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# Preface

Welcome to the Express5800/120Mf server Service Guide. This manual describes the maintenance work necessary for the Express5800/120Mf basic processing unit. Keep this guide at hand for quick reference at any time it may be required.

Read the section “Safety Indications” first, then proceed to “Notes On Using The Nec Express Server”.

# Safety Indications

Follow the instructions given in this service guide for proper operation and safe use of the NEC Express5800.

This guide describes server components with possible danger, hazards that may be caused by ignoring warnings, and preventive actions against such hazards. Server components with possible danger are indicated with a warning label placed on or around them. They are also described in this guide.

In the user’s guide and on warning labels, “WARNING” or “CAUTION” is used to indicate a degree of danger. These terms are defined as follows:

 <b>WARNING</b>	Indicates the presence of a hazard that may cause loss of life or serious personal injury if the instruction is ignored.
 <b>CAUTION</b>	Indicates the presence of a hazard that may cause minor personal injury, including burns or property damage, if the instruction is ignored.

Precautions and notices against hazards are presented with one of the following 3 symbols. The individual symbols are defined as follows:

	This symbol indicates the presence of a hazard if the instruction is ignored. An image in the symbol illustrates the hazard type. (Attention)	
	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action. (Prohibited Action)	
	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard. (Mandatory Action)	

(Example)

Symbol to draw attention  
Term indicating a degree of danger

 <b>CAUTION</b>  	<p>Do not touch components in the NEC Express server while they are hot.</p> <p>Components (e.g., especially hard disk drive) in the server are hot immediately after the power is turned off. Mount/dismount components only when they are cool.</p>
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Symbol indicating a prohibited action (may not always be indicated)

Contents of a danger

# Chapter 1

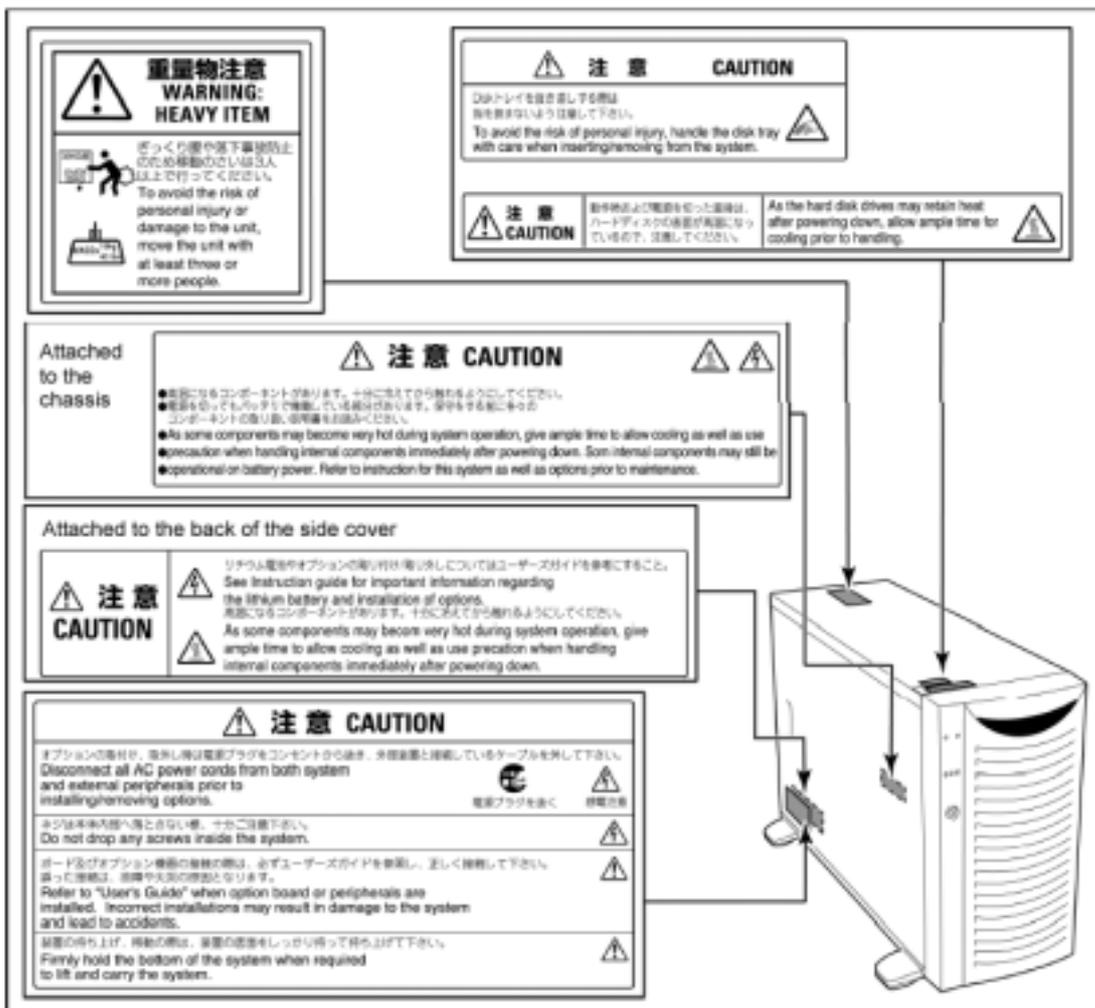
## Notes on Using the Server

This chapter includes useful information for proper and safe operation of the NEC Express server.

### ABOUT WARNING LABELS

The warning label is attached to components with possible danger or their vicinity in the NEC Express server to inform the user that a hazardous situation may arise when operating the server. (Do not take off any label or soil it.)

If you find any label unattached, almost peeled off, or soiled, making the warning illegible, contact your sales agent.



## SAFETY NOTES

This section provides notes on using the NEC Express server safely. Read this section carefully to ensure proper and safe use of the server. For symbols, see "SAFETY INDICATIONS" provided earlier.

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### General

#### WARNING



Do not use the NEC Express server for services involving human lives or requiring high reliability.

The NEC Express server is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability. NEC assumes no liability for any accident resulting in personal injury, death, or property damage if the NEC Express server has been used in the above conditions.



Do not use the NEC Express server if any smoke, odor, or noise is present.

If smoke, odor, or noise is present, immediately turn off the POWER switch and disconnect the power plug from the outlet, then contact your sales agent. Using the server in such conditions may cause a fire.



Keep needles or metal objects away from the NEC Express server.

Do not insert needles or metal objects into ventilation holes in the NEC Express server or openings in the floppy disk or CD-ROM drive. Doing so may cause an electric shock.

#### CAUTION



Keep water or foreign matter away from the NEC Express server.



Do not let any form of liquid (water etc.) or foreign matter (e.g., pins or paper clips) enter the NEC Express server. Failure to follow this warning may cause an electric shock, a fire, or a failure of the server. When such things accidentally enter the server, immediately turn off the power and disconnect the power plug from the outlet. Do not disassemble the server. Contact your sales agent.

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## Power Supply and Power Code Use

**⚠ WARNING**

Do not hold the power plug with a wet hand.

Do not disconnect/connect the plug while your hands are wet. Failure to follow this warning may cause an electric shock.



Do not connect the ground wire to a gas pipe.

Never connect the ground wire to a gas pipe. Failure to follow this warning may cause a gas explosion.

**⚠ CAUTION**

Plug in to a proper power source.

Use a proper wall outlet. Use of an improper power source may cause a fire or a power leak.



Do not install the NEC Express server where you need an extension cord. Use of a cord that does not meet the power specifications of the NEC Express server may heat up the cord and cause a fire.



Do not connect the power cord to an outlet that has an illegal number of connections.

The electric current exceeding the rated flow overheats the outlet, which may cause a fire.



Insert the power plug into the outlet as far as it goes.

Heat generation resulting from a halfway inserted power plug (imperfect contact) may cause a fire. Heat will also be generated if condensation is formed on dusty blades of the halfway inserted plug, increasing the possibility of fire.

**⚠ CAUTION**



Use the authorized power cord only.

Use only the power cord that comes with the NEC Express server. Use of an unauthorized power cord may cause a fire when the electric current exceeds the rated flow.

Also, observe the following to prevent an electric shock or fire caused by a damaged cord.

- Do not stretch the cord harness.
- Do not pinch the power cord.
- Do not bend the power cord.
- Keep chemicals away from the power cord.
- Do not twist the power cord.
- Do not place any object on the power cord.
- Do not bundle power cords.
- Do not alter, modify, or repair the power cord.
- Do not secure the power cord with staples or equivalent.
- Do not use any damaged power cord. (Replace a damaged power cord with a new one of the same specifications. Ask your sales agent for replacement.)

## Installation, Relocation, Storage, and Connection

### ⚠ CAUTION



Never attempt to lift the NEC Express server only by yourself.

The NEC Express server weighs up to 44 kg (depending on its hardware configuration). Carrying the server only by yourself may strain your back. Hold the server firmly by its bottom with another person to carry it. Do not hold the front door to lift the server. The front door may be disengaged from the server, causing personal injury.



Do not install the NEC Express server in any place other than specified.

Do not install the NEC Express server in the following places or any place other than specified in this User's Guide. Failure to follow this instruction may cause a fire.

- a dusty place
- a humid place such as near a boiler
- a place exposed to direct sunlight
- an unstable place



Do not connect any interface cable with the power cord of the NEC Express server plugged to a power source.



Make sure to power off the NEC Express server and unplug the power cord from a power outlet before installing/removing any optional internal device or connecting/disconnecting any interface cable to/from the server. If the NEC Express server is off-powered but its power cord is plugged to a power source, touching an internal device, cable, or connector may cause an electric shock or a fire resulted from a short circuit.



Do not use any unauthorized interface cable.

Use only interface cables provided by NEC and locate a proper device and connector before connecting a cable. Using an authorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire.

Also, observe the following notes on using and connecting an interface cable.

- Do not use any damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the NEC Express server with loose cable connections.

## Cleaning and Working with Internal Devices

### WARNING



Do not disassemble, repair, or alter the NEC Express server.



Never attempt to disassemble, repair, or alter the NEC Express server on any occasion other than described in this User's Guide. Failure to follow this instruction may cause an electric shock or fire as well as malfunctions of the server.



Do not look into the CD-ROM drive

A laser beam is used in the CD-ROM drive. Do not look into or insert a mirror into the drive while the drive is powered. If a laser beam is caught in your eyes, you may lose your eyesight (the laser beam is invisible).



Do not remove the lithium battery.

The NEC Express server contains a lithium battery. Do not remove the battery. Placing the lithium close to a fire or in the water may cause an explosion.

When the server does not operate appropriately due to the dead lithium battery, contact your sales agent. Do not disassemble the server to replace or recharge the battery by yourself.



Disconnect the power plug before cleaning the NEC Express server.

Make sure to power off the NEC Express server and disconnect the power plug from a power outlet before cleaning or installing/removing internal optional devices. Touching any internal device of the NEC Express server with its power cord connected to a power source may cause an electric shock even if the NEC Express server is off-powered.

Disconnect the power plug from the outlet occasionally and clean the plug with a dry cloth. Heat will be generated if condensation is formed on a dusty plug, which may cause a fire.

### CAUTION



High temperature

Immediately after the NEC Express server is powered off, its internal components such as hard disks are very hot. Leave the server until its internal components fully cool down before installing/removing any component.



Make sure to complete board installation.

Always install a board firmly. An incompletely installed board may cause a contact failure, resulting in smoking or fire.

## During Operation

### ⚠ CAUTION



Stay away from the fan.

Keep your hand or hair away from the cooling fan on the rear of the NEC Express server. Failure to follow this warning may get your hand or hair caught in the fan, resulting in injury.



Do not touch the NEC Express server when it thunders.

Disconnect the power plug from the outlet when a thunderstorm is approaching. If it starts thundering before you disconnect the power plug, do not touch any part of the NEC Express server including the cables. Failure to follow this warning may cause a fire or an electric shock.



Keep any animal (pet) away from the NEC Express server.



Pet's discharges or fur may enter the NEC Express server and cause a fire or electric shock.



Do not place any object on top of the NEC Express server.

The NEC Express server may fall and cause property damage to the surroundings.



Do not leave the NEC Express server with its CD-ROM tray ejected.

Dust may enter the server through openings and cause malfunctions of the NEC Express server. Any person may also bump it and get injured.



Take off the headset before connection.

Make sure to take off the headset before plugging it to the headset jack. Failure to follow this instruction may hurt your ears. Make also sure to turn down the volume before connection.



Do not use a cellular phone or pager around the NEC Express server.

Turn off the cellular phone or pager. Radio interference may cause malfunctions of the NEC Express server.

## FOR PROPER OPERATION

Observe the following notes for successful operation of the NEC Express server. Use of the NEC Express server ignoring the notes will cause malfunctions or failures of the server.

- Install the NEC Express server in a place that meets requirements for successful operation. For details, see Chapter 2, "Setting Up the Server."
- Do not delete the hard disk partition exclusively provided for maintenance of the NEC Express server although it may appear on the OS.
- Make sure to power off the NEC Express server before connecting or disconnecting cables between the server and peripheral devices.
- Verify that the access lamp on the NEC Express server is unlit before turning off the server or ejecting the floppy disk.
- Do not turn on the server after plugging the power cord.
- Do not turn off the server until the "NEC" logo and the some characters appear on the screen.
- When you have just turned off the NEC Express server, wait at least 30 seconds before turning it back on.
- Turn off the power and unplug the power cord from the outlet before relocating the NEC Express server.
- You may use a software command to eject the tray or a media from the CD-ROM drive or an optional device, for example a DAT, installed in the 5.25-inch device bay, respectively. Make sure that the front door is open before ejecting the tray or media with a software command. Running the command when the front door is closed will cause the tray or media to hit against the front door, which may cause a hardware failure of the NEC Express server as well as a software error.
- Clean the NEC Express server on a regular basis. (See Chapter 5 for cleaning.) Regular cleaning proactively prevents various failures of the server.
- Lightning may cause a momentary voltage drop. To prevent this problem, it is recommended to use an uninterruptible power supply unit.
- Make sure to use optional devices supported by the NEC Express server. Some non-supported devices may be physically installed/connected but cause failures of the server as well as a malfunction of the server.
- NEC recommends you use NEC's genuine products. Some third-party products claim that they support the NEC Express server. However, repair of the server due to a failure or damage resulted from use of such third-party products will be charged.

## **TRANSFER TO THIRD PARTY**

The following must be observed when you transfer (or sell) the server or software provided with the server to a third party:

### **NEC Express server**

Make sure to provide the User's Guide along with the server to a third party.

### **Provided software**

To transfer or sell any software application that comes with the NEC Express server to a third party, the following requirements must be satisfied:

- All provided software applications must be transferred and no backup copies must be retained.
- Transfer requirements listed in "Requirements for Software Use" that comes with each software application must be satisfied.
- Software applications that are not approved for transfer must be uninstalled before transferring the NEC Express server.

## DISPOSAL AND CONSUMABLES

- Dispose the server, hard disk drives, floppy disks, CD-ROMs, and optional boards as required by the local regulations. Ask your local government for details.

**IMPORTANT:** For disposal (or replacement) of the battery on the motherboard of the NEC Express server, consult with your sales agent.

- The NEC Express server contains some components that are only good for a limited period of time and require replacement, such as fans, internal batteries, the internal CD-ROM drive, the floppy disk drive, and the mouse. For stable operation of the NEC Express server, NEC recommends you replace these components on a regular basis. Consult with your sales agent for replacement or the product lives.

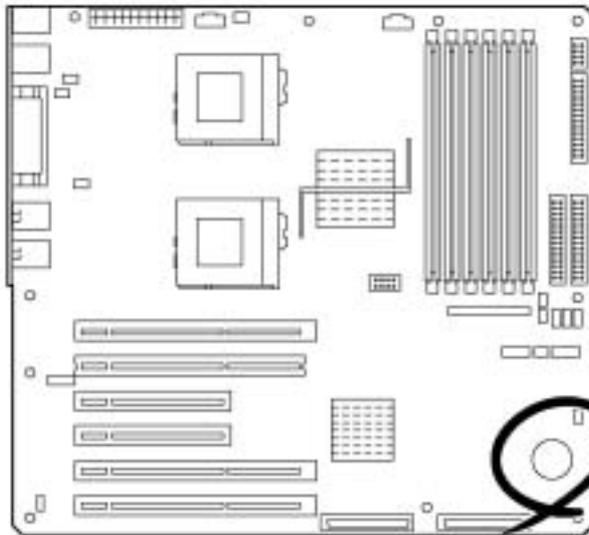
### WARNING



Do not remove the lithium battery.

The NEC Express server contains the lithium battery. Do not remove the battery. Placing the lithium or nickel cadmium battery close to a fire or in the water may cause an explosion.

When the server does not operate appropriately due to the dead lithium battery, contact your sales agent. Do not disassemble the server to replace or recharge the battery by yourself.



Mother board

## Advice for Health

The longer you keep using the computer equipment, the more you become tired, which may cause disorders of your body. When you use a computer, observe the following to keep yourself from getting tired:

### Good Working Posture

You have good posture if the following are satisfied when you use a computer:

- You sit on a chair with your back straight.
- Your hands are parallel with the floor when you put them on the keyboard.
- You look at the screen slightly lower than your eye height.

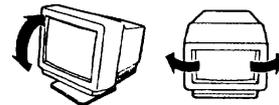


You have "good working posture" as described in the above when no part of your body is under excess strain, in other words when your muscles are most relaxed.

You have "bad posture" when you sit with your back hunched up or you operate a display unit with your face close to the screen. Bad working posture may cause eye strain or poor eyesight.

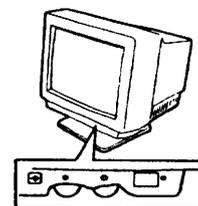
### Adjustment of Display Unit Angles

Most display units are designed for adjustment of the horizontal and vertical angles. This adjustment is important to prevent the screen from reflecting bright lights and to make the display contents easy to see. You will not be able to keep "good working posture" and you will feel more tired than you should if you operate a display unit without adjusting horizontal and vertical angles.



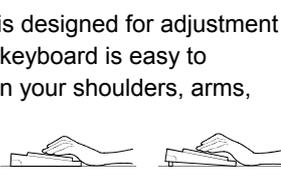
### Adjustment of Screen Brightness and Contrast

The display unit has brightness and contrast adjustment functions. The most suitable brightness and contrast depend on the individual and the working environment (well-lighted room or insufficient light). Adjust brightness and contrast so that the screen will be easy to see. An extremely bright or dark screen will give a bad effect to your eyes.



### Adjustment of Keyboard Angle

The keyboard provided with the NEC Express server is designed for adjustment of an angle. Adjust the keyboard angle at which the keyboard is easy to operate. The adjustment assists in reducing strain on your shoulders, arms, and fingers.



### Cleaning of Equipment

Clean equipment regularly. It is difficult to see the display contents on a dusty screen. Keeping equipment clean is also important for your sight.

### Fatigue and Rest

If you feel tired, you should stop working and do light exercises.



## **USER SUPPORT**

Before Asking for Repair, do the following when the NEC Express server appears to fail:

- 1.** Check if the power cord and the cables to other devices are properly connected.
- 2.** See Chapter 6 to find if your problem fits the description. If it does, take the recommended measure for it.
- 3.** Check if the software required for operation of the NEC Express server is properly installed.

If the NEC Express server still appears to fail after you have taken the above actions, consult with your sales agent immediately. Take notes on lamp indications of the server and alarm indications on the display unit before consultation, which may provide a significant help to your sales agent.

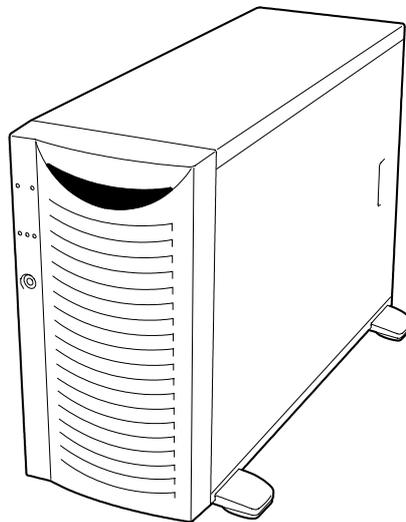
# Chapter 2

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## Overview

This manual describes the maintenance method for NEC Express5800/120Mf basic processing unit. The explanation is for maintenance personnel who perform site adjustment, periodic inspection, and repair of NEC Express5800/120Mf basic processing unit.

### APPEARANCE



External dimensions (WDH, mm)	321 × 675 × 450
Weight (kg : MAX)	23kg (Max 44kg)

## SPECIFICATIONS

The table below lists the general specifications of the unit.

Major classification	Minor classification	Standard	Remarks
Input power	Power supply	Single phase, 2-pole grounding	The power supply itself is capable between 100 to 240 VAC, however, the value at the left is used as a unit specification.
	Voltage	100 to 240 VAC $\pm$ 10%	
	Frequency	50 $\pm$ 1 Hz or 60 $\pm$ 1 Hz	
	Waveform distortion	10%	
Power consumption	Input current	5.3 A	AC100V
	Apparent power	530 VA	
	Active power	520 W	
Temperature and humidity	Temperature	10 to 35°C	No condensation is allowed
	Humidity	20 to 80%RH	
Noise	POWER level	<b>62.8 dB (operating)</b> <b>60.9 dB (standby)</b>	
	Sound pressure level	<b>52.9 dB (operating)</b> <b>51.7 dB (standby)</b>	

# Chapter 3

## Unit Configuration

### SPECIFICATIONS

		120Mf	Notes
CPU	Processor	Prestonia x 1-2	
	FSB	533MHz	
	Package	FC-mPGA2	
	L3 Cache	512KB	
Chipset		Grand Champion-LE(REV A3.1)	
Memory	Max.	6GB (6 DIMMs)	2Way-Interleave 128/256/512MB/1GB DIMM
	DIMM	DDR266 SDRAM DIMM(Registered)	
	ECC	Yes	*Online Spare memory
	Chipkill	Yes	
	SpareMem	Yes	
HDD	Standard	0GB	Intel Alliance Carrier Ultra320,10K/15Krpm, SCA2 Standard: 5 slots Optional: 5 slots added HDD cage
	Max.	10 x 146GB+ U320 10Krpm 36GB/73GB/146GB U320 15Krpm 36GB/73GB	
	HotPlug	Yes	
IDE I/F		Ultra ATA100 x1ch	For CD-ROM/DVD-ROM/DVD-RAM
SCSI I/F	Non RAID	Ultra320 SCSI x2ch	On-Board (AIC7899W)
	RAID	iROC	
DiskArray	Internal	Option	LL MegaRAID
	Max.	4 boards	
	Ext.	Option	
LAN		10/100/1000BASE-T x2	On-Board, RemoteWakeUp
Video (VRAM)		640x480 ~ 1280x1024 (8MB)	On Board, RageXL
FDD		3.5" (2mode) x1	
CD-ROM		Standard (x48/Half Height)	Standard CDROM:
Device bay	5.25"	3* (One for CDROM)	*2 slots when rack conversion
	3.5"	Standard: 5(1") + Option 5(1")	Max. 2HDD cages Ultra160 SCSI BP
I/O slot	Slot	Total 6slots (64bit/133MHz PCI-X x1, 64bit /100MHz PCI-X x2, 32bit/33MHz PCI x3)	
	Hot Plug PCI	No	
I/O interface	Front	Serial(DB9) x1*,USB x1	* Alternatively used
	Rear	CRT x1, KB(PS/2) x1, Mouse(PS/2) x1, USB x3,Serial(DB9) x2*, Parallel x1, 1000BASE-T x2, Ultra320 SCSI x1, ICMB x2(PCI slot option)	
Power Supply(PS)		Hotswap 2+1 x 350W (PFC)	1 AC cable/1 Power Supply
Redundant PS		Yes (option)	Hotswappable
Redundant FAN		Yes (standard)	Hotswappable
Switch	Front	Power, Sleep, Reset, Dump	
	Rear	No	
Front door Key		Yes	
LED	Front	Power/Sleep, System Status, HDD LAN Link/Act. x2, UID	
	Rear	LAN Link/Act. X2, LAN Speed x2, UID	
Chassis design (WxDxH)		Middle-Tower (321 x 675 x 450mm)	Rack conversion(5U)

## **NAMES AND FUNCTIONS OF COMPONENTS**

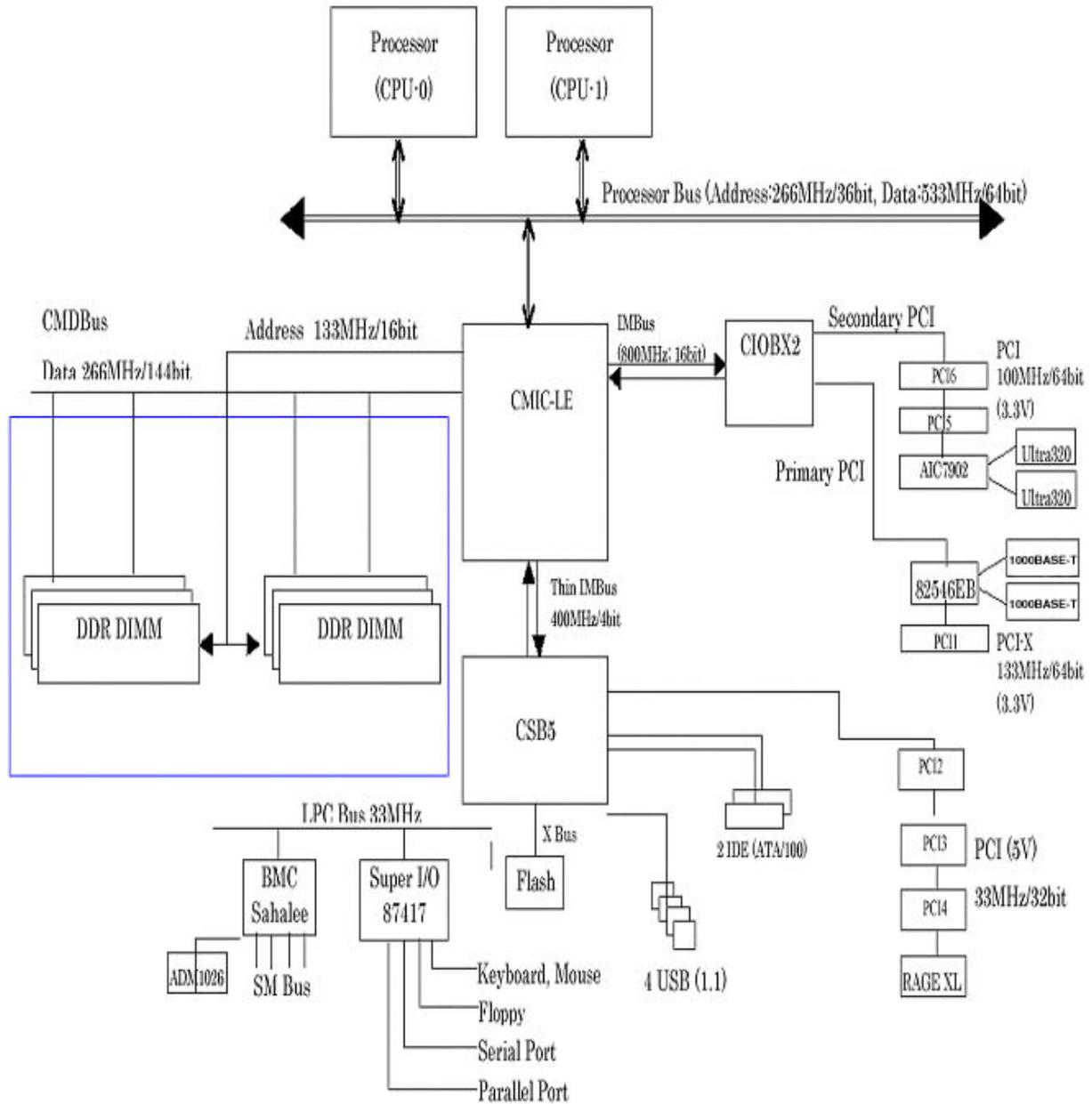
Please refer to the User's Guide.

## **CONNECTOR LOCATION**

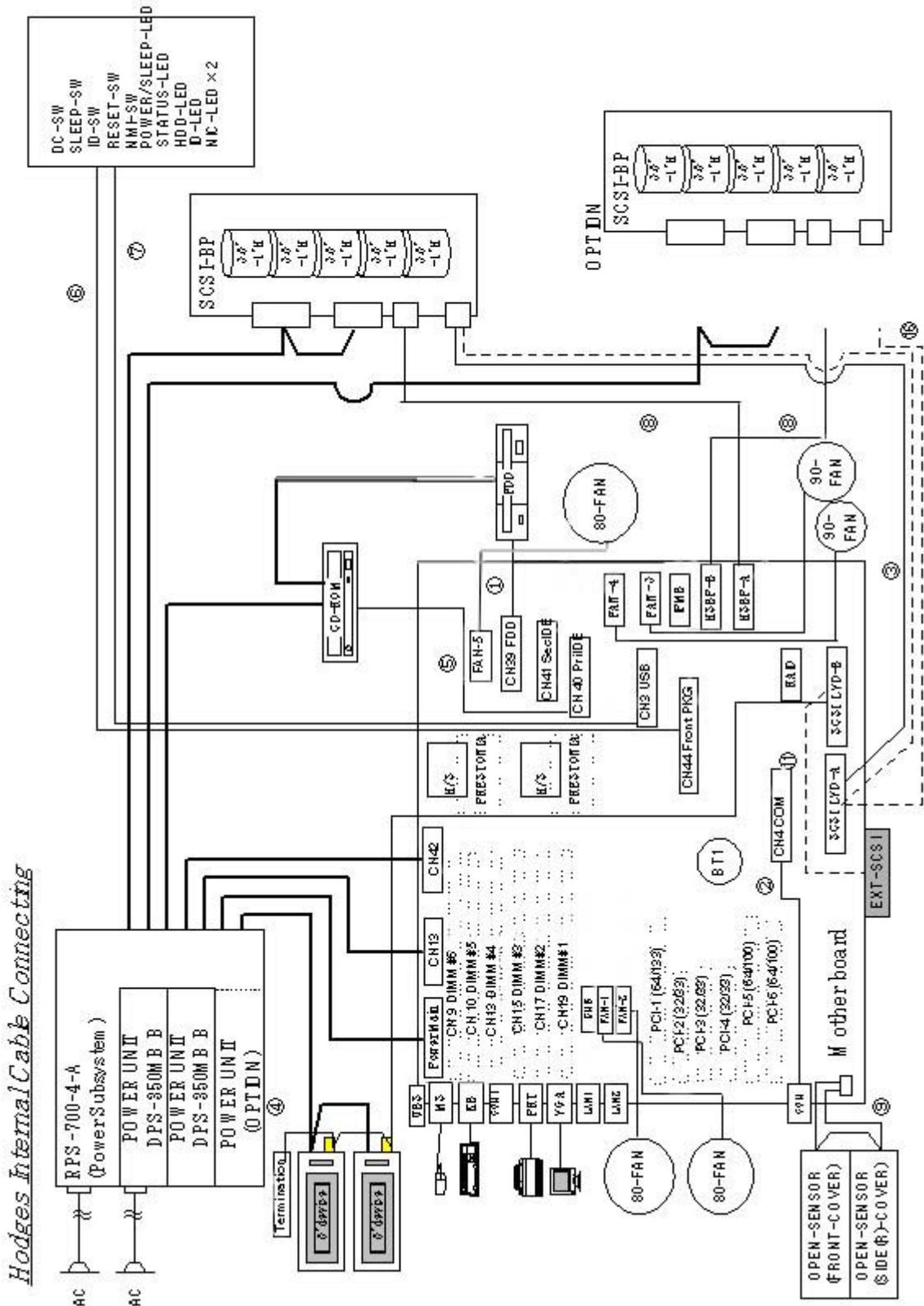
Please refer to the User's Guide.

## **BLOCK DIAGRAM**

See next page.



**CABLE CONNECTION LIST**



# Chapter 4

## Troubleshooting

If your NEC Express server does not operate as expected, read this chapter before assuming a failure.

**NOTE:** Troubleshooting and POST error messages refer to User Guides.

### POST Error Message List

On-screen error message	Description	Cause	Action
0200 Failure Fixed Disk	Hard disk failure	1. Incorrect setting in Setup 2. HDD failed 3. Motherboard failed	1. Check parameters entered in Setup 2. Replace HDD 3. Replace Motherboard
0210 Stuck Key	Keyboard connection error	Poor keyboard connection	1. Disconnect and reconnect keyboard. 2. Replace keyboard 3. Replace Motherboard
0211 Keyboard error	Keyboard error	Keyboard failed	Check connection
0212 Keyboard controller Failed	Keyboard controller failure	Keyboard controller failed	1. Check connection 2. Re-Start 3. Replace Mother Board
0213 Keyboard locked - Unlock key switch	Keyboard is locked.	Keyboard is locked.	Release Keyboard lock
0220 Monitor type does not match CMOS - Run SETUP	The monitor type is not consistent with the CMOS data.	Incorrect monitor type setting	1. Reset default values in Setup. 2. Clear CMOS
0230 System RAM Failed at offset	System RAM error.	DIMM failed	1. Replace DIMM 2. Replace Motherboard
0231 Shadow Ram Failed at offset	Shadow RAM error.		
0232 Extended RAM Failed at address line	Extended RAM error.		
0250 System battery is dead - Replace and run SETUP	The system battery is worn out.	NV-RAM battery	Replace Motherboard
0251 System CMOS checksum bad - Default configuration used	The system CMOS checksum is incorrect.	NVRAM failed	1. Reset Setup parameters 2. Replace Motherboard
0252 Password checksum bad - Passwords cleared	The checksum of a password is inaccurate.	Password cleared	Reset Setup parameters
0260 System timer error	A system timer error		Replace Motherboard
0270 Real time clock error	A real-time clock error	RTC failed	

## 4-2 Troubleshooting

On-screen error message	Description	Cause	Action
0271 Check data and time setting	The real-time clock time setting is incorrect.	Unusual time setup of RTC	1. Reset Setup parameters 2. Replace Motherboard
0280 Previous boot incomplete - Default configuration used	The last boot is imperfect.	Default value was set.	Reset Setup parameters
02B0 Diskette drive A error	A floppy disk A error	FDD error	Replace FDD
02B1 Diskette drive B error	A floppy disk B error		
02B2 Incorrect Drive A type - run SETUP	Incorrect drive A type	Incorrect settings	Reset Setup parameters
02B3 Incorrect Drive B type - run SETUP	Incorrect drive B type		
02D0 System cache error - Cache disabled	A system cache error	1. CPU failed 2. Motherboard failed	1. CPU Exchange 2. Replace Motherboard
02D1 System Memory exceeds the CPU's caching limit.	The memory exceeds the limit of the cache of CPU.	Motherboard failed	Replace Motherboard
02F4 EISA CMOS not write able	It cannot write in EISA CMOS.		
02F5 DMA Test Failed	DMA test error		
02F6 Software NMI Failed	Software NMI error		
02F7 Fail-safe Timer NMI Failed	Fail-safe Timer error		
0611 IDE configuration changed	The composition error of IDE		
0612 IDE configuration error-device disabled	The composition device error of IDE		
0613 COM A configuration changed	The composition error of COM A		
0614 COM A config. error-device disabled	The composition device error of COM A		
0615 COM B configuration changed	The composition error of COM B		
0616 COM B config. Error-device disabled	The composition device error of COM B		
0617 Floppy configuration changed	The composition error of Floppy		
0618 Floppy config. error - device disabled	The composition device error of Floppy		
0619 Parallel port configuration changed	The composition error of Parallel port		
061A Parallel port config. error - device disabled	The composition device error of Parallel port		
0B00 Rebooted during BIOS boot at Post Code	The system re-started during BIOS boot		
0B01 Rebooted during OS boot.	The system re-started during OS boot		

On-screen error message	Description	Cause	Action
0B02 Rebooted during OS Runtime.	The system re-started during OS Running		
0B1B PCI System Error on Bus/Device/Function	A PCI system error occurred on the bus, device, or function.		
0B1C PCI Parity Error on Bus/Device/Function	A PCI parity error occurred on the bus, device, or function.		
0B22 Processors are installed out of order.	Failure of a processor	Processor errors	1. Replace CPU 2. Replace Motherboard
0B28 Unsupported Processor detected on Processor 1	Unsupported processor mounted as processor 1.		
0B29 Unsupported Processor detect on Processor 2	Unsupported processor mounted as processor 2.		
0B30 Fan 1 Alarm occurred.	Fan errors	1. Fan is blocked 2. Fan failed 3. Motherboard failed	1. Check fan connection 2. Clean fan 3. Replace fan 4. Replace Motherboard
0B31 Fan 2 Alarm occurred.			
0B32 Fan 3 Alarm occurred.			
0B33 Fan 4 Alarm occurred.			
0B34 Fan 5 Alarm occurred.			
0B35 Fan 6 Alarm occurred.			
0B50 CPU #1 with error taken off line	CPU #1 was degraded due to an error detected for CPU #1.	1. CPU# 1 failed 2. Motherboard failed	1. Replace CPU #1 2. Replace Motherboard
0B51 CPU #2 with error taken off line	CPU #2 was degraded due to an error detected for CPU #1.	1. CPU# 2 failed 2. Motherboard failed	1. Replace CPU #2 2. Replace Motherboard
0B5F Forced to use Processor with error	A CPU error was detected.		1. Replace CPU 2. Replace Motherboard
0B60 DIMM group #1 has been disabled	A memory error was detected. Memory #1 is degraded.		1. Replace Memory #1 2. Replace Motherboard
0B61 DIMM group #2 has been disabled	A memory error was detected. Memory #2 is degraded.		1. Replace Memory #2 2. Replace Motherboard
0B62 DIMM group #3 has been disabled	A memory error was detected. Memory #3 is degraded.		1. Replace Memory #3 2. Replace Motherboard
0B70 The error occurred during temperature sensor reading.	An error was detected in the course of thermal error detection.	1. SMBus Device failed 2. SMBus Cable failed	1. Turn off AC 2. Check cable 3. Replace Motherboard
0B71 System Temperature out of the range.	A thermal error was detected.		1. Clean fan 2. Replace fan 3. Replace boards
0B74 The error occurred during voltage sensor reading.	An error occurred while detecting the voltage.	Motherboard failed	1. Turn off AC 2. Check connection of internal cables

#### 4-4 Troubleshooting

On-screen error message	Description	Cause	Action	
0B75 System Voltage out of the range.	A system voltage error was detected.	1. SMBus Device failed 2. SMBus Cable failed	internal cables 3. Replace internal cables 4. Replace boards	
0B78 The error occurred during fan sensor reading.	An error was detected during fan sensor reading.	1. SMBus Device failed 2. SMBus Cable failed	1. Turn off AC 2. Check cable 3. Replace Motherboard	
0B7C The error occurred during redundant power module confirmation.	The error was detected while having constituted the redundant power supply.			
0B7D The normal operation can't be guaranteed with use of only one PSU.	Basic power supply composition required for this equipment is not filled.	Power supply error	Replace a power supply	
0B80 BMC Memory Test Failed.	A BMC device (chip) failure	BMC failed	1. Turn off AC and re-start 2. Replace Motherboard	
0B81 BMC Firmware Code Area CRC check failed.				
0B82 BMC core hardware failure.				
0B83 BMC IBF or OBF check failed.				Access to the BMC address failed.
0B8A BMC SEL area full.				An opening is not in the capacity of SEL.
0B8B BMC progress check timeout.				BMC check was interrupted temporarily.
0B8C BMC command access failed.				BMC command access failed.
0B8D Could not redirect the console - BMC Busy -	Console redirection cannot be carried out (BMC Busy)			
0B8E Could not redirect the console - BMC Error -	Console redirection cannot be carried out (BMC error)			
0B8F Could not redirect the console - BMC Parameter Error -	Console redirection cannot be carried out (BMC Parameter error)			
0B90 BMC Platform Information Area corrupted.	A BMC device (chip) failure	BMC failed	1. Turn off AC and re-start 2. Replace Motherboard	
0B91 BMC update firmware corrupted.				
0B92 Internal Use Area of BMC FRU corrupted	An error of the SROM that stores the chassis information	1. SROM failed 2. BMC failed		
0B93 BMC SDR Repository empty.	A BMC device (chip) failure	BMC failed		

On-screen error message	Description	Cause	Action
0B94 IPMB signal lines do not respond.	An SMC (Sattelite Management Controller) error		
0B95 BMC FRU device failure.	An error of the SROM that stores the chassis information		
0B96 BMC SDR Repository failure.	The access error to FMEM sector in which SDR information was stored		
0B97 BMC SEL device failure.	A BMC device (chip) failure		
0B98 BMC RAM test error.	BMC RAM error	BMC failed	1. Turn off AC and re-start 2. Replace Motherboard
0B99 BMC Fatal hardware error.	BMC error		
0B9A Management controller not responding	BMC error		
0B9B Private I2C bus not responding.	It-less answers from private I2 C bus		
0B9C BMC internal exception	BMC error		
0B9D BMC A/D timeout error.	BMC error		
0B9E SDR repository corrupt.	The error of BMC or the data of SEL is destroyed.		
0B9F SEL corrupt.	The error of BMC or the data of SEL is destroyed.		
0BB0 SMBIOS - SROM data read error.	Incorrect SROM data read		
0BB1 SMBIOS - SROM data checksum bad.	Incorrect SROM data checksum		
0BC0 POST detected startup failure of 1st Processor.	Processor 1 error		Turn off AC and replace CPU#1
0BC1 POST detected startup failure of 2nd Processor.	Processor 2 error		Turn off AC and replace CPU#2
0BD0 1st SMBus device address not acknowledged.	A device-less answers to 1st SMBus access.	SMBus Access error	1. Turn off AC and re-start 2. Replace boards 3. Replace internal cables
0BD1 1st SMBus device Error detected.	The error was detected to 1st SMBus access		
0BD2 1st SMBus timeout.	The timeout occurred to 1st SMBus access.		

## 4-6 Troubleshooting

On-screen error message	Description	Cause	Action
0BD3 2 <sup>nd</sup> SMBus device address not acknowledged.	A device-less answers to 2 <sup>nd</sup> SMBus access.		
0BD4 2 <sup>nd</sup> SMBus device Error detected.	The error was detected to 2 <sup>nd</sup> SMBus access		
0BD5 2 <sup>nd</sup> SMBus timeout.	The timeout occurred to 2 <sup>nd</sup> SMBus access.		
0BD6 3 <sup>rd</sup> SMBus device address not acknowledged.	A device-less answers to 3 <sup>rd</sup> SMBus access.		
0BD7 3 <sup>rd</sup> SMBus device Error detected.	The error was detected to 3 <sup>rd</sup> SMBus access		
0BD8 3 <sup>rd</sup> SMBus timeout.	The timeout occurred to 3 <sup>rd</sup> SMBus access.		
0BD9 4 <sup>th</sup> SMBus device address not acknowledged.	A device-less answers to 4 <sup>th</sup> SMBus access.		
0BDA 4 <sup>th</sup> SMBus device Error detected.	The error was detected to 4 <sup>th</sup> SMBus access		
0BDB 4 <sup>th</sup> SMBus timeout.	The timeout occurred to 4 <sup>th</sup> SMBus access.		
0BDC 5 <sup>th</sup> SMBus device address not acknowledged.	A device-less answers to 5 <sup>th</sup> SMBus access.		
0BDD 5 <sup>th</sup> SMBus device Error detected.	The error was detected to 5 <sup>th</sup> SMBus access		
0BDE 5 <sup>th</sup> SMBus timeout.	The timeout occurred to 5 <sup>th</sup> SMBus access.		
0BE8 IPMB device address not acknowledged.	A device-less answers to IPMB access		
0BE9 IPMB device Error detected.	The error was detected to IPMB access		
0BEA IPMB timeout.	The timeout occurred to IPMB access.		
8100 Memory Error detected in DIMM group #1	A memory error was detected.	DIMM error	Replace two DIMMs.
8101 Memory Error detected in DIMM group #2			
8102 Memory Error detected in DIMM group #3			
8120 Unsupported DIMM detected in DIMM group #1	Unsupported DIMM was detected.		
8121 Unsupported DIMM detected in DIMM group #2			

On-screen error message	Description	Cause	Action
8122 Unsupported DIMM detected in DIMM group #3			
8130 Mismatch DIMM Type detected in DIMM group #1.	The type of DIMM is not in agreement.		1. Check that DIMMs of the same type are installed in groups. 2. Replace DIMMs.
8131 Mismatch DIMM Type detected in DIMM group #2.			
8132 Mismatch DIMM Type detected in DIMM group #3.			
8140 DIMM group #1 with error is enabled.	Failed DIMM in group #1 was detected.		Replace both DIMMs.
8141 DIMM group #2 with error is enabled.	Failed DIMM in group #2 was detected.		
8142 DIMM group #3 with error is enabled.	Failed DIMM in group #3 was detected.		
8150 NVRAM Cleared By Jumper	NVRAM was cleared by jumper setup.	Incorrect jumper setting	Turn off power and change the jumper setting back to its default position.
8160 Mismatch Processor Speed detected on Processor 1	The frequency of processor 1 is not correct.	Processor errors	
8161 Mismatch Processor Speed detected on Processor 2	The frequency of processor 2 is not correct.		

**Error Beep Codes**

Beep	Error	Cause	Troubleshooting
1-2-2-3	ROM checksum error	FMEM checksum error	Replace MotherBoard
1-3-1-1	DRAM refresh test error	Memory refresh error	Replace DIMM
1-3-1-3	Keyboard controller error	Keyboard controller error	Replace MotherBoard
1-3-3-1	DIMM can not be detected	Memory not installed or cannot write.	Check DIMM Mounting or Replace DIMM
1-3-3-1	Memory check error	↑	↑
1-3-4-3	DRAM test low byte error	Memory address signal fault (low side)	Replace MotherBoard or DIMM
2-2-3-1	Unjust exception test error	Unjust exception	Replace MotherBoard or CPU
1-2	Video configuration fails	Expansion VGA BIOS memory Deployment failure	Replace MotherBoard or Graphic board
1-2	OPTION ROM Checksum failure	Expansion ROM BIOS memory Deployment failure	Replace MotherBoard or Option board

## POST Codes

The code displayed using the postcard is shown below.

CP	Reason
01	Initialize BMC
02	Verify Real Mode
03	Test BMC
04	Get Processor type
06	Initialize system hardware
08	Initialize chipset registers with initial POST values
09	Set in POST flag
0A	Initialize Processor registers
0B	Enable Processor cache
0C	Initialize caches to initial POST values
0E	Initialize I/O
0F	Initialize the local bus IDE
10	Initialize Power Management
11	Load alternate registers with initial POST values
12	Restore Processor control word during warm boot
13	Initialize PCI Bus mastering devices
14	Initialize keyboard controller
16	BIOS ROM checksum
17	Initialize external cache before memory autosize
18	8254 timer initialization
1A	8237 DMA controller initialization
1C	Reset Programmable Interrupt Controller
20	Test DRAM refresh
22	Test 8742 Keyboard Controller
24	Set ES segment register to 4GB
28	Autosize DRAM, system BIOS stops execution here if the BIOS does not detect any usable memory DIMMs
29	Initializes the POST Memory Manager
2A	Clear 8 MB base RAM
2C	Base RAM failure, BIOS stops execution here if entire memory is bad
2E	Test the first 4MB of RAM
2F	Initialize external cache before shadowing
32	Test Processor bus-clock frequency
33	Initializes the Phoenix Dispatch Manager
34	Test CMOS
35	RAM Initialize alternate chipset registers
36	Warm start shut down
37	Reinitialize the chipset
38	Shadow system BIOS ROM
39	Reinitialize the cache
3A	Autosize cache
3C	Configure advanced chipset registers
3D	Load alternate registers with CMOS values
41	Check unsupported processor
40	Set Initial Processor speed new
42	Initialize interrupt vectors

CP	Reason
44	Initialize BIOS interrupts
45	POST device initialization
46	Check ROM copyright notice
47	Initialize manager for PCI Option ROMs
48	Check video configuration against CMOS
49	Initialize PCI bus and devices
4A	Initialize all video adapters in system
4B	Display QuietBoot screen
4C	Shadow video BIOS ROM
4E	Display copyright notice
4F	Allocate memory for the multiboot data
50	Display Processor type and speed
52	Test keyboard
54	Set key click if enabled
55	USB initialization
56	Enable keyboard
58	Test for unexpected interrupts
59	Initialize the POST display service
5A	Display prompt "Press F2 to enter SETUP"
5B	Disable L1 cache during POST
5C	Test RAM between 512 and 640k
60	Test extended memory
62	Test extended memory address lines
64	Jump to UserPatch1
66	Configure advanced cache registers
67	Quick init of all AP's early in post
68	Enable external and processor caches
69	Initialize the SMM handler
6A	Display external cache size
6B	Load custom defaults if required
6C	Display shadow message
6E	Display non-disposable segments
70	Display error messages
72	Check for configuration errors
74	Test real-time clock
76	Check for keyboard errors
7A	Test for key lock on
7C	Set up hardware interrupt vectors
7D	Intelligent system monitoring
7E	Test coprocessor if present
81	POST device initialization routine
82	Detect and install external RS232 ports
83	Configure non-MCD IDE controllers
84	Initialize parallel ports
85	Initialize PC-compatible PnP ISA devices
86	Re-initialize on board I/O ports
87	Configure Mother Board Configurable Devices
88	Initialize BIOS Data Area
89	Enable Non-Maskable Interrupts

CP	Reason
8A	Initialize Extended BIOS Data Area
8B	Test and initialize PS/2 mouse
8C	Initialize floppy controller
90	Initialize hard disk controller
91	Initialize local bus hard disk controller
92	Jump to UserPatch2
93	Build MPTABLE for multi-processor boards
94	Disable A20 address line
95	Install CD-ROM for boot
96	Clear huge ES segment register
97	Fixup Multi Processor table
98	Search for option ROMs. One long, two short beeps on checksum failure
99	Check for SMART Drive
9A	Shadow option ROMs
9C	Set up Power Management
9D	Initialize security engine
9E	Enable hardware interrupts
A0	Set time of day
A2	Check key lock
A4	Initialize typematic rate
A8	Erase F2 prompt
A9	Prepare boot
AA	Scan for F2 key stroke
AC	Print bottom message
AE	Clear the POST flag
B0	Check POST Error
B2	POST End
B4	Beep once
B5	End the Quiet Boot
B6	Check Password
B7	Configuration ACPI
B9	Prepare boot
BA	DMI Configuration
BC	Clear parity checkers
BD	Display Boot Menu
BE	Clear Screen
C0	INT19
C1	Initialize the POST Error Manager
C2	Invoke End of POST Error Logging
C3	Invoke End of POST Error Message Display
C6	Initialize Console Redirection
C7	Control Console Port
CD	Initialize Console Redirection
D1	Initialize BIOS stack
D3	Find an A20-agnostic place in memory



# Chapter 5

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## Preventive Maintenance

### PERIODIC MAINTENANCE

The following items are to be periodically maintained every 6 months.

No.	Check Item	Frequency			Remarks
		Site	Regular	Daily	
1	Cleaning of FDD head		<input type="radio"/>		
2	Check fan operation	<input type="radio"/>	<input type="radio"/>		Clean it at the same time.
3	Check T&D operation	<input type="radio"/>	<input type="radio"/>		
4	Check date and time of internal clock		<input type="radio"/>	<input type="radio"/>	
5	Check UPS battery	<input type="radio"/>	<input type="radio"/>		
6	Cleaning of CD-ROM head	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Clean options such as DAT.
7	Check switches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Check smoothness.

\* If any option is added, follow the instructions for that option.

### MAINTENANCE BY USER

Request the user for maintenance of the following items.

No.	Item	Frequency	Remarks
1	Confirm date and time of the internal clock	At restart of the system after holidays.	
2	Check test programs	At site adjustment At error occurrence At regular check	
3	Execution of test program at failure, and collection of error data	At error occurrence	
4	Cleaning of head and running section of CD-ROM and DAT	Once a day	According to the instruction manual



## Chapter 6

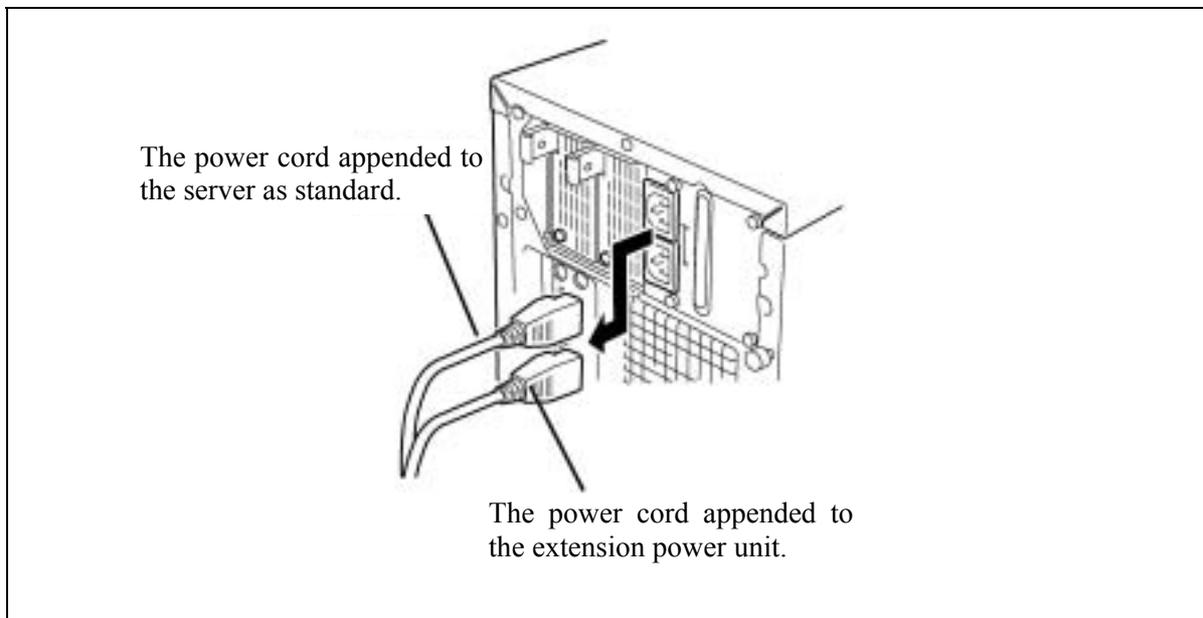
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# Installing Internal Optional Devices

### PREPARING FOR INSTALLATION AND REMOVAL

Follow the procedure below to prepare for installing or removing components.

- a. Shut down the OS.
- b. Press the POWER switch to power off the NEC Express server (the POWER lamp goes off).
- c. Unplug the power cord of the NEC Express server from a power outlet.



- d. Remove all cables from the rear of the NEC Express server.
- e. A clearance of one to two meters must be provided around and over the NEC Express server.

## POWER SUPPLY CAGE

### Removing the Power supply unit (CAGE)

- a. See the section “Preparing for Installation and Removal” described earlier to prepare.
- b. Remove the left side cover
- c. Remove all power cables from the motherboard, 5.25-inch devices, floppy drive and SCSI-BP.

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**NOTE:** Make sure not to hitch the cable when pulling out the Power supply unit.

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- d. Remove the two screws on the rear side.



- e. Remove the two screws on the front side.



- f. Pull out the Power cage gently away from the server chassis.

# Be careful not to force the cage out of the server or not to hook a cable.

### **Installing the Power supply unit (CAGE)**

Follow the removal procedure in reverse order to install the Power supply unit.

## FAN UNIT

### Removing the FAN unit

#### <HDD FAN UNIT>

- a. See the section “Preparing for Installation and Removal” described earlier to prepare.
- b. Remove the left side cover.
- c. Remove the FAN cover (foaming material: gray color).
- d. Remove the FAN DC cable from the Motherboard, and pull out the FAN unit.

#### <REAR FAN UNIT>

- a. See the section “Preparing for Installation and Removal” described earlier to prepare.
- b. Remove the left side cover.
- c. Remove the FAN DC cable from the Motherboard.
- d. Remove the lock of the rear fan unit. Pull out the FAN unit.



### Installing the FAN unit

Follow the removal procedure in reverse order to install the FAN unit.

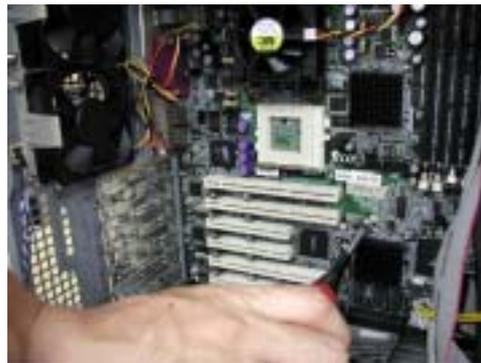
## MOTHERBOARD

### Removing the Motherboard

*\* After replacing the motherboard, you need to re-set the NvRAM information and SDR FW on the new motherboard.*

Make backup copies of the current NvRAM information before replacing the motherboard, and restore the information onto the new motherboard after the replacement. For details, see "Management of Setup Information."  
If the system is unable to make backup copies, set the NvRAM information.

- a. See the section "Preparing for Installation and Removal" described earlier to prepare.
- b. Remove the left side cover
- c. Take out the DIMM boards, PCI boards and cables.
- d. Remove the screws securing the Motherboard.



- e. Take out the Motherboard carefully to avoid any damage.

### Installing the New Motherboard

Follow the removal procedure in the reverse order to mount the new motherboard. Note the following points in mounting it:

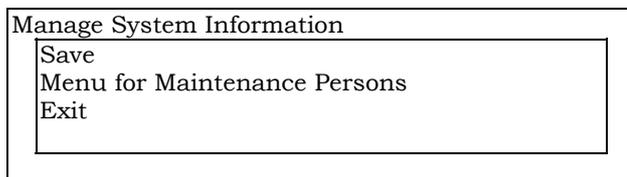
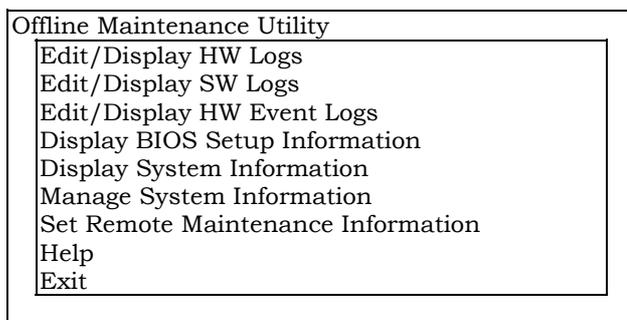
- 1) Confirm that all the cables are connected correctly, no wire is caught, and all the connectors are connected correctly.
- 2) Do not bend the springs and gaskets for EMI prevention measures.
- 3) After mounting the new motherboard, connect the cables firmly by using clamps.
- 4) For mounting of the heat sink, see Section 5.
- 5) Mount the provided heat-conduction sheet between the CPU and the heat sink. Be careful not to bend the heat-conduction sheet when mounting it.

## Making Backup Copies of NVRAM Information

- a. Set the NEC EXPRESSBUILDER CD-ROM in the CD-ROM drive, and activate the NEC EXPRESSBUILDER.
- b. When the NEC EXPRESSBUILDER becomes active, activate the Offline Maintenance utility by selecting "Tool" from the menu → "Offline Maintenance Utility" → "Manage System Information".
- c. When the Offline Maintenance utility becomes active, select "Save" from the menu.

After that, a message is displayed "asking if you want to format the floppy disk." Respond to the message to format the floppy disk if necessary. The data backup confirmation screen appears after the format confirmation screen. Press the "Enter" key to perform backup processing.

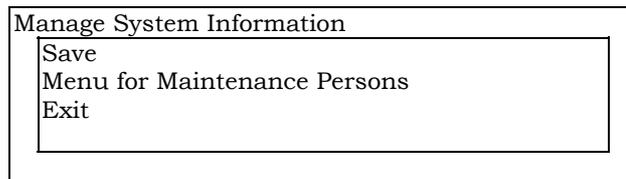
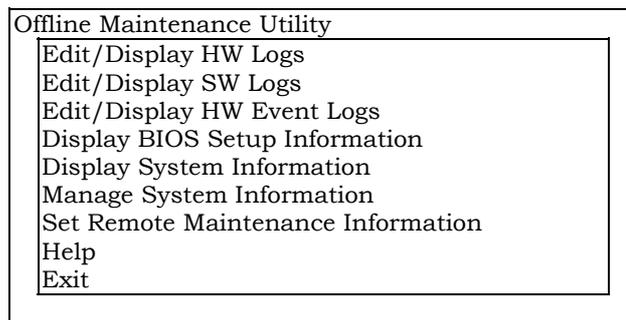
(Screen image)



## Restoring NVRAM Information

- a. Set the NEC EXPRESSBUILDER CD-ROM in the CD-ROM drive, and activate the NEC EXPRESSBUILDER.
- b. When the NEC EXPRESSBUILDER becomes active, activate the Offline Maintenance utility by selecting "Tool" from the menu → "Offline Maintenance Utility" → " Manage System Information."
- c. When the Offline Maintenance utility becomes active, select "Menu for Maintenance Persons" from the menu.

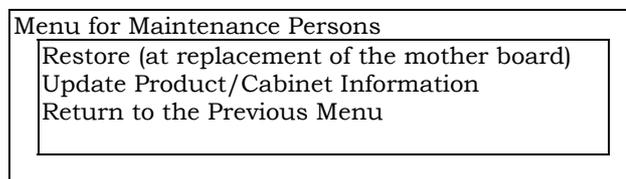
(Screen image)



- d. Do not care about a notice displayed, and press the Enter key. The system asks you to enter the password. Enter the password as shown below.

Password >CENVRAM

- e. Select restoration of the old board information when the following screen appears after you enter the password:



- f. When the "Restore (at replacement of the mother board)" screen appears, insert the floppy disk containing the backup copies of the NVRAM information into the floppy disk drive, and press the Enter key.

(The following is an image screen, which may be different from the actual one.)

Restore (at replacement of the mother board)						
Data Name	Device	Address	Size	File Name	Setup	
BIOS Information 1	-----	-----	-----	-----	<input type="radio"/>	
BIOS Information 2	-----	-----	-----	-----	<input type="radio"/>	
Maintenance Utility Information	-----	-----	-----	-----	<input type="radio"/>	
BMC Information 1	-----	-----	-----	-----	<input type="radio"/>	
BMC Information 2	-----	-----	-----	-----	<input type="radio"/>	
BMC Information 3	-----	-----	-----	-----	<input type="radio"/>	
ROM Pilot Information 1	-----	-----	-----	-----	<input type="radio"/>	
ROM Pilot Information 2	-----	-----	-----	-----	<input type="radio"/>	
Product Information	-----	-----	-----	-----	<input type="radio"/>	
Cabinet Information	-----	-----	-----	-----	<input type="radio"/>	
Internal useara	-----	-----	-----	-----	<input type="radio"/>	
Start restoration (Data with a circle shown in the column "Setup" is restored.)						
Exit: [ESC]						

- g. Press the Enter key when the following confirmation screen appears.  
After that, the NVRAM information is loaded from the floppy disk.

Restore (at replacement of the mother board)	
The restore processing is in progress. Wait until the processing is completed.	
Execute: [Enter]    Cancel: [ESC]	

- h. The screen displays restoration results as shown below.

(The following is an image screen, which may be different from the actual one.)

Restore (at replacement of the mother board):    Execution results = normal						
Data Name	Device	Address	Size	File Name	Setup	Result
BIOS Information 1	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
BIOS Information 2	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
Maintenance Utility Information	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
BMC Information 1	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
BMC Information 2	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
BMC Information 3	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
ROM Pilot Information 1	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
ROM Pilot Information 2	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
Product Information	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
Cabinet Information	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
Internal useara	-----	-----	-----	-----	<input type="radio"/>	<input type="radio"/>
Exit: [ESC]						

- i. Terminate the Offline Maintenance utility when the NVRAM information has been loaded from the floppy disk.



Update Product/Cabinet Information	
Data Name	Set Value
Manufacturer (Manufacturer Name)	NEC
Model Name (Product Name)	NEC Express5800/1**** (*: Model name)
N Code (Product Part)	[N8100-***]
FR Number (Product Version)	FR*.*
Serial Number (Product Serial)	
Cabinet Information	0000***
Set Default Values	
Update	

- g.** The device type list is displayed. Select the target device type.  
(If the target device type is not in the list, select an arbitrary device type.)
- h.** The screen in step 6 is displayed again. Correct the values according to the selected device.

The following must be changed:

- FR Number
- Serial Number

Cabinet information:

Model	Cabinet type	Cabinet model number	Cabinet ID	Cabinet attribute
120Me	07	856-060230-001-00	05	06

- i.** Return to the screen in step 6, move the cursor to "Update," and press the Enter key. When the confirmation screen shown below appears, press the Enter key again.

Update Product/Cabinet Information	
Do you want to update the product/cabinet information?	
Execute: [Enter] Cancel: [ESC]	

When the update processing terminates normally, terminate the NEC EXPRESSBUILDER according to the instructions displayed on the screen, and confirm that the device starts up normally.

- j.** When the NEC Logo screen appears during device startup, press the "F2" key to activate the BIOS SETUP menu, and set the previously set information again.

## Updating SDR FW

Refer to the update procedure document of the Motherboard maintenance parts.

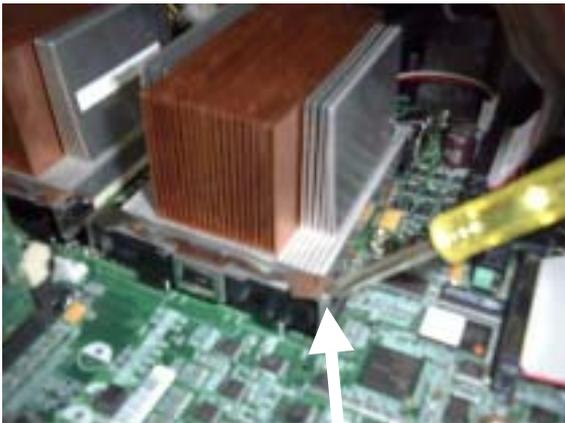
## Mounting a Heat Sink on the CPU

Refer to the Express Server User's guide.

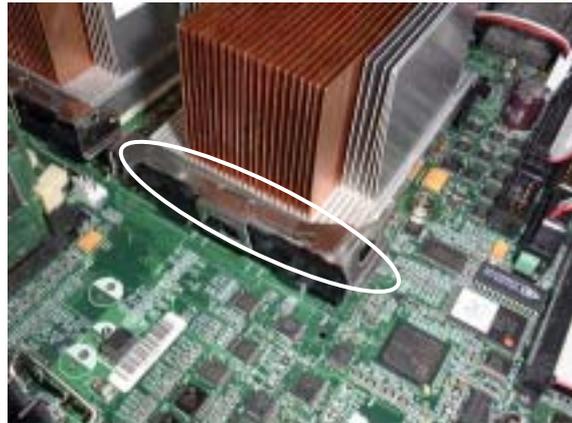
## Removing the Motherboard

- a. Turn off the power, and then pull the AC cable out.
- b. Remove a side cover.
- c. Extract heat sinks, CPUs, memory boards, PCI boards, etc.

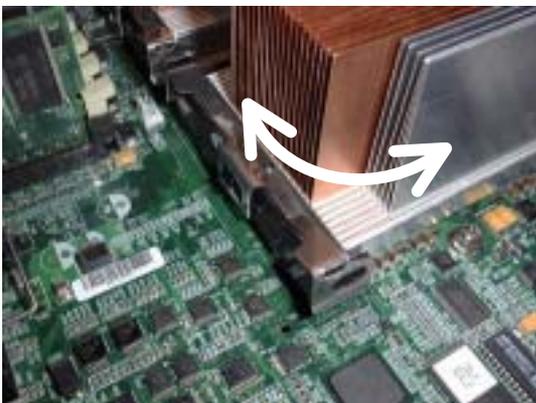
The following procedure explains how to remove a heat sink. (Please DO NOT pull up straight to draw out a heat sink. If it is removed that way, CPU may be taken out with heat sink.)



1. When removing retention, use a minus driver or the tool only for removal of a clip, hook on a hole and remove.



2. Remove the retention.



3. Please turn the heat sink to the right and left lightly to remove it. Please DO NOT pull up straight.

To remove a CPU, follow the procedure for installing a heat sink in reverse order.

- d. Remove the screws fixing the Motherboard.

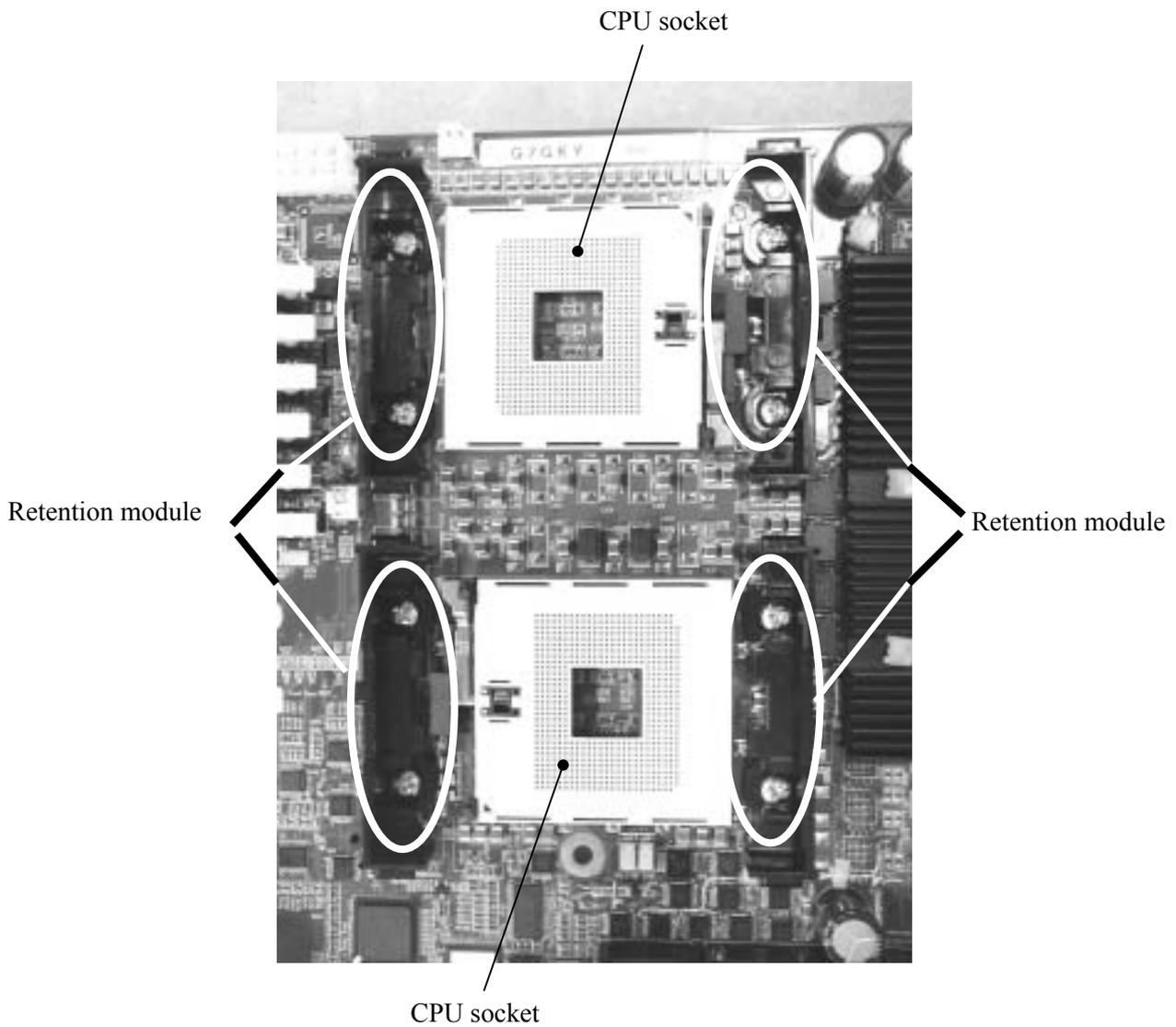


Remove R / M fixed screws as well.

- e. Take out the Motherboard carefully so as to avoid damaging it.

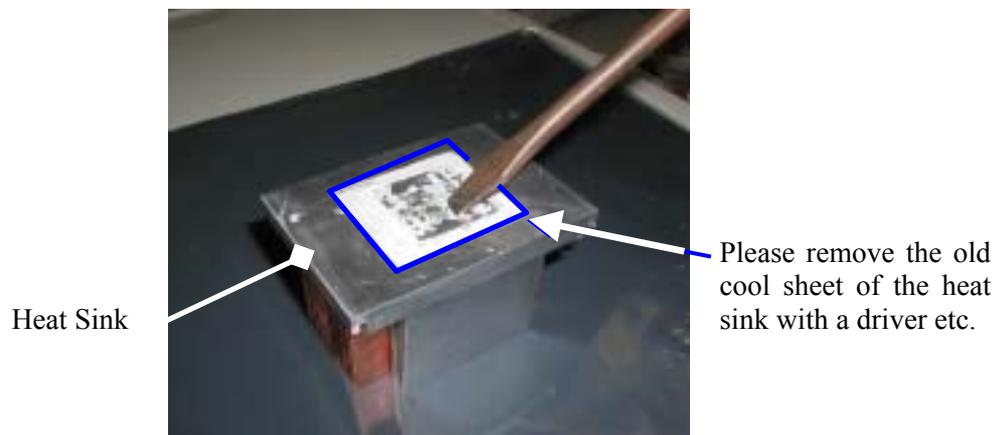
**Be sure to respect the specified order when removing components**

When you remove a motherboard, first remove CPUs and heat sinks (a total of eight screws) before removing retention modules. Refer to the following page.



**<Caution>**

When attaching a Heat sink to the newly installed motherboard, please use the new cool sheet appended to mother board set. Moreover, please remove the old cool sheet of the heat sink with a driver etc.



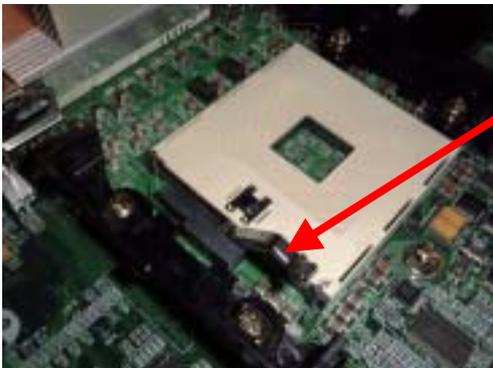
## How to Attach the Motherboard

To attach the motherboard, follow the removal procedure in the reverse order. Be careful of the following points.

- a. Check cables, confirm that wires are not pressed, install all connectors, etc.
- b. Do not bend the spring for EMI and a gasket.
- c. Use clamps to connect cables after Motherboard is installed.
- d. Follow the instructions below to attach a Heat Sink  
The Retention module can be removed by using a minus driver or the removing clip tool.



Socket with dust cover (sponge) removed



Lever

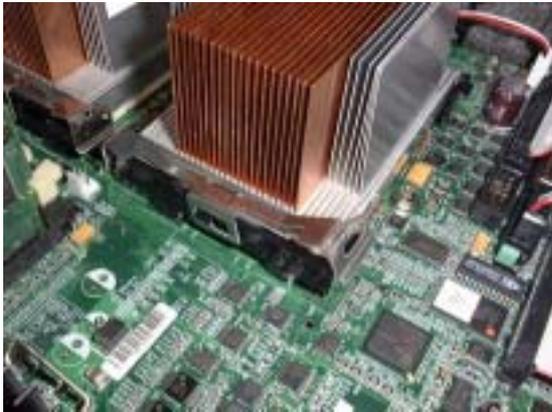
1. Pull up the lever.



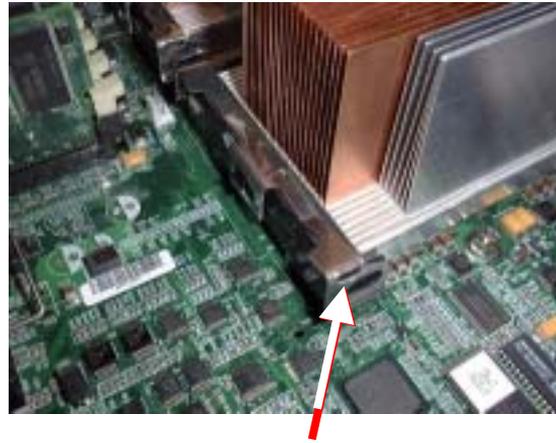
2. Install a processor.



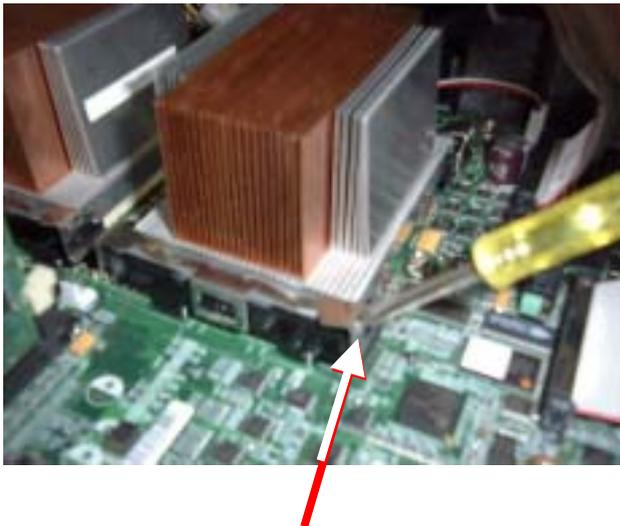
3. Push the lever back down and fix a processor.



4. Position the heat sink on the processor and hook it on one side of the retention module.



5. Fix the other side of retention module.

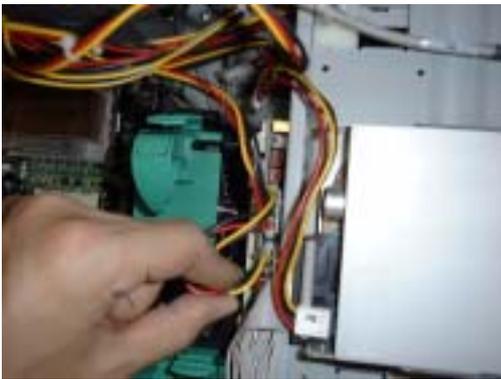


\* Caution  
When removing the retention, hook the hole (designated by the arrow on the picture left) using a thin minus driver or a tool.

## SCSI BACK PANEL (SCSI-B.P) & SAF-TE BOARD

### Removing the SCSI-B.P.

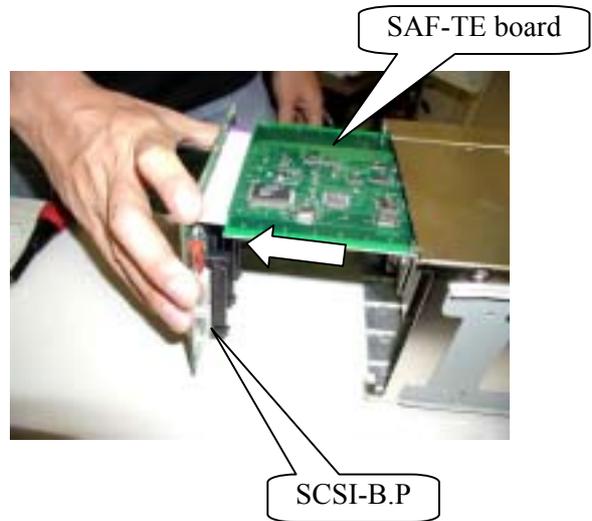
- a. See the section "Preparing for Installation and Removal" described earlier to prepare.
- b. Pull out all hard disks.
- c. Remove the left side cover.
- d. Remove the cable for SCSI-B.P.



- e. Remove five screws and pull out the disk cage gently away from the server chassis.



- f. Remove four screws, and remove the SCSI-B.P. (with SAF-TE board) gently away from the disk cage.



### Installing the SCSI Back Panel

Follow the removal procedure in reverse order to install the SCSI Back Panel.

## CD-ROM DRIVE

### Removing the CD-ROM Drive

- a. See the section "Preparing for Installation and Removal" described earlier to prepare.
- b. Remove the left side cover.
- c. Remove all cables connected to the CD-ROM drive.
- d. Remove four screws in front of the case, and pull out the CD-ROM bracket gently away from the server.
- e. Remove all screws on the side of the CD-ROM drive.



## FLOPPY DISK DRIVE

### Removing the FDD

- a. See the section "Preparing for Installation and Removal" described earlier to prepare.
- b. Remove the left side cover.
- c. Remove all cables connected to the FDD.
- d. Remove two screws in front of the case, and pull out the CD-ROM bracket gently away from the server.
- e. Remove all screws from the FDD bracket.



## FRONT BEZEL

### Removing the Front Bezel

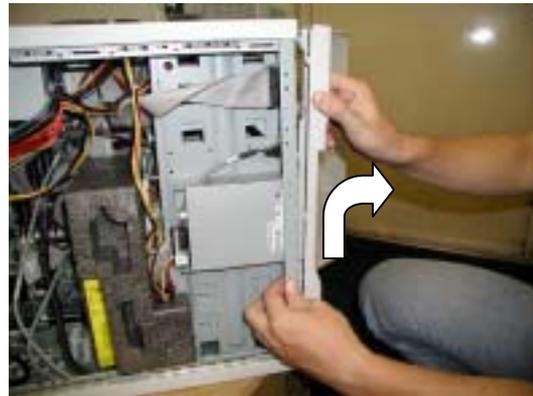
- a. Open the front bezel.
- b. Use pliers to draw out the pins in the upper and lower corners on the right side of the server.



## FRONT SUB BEZEL

### Removing the Front Sub Bezel

- a. See the section "Preparing for Installation and Removal" described earlier to prepare.
- b. Remove the left side cover.
- c. Remove the lock of the front sub bezel.
- d. After shifting the front sub bezel up, pull it toward you and remove it.



Lock

## FRONT PANEL BOARD

### Removing the Front Panel Board

- a. See the section "Preparing for Installation and Removal" described earlier to prepare.
- b. Remove the left side cover.
- c. Remove all cables on the front panel board.
- d. Remove the four screws on the front panel board.



## **OTHER OPTION PARTS**

Refer to the User's Guide shipped with the option part or Basic Processing Unit.

## **RACK MOUNT CONVERSION**

Express5800/120Mf can be converted to a rack mount system.  
Refer to the User's Guide shipped with the server.



# Chapter 7

## Maintenance Parts

### MAINTENANCE PARTS LIST

Maintenance parts are shown below.

NEC PART NUMBER	DESCRIPTION	COMMENTS
6882580000	MBD ARIMA HODGES 120MF	
6864890000	MASTER KEY FOR 120LF & 120ME	
6865160100	120LF HS LVD SCSI CABLE	
6865170000	120LF/120ME I2C CABLE	
6842180100	120ME COM2 CABLE	
6842170000	120LF INT SCSI CBL FOR DAT/DLT	
6842200000	120LF FLOPPY CABLE	
6865190000	120LF/120ME IDE CABLE	
6842350100	INTRUS. SWITCH W/ BRKT & CBL	
6847230100	HUDSON II-III RM KIT ENLIGHT	
6862560000	120LF FRONT PANEL W/ CBL	
6842270100	120LF FRONT PANEL BOARD RWK	
6842260000	120LF IFRONT PANEL USB CABLE	
6842300000	120LF FRONT PANEL CABLE	
6865300000	120ME LEFT COVER ASSY	
6865350000	120ME HOTSWAPP FAN ASSY	
6865320000	120ME REAR FAN ASSY	QTY = 2
6865330000	FRONT CPU & HDD CAGE1 FAN	QTY = 1
6865340000	FRONT PCI & HDD CAGE2 FAN	QTY = 2
6865360000	CPU PCI DUCT & FAN HOLDER ASSY	
6865370000	700W POWER SUPPLY CAGE	
6869560000	FAN CBL ASSY 120ME	
313-01517-000	REDUNDANT PSU 350W KIT	
6842330000	120LF FRONT BEZEL	
6842320000	120LF FRONT DOOR	
6842340000	120LF TOWER FOOT	
6786020200	FDD D353M3D R69-4010 W/FR BEZ	
856-850222-001A	CDROM DRIVE MITSUMI FX-4840W	
245-01508-000	ADDIT. FIVE DISK HS HDD CAGE	
245-01509-000	INTEL ALLIANCE HDD HS CARRIER	
320-015010000	HD SCSI ACTIVITY LED CBL 460MM	
6884920000	XEON 2.0 GHZ/533/512 C1 SL6RQ	
6884930000	XEON 2.8GHZ/533/512 C1 SL6GG	
6884940000	XEON 2.4GHZ/533MHZ512 C1 SL6MY	
6889470000	XEON 2.66GHZ/533/512 SL6GF	
6887430000	HEATSINK CLIP P533	QTY = 2 / heatsink
6867350000	CPU RETENTION MODULE FOXCONN	QTY = 2 / heatsink
309-01530-000	FOSTER/PRESTONIA HEATSINK	
6863170000	MEM 128MB M383L1713DTS-CBO	

7-2 Maintenance Parts

6874140000	MEM 256MB M383L3223DTS-CB0	
6874130000	MEM 1GB DDR SDRAM 266MHZ	
6874120000	MEM 512MB M383L6420DTS-CB0	
6893340000	HDD 18G ST336607LC FW0003	
6893330000	HDD 36G ST336607LC FW0003	
6893350000	HDD 73G ST373307LC FW0003	
6893390000	HDD 18G ST318453LC FW0002	
6893400000	HDD 36G ST336753LC FW0002	
6894000000	RAID LSI 520 1-CH 320-1 1L19	
6891640000	BBU FOR LSI RAID CARD 320-1	
6893990000	RAID LSI 518 2-CH 320-2 1L19	
6891630000	BBU FOR LSI RAID CARD 320-2	
6865270000	MEM 128MB M374S1723DTS-C7A	
6829240100	ADAPTEC AHA29160 64BIT NEW LAT	
1301630000	ADAPTEC AHA-2944UW FOR SERVERS	
154-01504-000	INTEL 1000BASE-SX ADAPT BOARD	
6893180000	LAN PRO1000XT PWLA8490XT INTEL	
6893660000	EMULEX LP952L F2 2GBIT	
6892800000	DVDR SR8588 BNN MATSUSH FW7Z16	
6872100200	DAT DDS4 ELEPHANT EARS FW 02N9	
6856880300	AIT1 SDX 400C DUST FW 07N6	
6856890300	AIT2 SDX 500C DUST FW 01NM	
6890050000	AIT DRIVE SDX 700C/NE SONY	
6873450200	AIT 2 AUTO L. TSLA500C FWL1NB	
6867980000	TAPE AIT2-100 GB 230M	
6889490000	DLT VS80 TANDBERG TAPE DRIVE	

# Chapter 8

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## Notes

### **ABOUT THE USE OF SCREWS**

The screws to be used in the Basic Processing Unit are inch screws.

When installing option parts, make sure to use the relevant screws.

Furthermore, be careful because the screws to be used with the Basic Processing Unit are different from those for installing a hard disk, a floppy disk drive or a 5.25 inch device.

When a screw is already attached to the option part, always use the screw that comes with the device.

### **TRANSPORTING THE UNIT**

When transporting the Basic Processing Unit, use the package box of the exclusive use.

When using another box, use some buffering material to defend it against the impact.

At least three persons are required to carry the server (Max 44kg).





