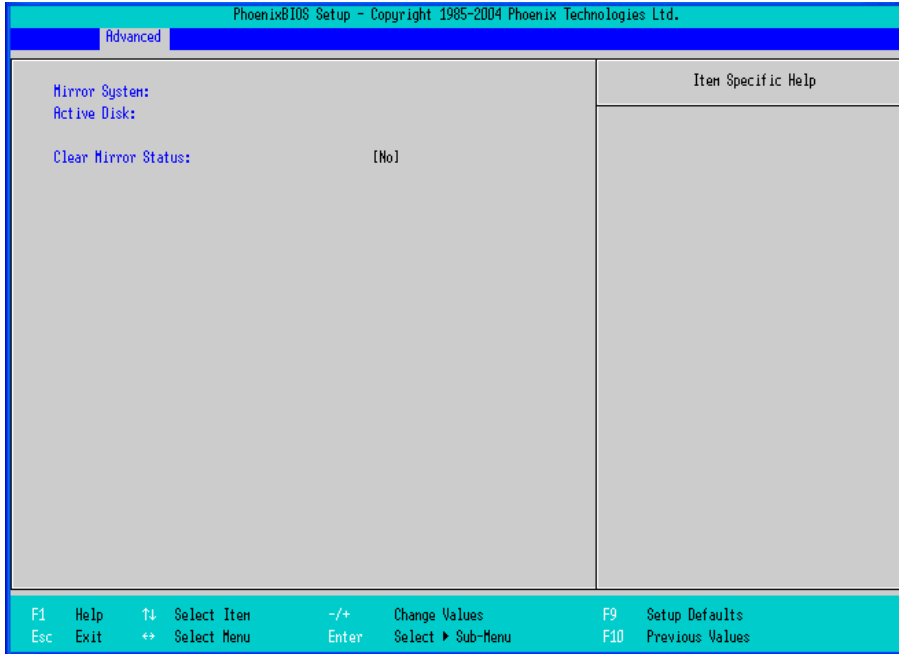
Mirror System

Displays the soft mirror status.

[Unknown]	Indicates the status that mirroring is not configured properly.
[Good]	Indicates the status that the mirroring feature has performed properly.
[Reduced]	Indicates the status that the mirroring feature has performed in only one HDD because an error occurred in either of the two HDDs during normal operation.

Active Disk

Displays which hard disk is specified as the boot disk.

[Unknown]	Indicates the status that mirroring is not configured properly.
[HDD 0]	Indicates that HDD 0 is active.
[HDD 1]	Indicates that HDD 1 is active.
[Both]	Indicates that both HDD 0 and HDD 1 are active.

Clear Mirror Status

Specifies whether to delete the recorded soft mirror status at next boot-up.

[No]	The recorded status is not deleted.
[Yes]	The recorded status is deleted at next boot-up. The setting is reset automatically to [No] after the status data is deleted. Normally, specify [No] for use.

2.2.3   Security

```
                    PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
     Main    Advanced   Security   Boot   Exit

                                                                      Item Specific Help
       Set User Password
       Set Supervisor Password

       Password on boot:                  [Disabled]
       Fixed disk boot sector:            [Normal]
```
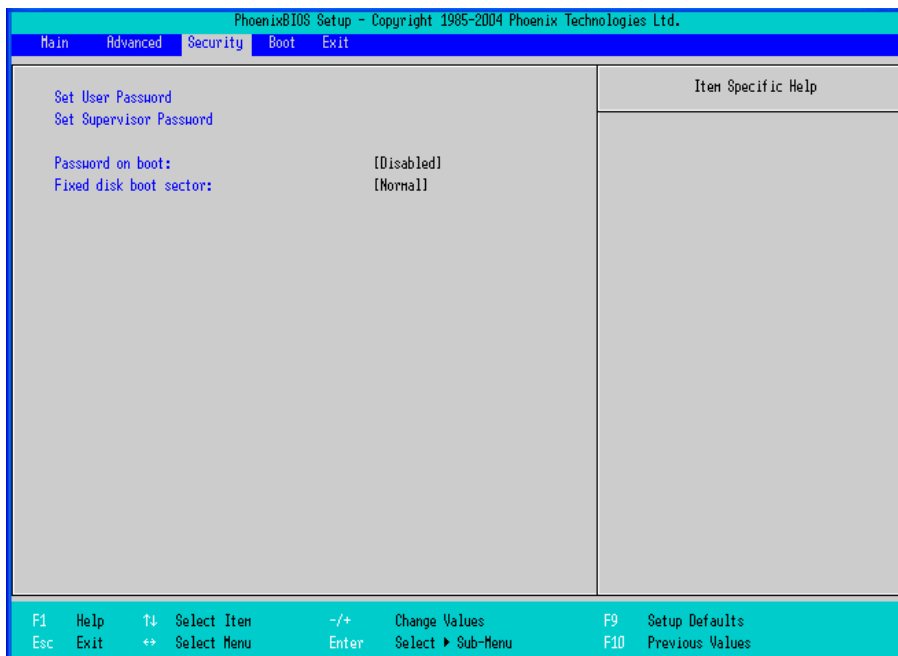
Set User Password / Set Supervisor Password

   Allows a password to be set with a maximum of 8 characters. When any password is not needed, do not input

   any values in the [Enter New Password] and press just the [Enter] key.

Password on boot

   Specifies whether a password should be needed at the Start-Up.

   When no password has been set for [Set User Password] or [Set Supervisor Password], the selection is

   disabled.

   [Enabled]   Requests password.

   [Disabled]   Does not request password.

Fixed disk boot sector

   Specifies whether writing into the boot sector on the hard disk is not allowed.

   [Normal]   Does not prohibit writing into the boot sector.

   [Write Protect]   Prohibits writing into the boot sector.

2.2.4   Boot

Specifies an order for boot-up devices. The boot-up devices are specified in the Boot priority order list and are searched for from the top of the list in sequence. By using the [+] or [-] keys, change its order. To change the device to be booted up, use the [x] key to move the device from the Boot priority order list to the Excluded from boot order list and vice versa.

NOTE
- When a new hard disk or commercial USB memory which does not require boot-up is connected and such a device is given high priority in the Boot priority order list, the system may not boot up properly. Be sure to check the order of the devices in the Boot priority order list after you connect a new device.

```
             PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
    Main     Advanced   Security   Boot   Exit

                                                    Item Specific Help
      Boot priority order:
        1:  SOFT MIRROR:
        2:  STOR DEV:
        3:  STOR DEV:
        4:  STOR DEV:
        5:  IDE CD/DVD:
        6:  USB CD/DVD:
        7:  USB FDC:
        8:  USB HDD:
      Excluded from boot order:
        :  STOR DEV:
        :  STOR DEV:
        :  PXE ROM: IBA GE
        :  PXE ROM: IBA FE
        :  PCI:




    F1    Help      ↑↓   Select Item    -/+    Change Values      F9    Setup Defaults
    Esc   Exit      ↔    Select Menu     Enter  Select ▶ Sub-Menu  F10   Previous Values
```

Boot priority order

Specifies the order of the boot-up devices. The factory default settings are as follows:

1:	SOFT MIRROR	: Soft Mirror Boot
2:	STOR DEV	: Storage Device
3:	STOR DEV	: Storage Device
4:	STOR DEV	: Storage Device
5:	IDE CD/DVD	: IDE CD/DVD Drive
6:	USB CD/DVD	: USB CD/DVD Drive
7:	USB FDC	: USB Floppy Disk Drive
8:	USB Stor	: USB Storage Device

Excluded from boot order

:	STOR DEV	: Storage Device
:	STOR DEV	: Storage Device
:	PXE ROM: IBA GE Slot 0200 v1260:	LAN1 PXE Boot ROM
:	PXE ROM: IBA FE Slot 0840 v4121 :	LAN2 PXE Boot ROM
:	PCI	: Other PCI device

2.2.5   Exit

```
            PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
   Main    Advanced   Security   Boot   Exit

                                                            Item Specific Help
      Exit Saving Changes
      Exit Discarding Changes
      Load Setup Defaults
      Discard Changes
      Save Changes



   F1    Help     ↑↓   Select Item      -/+     Change Values        F9   Setup Defaults
   Esc   Exit     ↔    Select Menu      Enter   Select ▶ Sub-Menu    F10  Previous Values
```
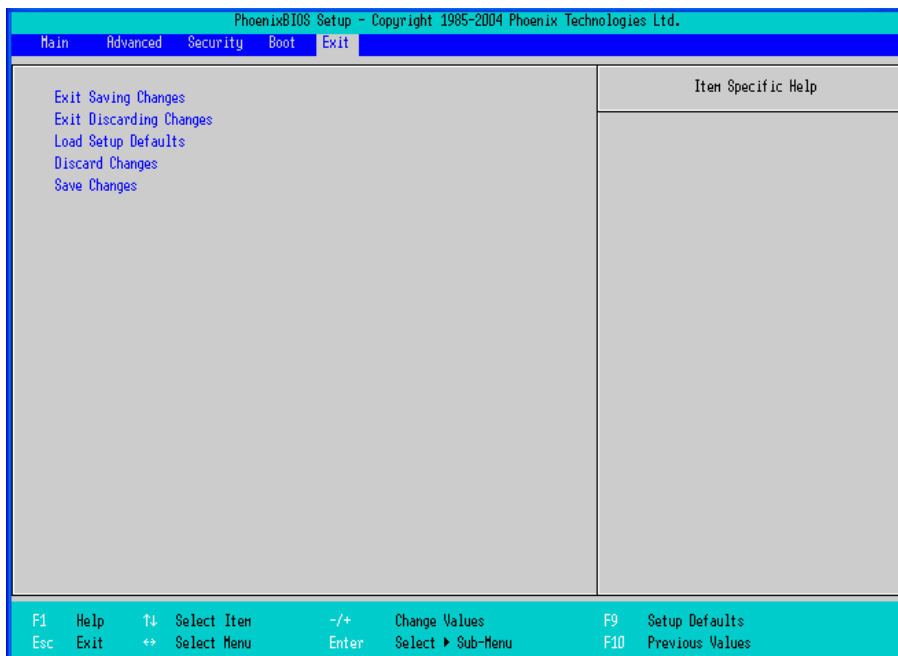
Exit Saving Changes

Point the cursor to the [Exit Saving Changes] on the [Exit] menu and press the [Enter] Key, the current

configuration is saved and the setting procedure is ended.

| NOTE | • Pressing the [F10] key performs the same operation. |

Exit Discarding Changes

Point the cursor to the [Exit Discarding Changes] on the [Exit] menu and press the [Enter] Key, the current

configuration is NOT saved but the setting procedure is ended.

Load Setup Defaults

Point the cursor to the [Load Setup Defaults] on the [Exit] menu and press the [Enter] Key, all of the current

configuration is back to the factory default settings.

| NOTE | • Pressing the [F9] key performs the same operation. |

Discard Changes

Point the cursor to the [Discard Changes] on the [Exit] menu and press the [Enter] Key, the current modified

configuration is canceled and the previous setting values are reloaded.

Save Changes

Point the cursor to the [Save Changes] on the [Exit] menu and press the [Enter] Key, the current configuration

which you modified is saved.

3 | PL Monitoring Features

1. RAS Features
2. Setting Menus
3. Monitoring the PL Status
4. Checking the Status of the PL Being Monitored
5. Checking the Error Log List
6. Monitoring Errors from a Remote Server
7. Restarting/Shutting Down the PL from a Remote Server
8. Setup Guide
9. Error Messages
10. Restrictions

This chapter describes various ways to monitor the status of the PL.

3.1 RAS Features

3.1.1   RAS Features

■ Errors which can be Detected by RAS Features

RAS, which stands for Reliability, Availability, and Serviceability, is a device-level monitoring function that provides a variety of features to improve the reliability of your PL system.

Though the standard set of RAS features used will vary depending on the devices used, the following features are used to provide Alarm Monitoring and External Input Signal support.

NOTE
• For the setting procedures for the RAS features, refer to the following.

SEE→   *3.8 Setup Guide (page3-25)*

Alarm Monitoring	**Power Voltage Alarm** Monitors the status of the PL unit's built-in power supply and internal CPU power supply. **Cooling Fan RPM Alarm** Monitors the CPU cooling fan RPM speeds. **Internal Temperature Alarm** Monitors the internal temperature of the PL unit and the ambient temperature of the CPU. **Watchdog Timer Timeup** **Soft Mirror** This monitoring is available when the optional Software Mirroring Utility is used. For details, refer to the manual of the Software Mirroring Utility. **Touch Panel Alarm** **SMART Alarm** Monitors the status of the hard disk. Detects a warning of trouble of the hard disk.
External Input Signal	General Purpose Signal Input [*1] (DIN 2-bit) Remote Reset Input [*2](1 lamp) SEE→ ◆ *External Input Signals (page3-5)*

*1: General Purpose Signal Input will maintain Input Information.

*2: The remote reset feature's input can be either enabled or disabled, however, the setting of DOUT output state cannot be set to trigger a forced system reset.

IMPORTANT
• An administrator Authentication is required for executing SMART Monitoring.

• A CF card doesn't support SMART and therefore the status of the CF card cannot be monitored.

• When a hard disk except options made by Pro-face is used, the operation of SMART Monitoring cannot be guaranteed.

NOTE • To enable the remote reset feature's input, specify [Disabled] for the RAS Reset Port Mask feature of the BIOS.

SEE→ *2.2.2 Advanced (page2-7)*

■ Error Notification

Also, when either the one of the above mentioned alarm occurs, or an external signal input is received, the following types of alarm processing output signals and features are supported by the PL.

External Output Signal	General Purpose Signal Output (DOUT 2-bit) SEE→ ◆ *External Input Signals (page3-5)*

Various Processing Functions	LED Indicator (2 colors, 1 lamp)
	    The three-color LED on the front face is used to indicate the PL system conditions. It is also used as a power ON/OFF indicator.
	
	SEE→ ◆ *LED Indicator (page3-5)*
	
	Pop-up Message Output
	    This feature displays the system status via a Windows® pop-up message.
	Buzzer Output
	    This feature uses the PL unit's built-in speaker to alert the operator about the system status.
	System Shutdown
	    This feature shuts down the PL unit's OS.
	System Reset
	    This feature resets the system when the Watchdog Timer reaches "time up".

Use the included System Monitor feature (utility software) to enable/disable the monitoring features and to set the alarm processing details.

SEE→ *3.3 Monitoring the PL Status (page3-10)*

In addition, you can use the included dynamic link library (API-DLL) to access the RAS features from user-created applications.

SEE→ *Otasuke Pro! "PL3000 Reference Manual"*
URL http://www.pro-face.com/otasuke/

■ RAS Feature Overview

System Monitor

Hardware
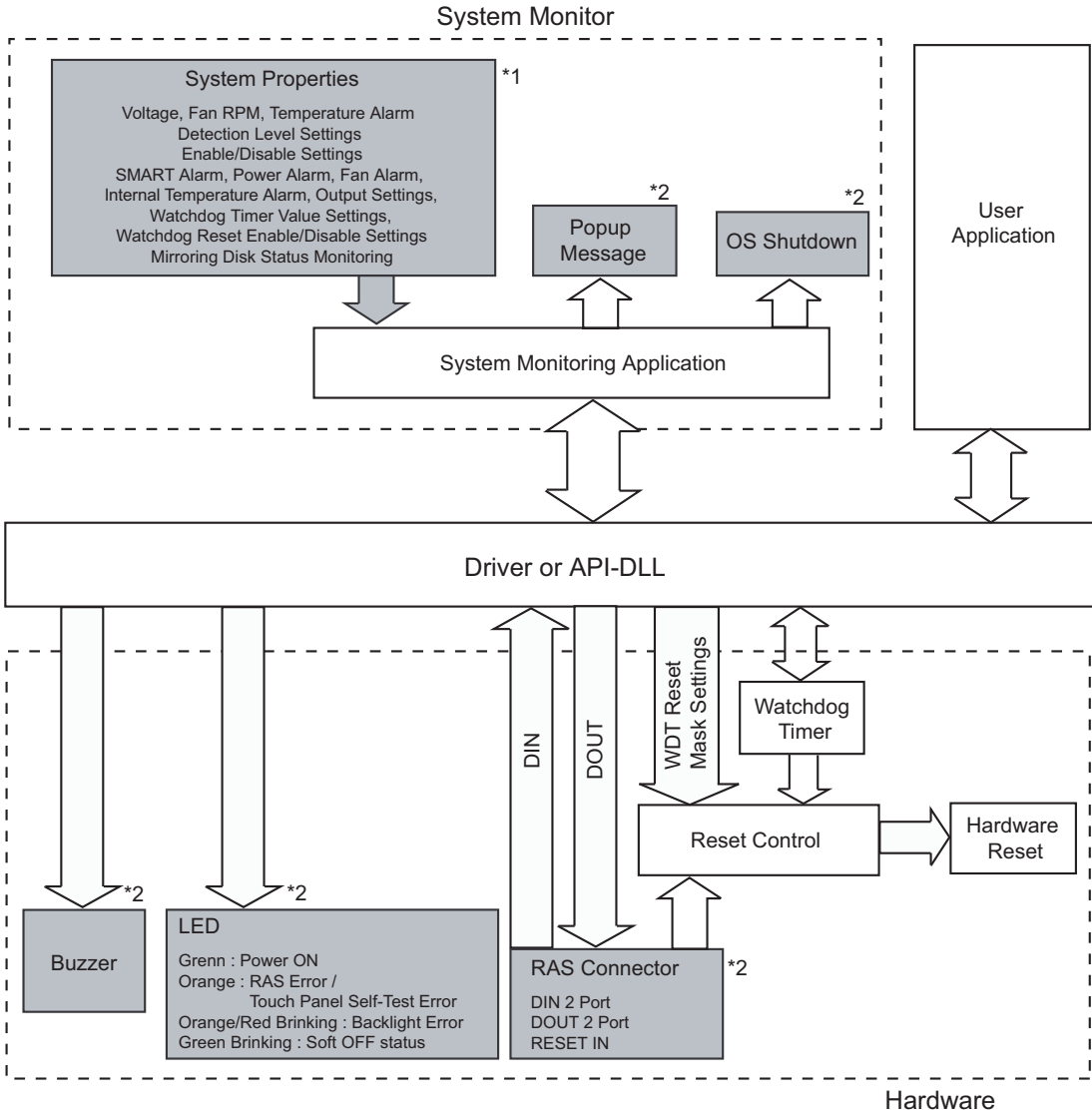
*1   Be sure to adjust these settings according to your system's specifications.

(SEE →)   *3.3 Monitoring the PL Status (page3-10)*

*2   Output via the RAS feature.

◆ LED Indicator

LED Color	System Status	output condition
Green (Lit)	Normal Operation (Power is ON)	None
Green (Blinking)	System is NOT running (Soft OFF)	None
Orange (Lit)	A RAS alarm has occurred.	LED is enabled via System Monitor Property.
Not Lit	Power is OFF	-

◆ External Input Signals

The PL's RAS interface connector uses the following input signals.

• General Purpose Signal Input (DIN 2 bits)

This standard digital input is used for alarm detection in external devices. The input signal uses two bits.

The System Monitor property of the control panel or the API-DLL can be used to enable or disable this

feature, as well as designate what type of processing is to be performed once a signal is received. (Only

the "ON" state of the DIN circuit is detected. The "OFF" state of the DIN circuit cannot be monitored.)

• Remote Reset Input

This is the reset signal sent from an external device to the PL. When this signal is enabled, a forced reset

of the PL is performed.

The System Monitor property of the control panel or the API-DLL can be used to enable or disable this

feature.

Input Voltage	DC12V to DC24V
Input Current	7mA
Operating Voltage	ON voltage: 9V (min), OFF voltage:3V (max)
Isolation Method	Via photocoupler
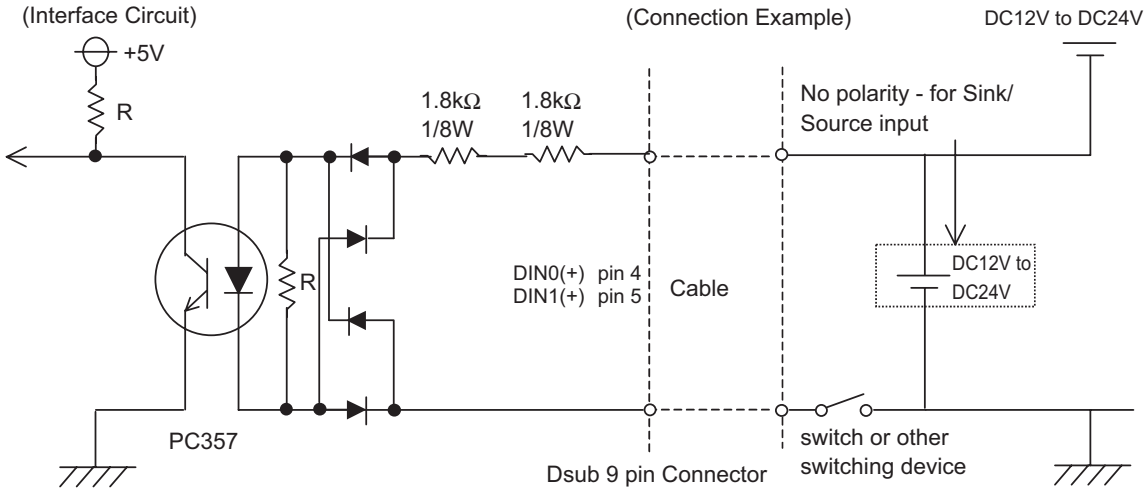
IMPORTANT
- General Purpose Signal Input (DIN) level must be 1.5S or longer to be detected.
- Be sure the voltage value between terminals is controlled via the input voltage, so that the PL is operated within its recommended range. If the input voltage exceeds this range, a malfunction or PL damage may occur.
- With Sink/Source input, even if the D(-), and RESET(-) are positive, and D(+), RESET(+) are negative, no problems are created. Be sure to operate the unit within the recommended voltage range.

NOTE
- For connection pin location details,

  SEE→ *PL3000 Series Hardware Manual 2 Specifications*

◆ External Output Signal

The PL's RAS interface connector uses the following output signals.

- General Purpose Signal Output (DOUT 2 bits)

  This general purpose digital output signal provides system condition information to external devices.

  The System Monitor property of the control panel or the API-DLL is used by applications to control this signal.

  The above mentioned general purpose digital output signals provide system condition information to external devices.

  The System Monitor property can be used to enable or disable any of these output signals.

Rated Load Voltage	DC24V
Maximum Load Current	100mA/point
Maximum Voltage Drop between Terminals	1.5V (at 100mA load current)
Isolation Method	Via photocoupler

(Interface Circuit)

(Connection Example)

+5V

R

DOUT0(+) pin 2
DOUT1(+) pin 3

Cable

Load

*1

+5V

R

DC24V

SSTA06

PC357

4.7kΩ

DOUT0(-) pin 7
DOUT1(-) pin 8

D-sub9 pin Connector
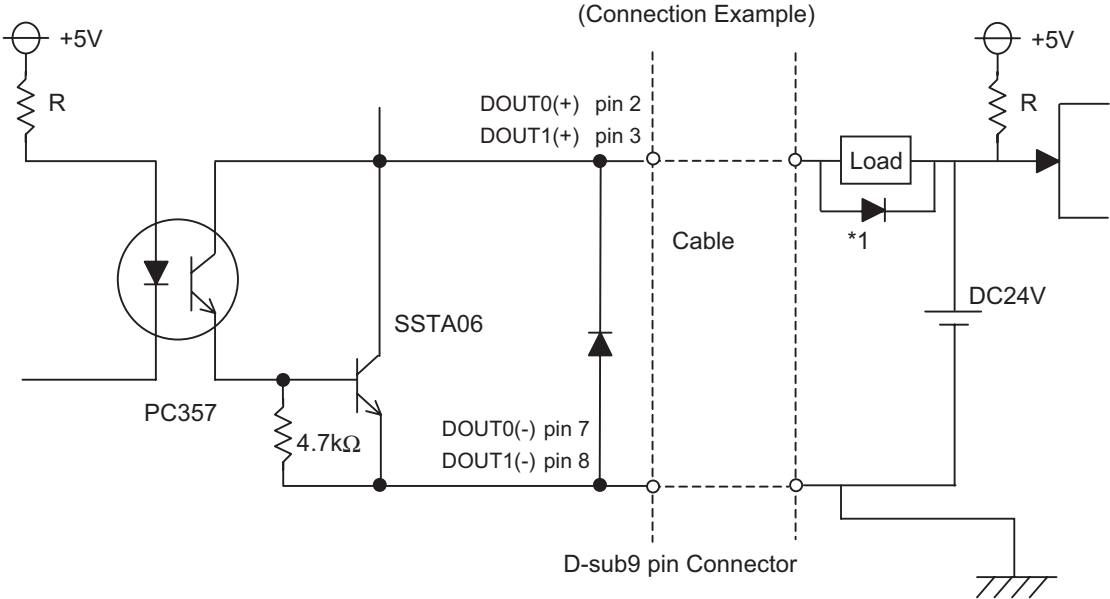
IMPORTANT
- Be sure to operate the unit within its maximum load current. If the maximum load current exceeds this range, a malfunction or PL damage may occur.
- Design your electrical system by adding the load current and voltage values to the terminal voltage. If load current value used is large, the voltage drop of 1.5V or less will occur between the terminals.
- When connecting an induction load, be sure to connect the above drawing's protection diode (*1).

NOTE
- For connection pin location details,
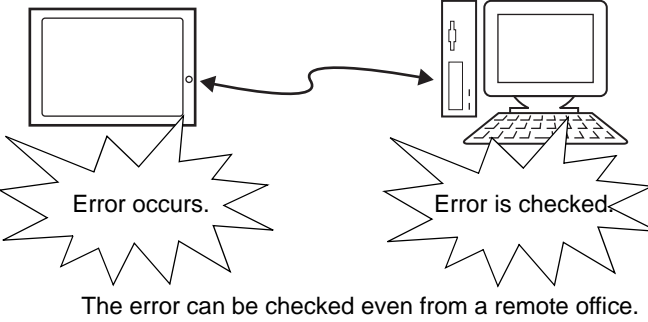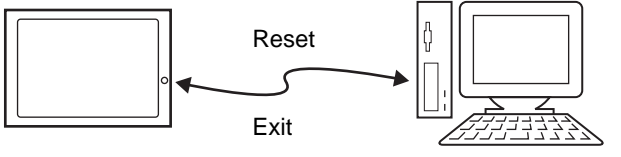
SEE→ *PL3000 Series Hardware Manual 2 Specifications*

3-7

3.2 Setting Menus

Monitoring the PL Status

Error!

E.g. Temperature error occurs.

The occurrence of the error is displayed.

☞ Description (page3-10)

☞ Setup Procedure (page3-10)

Checking the Status of the PL Being Monitored

System Monitor

+5.0VPass

+12VPass

VcoreAPass

☞ Description (page3-14)

☞ Setup Procedure (page3-14)

Checking the Error Log List

Error2007/6/19 10:04:12

Error2007/6/19 12:15:24

Error2007/6/19 15:36:08

☞ Description (page3-15)

☞ Setup Procedure (page3-16)

Monitoring Errors from a Remote Server

Using Pro-Server with Pro-Studio or via the network

Error occurs.　　　　　Error is checked

The error can be checked even from a remote office.

) Description (page3-18)

) System Configuration (page3-19)

) Monitoring using Pro-Server with Pro-Studio or Pro-Server EX (page3-22)

Restarting/Shutting Down the PL from a Remote Server

Via the network

Reset

Exit

Remote operation from an office in a different location

) Description (page3-24)

) Setup Procedure (page3-24)

3.3 **Monitoring the PL Status**

3.3.1   Description

Error occurs.

The occurrence of the error is displayed.
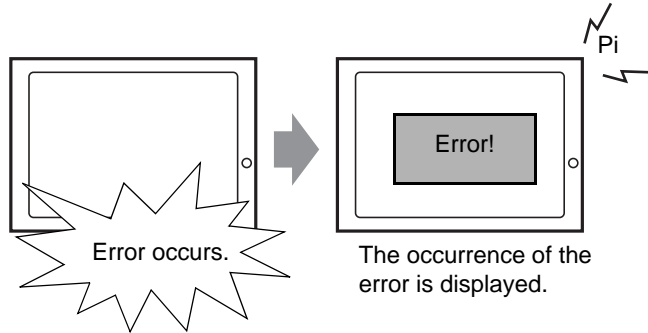
Before starting the setup procedure, specify the items you want to monitor with the RAS features.

When an error occurs, notification is provided according to the specified method.

3.3.2   Setup Procedure

NOTE

• For details about the setup procedure, refer to the Setup Guide.

SEE→   *3.8.2 Setup Guide for the System Monitor Screen (page3-30)*

This section describes the procedure to set the PL to monitor a temperature error and provide notification with a buzzer and pop-up message.

(1)   Double-click [System Monitor Property] in [Control Panel] to display the [System Monitor Property] screen.

(2)   Select the [Temperature] tab.
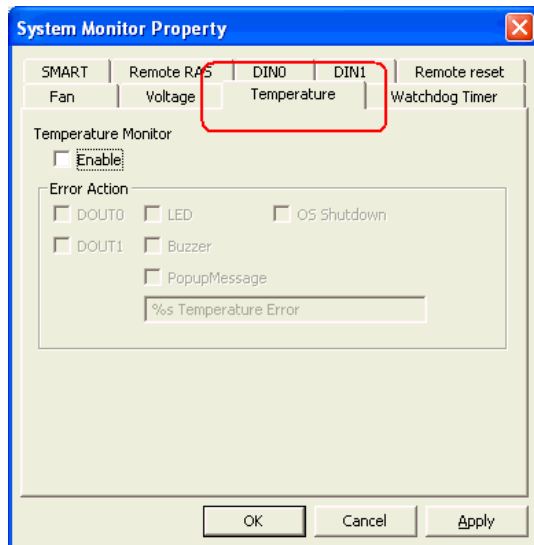
(3)   Check [Enable].
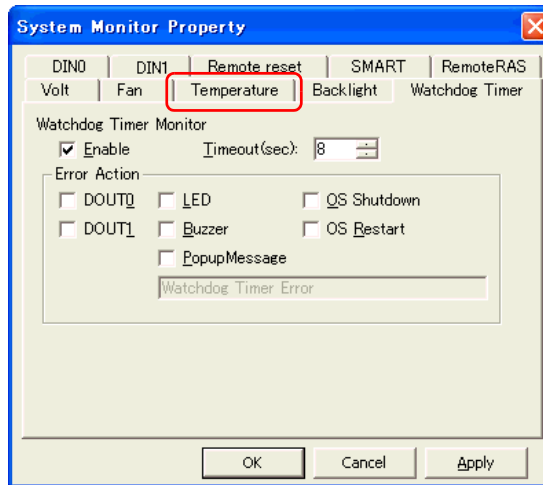
(4)   For [Error Action], check [Buzzer] and [PopupMessage].
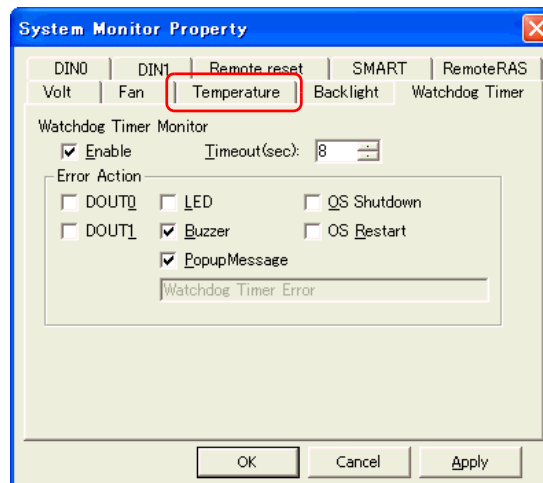
(5)   Click [Apply].

(6)   Click [OK] to complete the setting.

When the monitoring starts, the System Monitor icon appears in the task tray.

NOTE
• System Monitor also operates as Windows's Services. When System Monitor applications do not start, the System Monitor Service execute the RAS events setup in the System Monitor Property. You can check the System Monitor Service's operation state by selecting [Control Panel] -> [Administrative Tools] -> [Services].
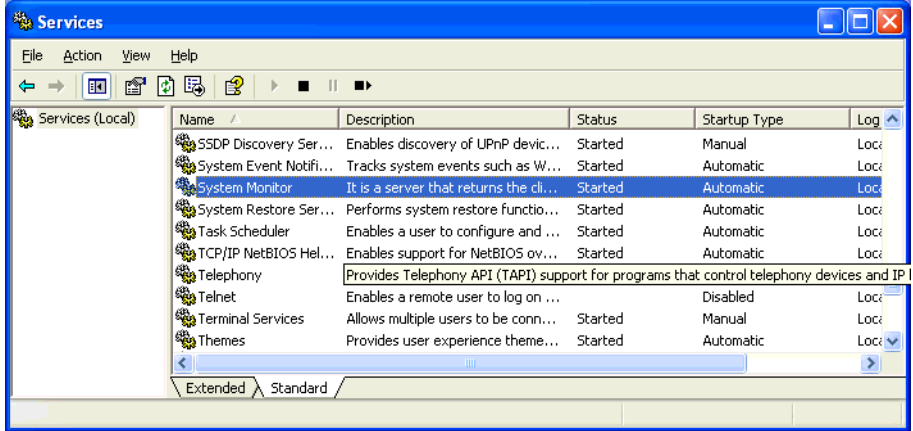
• The pop-up message displayed when the System Monitor Service detects an error differs from ordinary ones.

■ When an Error Occurs

(1) A buzzer sounds and a pop-up message is displayed.
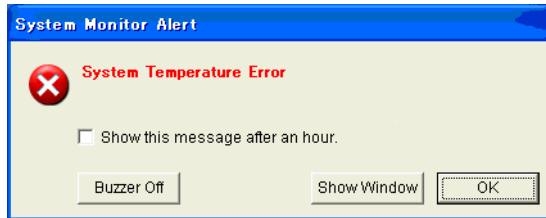
NOTE
- The Error Action is performed only one time when an error is detected for each monitoring item.
- To stop the buzzer, click the [Buzzer Off] button in the pop-up message dialog box.
  If the pop-up message is hidden, click the [Buzzer Off] button displayed in the System Monitor screen.
- You can also display the [System Monitor] screen by pressing [Show Window] on the pop-up message window.
- When you check the [Show this message after an hour] check box and press the [OK] button, the pop-up message window will close and will not open for an hour.

(2) An "×" mark appears on the icon in the System Tray, which indicates an error status, and the icon blinks. You can see the description of the error by double-clicking the icon.
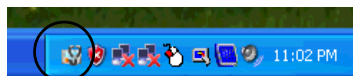
Icon display on start-ups   Icon display when an error is detected.
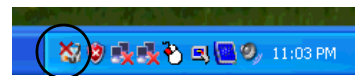
IMPORTANT
- Once an error is detected, the System Monitor holds the "error" status. (Icon display indicating error detection) To recover from the error status, press the [Reset] button on the System Monitor screen or turn off the PL. After that, perform maintenance service for removing the cause of the error factor, and then turn on the power again.

3.4 **Checking the Status of the PL Being Monitored**

3.4.1   Description
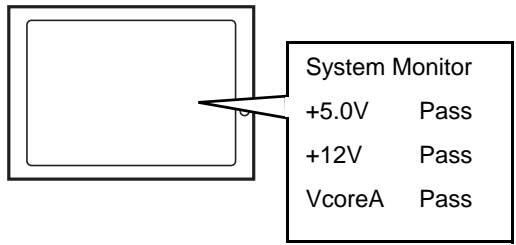
Check the status of the PL being monitored with the RAS features from the System Monitor screen.

You can also use this screen to check error details.

3.4.2   Setup Procedure

NOTE

• For details about the setup procedure, refer to the Setup Guide.

$\overline{(SEE \rightarrow)}$ *3.8.2 Setup Guide for the System Monitor Screen (page3-30)*

(1)   When the System Monitor starts, the System Monitor icon appears on the task bar. Double-click the System Monitor icon to display the System Monitor screen.
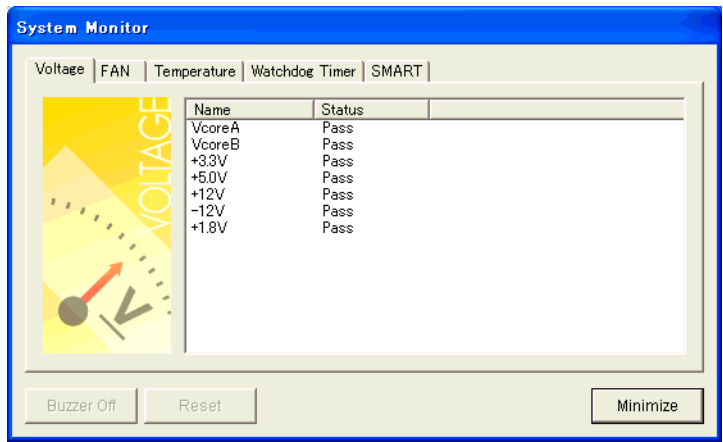
(2)   Click the tab of the item you want to check.

NOTE

• When an error occurs, the color of the corresponding tab changes.

• As for Device No. of SMART, [0] means Master or HDD0 and [1] means Slave or HDD1.

3.5 Checking the Error Log List

3.5.1 Description

Error	2007/6/19 10:04:12
Error	2007/6/19 12:15:24
Error	2007/6/19 15:36:08
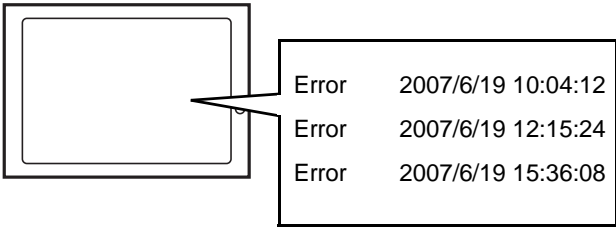
Check the location and action of the previous error on the Event Viewer screen.

3.5.2   Setup Procedure

(1)   Select [Control Panel] - [Administrative Tools] - [Event Viewer] to display the Event Viewer screen.

Select [System] to display the system log list.

NOTE   •   The OS Restart from a Watchdog Timer Error and the reset input for the RAS port cannot be

logged.
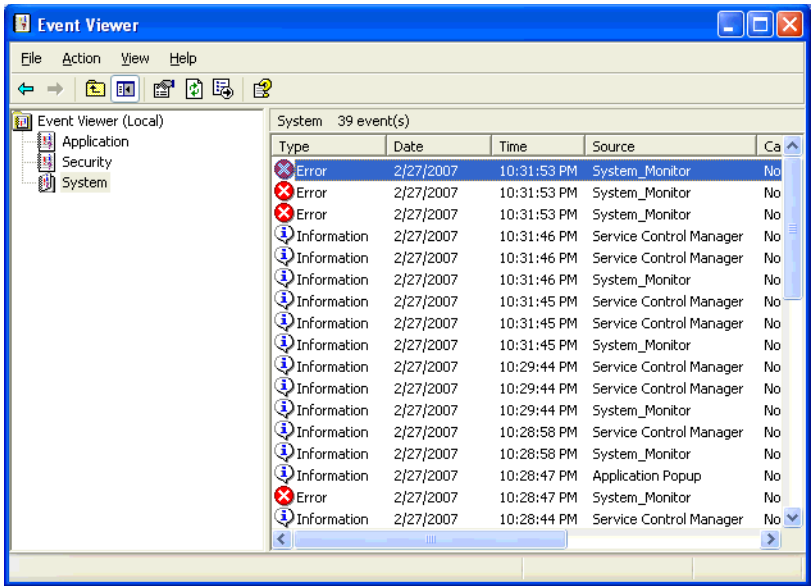
(2)   Error logs can be recognized by [System Monitor] displayed in the Source column.

Select the row of the error log you want to check and double-click it.
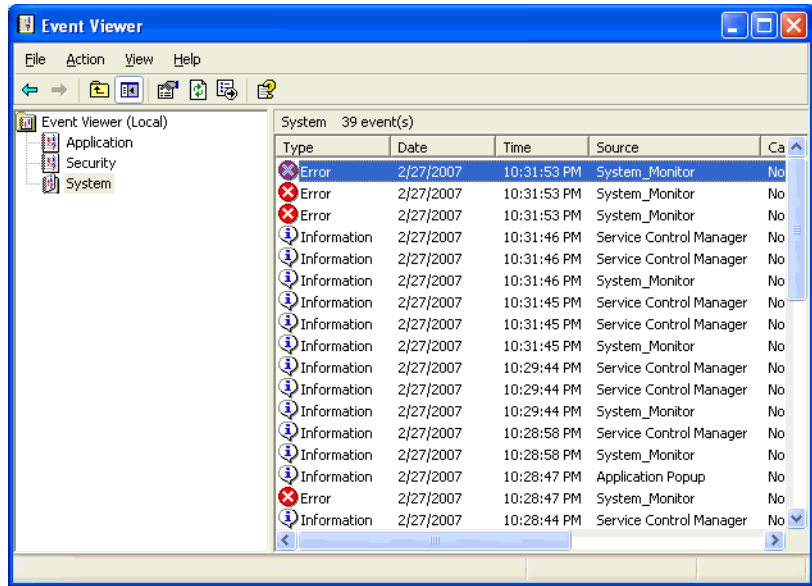
(3)   The [Event Properties] screen appears.

The error message is displayed in the [Description] area.
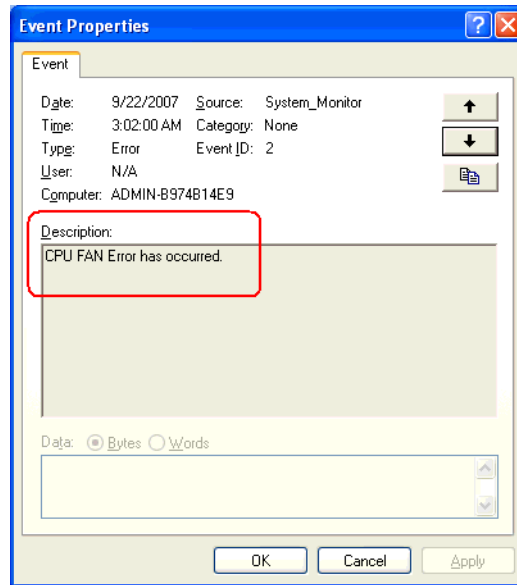
3.6 Monitoring Errors from a Remote Server

3.6.1   Description

Using Pro-Server with Pro-Studio or via the network

Error occurs.

Error is checked.
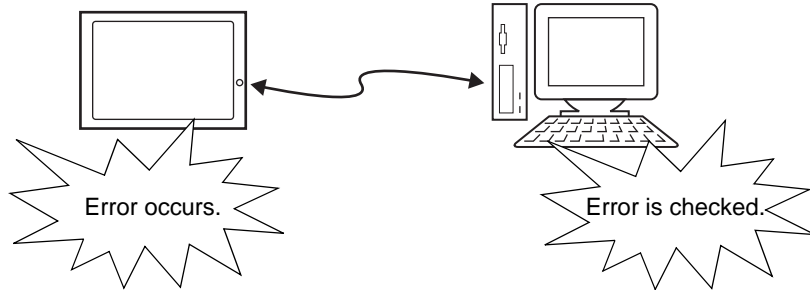
Monitor and control the System Monitor/RAS features remotely via the host PC in which Pro-face's Pro-Server with Pro-Studio (optional) or Pro-Server EX (optional) is installed.

To use this feature, you need Pro-Server with Pro-Studio Ver. 3.12 or higher. Please also refer to the manuals of the Pro-Server.

$\boxed{\textbf{SEE} \rightarrow}$ *3.6.3 Monitoring using Pro-Server with Pro-Studio or Pro-Server EX (page3-22)*

Even in an environment where Pro-Server with Pro-Studio is not installed on the host PC, the RAS monitoring is available via the network.

3.6.2   System Configuration

The system employing this feature is configured as illustrated below.

Server PC

User Application

Pro-Server with Pro-Studio Ver. 3.12 or higher,
or Pro-Server EX Ver. 1.20 or higher
Remote RAS Server Program (IPC_RAS.npj)

Two-way feature

Ethernet

Client PL

[System Monitor/RAS Feature]
• SystemMonitor.exe
• System Monitor Property
• Ioctl.dll
• Smonras.dll
• Sysmon.sys
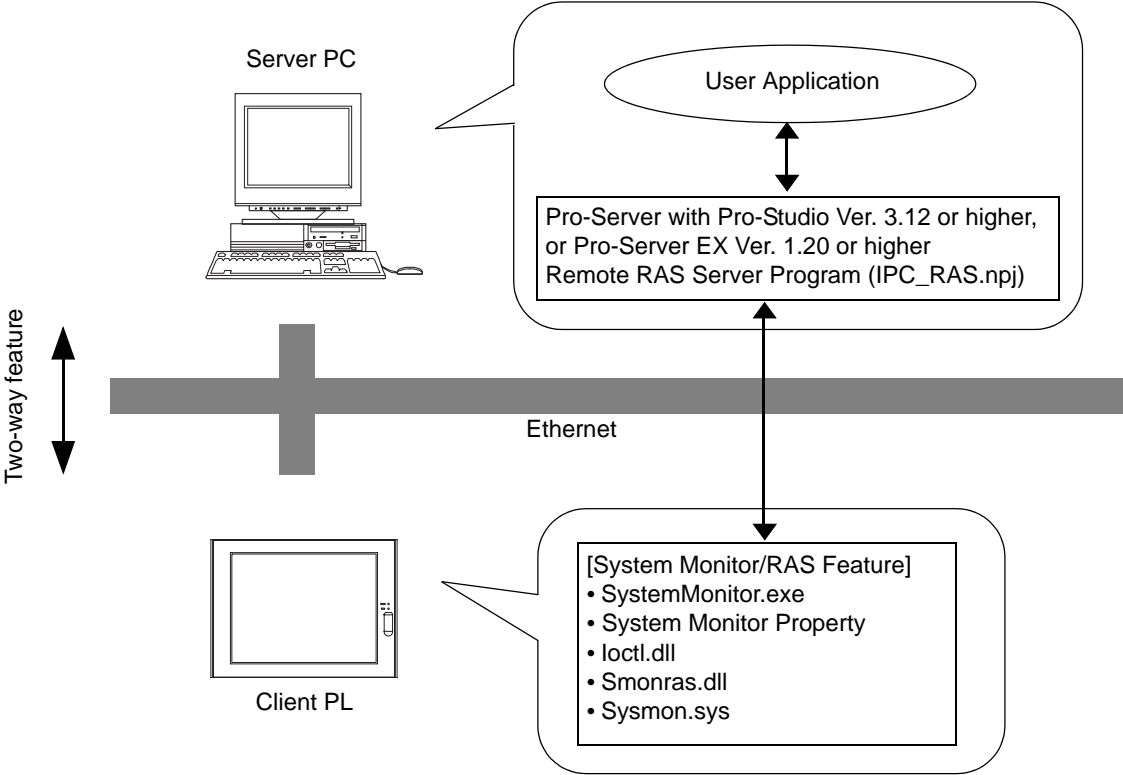
The status of the System Monitor/RAS feature is transferred to the Pro-Server via Ethernet from the System-Monitor.exe. The RAS feature including voltage, FAN, and temperature etc., can be monitored by monitoring the device addresses assigned from the Pro-Studio.
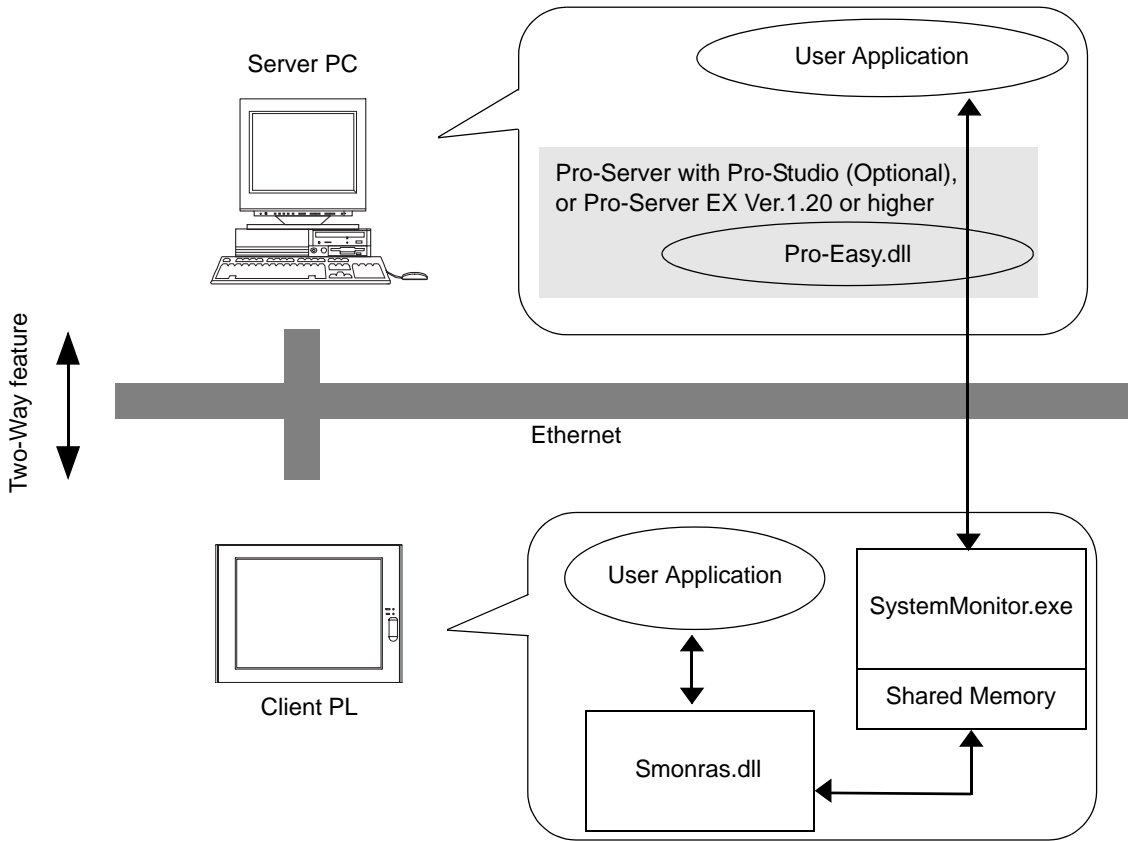
The user applications in the server PC monitors the RAS feature through the Pro-Easy.dll program provided from the Pro-Server.

The client PL shares the data with the user applications on the server PC by using the shared memory. The data transfers on both sides are processed via the Smonras.dll and Pro-Easy.dll programs.

■ List of Device Addresses

Device	Device Type	Device Symbol	Read/ Write	Bit Access	16-bit Access	32-bit Access
VcoreA Voltage[1]	WORD				VLT0	
VcoreB Voltage[1]	WORD				VLT1	
+3.3V Voltage[1]	WORD				VLT2	
+5.0V Voltage[1]	WORD	VLT			VLT3	
+12V Voltage[1]	WORD				VLT4	
-12V Voltage[1]	WORD				VLT5	
+1.8V Voltage[1]	WORD		Read	-	VLT6	-
Number of Revolution of CPU FAN [2]	WORD	FAN			FAN0	
Number of Revolution of System FAN [2]	WORD				FAN1	
System Temperature [3]	WORD				TMP0	
CPU Temperature [3]	WORD	TMP			TMP1	
System2 Temperature [3]	WORD				TEMP2	
DIN	WORD	DIN		DIN00-DIN03	DIN0	
DOUT	WORD	DOUT	Read/ Write	DOUT00-DOUT03	DOUT0	
Error Event	WORD	ERR	Read	ERR00-ERR0E	ERR0	
Internal Memory Area [4]	WORD	LS	Read/ Write	LS00000-LS0000F to LS02550-	LS0000 to LS0255	LS0000 to
Shared Memory	WORD	PL		PL00000-PL0000F to PL02550-	PL0000 to PL0255	PL0000 to
Software Reset Port [5]	WORD	RST	Read/ Write	-	RST0	-
Error Mask [6]	WORD	ERRM	Read	ERRM00-ERRM0E	ERRM0	-

*1   When monitoring the voltage with the device monitor, the unit is "mV".

*2   When monitoring the number of revolutions with the device monitor, the unit is "rpm".

*3   When monitoring Temperature with the device monitor, the unit is "°C".

*4   Used for only the system to read/write the data and perform monitoring operation.

*5   Shuts down and restarts the operation system on the client PL.

*6   Indicates the error event that is being monitored by the PL.

IMPORTANT   • When "Forced Shutdown" or "Forced Reboot" is written to the device address, the system automatically shuts down/restarts the operation system without prompting the confirmation for saving the data on current applications.
Take extra cautions when performing write operation in order to avoid accidental data loss.

Value to be Written		Operation
Decimal Number	**Hexadecimal Number**	
1	0001	Shutdown
2	0002	Reboot
257	0101	Forced Shutdown
258	0102	Forced Reboot

3.6.3   Monitoring using Pro-Server with Pro-Studio or Pro-Server EX

■ Setting Up the Client PL

(1)   Double-click [System Monitor Property] in [Control Panel] to display the [System Monitor Property] screen.

(2)   On the [Remote RAS] tab, put a check mark in the [Enable] checkbox.

NOTE

• For details about the setup procedure, refer to the Setup Guide.

SEE →   ■ *Remote RAS (page3-27)*

• In order to actually activate the Remote RAS feature, you are required to start up the System Monitor (SystemMonitor.exe) within the PL.

(3)   Click [Apply].

Click [OK] to exit the [System Monitor Property] screen.
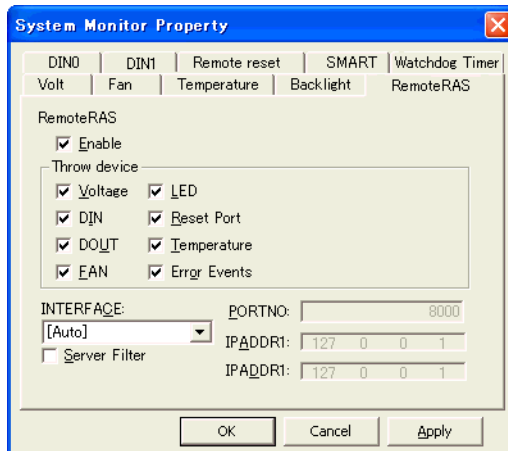
■ Setting Up the Server PC

(1) On the server PC, download the software from the Pro-face support site "Otasuke Pro!". Follow the attached instructions to copy the downloaded file to the designated file.

(2) Start up the Pro-Studio.

(3) Register the PL you want to include in the network to the network station, and edit the participant stations.

SEE→ *Pro-Server with Pro-Studio for Windows Operation Manual*
Pro-Server EX Reference Manual

NOTE • When using the Pro-studio's [Find Stations] command to register the PL to the network station, the System Monitor should be activated with the Remote RAS feature enabled in the PL.

(4) Select [PL, PS-A, PS-B] for the PLC type on the network station editing.

(5) Register the symbol. Refer to the following for the symbols that can be registered.

SEE→ ■ *List of Device Addresses (page3-21)*

NOTE • You are not required to transfer the network project file created with the Pro-Studio to the client PL.

3.7　Restarting/Shutting Down the PL from a Remote Server

3.7.1　Description

Via the network

Server on which Pro-Server is not installed

Restart

Exit
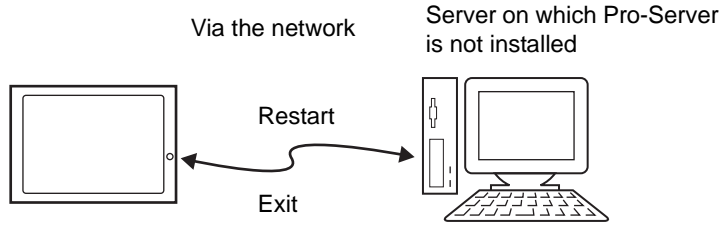
Restart or shut down the PL unit from a server on which Pro-Server is not installed.

3.7.2　Setup Procedure

(1)　From the Pro-face support site "Otasuke Pro!", download the installer for the application which is required for this feature.

http://www.pro-face.com/otasuke/

(2)　Start the installer and then select the server application and client application. Follow the instructions displayed on the screen to install the applications.

(3)　The installed applications are stored in the following folder.

File Name	Folder (Same for both Windows® XP and Windows® 2000)
PSClt.exe	C:\Proface\Shutdown\Client
RSSvr.exe	C:\Proface\Shutdown\Server

NOTE

• For the operation procedure of this feature, refer to the online help of the Remote Shutdown Application.

• Both applications (for server and client) can be installed on the PL to achieve self-control system. In such a case, however, the PL should be connected to a network.

• If the Remote Shutdown feature is executed, the PL unit will be in the Soft OFF Status. (Power is still supplied to a part of circuits.)

3.8 Setup Guide

3.8.1 Setup Guide for the System Monitor Property Screen

■ DIN0

NOTE • The DIN1, Backlight, Voltage, Temperature, and SMART tabs display the same setting items as the DIN0 tab.
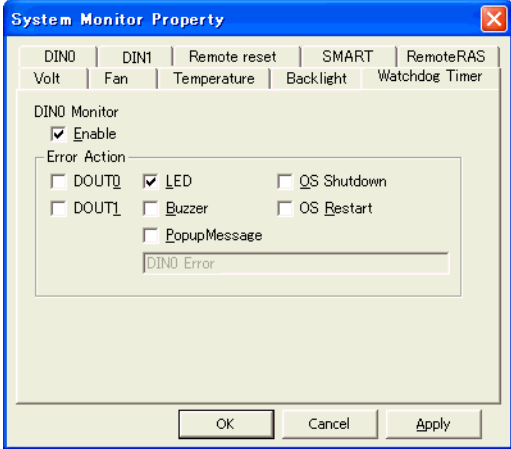
Item		Operation
Enable		When this option is checked, monitoring of the item starts.
Error Action		Specifies the action(s) taken when the System Monitor detects that the allowable range is exceeded. You need to check [Enable] before you can select actions.
	LED	The front LED lights orange.
	Buzzer	Sounds a beep as an alarm. **NOTE** • Cannot be set up when a checkmark is put in the "OS Shutdown" checkbox.
	Pop-up Message	Displays pop-up messages.
	DOUT0 to 1	Output from the RAS port.
	OS Shutdown	Shuts down the operating system. **NOTE** • The shutdown confirmation message is not displayed.
	OS Restart	Resets the hardware.

The following table lists the operating settings that can be configured for each feature.

O: Setting available X: Setting not available

Feature	Operation						
	Buzzer	**Popup Message**	**OS Shutdown**	**Restart**	**LED**	**DOUT0, 1**	**Reset**
Watchdog Timer	O	O	O	O	O	O	O
Voltage	O	O	O	X	O	O	X
Fan	O	O	O	X	O	O	X
Temperature	O	O	O	X	O	O	X
SMART	O	O	X	X	O	O	X
DIN	O	O	O	X	O	O	X
Soft Mirror	O	O	X	O	O	O	X
Reset Port	X	X	X	X	X	X	O

IMPORTANT

- Administrator Authentication is required for executing SMART Monitoring. When a user who does not have the administrator authentication logs in, nothing is displayed in the item of SMART.

■ Remote RAS

Item	Operation
Enable	When this option is checked, the remote RAS feature starts.
Throw device	Specifies the item(s) to be monitored.
Interface	Specifies the IP address used for the connection with the Pro-Server. **NOTE** • When 2 or more IP Addresses are allocated to the PL unit, the [Auto] cannot be selected. Enter settings that allow the reading of a fixed IP Address from a DHCP server. For details, contact your company's network administrator for getting the detailed information.
Server Filter	Check this option to communicate only with the server with a specific IP address.
Port No	Specifies the port No. of the server to communicate with.
IP Address 1	Specifies the IP address of the server to communicate with.
IP Address 2	Specifies the IP address of the server to communicate with.

◼ Watchdog Timer
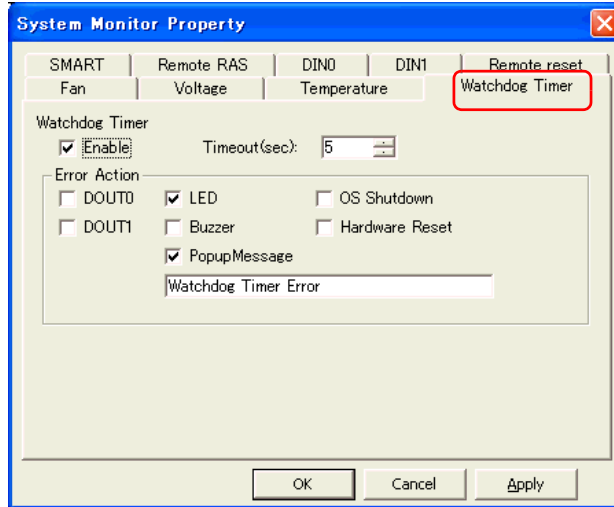
Item	Operation
Enable	When this option is checked, the Watchdog Timer is enabled.
Timeout(sec.);	Specifies the timer duration.
Error Action	Specifies the action(s) taken when the System Monitor detects that the allowable range is exceeded.
Pop-up Message	When [PopupMessage] is specified as an action, the characters entered in the field (e.g. Watchdog Timer Error) are displayed as a popup message.

■ Remote reset
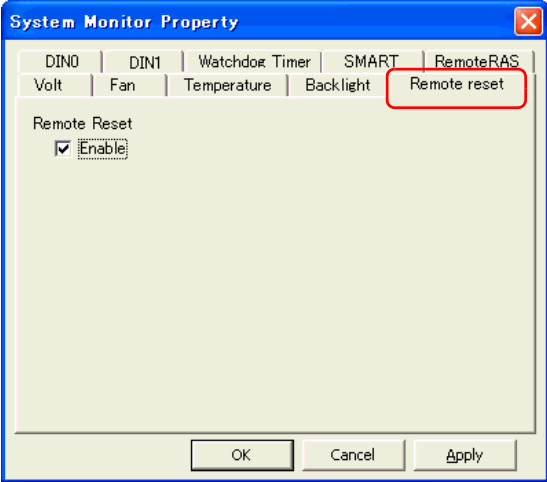
Item	Operation
Enable	When this option is checked, the Remote Reset is enabled.

3.8.2   Setup Guide for the System Monitor Screen

You can check the status of the PL being monitored.

Click the tab of the item you want to check.

■ Voltage

NOTE

• The Temperature tab displays the same items as the Voltage tab.

• The Backlight and Watchdog Timer tabs display [Status] only.

Item	Operation
Name	Displays the monitoring item.
Status	Specifies the item to be monitored. The status of each monitoring item is displayed. [Pass]: Normal [Fail]: Abnormal [Disable]: Not monitored **NOTE** • When [Soft Mirror] is selected, different items are displayed. For details, refer to the manual of the Software Mirroring Utility.
Buzzer Off	When [Buzzer] is selected for the error notification method, you can stop the buzzer by clicking [Buzzer Off].
Reset	When an error is detected, clicking [Reset] recovers the System Monitor from the "error" status.
Minimize	Stores the System Monitor screen in the task tray.

■ SMART

Item	Operation
Device No.	Displays the number assigned to the hard disk to be monitored.
Model	Displays the model of the hard disk.
Status	Specifies the item to be monitored. The status of each monitoring item is displayed. [Pass]: Normal [Fail]: Abnormal [Disable]: Not monitored [Not Support]: Not supported **NOTE** • [Not Support] is displayed when a device like a CF card, which does not support SMART, is detected.
Reset	When an error is detected, clicking [Reset] recovers the System Monitor from the "error" status.
Minimize	Stores the System Monitor screen in the task tray.

3.9   Error Messages

■ Alarm Pop-up Messages

When an error occurs while the "Popup Message" option is enabled for Error Action, the following messages appear on the pop-up message output screen under the factory settings.

Error Type	Message
VcoreA	VcoreA Power Supply Error
VcoreB	VcoreB Power Supply Error
Voltage +3.3V	+3.3V Power Supply Error
Voltage +5.0V	+5.0V Power Supply Error
Voltage +12.0V	+12V Power Supply Error
Voltage -12.0V	-12V Power Supply Error
Voltage +1.8V	+1.8V Power Supply Error
CPU FAN	CPU Fan Error
System FAN	System Fan Error
System Temperature	System Temperature Error
CPU Temperature	CPU Temperature Error
System2 Temperature	System2 Temperature Error
DIN0	DIN0 Error
DIN1	DIN1 Error
Watchdog	Watchdog Timer Error
SMART	SMART Error
Soft Mirror	Mirror Disk Error occured

System Monitor Alert

❌ System Temperature Error
CPU Temperature Error
System2 Temperature Error
CPU Fan Error
System Fan Error
VcoreA Power Supply Error
VcoreB Power Supply Error
+3.3V Power Supply Error
+5.0V Power Supply Error
+12V Power Supply Error
−12V Power Supply Error
+1.8V Power Supply Error

☐ Show this message after an hour.

[Buzzer Off]   [Show Window]   [OK]
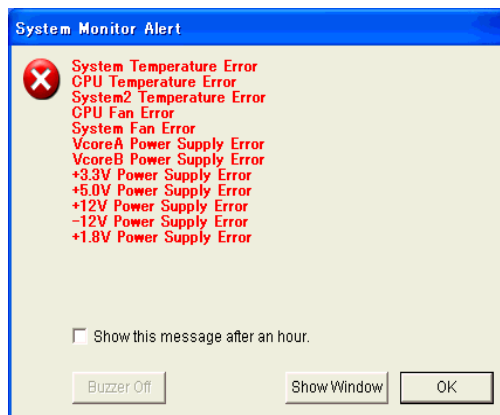
NOTE
• The messages displayed on the pop-up message output screen can be modified on the System Monitor Property screen.

SEE→   *3.3.1 Description (page3-10)*

■ Error Messages Displayed on the Event Viewer Screen

The error types/locations shown by the Event Viewer are as follows.

Error Type	Message
VcoreA	VcoreA Error has occurred.
VcoreB	VcoreB Error has occurred.
Voltage +3.3V	+3.3V Error has occurred.
Voltage +5.0V	+5.0V Error has occurred.
Voltage +12.0V	+12V Error has occurred.
Voltage -12.0V[*1]	-12V Error has occurred.
Voltage +1.8V	+1.8V Error has occurred.
CPU FAN [*1]	CPU Fan Error has occured.
System FAN[*1]	System Fan Error has occured.
System Temperature	System temperature Error has occurred.
CPU Temperature	CPU temperature Error has occurred.
System2 Temperature	System2 temperature Error has occured.
DIN0	DIN0 Error has occurred.
DIN1	DIN1 Error has occured.
Watchdog	Watchdog Timer Error has occurred.
SMART	SMART Error has occurred. Attribute (Attribute Name) Device (No.)(HD Model). The descriptions in the parentheses vary depending on details of occurring errors and the device where errors occur (0:Master, 1:Slave)
SoftMirror	Mirror Disk Error has occured.

*1:   Not displayed with the PL3000.

◆ Error Action

NOTE
• The data shown in the table's "□□" indicate the error type/location.
• The actions to be taken after an error occurs are set via the System Monitor Property screen.

Error Action	Error Message
Buzzer	Buzzer has sounded because of □□ error.
Popup Message	Popup Message has been shown because of □□ error.
OS Shutdown	Window has been shut down because of □□ error.
DOUT0	DOUT0 has output because of □□ error.
DOUT1	DOUT1 has output because of □□ error.

■ Error Messages Displayed during Device Reading/Writing

Error Code		Error Message
Decimal Number	**Hexadecimal Number**	
9530	253Ah	RAS Initialization Error
9531	253Bh	Command not supported.
9532	253Ch	Access type not supported.
9533	253Dh	Read/Write type not supported.
9534	253Eh	Access to the device is rejected.
9535	253Fh	Value setting to the device/retrieval failed.
65535 (No Code)	FFFFh	Returned when read/write of invalid values or unsupported device is performed for Voltage, Temperature, and number of revolution of the FAN.

SEE→ *For error messages other than listed above, refer to "Pro-Server with Pro-Studio for Windows Operation Manual".*

3.10 Restrictions

■ Supported Pro-Server Features

The following table lists the features of the Pro-Server that are supported by the PL. For the details of each feature, refer to "Pro-Server with Pro-Studio for Windows Operation Manual".

Pro-Server Feature	O: Supported X: Not Supported
DDE Feature	O
Simplified DLL Feature (ProEasy.dll)	(SEE→) ■ *Supported Simplified DLL Features (page3-35)*
OPC Server Interface	O
SRAM Backup Data	X
Action Feature	X
Distribution Feature	X
Data Viewer	O[*1]
VBA Feature Assist	O
Device Data Backup/Restore Feature	O
Capture Screen Save Feature	X
Security Feature	O
Device Monitor	O
Status Monitor	X
Read Time Measurement	O

*1: Pro-Server with Pro-Studio for Windows Ver.4.0 or higher is required.

■ Supported Simplified DLL Features

The simplified DLL features supported by the PL are as follows:

- Direct Read Function
- Direct Write Function
- Cache Read Function
- Retrieval of Multithreading Handle
- Release of Multithreading Handle
- Loading of Network Project File
- Error Code String Conversion.
- Participant Station Status Readout Function
- Initialization of Simplified DLL
- Termination of Simplified DLL

NOTE
- Note that the PL-supported OS and features supported by Pro-Server are different.
- When using the Remote RAS feature together with Pro-Server in PL, be sure to select different port numbers.

4 | Troubleshooting

1. Problems and Countermeasures
2. Recovery Procedure

This chapter describes the countermeasures for problems with the PL and the recovery procedure for the OS.

4.1   Problems and Countermeasures

Problem	Countermeasure and reference page
Nothing appears on the screen.	Is the power cable connected properly? **SEE →** *PL3000 Series Hardware Manual* *3 Hardware Installation*
	Is the power supply/voltage within the range of the specifications? **SEE →** *PL3000 Series Hardware Manual* *2 Specifications*
	Does the status LED illuminate in green? **SEE →** *If the status LED does not illuminate, contact your local PL distributor.* Is the image output cable connected correctly? Did you reconnect the image output cable and restart the PL unit? Did you disconnect the image output cable after starting the PL unit? - If the OS setup is not yet completed Connect the image output cable correctly, and recover the OS using the Recovery Media DVD. - If the OS setup is completed • If the analog RGB cable is connected correctly →Hold down [Ctrl] + [Alt] + [F1] at the same time for 1 second or longer. • If the DVI cable is connected correctly →Hold down [Ctrl] + [Alt] + [F4] at the same time for 1 second or longer.
The OS does not operate properly.	Is [Type] set to [Auto] in the IDE Channel / SATA Port setting? **SEE →** ■ *IDE Channel / SATA Port (page2-5)*
	Did you connect a new hard disk drive or commercial USB memory which does not require boot-up? **SEE →** *2.2.4 Boot (page2-28)*
"Delayed Write Failed" occurs frequently.	When some of the following conditions occur simultaneously, there is a high probability that the PL has failed while writing to files, resulting in this error. • The same file is frequently accessed (opened, read, written, etc.). • The amount of implemented memory is small and cache memory is insufficient. • The file is highly fragmented. • The I/O load to the disk is high. • Delay writing fails. Try performing maintenance on the hard disk. If the problem continues, replace the hard disk.

Problem	Countermeasure and reference page
I want to use a LAN to recover the OS from standby or sleep mode.	Set the PL as follows: 1. Select [Control Panel] from the Start menu. 2. Double-click [System]. (With Windows XP, it is in the [Performance and Maintenance] category.) 3. Click [Device Manager] on the [Hardware] tab. 4. Double-click [Intel PRO/***] in [Network adapters]. 5. On the [Power Management] tab, check [Wake on Magic Packet.].
I did not shut down or reboot the unit, but the "CMOS CHECK SUM ERROR" occurred.	The CMOS battery may be exhausted. Replace the battery. Note that when the battery is removed, the BIOS settings will be lost so you need to set up the BIOS again after replacing the battery. The battery may be exhausted more quickly under the following conditions. • The temperature of the surrounding environment frequently changes from low to high. • The connected expansion board consumes the CMOS battery quickly. SEE→ *PL3000 Series Hardware Manual* *4 Maintenance*
The connected peripheral device does not work.	Is the power cable connected properly? SEE→ *PL3000 Series Hardware Manual* *3 Hardware Installation*
	Is the peripheral device connected properly? -> Refer to the manual for the connected device.
	Does the device require driver setup? -> Refer to the manual for the connected device and set the driver properly.
	Did you start the PL unit with a USB device connected? -> If the PL unit is started while USB memory or another USB device is connected, the following phenomenon may occur depending on the device. • It takes about 1 minute before the OS starts up. • If the USB device is not recognized, set [Power on Delay] to [Enable]. This may solve the problem.
I want to know what the LED indicator indicates.	SEE→ ◆ *LED Indicator (page3-5)*

4.2   Recovery Procedure

4.2.1   PL with no Pre-installed OS

Refer to the instruction manual for the installed OS and recover the OS.

After the OS is recovered, download drivers and utility software from the Pro-face support site "Otasuke Pro!".

SEE→ *1.2.2 Setting Up the PL Dedicated Software (page1-3)*

IMPORTANT
- Specify [Disabled] for the USB2.0 Controller of the BIOS when you install commercial Windows®, using a USB CD/DVD-ROM drive.
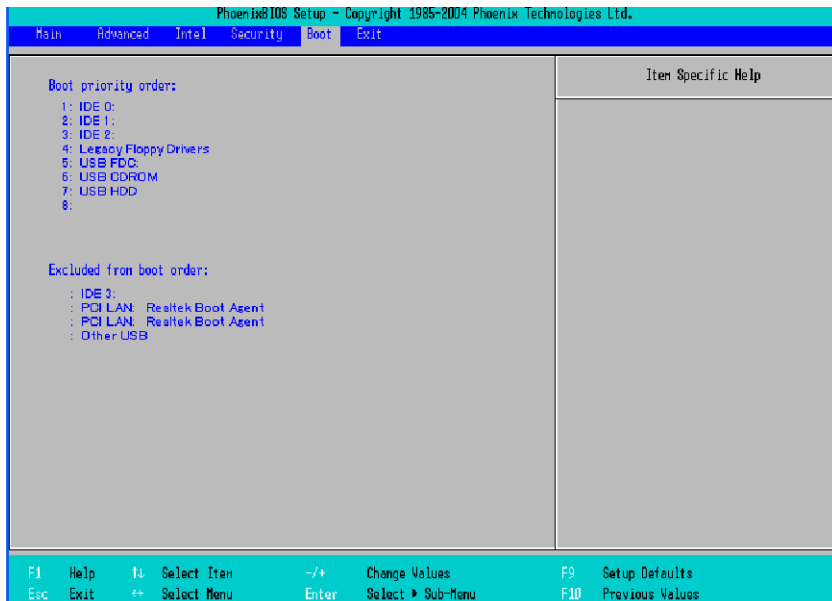
  SEE→ ■ *USB Controller Configuration (page2-23)*

4.2.2   PL with Pre-installed OS (Windows® 2000)

IMPORTANT
- After performing hard disk recovery, the PL unit's hard disk is returned to its factory shipped condition.
- For recovery, a commercially-available USB keyboard is required. In addition, a commercially available USB DVD-ROM drive is also required when no DVD drive is pre-installed in the PL unit.

Use the following steps used to recover the Windows® 2000 Multi-Language Pre-installed Hard Disk.
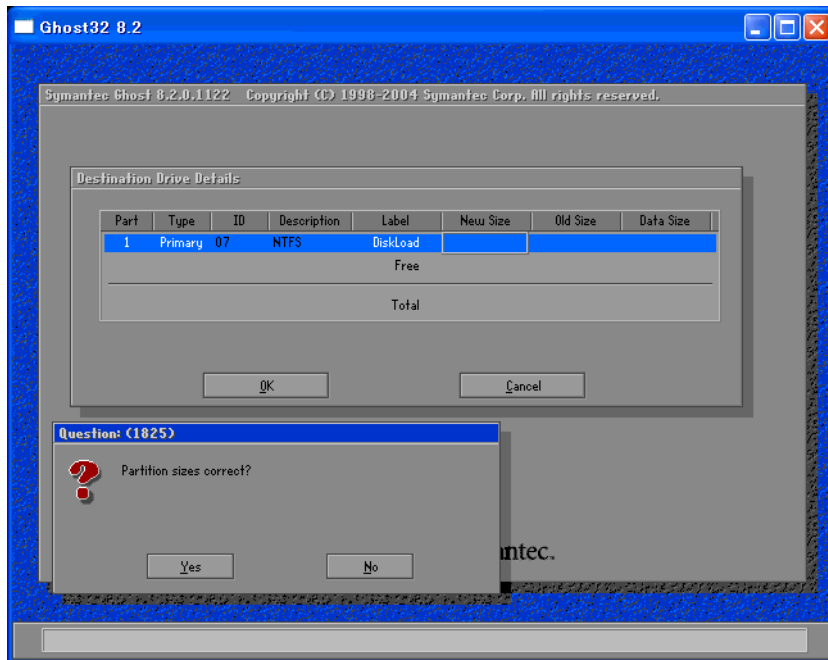
(1)   Turn on the power of PL and immediately press the [F2] key to enter the BIOS setup screen. Insert the Recovery DVD into the DVD-ROM drive.

(2)   Under [Boot priority order] on the [Boot] menu, use the [+] or [-] key to move [USB CDROM] to the top.

(3)   Press the [F10] key and select [Yes] for [Save configuration changes and exit now?] to save the settings and restart the PL unit.

(4)   After the PL unit restarts, the Symantec Ghost™ will automatically start.

(5)   After the Symantec Ghost™ starts, the [Question] dialog box will appear.
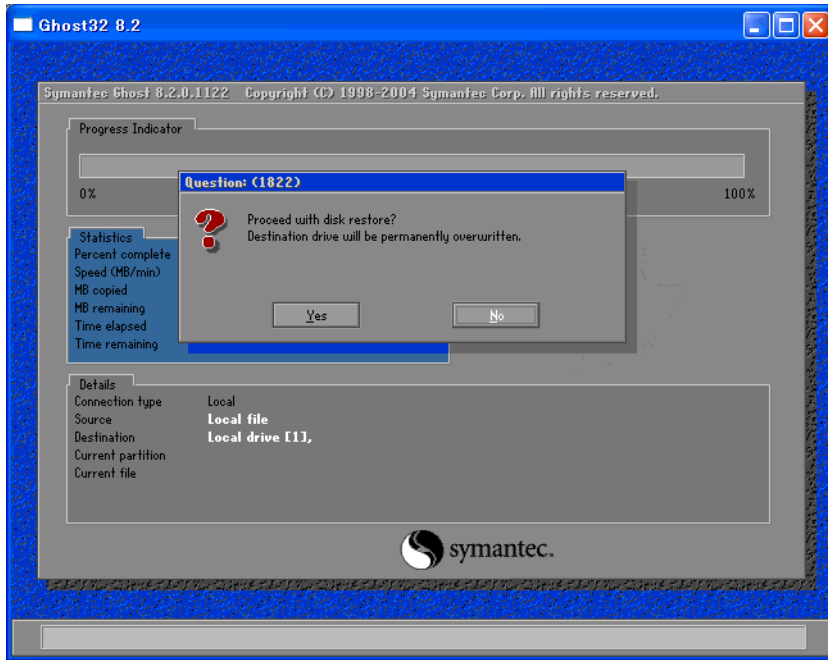   "Partition sizes correct?"

NOTE   •   Touch operation is disabled on the Symantec Ghost™ screen. Operate the screen with the USB keyboard or USB mouse.

(6)   The volume displayed in New Size will be recovered. After confirming it, press the [Yes] button. To change it, press the [No] button and go to the [Destination Drive Details] dialog box. In the [Destination Drive Details] dialog box, change the size of the New Size and press the [OK] button.

(7) The [Question] dialog box will appear. Press the [Yes] button. It will be reconfirmed that the data of the hard disk is all reset to the original values at the time of delivery.
"Proceed with disk restore? Destination drive will be permanently overwritten."

(8) The hard disk recovery program will start. After the recovery operation finishes, the Symantec Ghost™ also will finish. When the message "Please turn off computer" displayed, turn off the power of PL.

(9) Turn on the power of PL again and immediately press the [F2] key to enter the BIOS setup screen.

(10) Press the [F9] key and select [Yes] for [Load default configuration now?] to set the BIOS setting to the factory setting. Press the [F10] key to save the setting and restart the PL unit.

(11) After the unit restarts, set up your OS.

IMPORTANT

• If the hard disk unit breaks down due to a hardware problem, (Ex. if BIOS cannot find the hard disk, if the hard disk's lifetime expires, or it breaks down), Symantec Ghost™ cannot recover the hard disk. Pro-face recommends that in this case you contact your local PL distributor for instructions about hard disk recovery or replacement.

• Pro-face does not guarantee the preservation of any data stored on the HDD unit if the HDD unit has an accident, malfunctions or is damaged in any way. Therefore, the regular backing up of important HDD unit data to either floppy disks, or other type of suitable magnetic media is strongly recommended.
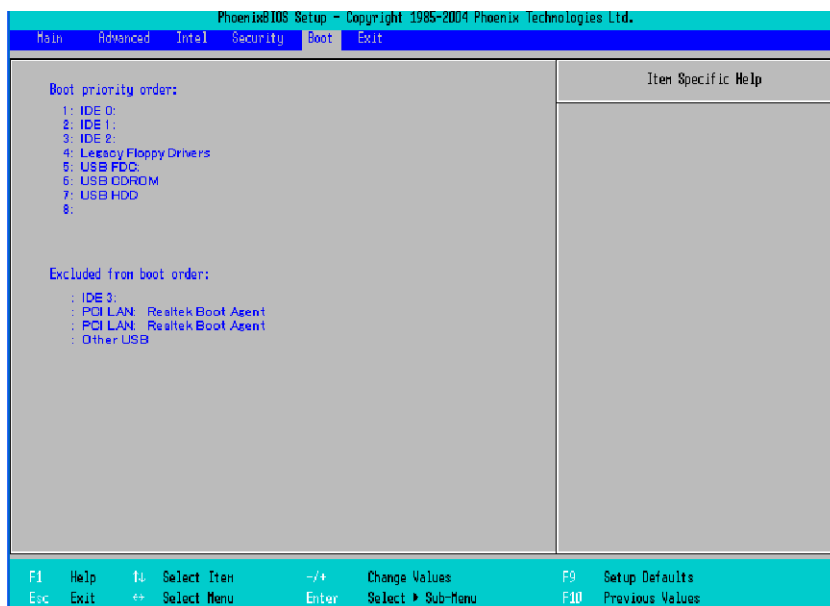
4.2.3　PL with Pre-installed OS (Windows® XP)

> **IMPORTANT**
> - After performing hard disk recovery, the PL unit's hard disk is returned to its factory shipped condition.
> - For recovery, a commercially-available USB keyboard is required. In addition, a commercially available USB CD-ROM drive is also required when no DVD drive is pre-installed in the PL unit.
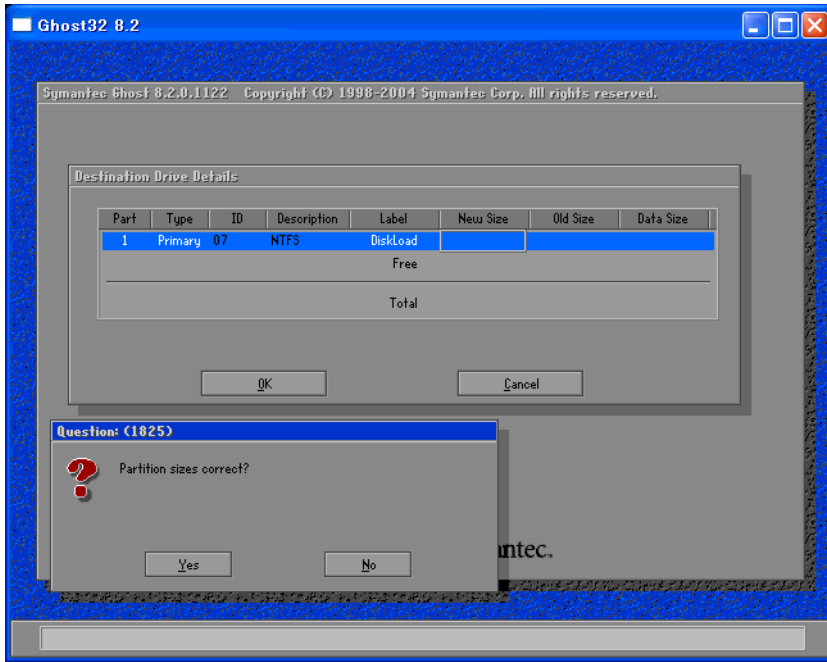
Use the following steps used to recover the Windows® XP Multi-Language Pre-installed Hard Disk.

(1) Turn on the power of PL and immediately press the [F2] key to enter the BIOS setup screen. Insert the Recovery DVD into the DVD-ROM drive.

(2) Under [Boot priority order] on the [Boot] menu, use the [+] or [-] key to move [USB CDROM] to the top.

(3) Press the [F10] key and select [Yes] for [Save configuration changes and exit now?] to save the settings and restart the PL unit.

(4) After the PL unit restarts, the Symantec Ghost™ will automatically start.

(5)   After the Symantec Ghost™ starts, the [Question] dialog box will appear.

"Partition sizes correct?"

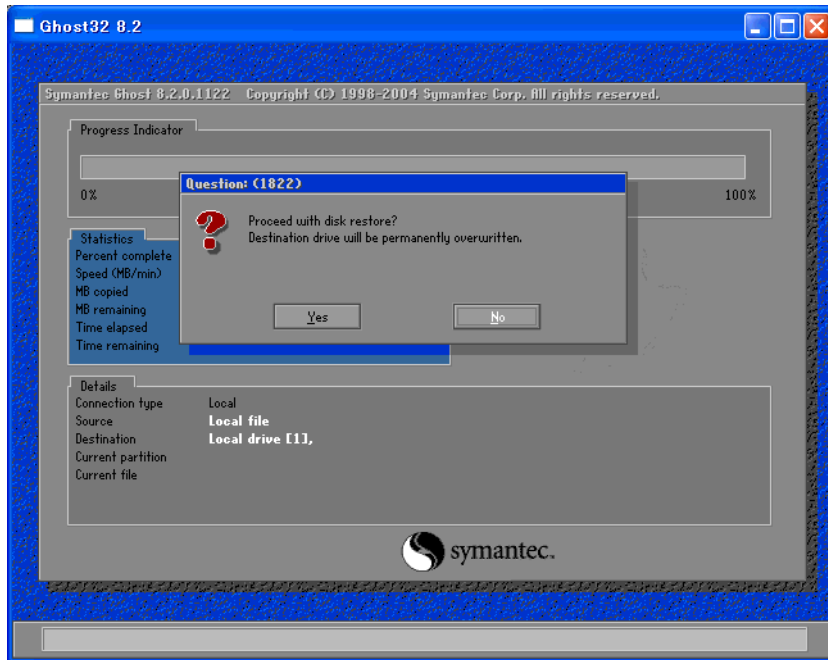NOTE

• Touch operation is disabled on the Symantec Ghost™ screen. Operate the screen with the USB keyboard or USB mouse.

(6)   The volume displayed in New Size will be recovered. After confirming it, press the [Yes] button. To change it, press the [No] button and go to the [Destination Drive Details] dialog box. In the [Destination Drive Details] dialog box, change the size of the New Size and press the [OK] button.

(7)   The [Question] dialog box will appear. Press the [Yes] button. It will be reconfirmed that the data of the hard disk is all reset to the original values at the time of delivery.

"Proceed with disk restore? Destination drive will be permanently overwritten."

(8)   The hard disk recovery program will start. After the recovery operation finishes, the Symantec Ghost™ also will finish. When the message "Please turn off computer" displayed, turn off the power of PL.

(9)   Turn on the power of PL again and immediately press the [F2] key to enter the BIOS setup screen.

(10)   Press the [F9] key and select [Yes] for [Load default configuration now?] to set the BIOS setting to the factory setting. Press the [F10] key to save the setting and restart the PL unit.

(11)   After the unit restarts, set up your OS.

IMPORTANT
- If the hard disk unit breaks down due to a hardware problem, (Ex. if BIOS cannot find the hard disk, if the hard disk's lifetime expires, or it breaks down), Symantec Ghost™ cannot recover the hard disk. Pro-face recommends that in this case you contact your local PL distributor for instructions about hard disk recovery or replacement.
- Pro-face does not guarantee the preservation of any data stored on the HDD unit if the HDD unit has an accident, malfunctions or is damaged in any way. Therefore, the regular backing up of important HDD unit data to either floppy disks, or other type of suitable magnetic media is strongly recommended.

A ▎ Appendices

1. I/O Map
2. Memory Map
3. Interrupt Map
4. License Agreement

This chapter describes the hardware configuration of the I/O map, memory map, and interrupt map.

1   I/O Map

Address	AT System Device	System Device
0000H-001FH	DMA controller (8237)	
0020H-003FH	Interrupt controller (8259A)	
0040H-005FH	System timer (8254)	
0060H-006FH	Keyboard controller	
0070H-007FH	Real time clock, NMI mask	
0080H-009FH	DMA page register	
00A0H-00BFH	Interrupt controller 2 (8259A)	
00C0H-00DFH	DMA controller 2 (8237)	
00F0H-00FFH	Numeric data processor	
01F0H-01FFH	Hard disk (IDE)	
0290H-0297H	Reserved	System monitor
029CH-029FH	Reserved	SRAM (Only when SRAM option is installed)
02E8H-02EFH	Reserved	Serial port 4 (COM4) : General use
02F8H-02FFH	Serial port 2 (COM2): General use	
03B0H-03BBH	Video controller (VGA)	
03C0H-03DFH	Video controller (VGA)	
03E8H-03EFH	Reserved	Serial port 3 (COM3) : General use
03F8H-03FFH	Serial port 1 (COM1): General use	

2　Memory Map

SMRAM	MAXMEM
FrameBuffer	MAXMEM-1MB
	MAXMEM-9MB[*1]
Expanded Memory	
System BIOS	1MB
Expanded ROM Area	F000:0000
PXE BIOS, VGA BIOS	D000:0000
Video RAM	C000:0000
Conventional Memory	A000:0000
	0000:0000

*1　The capacity allocated by "IGD-Memory Size" of the "Video (Intel IGD) Configuration" screen of the BIOS setting is 1MB.

3   Interrupt Map

APIC MODE

Interrupt Level	Description	No.	Expansion Slot	Remark	Setting Change
NMI	Parity Error or I/O Channel Check				
IRQ0	System Timer				
IRQ1	Keyboard				
IRQ2	Slave PIC Cascade				
IRQ3	COM2				Possible
IRQ4	COM1				Possible
IRQ5	SMBUS				
IRQ6	Available for users				Possible
IRQ7	Available for users				Possible
IRQ8	Real Time Clock				
IRQ9	ACPI				
IRQ10	COM4				Possible
IRQ11	COM3				Possible
IRQ12	Reserved				
IRQ13	Coprocessor				
IRQ14	Primary IDE				
IRQ15	Secondary IDE				
IRQ16	USB UHCI #3 (Reserved) Display adapter	INTA			
IRQ17	PCI express	INTB	SLOT#1 [*1]	PCIe Type [*1]	
IRQ18	USB UHCI #2 (Reserved)	INTC			
IRQ19	USB UHCI #1 (Port3, 4) AHCI	INTD		USB 3/4 Port	
IRQ20	Built-in LAN2	INTE	SLOT#0		
IRQ21	Available for users	INTF	SLOT#1		
IRQ22	HDAudio	INTG	SLOT#2		Possible
IRQ23	USB EHCI (USB 2.0) USB UHCI #0 (Port1, 2)	INTH	SLOT#3	USB 1/2 Port	

*1 When an expansion slot supporting PCIe is included.
    The setting can be changed from the BIOS setup menu.
    The table above shows the allocation in the APIC mode. The PL unit is set to the APIC mode by default.

■ DMA Channel List

	Description
DMA 0	
1	
2	
3	
4	Cascade to controller 1
5	
6	
7	

For 8-bit transmission

For 8-bit transmission

4   License Agreement

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