SONY

PROFESSIONAL WORKFLOW STATION

PWS-100

OPTIONAL POWER SUPPLY
PWSK-101

OPTIONAL HARD DISK DRIVE
PWSK-102

HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

SERVICE MANUAL

1st Edition (Revised 4)

⚠ 警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

Model Name	Serial No.
PWS-100 (SY)	130001 and Higher

安全のために，周辺機器を接続する際は，過大電圧を持つ可能性があるコネクターを以下のポートに接続しないでください。
: LAN 1 コネクター
: LAN 2 コネクター
: REMOTE 1/2 コネクター
: REMOTE 3/4 コネクター
: REMOTE 5 コネクター
上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port(s).
: LAN 1 connector
: LAN 2 connector
: REMOTE 1/2 connector
: REMOTE 3/4 connector
: REMOTE 5 connector
Follow the instructions for the above port(s).

注意

指定以外の電池に交換すると，破裂する危険があります。
必ず指定の電池に交換してください。
使用済みの電池は，国または地域の法令に従って処理してください。

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
When you dispose of the battery, you must obey the law in the relative area or country.

ATTENTION

Il y a danger d’explosion s’il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d’un type équivalent recommandé par le constructeur.
Lorsque vous mettez la batterie au rebut, vous devez respecter la législation en vigueur dans le pays ou la région où vous vous trouvez.

VORSICHT

Explosionsgefahr bei Verwendung falscher Batterien.
Batterien nur durch den vom Hersteller empfohlenen oder einen gleichwertigen Typ ersetzen.
Wenn Sie die Batterie entsorgen, müssen Sie die Gesetze der jeweiligen Region und des jeweiligen Landes befolgen.

FÖRSIKTIGHET!

Fara för explosion vid felaktigt placerat batteri.
Byt endast mot samma eller likvärdig typ av batteri, enligt tillverkarens rekommendationer.
När du kasserar batteriet ska du följa rådande lagar för regionen eller landet.

PAS PÅ

Fare for eksplosion, hvis batteriet ikke udskiftes korrekt.
Udskift kun med et batteri af samme eller tilsvarende type, som er anbefalet af fabrikanten.
Når du bortskaffer batteriet, skal du følge lovgivningen i det pågældende område eller land.

HUOMIO

Räjähdysvaara, jos akku vaihdetaan virheellisesti.
Vaihda vain samanlaiseen tai vastaavantyyppiseen, valmistajan suosittelemaan akkuun.
Noudata akun hävittämisessä oman maasi tai alueesi lakeja.

FORSIKTIG

Eksplosjonsfare hvis feil type batteri settes i.
Bytt ut kun med samme type eller tilsvarende anbefalt av produsenten.
Kasser batteriet i henhold til gjeldende avfallsregler.

注意

如果更换的电池不正确，就会有爆炸的危险。
只更换同一类型或制造商推荐的电池型号。
处理电池时，必须遵守相关地区或国家的法律。

本機をラックに設置するとき
熱の適切な排気・発散を得るために，ラックと本機の間には，以下の空間を確保してください。
・左右両側面 4 cm 以上
・後面 10 cm 以上

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. **Install the equipment while taking the operating temperature of the equipment into consideration**
   For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6. **When performing the installation, keep the following space away from walls in order to obtain proper exhaust and radiation of heat.**
   Right, Left: 4 cm (1.6 inches) or more
   Rear: 10 cm (3.9 inches) or more

設置時には，通気やサービス性を考慮して設置スペースを確保してください。
・ファンの排気部 (リアパネル面，右側面後ろ側)，トッププパネル後ろ側) や通気孔 (フロントパネル面，左側面フロント側) をふさがない。
・通気のために，セット周辺に空間をあける。
・作業エリアを確保するため，セットの左側面および右側面は 4 cm 以上，セット後方は 40 cm 以上の空間をあける。
机上などの平面に設置する場合は，左側面および右側面は 4 cm 以上の空間をそれぞれ確保してください。ただし，セット上部はサービス性を考慮し 40 cm 以上の空間を確保することを推奨します。

When installing, the installation space must be secured in consideration of the ventilation and service operation.
・Do not block the fan exhaust areas (rear panel and rear part of the right side panel and rear part of the top panel) and vents (front panel, front part of the left side panel) with objects.
・Leave a space around the unit for ventilation.
・Secure working spaces (at least 4 centimeters from the left panel and right panel and at least 40 centimeters from the rear panel of the unit).
When the unit is installed on the desk or the like, leave at least 4 centimeters of space in the left and right sides. Leaving 40 centimeters or more of space above the unit is recommended for service operation.

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Manual Structure

Purpose of this manual

This manual is intended for the use of the system engineers and the service engineers, and provides the limited information for block service and the information related to maintenance of the unit, such as service overview, error messages, maintenance menu, periodic maintenance and inspection, and replacement of main parts.

Related manuals

The following manual is provided for this unit in addition to this “Service Manual”.

- Operation Guide (Supplied with this unit)
  The operation guide describes names and functions of each part of the unit, and specifications.
- Installation Manual (Supplied with this unit)
  This manual provides information required for delivery and installation of this unit.
- Installation Guide (Available on request)
  This manual describes how to install the OS and software required to use the unit which is shipped without pre-installed OS.
- PWS-100 Maintenance Web Application Operation Manual (Supplied with this unit)
  Maintenance Web Application is a software that is required for maintenance of this unit.

Trademarks

Trademarks and registered trademarks described in this manual are as follows.

- Windows is a registered trademark or a trademark of Microsoft Corporation in the United States and other countries.
- Google Chrome™ is a trademark of Google Inc.
- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

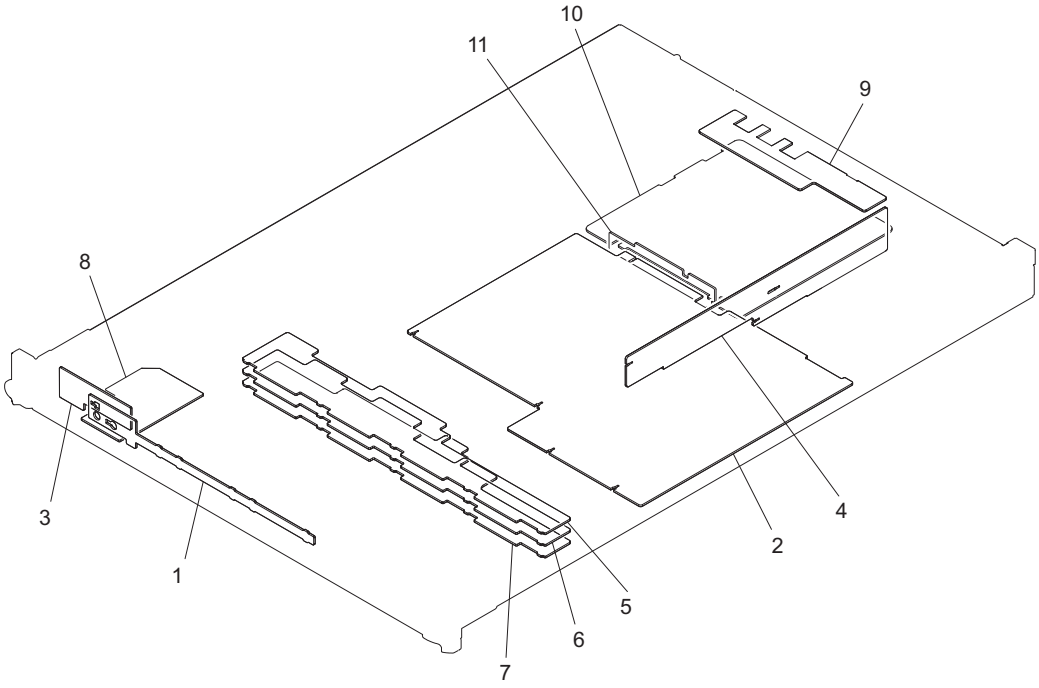
Other system names and product names written in this manual are usually registered trademarks or trademarks of respective development manufacturers.

Extended equipment

Equipment including hard disk drive (option PWSK-102), power supply unit (option PWSK-101), and PCI Express card can be additionally installed in this unit. Information on extended equipment may be provided in “Service Overview” - “Replacement of Main Parts” in this manual.

Section 1
Service Overview

1-1. Location of Boards and Circuit Configuration

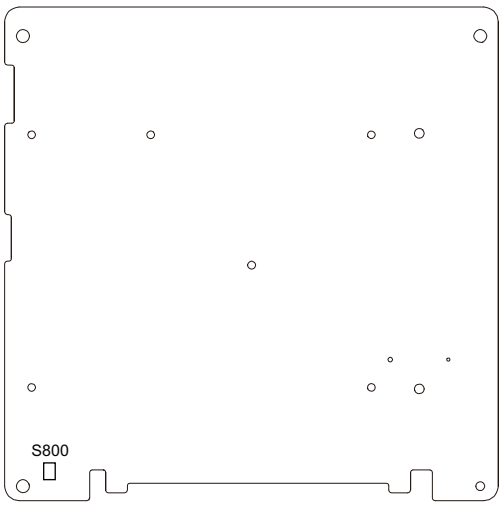


Location No.	Board Name	Circuit Function
1	LED-527	Front Panel LED
2	MB-1204	PCIe Switch, Storage Block
3	SW-1627	Power SW Panel
4	RC-110	PCI Express Riser Card
5	IF-1257	HDD (SATA) Interface
6	IF-1258	HDD (SATA) Interface
7	IF-1259	HDD (SATA) Interface
8	DIO-98	USB3.0 Output
9	CN-3698	Rear Connector
10	IF-1330 (iAP-005 board-equipped unit)	CPU Board Interface
11	CN-3934 (iAP-005 board-equipped unit)	Internal Connector

1-2. Onboard Switch Settings, LED Functions, and Sensor Functions

1-2-1. Onboard Switch Settings

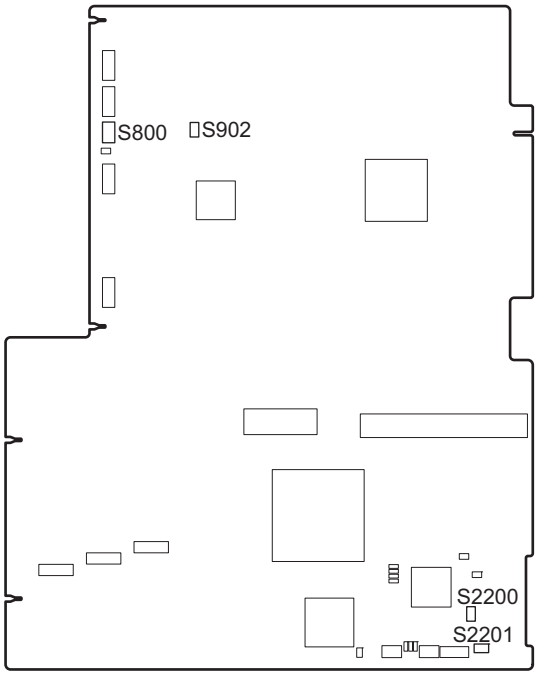
IF-1330 Board



IF-1330 board (side A)

Ref. No.	Bit	Name	Description	Factory Setting
S800	-	POWER	Factory use	-

MB-1204 Board

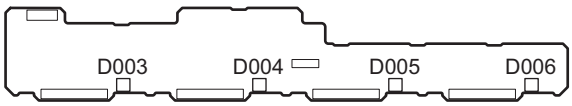


MB-1204 board (side A)

Ref. No.	Bit	Name	Description	Factory Setting
S800	1-8	-	Factory use	OFF (ALL)
S902	-	RESET	Factory use	-
S2200	-	RESET	Factory use	-
S2201	1	CFG	ON : RAID doesn't work OFF : RAID works	OFF (ALL)
	2		ON: Activates IC1000 in the Backup Mode. OFF: Activates IC1000 in the Normal Mode.	
	3		ON: Activates IC2400 in the Backup Mode. OFF: Activates IC2400 in the Normal Mode	
	4		Factory use	

1-2-2. Functions of Onboard LEDs

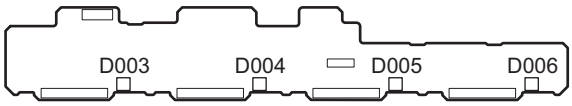
IF-1257 Board



IF-1257 board (side A)

Ref. No.	Name	Color	Description	Normal State (Power On)
D003	Status LED	Green/Red	HDD Status LED Normal: Green Abnormal: Red	Lights green when the front panel is removed and the HDD is installed. Goes out when the front panel is installed or the HDD is removed.
D004				
D005				
D006				

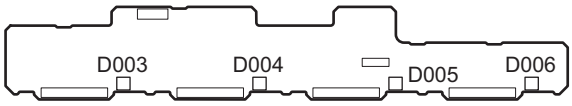
IF-1258 Board



IF-1258 board (side A)

Ref. No.	Name	Color	Description	Normal State (Power On)
D003	Status LED	Green/Red	HDD Status LED Normal: Green Abnormal: Red	Lights green when the front panel is removed and the HDD is installed. Goes out when the front panel is installed or the HDD is removed.
D004				
D005				
D006				

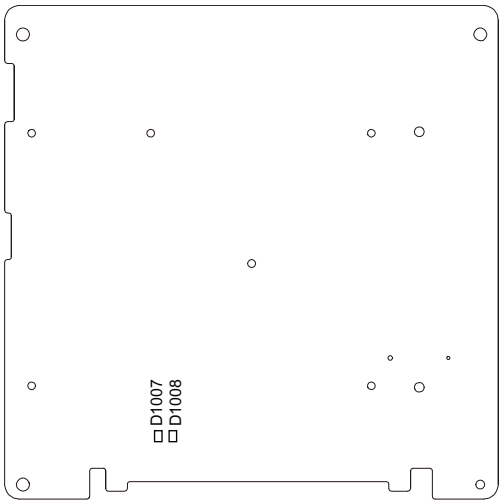
IF-1259 Board



IF-1259 board (side A)

Ref. No.	Name	Color	Description	Normal State (Power On)
D003	Status LED	Green/Red	HDD Status LED Normal: Green Abnormal: Red	Lights green when the front panel is removed and the HDD is installed. Goes out when the front panel is installed or the HDD is removed.
D004				
D005				
D006				

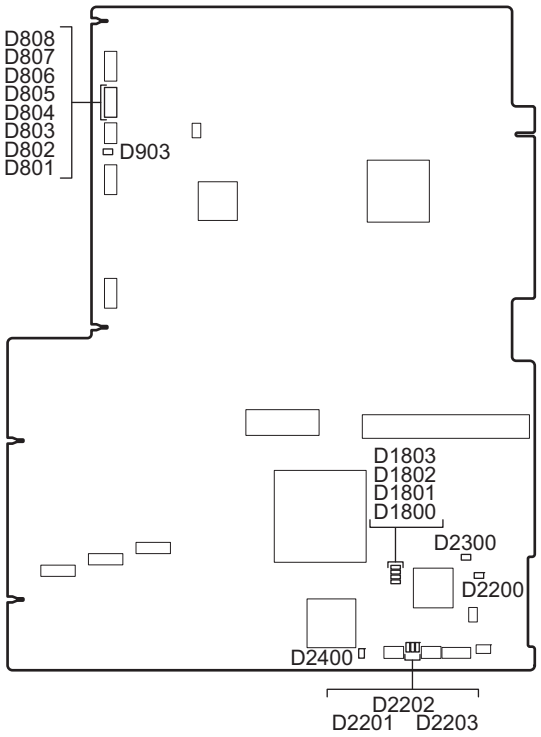
IF-1330 Board



IF-1330 board (side A)

Ref. No.	Name	Color	Description	Normal State (Power On)
D1006	3.3 V power supply indicator	Yellow green	Lights when the 3.3 V power is on.	Lit
D1007	3.3 VSB power supply indicator	Yellow green	Lights when the 3.3 VSB power is on.	Lit

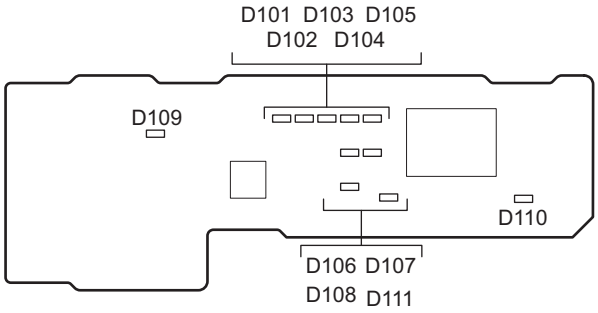
MB-1204 Board



MB-1204 board (side A)

Ref. No.	Name	Color	Description	Normal State (Power On)
D801	-	Orange	Factory use	Indeterminate
D802				
D803				
D804				
D805				
D806				
D807				
D808				
D903	-	Green	Lights when the IC900 configuration has been successfully completed.	Lit
D1800	-	Green	Factory use	Off
D1801				
D1802				
D1803				
D2200	CFG DONE	Green	Lights when the IC2200 configuration has been successfully completed.	Lit
D2201	CFG0	Green	Factory use	Blinks
D2202	CFG1	Green	Factory use	Off
D2203	CFG2	Green	Factory use	Lit
D2300	FLASH BUSY	Green	Factory use	Off
D2400	IMX6	Green	Factory use	Blinks

SW-1627 Board



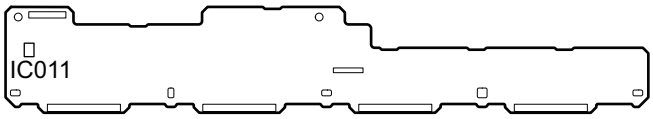
SW-1627 board (side A)

Ref. No.	Name	Color	Description	Normal State (Power On)
D101	ERROR LED	Red	Indicates an abnormality in fan assembly FAN1[*1] Normal: Off Abnormal: Red	Off
D102		Red	Indicates an abnormality in fan assembly FAN2[*1] Normal: Off Abnormal: Red	Off
D103		Red	Indicates an abnormality in fan assembly FAN3[*1] Normal: Off Abnormal: Red	Off
D104		Red	Indicates an abnormality in fan assembly FAN4[*1] Normal: Off Abnormal: Red	Off
D105		Red	Indicates an abnormality in fan assembly FAN5[*1] Normal: Off Abnormal: Red	Off
D106		Red	Indicates an abnormality in power supply A unit[*1](in the right slot viewed from the rear) Normal: Off Abnormal: Red	Off
D107		Red	Indicates an abnormality in power supply B unit[*1](in the right slot viewed from the rear) Normal: Off Abnormal: Red	Off
D108		Red	Indicates an abnormality in internal temperature Normal: Off Abnormal: Red	Off
D109	POWER	Green/Red	Power ON/standby indicator	Lit green: Operating Lit red: Standby Off: Power cable disconnected
D110	ACCESS	Blue	Storage access indicator	Lit: Access in progress Off: No access
D111	SYSTEM	Green/ Orange/Red	System indicator Indicates the unit state.	Lit green: Working normally Blinking green (1 Hz): Startup or shutdown in progress Blinking orange (1 Hz): A warning occurred. Blinking red (4 Hz): An error occurred.

*1: For location of Fan 1 to 5, Power unit A and B, refer to “5-3. Location of Main Parts” .

1-2-3. Functions of Onboard Sensors

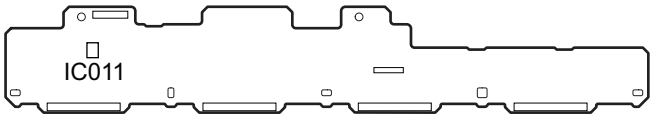
IF-1257 Board



IF-1257 board (side A)

Board Name	Ref. No.	Function
IF-1257	IC011	Temperature sensor

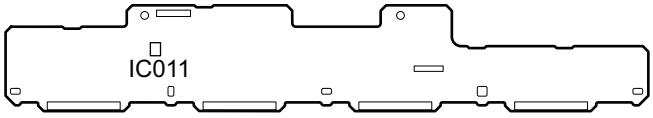
IF-1258 Board



IF-1258 board (side A)

Board Name	Ref. No.	Function
IF-1258	IC011	Temperature sensor

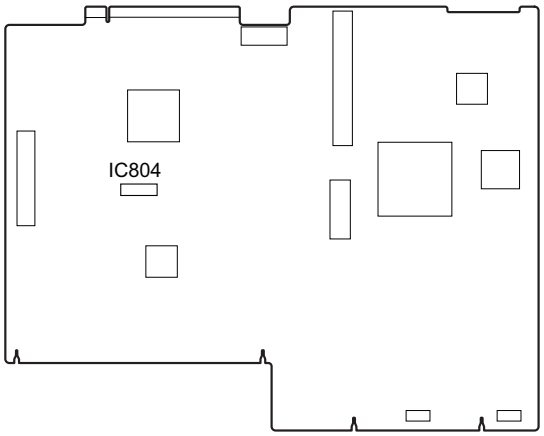
IF-1259 Board



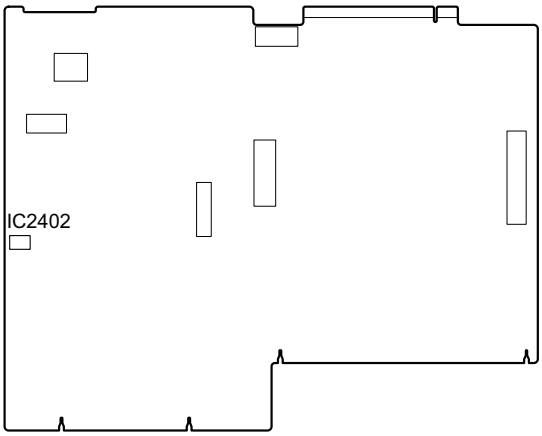
IF-1259 board (side A)

Board Name	Ref. No.	Function
IF-1259	IC011	Temperature sensor

MB-1204 Board



MB-1204 board (side A)

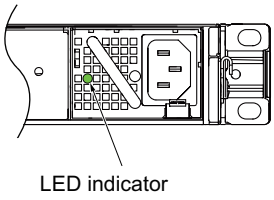


MB-1204 board (side B)

Board Name	Ref. No.	Function
MB-1204	IC804	Temperature sensor
	IC2402	Temperature sensor

1-3. LED Indicator of Power Unit

Power unit is equipped with one LED that indicates the state of power unit.
Lights in green: All outputs (+12V and +5Vsub) are normal.
Off: At least one of the outputs is abnormal.



1-4. Software Update

Note

When updating the software, check related software release information.
For the configure-to-order (CTO) products, refer to the service manual for each model in addition to this manual.

This section describes how to update PWS-100 main unit control application software listed below and built-in storage (RAID_PKG).

- Sony SNMP PWS-100
- Sony HKP Service PWS-100
- Sony Web_Application_PWS-100

Equipment required

- A USB mouse
- A USB keyboard
- A monitor
- A USB flash memory (commercially available, 1GB or more recommended)

Required file

- Data file for update (Installation package)

Note

For obtaining the latest data file for update (Installation package), contact your local Sony Sales Office/Service Center.

Preparation

1. Connect the mouse and the keyboard to the USB connectors.
2. Connect the monitor to the DisplayPort or the HDMI connector.
3. Copy the data file for update (Installation package) to the USB memory.

Note

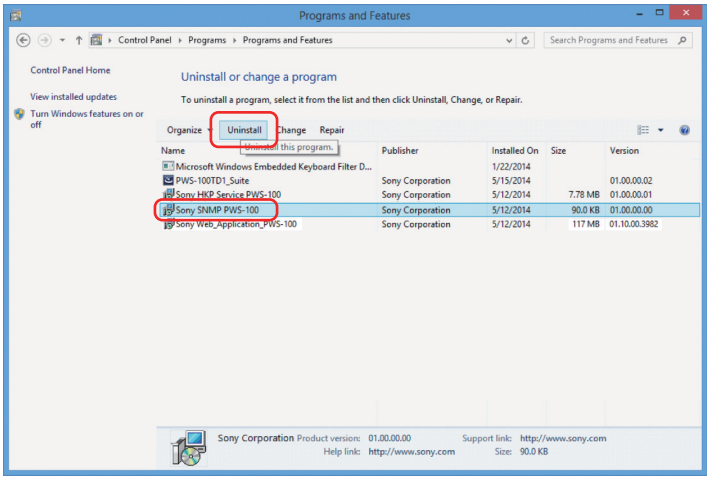
When updating an application software program, uninstall the previously installed software program and then install the new-version software program.

1-4-1. Uninstallation of Application Software

If maintenance package has already been installed when reinstalling or updating them, uninstall the following programs first.

- Sony SNMP PWS-100
- Sony HKP Service PWS-100
- Sony Web_Application_PWS-100

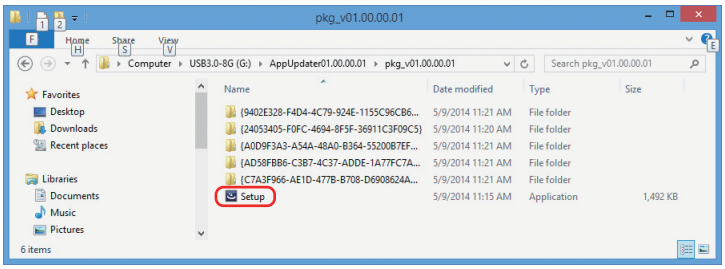
1. On the [Control Panel], select “Programs and Features” from [Programs].
   On the Programs and Features window, select “Sony SNMP PWS-100” and then click [Uninstall].



2. When the uninstallation confirmation dialog box appears, click [Yes].
   The User Account Control window opens.
3. Confirm that Sony SNMP PWS-100 is displayed, and then click [Yes].
   The uninstallation operation starts.
4. In the same way, uninstall the Sony HKP Service PWS-100 and Sony Web_Application_PWS-100.

1-4-2. Installing Application Software

1. Connect the USB flash memory that contains the data file for update (Installation package) to the USB connector on the unit.
2. Open the Install package folder in the USB flash memory.
3. Execute a setup.exe.

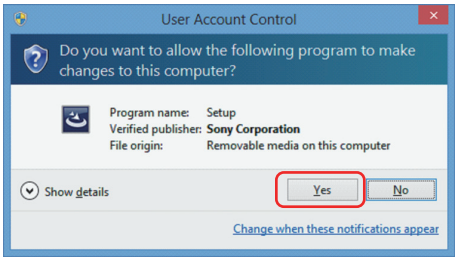


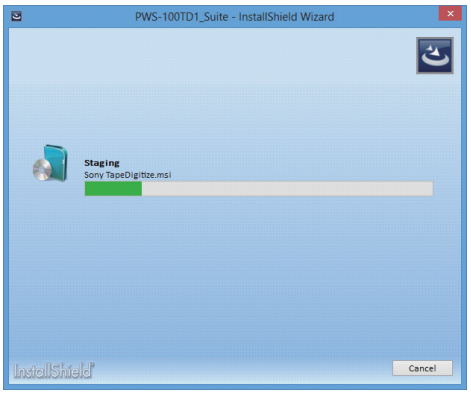
4. Click [Install].

5. User Account Control screen is displayed.
   Click [Yes] to start the installation.

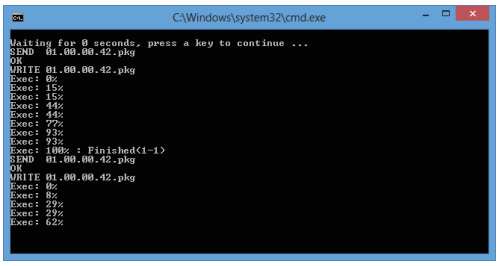
   Tip

   Sony SNMP PWS-100, Sony HKP Service PWS-100, Sony Web_Application_PWS-100 are installed and the built-in storage (RAID_PKG) is updated.

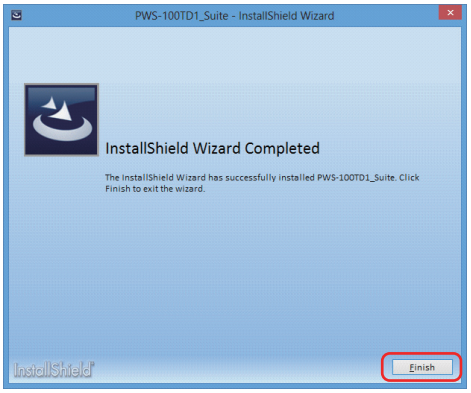




6. A command prompt opens and closes during the installation. Wait until the installation finishes.



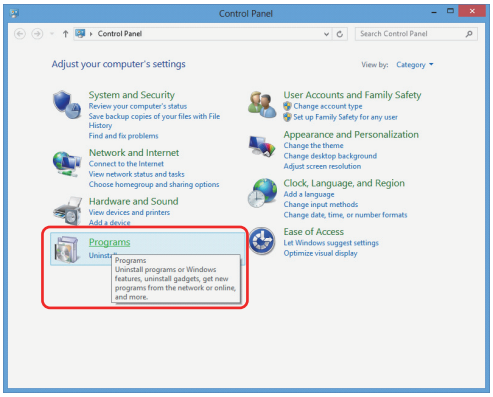
7. After the installation is complete, make sure that there is no error, and then click “Finish”.
   If some error occurred, perform the “1-4-1. Uninstallation of Application Software” again.



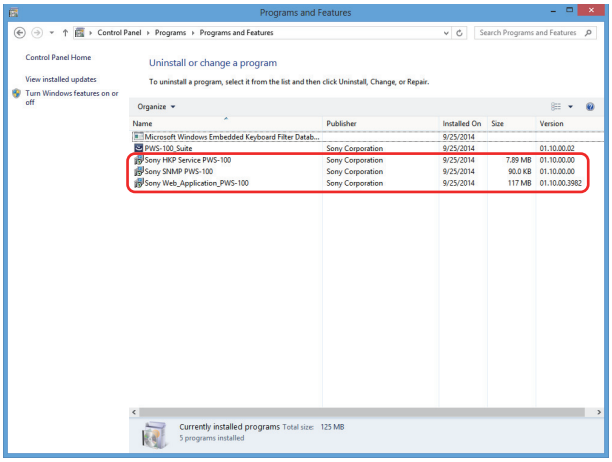
1-4-3. Software Version Check after Update

Checking versions of Sony HKP Service, Sony SNMP, Sony Web_Application_PWS-100

1. Turn off the unit, and remove the power cord.
2. Wait for at least 10 seconds, connect the power cord, and then turn on the unit.
3. On the Control Panel window, select “Programs and Features” from “Programs”.



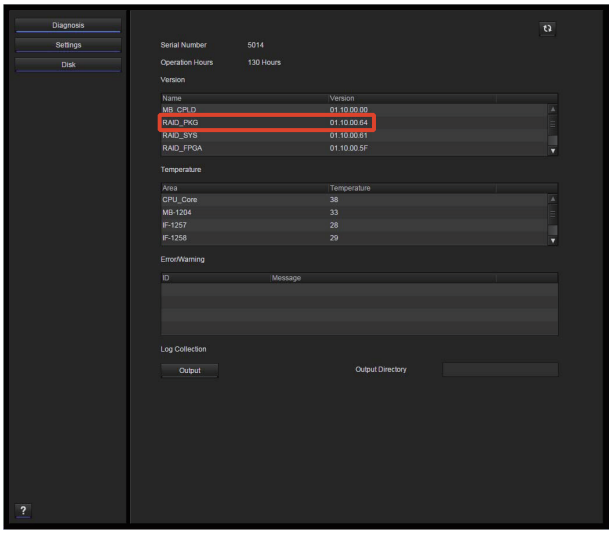
4. On the displayed window, check the versions of Sony HKP Service, Sony SNMP, and Sony Web_Application_ PWS-100.



Checking the version of the built-in storage (RAID_PKG)

1. Open the Google Chrome browser.
2. Type “http://127.0.0.1/pws-100/maintenance/” in the address bar of the browser and press the Enter key on the keyboard.

3. On the displayed Maintenance Web screen, open Diagnosis screen and check the version of the built-in storage (RAID_PKG).



Version Check of each module

1. Check that the version of each module is correct in the Maintenance Web screen.

   Tip

   Refer to “3-1-1. Displaying Maintenance Web Screen” about the Maintenance Web screen.

1-5. How to Find the MAC Address

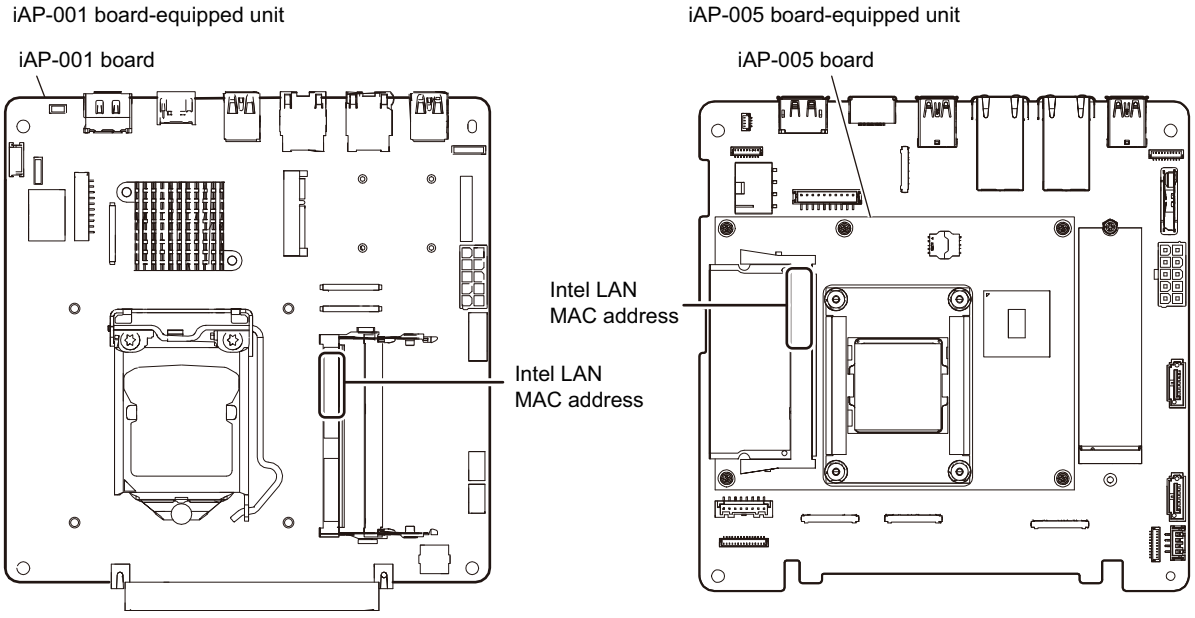
When some kind of application is pre-installed in this unit, the MAC address is necessary to generate an install key. To know what kinds of data are necessary to generate an install key, refer to the document related to the application.

1-5-1. Method 1

1. Open the command prompt of Windows.
2. Type “ipconfig /all” and press Enter key.
3. Find the Physical Address of the network adaptor whose Description starts with “Intel(R)”.
   The Physical Address is the MAC address of this unit.

1-5-2. Method 2

1. Remove the top panel. (Refer to “5-4. Top Panel Assembly”.)
2. Confirm the MAC address indicated on the label which is attached on the iAP board.



1-6. Recovery Methods

This section describes how to recover pre-installed OS.
The recovery methods may initialize the software and may make its version older than the version before recovery. After the recovery, the software needs to be updated.
Before recovery, connect only a key board, a mouse, and a display cable to this unit, and remove any other cables.

1-6-1. Recovery Methods for Windows Embedded 8.1 Industry Pro

This section describes how to recover a system of the Windows Embedded 8.1 Industry Pro pre-installed model.
There are three recovery methods depending on the symptoms of this unit.

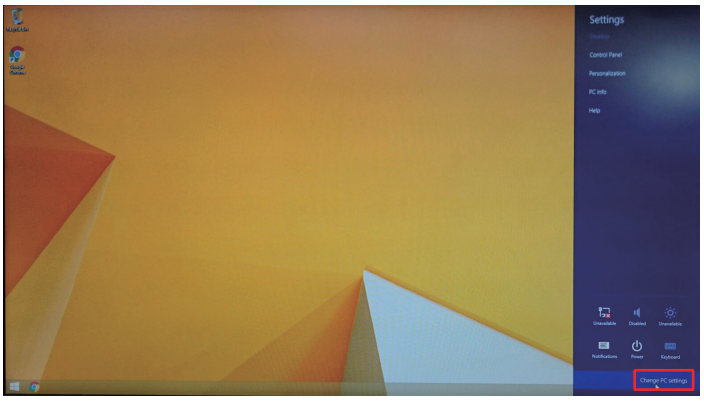
- Recovery by the standard feature of Windows
- Recovery by using the Windows PE
- Recovery by replacing SSD module

Recovery by the Standard Feature of Windows

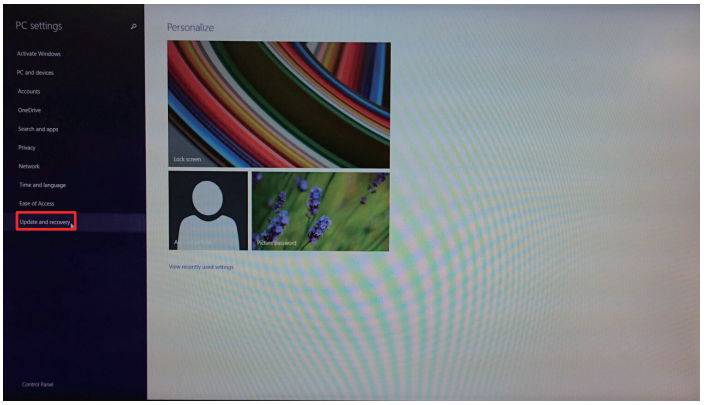
When Windows starts normally but the application program does not run stably, carry out the following procedure for recovery.

Procedure

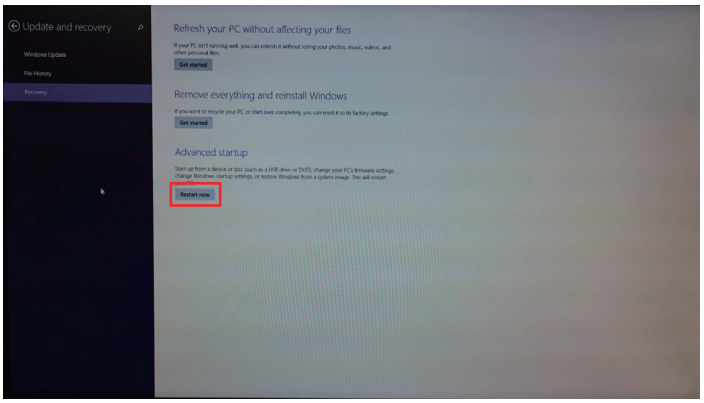
1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)
2. Set Bit1 of the DIP switch (S2201) on the MB-1204 board to ON. (Refer to “MB-1204 Board” in “1-2-1. Onboard Switch Settings”.)
3. Install the top panel assembly.
4. Turn on the unit to start Windows.
5. Display a charm bar and click [Settings] - [Change PC settings].



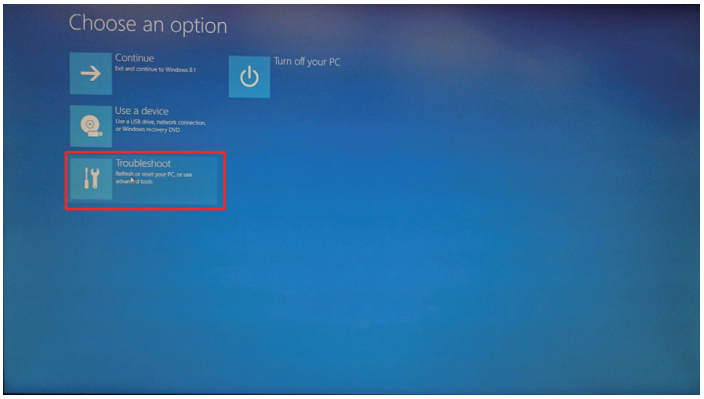
6. On the [PC settings] window, click [Update and recovery].



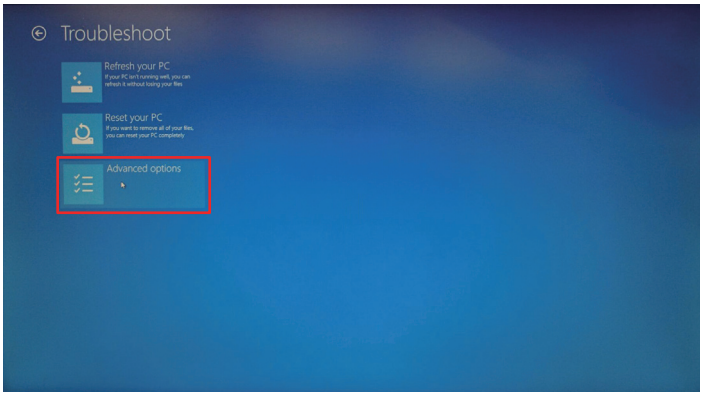
7. On the [Update and recovery] window, click [Recovery] - [Advanced startup] - [Restart now].



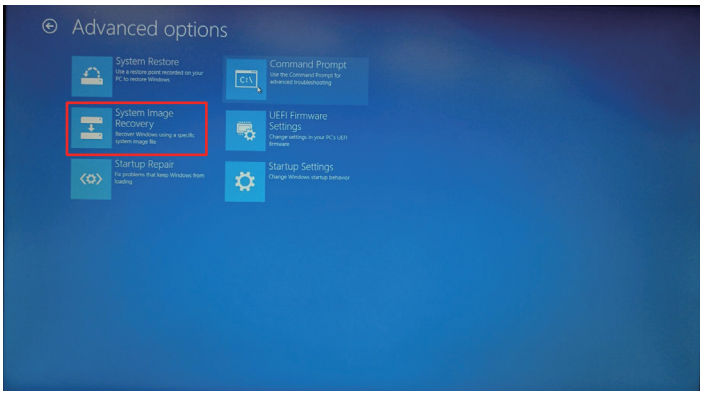
8. On the [Choose an option] window, click [Troubleshoot].



9. On the [Troubleshoot] window, click [Advanced options].

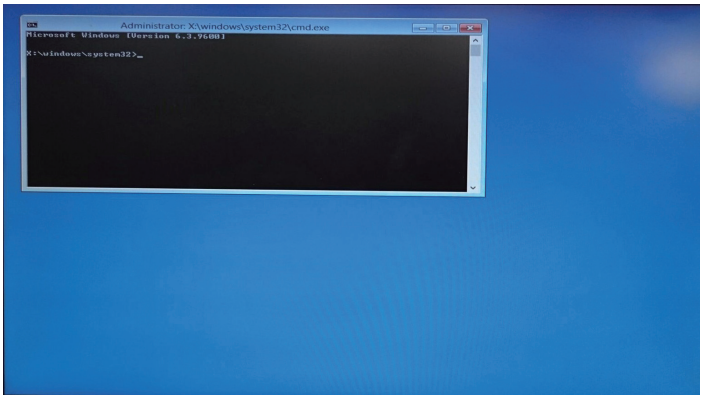


10. On the [Advanced options] window, click [System Image Recovery].



Windows PE starts running.

11. On the displayed window, execute the following command.
    ```
    X:\windows\system32>diskpart
    DISKPART>list volume
    ```

    The following information is shown.

    ```
    Volume ###  Ltr  Label        Fs     Type        Size     Status      Info
    ----------  ---  -----------  -----  ----------  -------  ----------  --------
    Volume 0     C   Windows      NTFS   Partition    98 GB   Healthy
    Volume 1     D   Windows RE   NTFS   Partition   300 MB   Healthy     Hidden
    Volume 2         SYSTEM       FAT32  Partition   100 MB   Healthy     Hidden
    Volume 3     E   Recovery     NTFS   Partition    20 GB   Healthy     Hidden
    ```

    Check the configuration of volumes.
    - When the above information is shown, carry out steps from step 12.
    - When the above information is not shown, confirm that Bit1 of the DIP switch (S2201) on the MB-1204 board is set to ON.
      When this DIP switch is correctly set but the above information is not shown, execute the following command to shut down the unit and recovery the system by using Windows PE. (Refer to “Recovery by Using the Windows PE”.)
      ```
      DISKPART>exit
      X:\windows\system32>wpeutil shutdown
      ```
12. Execute the following command.
    ```
    DISKPART>exit
    X:\windows\system32>E:
    E:>cd Recovery
    E:\Recovery>recovery.bat
    ```
13. After recovery has been completed, execute the following command.
    ```
    E:\Recovery>wpeutil shutdown
    ```
    The unit is shut down.
14. Turn on the unit.
15. Perform “5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)”.

Recovery by Using the Windows PE

If Windows does not start, carry out the following procedure for recovery.

Preparation

- USB memory (capacity: 1 GB or more, for Windows PE)
- Windows PC

Procedure

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Set Bit1 of the DIP switch (S2201) on the MB-1204 board to ON. (Refer to "MB-1204 Board" in "1-2-1. Onboard Switch Settings" .)
3. Install the top panel assembly.
4. Connect the USB memory to the Windows PC and create bootable USB memory for Windows PE.

   Note

   Create Windows PE for 64-bit Windows 8.1.
   Use version 5.0 of Windows PE.
   For details of creating bootable USB memory for Windows PE, contact your local Sony Sales Office/Service Center.

5. Connect the USB memory to the unit.
6. Press and hold the Delete key and turn on the unit.
   BIOS setup screen is displayed.
7. Move to the [Save & Exit] tab by pressing the arrow keys on the keyboard.
8. Select the USB memory from [Boot Override].
   The unit restarts.
   Windows PE starts from the USB memory.
9. On the displayed window, execute the following command.
   `X:\windows\system32>`***`diskpart`***
   `DISKPART>`***`list volume`***
   The following information is shown.

```
Volume ###  Ltr  Label        Fs     Type        Size     Status     Info
----------  ---  -----------  -----  ----------  -------  ---------  --------
Volume 0    C    Windows
Volume 1    E    Windows RE
Volume 2         System
Volume 3    F    Recovery
Volume 4    D    WINPE
```

   Check the configuration of volumes.

   Note

   Different information may be shown depending on the operating environment.

10. Execute the following command to exit diskpart.
    `DISKPART>`***`exit`***

11. Execute the following command.

Note

The volume number and drive letter of the following command may differ depending on the operating environment.

(1) Copy ReAgent.xml in the label [Windows] to the label [Recovery].
```
X:\windows\system32>copy C:\Windows\System32\Recovery\ReAgent.xml
F:\Recovery\ReAgent.xml
```
(2) When the [Overwrite] confirmation message appears, type “Yes”.

(3) Execute the diskpart command.
```
X:\windows\system32>diskpart
```
(4) Select the label [Windows].
```
DISKPART>select volume 1
```
(5) Format the volume of the label [Windows] in ntfs.
```
DISKPART>format quick fs=ntfs label="Windows"
```
(6) Exit the diskpart command.
```
DISKPART>exit
```
(7) Expand install.wim in the label [Recovery] to the label [Windows].
```
X:\windows\system32>dism.exe /Apply-image /ImageFile:F:\Recovery
\Install.wim /Index:1 /ApplyDir:C:\ /Verify
```
(8) Copy ReAgent.xml in the label [System] to the label [Windows].
```
X:\windows\system32>copy F:\Recovery\ReAgent.xml C:\Windows
\System32\Recovery\ReAgent.xml
```
(9) When the [Overwrite] confirmation message appears, type “Yes”.

(10) Exit Windows PE.
```
X:\windows\system32>wpeutil shutdown
```

12. Remove the USB memory from the unit.
13. Turn on the unit.
14. Perform “5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)”.

Recovery by Replacing SSD Module

If recovery is not successful even after “Recovery by Using the Windows PE” is performed, the SSD module may be defective. In that case, replace the SSD module and make settings after replacement. (Refer to “5-22-2. SSD Module (mSATA)”, “5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)”.)

1-6-2. Recovery Methods for Windows Embedded 8 Standard

This section describes how to recover a system of the Windows Embedded 8 Standard pre-installed model.
There are three recovery methods depending on the symptoms of this unit.

- Recovery by the standard feature of Windows
- Recovery by using the Windows PE
- Recovery by replacing SSD module

Recovery by the Standard Feature of Windows

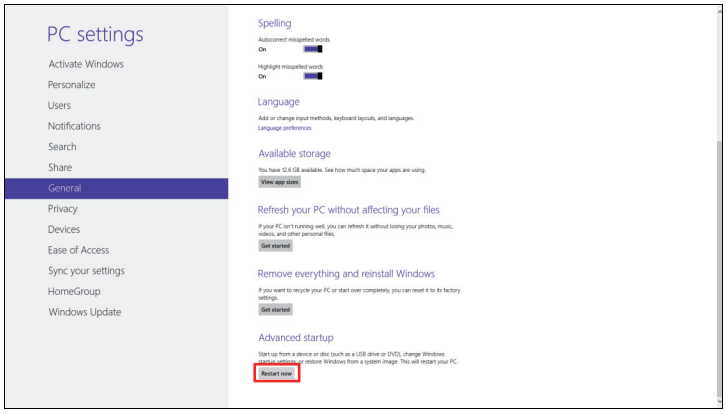
When Windows starts normally but the application program does not run stably, carry out the following procedure for recovery.

Procedure

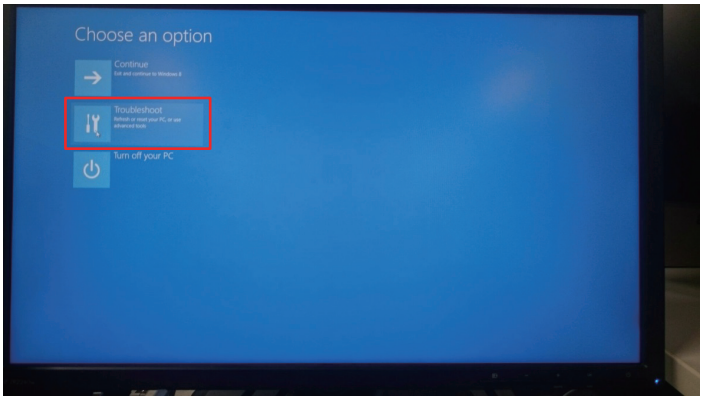
1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)

2. Set Bit1 of the DIP switch (S2201) on the MB-1204 board to ON. (Refer to “MB-1204 Board” in “1-2-1. Onboard Switch Settings” .)
3. Install the top panel assembly.
4. Turn on the unit to start Windows.
5. Display a charm bar and click [Settings] - [Change PC settings].

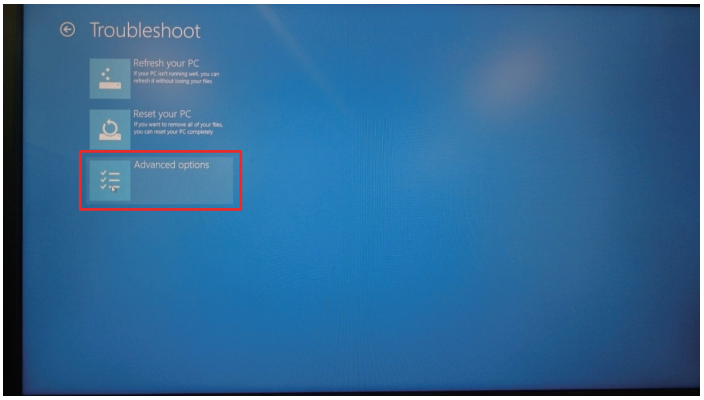
6. On the [PC Settings] window, click [General] - [Advanced startup] - [Restart now].



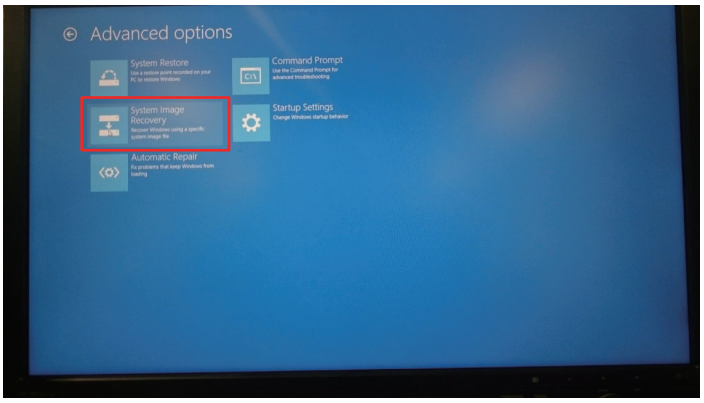
7. On the [Choose an option] window, click [Troubleshoot].



8. On the [Troubleshoot] window, click [Advanced options].

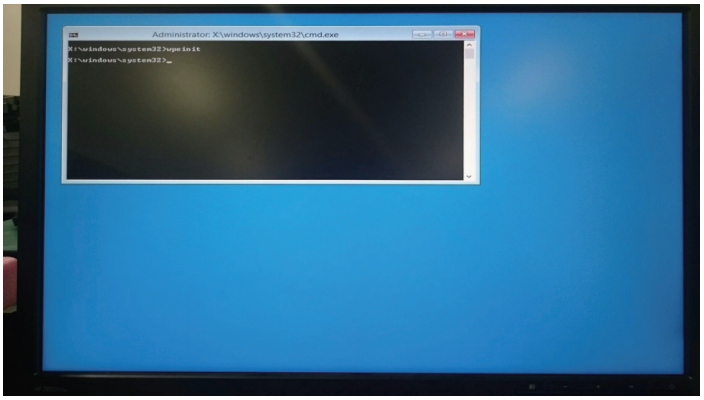


9. On the [Advanced options] window, click [System Image Recovery].



Windows PE starts running.

10. On the displayed window, execute the following command.
    X:\windows\system32>***diskpart***
    DISKPART>***list volume***



    The following information is shown.

```
Volume ###  Ltr  Label        Fs     Type        Size     Status     Info
----------  ---  -----------  -----  ----------  -------  ---------  --------
Volume 0     C   System       NTFS   Partition   500 MB   Healthy
Volume 1     D   Windows      NTFS   Partition   45 GB    Healthy
Volume 2     E   Recovery     NTFS   Partition   10 GB    Healthy    Hidden
```

    Check the configuration of volumes.
    - When the above information is shown, carry out steps from step 11.
    - When the above information is not shown, confirm that Bit1 of the DIP switch (S2201) on the MB-1204 board is set to ON.
      When this DIP switch is correctly set but the above information is not shown, execute the following command to shut down the unit and recovery the system by using Windows PE. (Refer to "Recovery by Using the Windows PE".)
      DISKPART>***exit***
      X:\windows\system32>***wpeutil shutdown***
11. Execute the following command.
    DISKPART>***exit***
    X:\windows\system32>***c:***
    C:>***cd Recovery***
    C:\Recovery>***recovery.bat***
12. After recovery has been completed, execute the following command.
    C:\Revocery>***x:***
    X:\windows\system32>***wpeutil shutdown***
    The unit is shut down.
13. Turn on the unit.
14. Perform "5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)".

Recovery by Using the Windows PE

If Windows does not start, carry out the following procedure for recovery.

Preparation

- USB memory (capacity: 1 GB or more, for Windows PE)
- Windows PC

Procedure

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Set Bit1 of the DIP switch (S2201) on the MB-1204 board to ON. (Refer to "MB-1204 Board" in "1-2-1. Onboard Switch Settings".)
3. Install the top panel assembly.
4. Connect the USB memory to the Windows PC and create bootable USB memory for Windows PE.

   Note

   Create Windows PE for 64-bit Windows 8.
   Use version 4.0 of Windows PE.
   For details of creating bootable USB memory for Windows PE, contact your local Sony Sales Office/Service Center.

5. Connect the USB memory to the unit.
6. Press and hold the Delete key and turn on the unit.
   BIOS setup screen is displayed.
7. Move to the [Boot] tab by pressing the arrow keys on the keyboard.
8. Select the USB memory in "Boot Option #1" of [Boot Option Priorities].
9. Press the F4 key to execute [Save & Reset].
   The unit restarts.
   Windows PE starts from the USB memory.
10. On the displayed window, execute the following command.

    ```
    X:\windows\system32>diskpart
    DISKPART>list volume
    ```

    The following information is shown.

    ```
    Volume ###  Ltr  Label        Fs     Type        Size     Status     Info
    ----------  ---  -----------  -----  ----------  -------  ---------  --------
    Volume 0     C   Windows
    Volume 1     E   Windows RE
    Volume 2         System
    Volume 3     F   Recovery
    Volume 4     D   WINPE
    ```

    Check the configuration of volumes.

    Note

    Different information may be shown depending on the operating environment.

11. Execute the following command to exit diskpart.

    ```
    DISKPART>exit
    ```

12. Execute the following command.

Note

The volume number and drive letter of the following command may differ depending on the operating environment.

(1) Copy ReAgent.xml in the label [Windows] to the label [System].
```
X:\windows\system32>copy C:\Windows\System32\Recovery\ReAgent.xml
F:\Recovery\ReAgent.xml
```
(2) Execute the diskpart command.
```
X:\windows\system32>diskpart
```
(3) Select the label [Windows].
```
DISKPART>select volume 0
```
(4) Format the volume of the label [Windows] in ntfs.
```
DISKPART>format quick fs=ntfs label="Windows"
```
(5) Exit the diskpart command.
```
DISKPART>exit
```
(6) Expand install.wim in the label [Recovery] to the label [Windows].
```
X:\windows\system32>dism.exe /Apply-image /ImageFile:F:\recovery
\install.wim /Index:1 /ApplyDir:C:\ /Verify
```
(7) Copy ReAgent.xml in the label [System] to the label [Windows].
```
X:\windows\system32>copy F:\Recovery\ReAgent.xml C:\Windows
\System32\Recovery\ReAgent.xml
```
(8) When the [Overwrite] confirmation message appears, type “Yes”.

(9) Exit Windows PE.
```
X:\windows\system32>wpeutil shutdown
```

13. Remove the USB memory from the unit.
14. Turn on the unit.
15. Perform “5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)”.

Recovery by Replacing SSD Module

If recovery is not successful even after “Recovery by Using the Windows PE” is performed, the SSD module may be defective. In that case, replace the SSD module and make settings after replacement. (Refer to “5-1-4. Solutions for Discontinued Parts”, “5-22-2. SSD Module (mSATA)”, “5-23-1. SSD Module (M.2)” and “5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)”.)

1-6-3. Recovery Method for Windows 8.1 Professional

This section describes how to recover a system of the Windows 8.1 Professional 64bit pre-installed model.

Tip

Only the English version of Windows 8.1 Professional 64bit is available for PWS-100.

Recovery by reinstallation of the system

Procedure

1. Install the OS, drivers, and the maintenance package. (Refer to PWS-100 Installation Guide.)

1-7. Tools and Fixtures

It is recommended to use the equipment listed below or the equivalents.

Name	Part No.	Usage
Torque screwdriver's bit (M2)	J-6325-380-A	Screw tightening
Torque screwdriver's bit (M3)	J-6323-430-A	Screw tightening
Torque screwdriver (0.3 N • m)	J-6325-400-A	Screw tightening
Torque screwdriver (0.6 N • m)	J-6252-510-A	Screw tightening
Torque screwdriver (1.2 N • m)	J-6252-520-A	Screw tightening
Box driver (size 6 mm)	Commercially available	Hexagon support tightening

1-8. Circuit Protection Part List

1-8-1. Circuit Protection Element

This unit is provided with positive thermistors for power circuit.
If an overcurrent flows in a positive thermistor or it heats up to a certain degree with the increase of the ambient temperature, its internal resistance increases sharply to limit the current flowing in the circuit. When a thermistor is activated, turn off the power and check the circuit of the unit.
After the cause of the problem is removed and the device cools down, turn on the power again. The unit will work normally. It takes about one minute for the device to cool down after power-off.

Board Name	Ref. No.	Part No.	Holding Current
DIO-98	TH200	⚠ 1-805-580-11	1.1 A/8.0 V
	TH201	⚠ 1-805-580-11	1.1 A/8.0 V
IF-1257	TH001	⚠ 1-802-108-11	1.5 A/24 V
	TH002	⚠ 1-802-108-11	1.5 A/24 V
	TH003	⚠ 1-802-108-11	1.5 A/24 V
	TH004	⚠ 1-802-108-11	1.5 A/24 V
IF-1258	TH001	⚠ 1-802-108-11	1.5 A/24 V
	TH002	⚠ 1-802-108-11	1.5 A/24 V
	TH003	⚠ 1-802-108-11	1.5 A/24 V
	TH004	⚠ 1-802-108-11	1.5 A/24 V
IF-1259	TH001	⚠ 1-802-108-11	1.5 A/24 V
	TH002	⚠ 1-802-108-11	1.5 A/24 V
	TH003	⚠ 1-802-108-11	1.5 A/24 V
	TH004	⚠ 1-802-108-11	1.5 A/24 V
IF-1330	TH300	⚠ 1-802-607-11	2 A/6 V
	TH301	⚠ 1-802-607-11	2 A/6 V
	TH302	⚠ 1-802-607-11	2 A/6 V
	TH303	⚠ 1-802-607-11	2 A/6 V
	TH304	⚠ 1-802-106-11	1.5 A/24 V
	TH500	⚠ 1-771-075-21	0.75 A/ 13.2 V
	TH501	⚠ 1-771-075-21	0.75 A/ 13.2 V
MB-1204	TH101	⚠ 1-804-616-11	1.1 A/6.0 V
	TH102	⚠ 1-804-987-21	2.5 A/15 V
	TH103	⚠ 1-804-616-11	1.1 A/6.0 V
	TH600	⚠ 1-804-987-21	2.5 A/15 V
	TH601	⚠1-804-987-21	2.5 A/15 V
	TH602	⚠1-804-987-21	2.5 A/15 V

1-8-2. Replacing Fuses

WARNING

The fuse is essential parts for safe operation. Replace it with one whose part number is listed in the manual. If the components are replaced with any parts other than the specified ones, this may cause a fire or electric shock.

CAUTION

Replacing any fuse is replaced while power is supplied to the unit may cause electric shock.
Before replacing any fuse, turn off the POWER switch and also disconnect the cable from the AC IN connector.

This unit is equipped with fuses.
The fuses blow if an excessive current flows due to abnormality inside the equipment. If fuses blow, turn off the main power of the unit once, and inspect inside of the unit and remove the cause of excessive current. After that, replace the fuses.

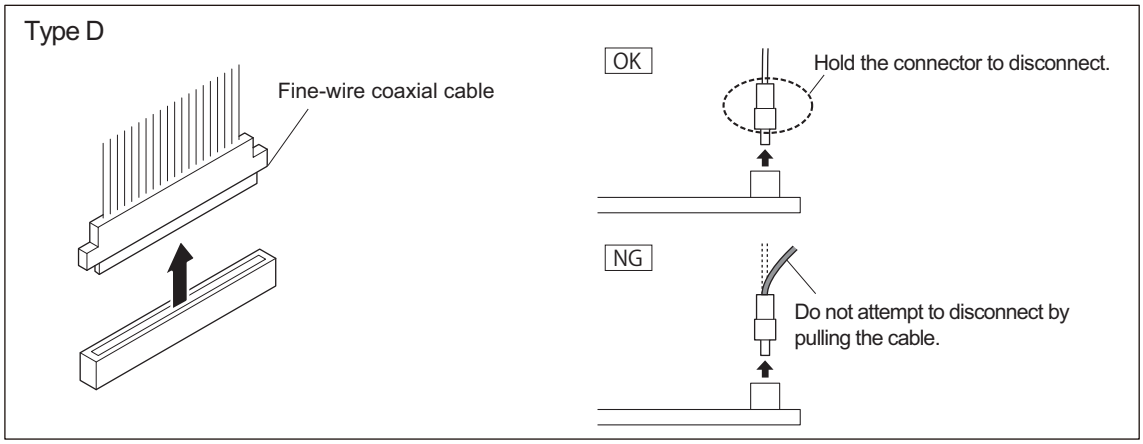
Board Name	Ref. No.	Name	Part No.
IF-1330	F100	FUSE 2 A/125 V	⚠1-533-999-21
	F101	FUSE 1.25 A/125 V	⚠1-533-626-21
	F200	FUSE 1.25 A/125 V	⚠1-533-626-21
	F201	FUSE 3.15 A/125 V	⚠1-576-269-21
	F202	FUSE 2.5 A/125 V	⚠1-533-804-21
	F800	FUSE 2.5 A/125 V	⚠1-533-804-21
	F801	FUSE 1.25 A/125 V	⚠1-533-626-21
	F802	FUSE 1.25 A/125 V	⚠1-533-626-21
	F803	FUSE 1.25 A/125 V	⚠1-533-626-21
	F1000	FUSE 4 A/125 V	⚠1-576-270-21
	F1001	FUSE 4 A/125 V	⚠1-576-270-21
	F1002	FUSE 4 A/125 V	⚠1-576-270-21
	F1003	FUSE 4 A/125 V	⚠1-576-270-21
	F1004	FUSE 4 A/125 V	⚠1-576-270-21
	F1005	FUSE 4 A/125 V	⚠1-576-270-21
	F1006	FUSE 2.5 A/125 V	⚠1-533-804-21
	F1007	FUSE 8 A/125 V	⚠1-576-328-21
MB-1204	F200	FUSE 15 A/65 V	⚠1-576-566-21
	F201	FUSE 15 A/65 V	⚠1-576-566-21
	F202	FUSE 2.5 A/125 V	⚠1-533-804-21
RC-110	F100, F101	FUSE 5 A/125 V	⚠1-533-627-21

1-9. Coaxial Cable

1-9-1. Disconnecting/Connecting Fine-Wire Coaxial Cable

Note

- Be very careful when handling the fine-wire coaxial cable so that fine wires are not disconnected.
- When disconnecting the fine-wire coaxial cable, be sure to hold the connector. Do not attempt to pull the cable.
- Check that the contact surface of the fine-wire coaxial cable connector is free from dirt or dust.



Disconnecting

1. Hold the connector between your finger tips and disconnect the fine-wire coaxial cable vertically.

Connecting

1. Hold the connector between your finger tips and connect the fine-wire coaxial cable vertically.

Section 2
Error Messages

2-1. Overview of Error Message

Error codes and warnings are shown on the Diagnosis page of the Maintenance Web screen.
For opening the Diagnosis page, refer to the operation manual of PWS-100 Maintenance Web Application.

2-1-1. Error Codes

Error List

ID	Name	Description	Action
0101	POWER SUPPLY A ERROR	An abnormality was detected in the power supply unit A[*1]	Replace the problematic device.
0102	POWER SUPPLY B ERROR	An abnormality was detected in the power supply unit B[*1]	
0111	FAN 1 ERROR	An abnormality of the fan assembly FAN1[*1] was detected.	
0112	FAN 2 ERROR	An abnormality of the fan assembly FAN2[*1] was detected.	
0113	FAN 3 ERROR	An abnormality of the fan assembly FAN3[*1] was detected.	
0114	FAN 4 ERROR	An abnormality of the fan assembly FAN4[*1] was detected.	
0115	FAN 5 ERROR	An abnormality of the fan assembly FAN5[*1] was detected.	
0121	HDD 1 ERROR	The HDD assembly HDD1 error was detected.	
0122	HDD 2 ERROR	The HDD assembly HDD2 error was detected.	
0123	HDD 3 ERROR	The HDD assembly HDD3 error was detected.	
0124	HDD 4 ERROR	The HDD assembly HDD4 error was detected.	
0125	HDD 5 ERROR	The HDD assembly HDD5 error was detected.	
0126	HDD 6 ERROR	The HDD assembly HDD6 error was detected.	
0127	HDD 7 ERROR	The HDD assembly HDD7 error was detected.	
0128	HDD 8 ERROR	The HDD assembly HDD8 error was detected.	
0129	HDD 9 ERROR	The HDD assembly HDD9 error was detected.	
012A	HDD 10 ERROR	The HDD assembly HDD10 error was detected.	
012B	HDD 11 ERROR	The HDD assembly HDD11 error was detected.	
012C	HDD 12 ERROR	The HDD assembly HDD12 error was detected.	

Continued

*1: For location of Fan 1 to 5, Power unit A and B, refer to “5-3. Location of Main Parts” .

ID	Name	Description	Action
0131	HIGH TEMPERATURE	The internal temperature has risen (CPU).	1. Clean the front panel. 2. Lower the ambient temperature.
0132	HIGH TEMPERATURE	The internal temperature has risen (MB-1204 board).	
0133	HIGH TEMPERATURE	The internal temperature has risen (storage).	
0134	HIGH TEMPERATURE	The temperature of the HPR-48 board (lower side slot) has risen.	1. Clean the front panel. 2. Lower the ambient temperature. 3. Replace the fan on the HPR-48 board.
0135	HIGH TEMPERATURE	The temperature of the HPR-48 board (upper side slot) has risen.	
0141	LOW BATTERY	The backup battery voltage has dropped.	Replace the backup battery with a new one.
0151	DIO-98 INITIAL ERROR	Failed to initialize the DIO-98 board.	Turn off and on the unit. If the same error recurs, replace the DIO-98 board.
0152	SMBUS ERROR	An error occurred in the SMBUS interface of the MB-1204 board.	Turn off and on the unit. If the same error recurs, replace the MB-1204 board.
0153	EEPROM ERROR	An error occurred in the EEPROM interface of the MB-1204 board.	

About error related to Power supply unit

An error occurs in a power supply unit under any of the following conditions.

- Only one power supply unit is operating and an abnormality was detected in it.
- Two power supply units are operating and an abnormality was detected in one or two of them.

2-1-2. Warnings

Warning List

ID	Name	Description	Action
0201	POWER SUPPLY A WARNING	The rotating speed of the fan in the power supply unit A[*1] has decreased to the predetermined value or less.	Early replacement is recommended for the problematic fan.
0202	POWER SUPPLY B WARNING	The rotating speed of the fan in the power supply unit B[*1] has decreased to the predetermined value or less.	
0211	FAN 1 WARNING	The rotating speed of the fan assembly FAN1[*1] has decreased to the predetermined value or less.	
0212	FAN 2 WARNING	The rotating speed of the fan assembly FAN2[*1] has decreased to the predetermined value or less.	
0213	FAN 3 WARNING	The rotating speed of the fan assembly FAN3[*1] has decreased to the predetermined value or less.	
0214	FAN 4 WARNING	The rotating speed of the fan assembly FAN4[*1] has decreased to the predetermined value or less.	
0215	FAN 5 WARNING	The rotating speed of the fan assembly FAN5[*1] has decreased to the predetermined value or less.	

Continued

*1: For location of Fan 1 to 5, Power unit A and B, refer to "5-3. Location of Main Parts" .

ID	Name	Description	Action
0221	HDD 1 WARNING	Read/Write errors of the HDD assembly HDD1 are increasing.	Early replacement is recommended for the problematic HDD.
0222	HDD 2 WARNING	Read/Write errors of the HDD assembly HDD2 are increasing.	
0223	HDD 3 WARNING	Read/Write errors of the HDD assembly HDD3 are increasing.	
0224	HDD 4 WARNING	Read/Write errors of the HDD assembly HDD4 are increasing.	
0225	HDD 5 WARNING	Read/Write errors of the HDD assembly HDD5 are increasing.	
0226	HDD 6 WARNING	Read/Write errors of the HDD assembly HDD6 are increasing.	
0227	HDD 7 WARNING	Read/Write errors of the HDD assembly HDD7 are increasing.	
0228	HDD 8 WARNING	Read/Write errors of the HDD assembly HDD8 are increasing.	
0229	HDD 9 WARNING	Read/Write errors of the HDD assembly HDD9 are increasing.	
022A	HDD 10 WARNING	Read/Write errors of the HDD assembly HDD10 are increasing.	
022B	HDD 11 WARNING	Read/Write errors of the HDD assembly HDD11 are increasing.	
022C	HDD 12 WARNING	Read/Write errors of the HDD assembly HDD12 are increasing.	
0234	HIGH TEMPERATURE	The temperature of the HPR-48 board (lower side slot) has risen.	1. Clean the front panel. 2. Lower the ambient temperature. 3. Replace the fan on the HPR-48 board.
0235	HIGH TEMPERATURE	The temperature of the HPR-48 board (upper side slot) has risen.	
0261	SSD LIFETIME	The SSD module (mSATA assembly or M.2 assembly) has reached the end of its life. Further use of the SSD module decreases the reliability of stored data and causes eventual failure of data writing.	Replace the SSD module.

2-2. SNMP Trap Messages

SNMP trap messages are output from the unit through the SNMP.

Message	Description	Action
POWER SUPPLY x ERROR	An abnormality was detected in the power supply unit x.	Replace the power supply unit x.
FAN x ERROR	An abnormality of the fan assembly FANx was detected.	Replace the faulty fan assembly.
HIGH TEMPERATURE	The internal temperature has risen.	Clean the air filter and readjust the ambient temperature setting.
LOW BATTERY	The backup battery voltage has dropped.	Replace the backup battery with a new one.
DIO-98 INITIAL ERROR	Failed to initialize the DIO-98 board.	Turn off and on the unit. If the same error recurs, replace the DIO-98 board.
SMBUS ERROR	An error occurred in the SMBUS interface of the MB-1204 board.	Turn off and on the unit. If the same error recurs, replace the MB-1204 board.
EEPROM ERROR	An error occurred in the EEPROM I/F interface of the MB-1204 board.	Turn off and on the unit. If the same error recurs, replace the MB-1204 board.
POWER SUPPLY x WARNING	The rotating speed of the fan in the power supply unit x has decreased.	It can be used continuously. We recommend that you replace parts as soon as possible.
FAN x WARNING	The rotating speed of FANx has decreased.	It can be used continuously. We recommend that you replace parts as soon as possible.
HDD x WARNING	Read/write errors of HDDx are increasing.	It can be used continuously. We recommend that you replace parts as soon as possible.
SSD LIFETIME	The SSD module (mSATA assembly or M.2 assembly) has reached the end of its life. Further use of the SSD module decreases the reliability of stored data and causes eventual failure of data writing.	It can be used continuously. We recommend that you replace parts as soon as possible.

- HDD assembly No.: 1 to 12
- Power supply unit No.: A, B
- Fan assembly No.: 1 to 5

Section 3
Maintenance Menu

3-1. Maintenance Web Screen

The Maintenance Web screen shows maintenance information such as setting of this system, error/warning information, version information, and RAID status/settings.

3-1-1. Displaying Maintenance Web Screen

Note

When any OS is not pre-installed in the unit, the maintenance package and Google Chrome need to be installed for using Maintenance Web screen.
For installing the maintenance package and Google Chrome, refer to PWS-100 installation guide.

Launch Google Chrome browser after logging in to the unit, and enter the following as the URL in the address bar and press the Enter key to display the Maintenance Web screen.
http://127.0.0.1/pws-100/maintenance/
For more information on Maintenance Web screen, refer to the operation manual of the PWS-100 Maintenance Web Application.

Tip

For the models with OS pre-installed, the operation manual of the PWS-100 Maintenance Web Application is stored in the system drive of the unit.

Section 4
Periodic Maintenance and Inspection

4-1. Periodic Maintenance

Inspect and replace parts regularly to maximize and maintain the performance of the unit.

4-1-1. Digital Hours Meter

The elapsed operation time of the unit is displayed. Use this digital hours meter as a guide to periodic check/replacement.

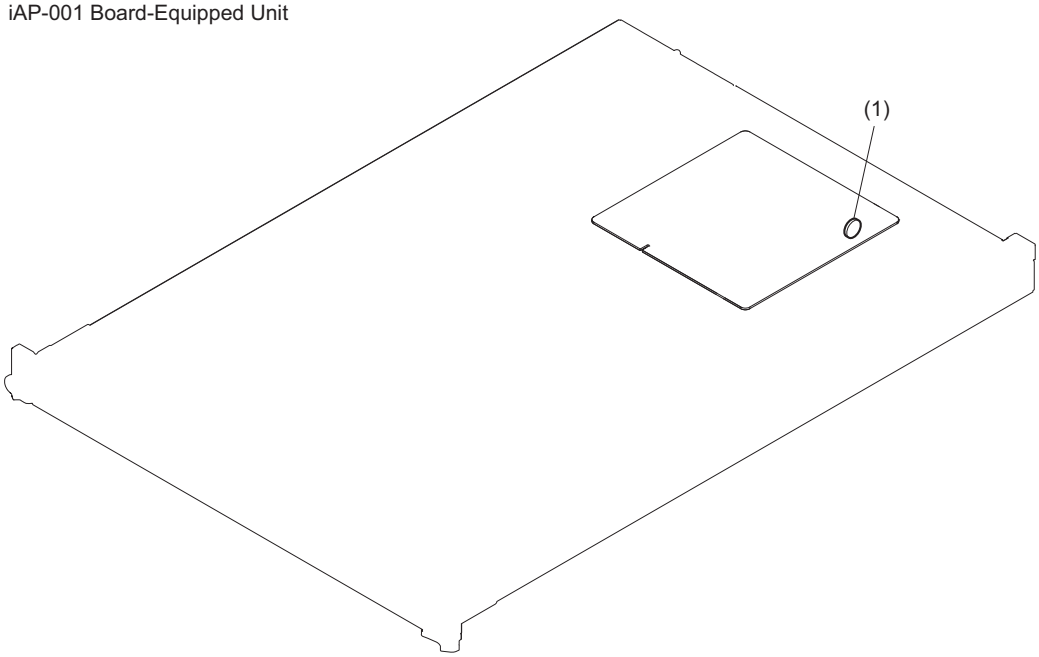
Displaying Digital Hours Meter

Operation Hours data is shown on the Diagnosis page of the Maintenance Web screen.
For details of the Maintenance Web screen, refer to Operation Manual for PWS-100 Maintenance Web Application.

Item	Description
Operation Hours	Total power-on hours (unit: hour, resettable)

4-1-2. Periodic Replacement Parts

iAP-001 Board-Equipped Unit



This section describes the recommended replacement parts and recommended replacement time.
This table does not describe the guarantee period of part.
The replacement period of each part is changed according to the environment and condition.

Location	Part name	Sony parts No.	Hour meter (Menu Item)	Check/replacement period	Reference section
(1)	BATTERY, LITHIUM (CR2032 TYPE)	⚠1-528-174-72	Total power-on hours (OPERATION HOURS)	Replace about every 4.5 years *1 (When used for 12 hours a day.)	"5-16. Lithium Battery"

*1: This is applicable for iAP-001 board-equipped units. The battery drains when the AC power is not supplied to this unit.

Section 5
Replacement of Main Parts

5-1. Precautions before Work

5-1-1. Precautions when Handling the Hard Disk Drive

Hard disk drive (HDD) is a precision part. The causes such as shock, vibration and static electricity to the unit, and the conditions of temperature and humidity may damage HDD or its data. Before work, read fully the following cautions, and work with extra care.

Cautions about shock and vibration

When transporting and moving;

- Pack the unit using the packaging materials specified by the manufacturer.
- Use a good platform truck.
- Avoid rough routes, and transport the unit carefully.

When placing on a floor or a table;

- Put a cushion on stable and horizontal place, and put the unit on it gently.
- Do not place the unit near vibrating equipments.

For the unit;

- Never hit the unit, and never drop the tool on the unit.

Take extra care;

- Never give vibration or shock to the unit while the power is turned on, or within about 30 seconds after turning off the power.
- Be extremely careful when removing and/or installing the HDD unit or power supply unit while the unit is in live state.

Caution about rack mounting

- Do not apply shock to any rack-mounted unit that has an HDD.

Cautions about static electricity

- Remove static generating plastics (such as air bubble cushioning) from the working area.
- When handling an HDD unit, wear an antistatic wrist strap to protect the HDD unit against static electricity.

Cautions about temperature and humidity

- Temperature and humidity of storage and operating condition must be kept within the correct specified range.
- Never turn on the power with the cabinet removed in consideration of the air-cooling effect.

Cautions when an HDD failed

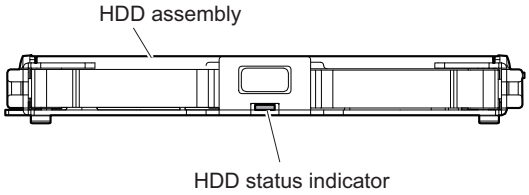
- Follow the instructions given above to treat the HDD, even when the HDD failed.

- Leave the HDD as it was when it failed, and write down the symptoms in detail.

5-1-2. Identifying Faulty HDD Assembly

When any of the following symptoms appeared, an HDD has some trouble. Replace the faulty HDD.

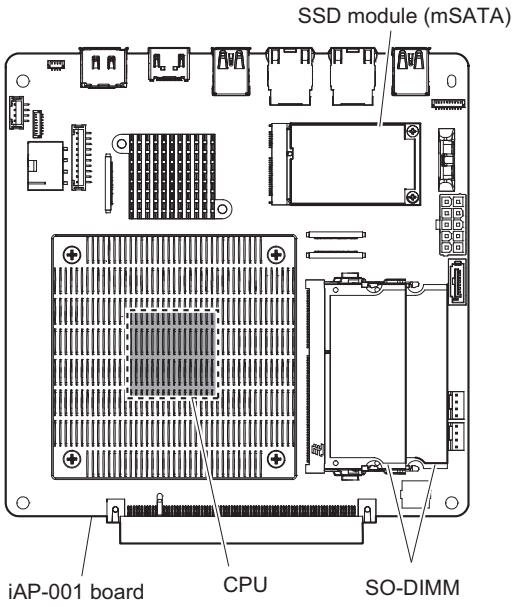
- When the front panel is detached, the HDD status indicator is lit red.
- The [Disk n] display area of the maintenance menu is shown in red.



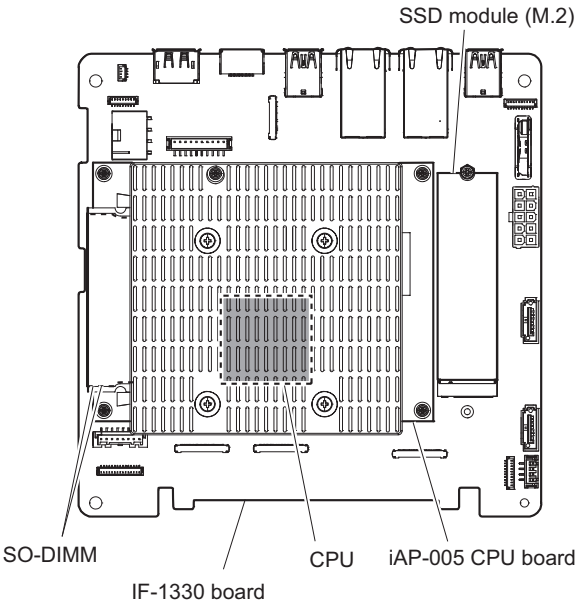
5-1-3. Difference of CPU Block

The iAP board assembly that contains the CPU has been changed from iAP-001 board assembly to iAP-005 assembly.

Before change: iAP-001 board assembly



After change: iAP-005 assembly



5-1-4. Solutions for Discontinued Parts

When the following parts are discontinued and they are no longer available, replace the iAP-001 board assembly with the iAP-005 assembly.

Parts to be discontinued

- iAP BOARD (PWS-100) RP ASSY (iAP-001 board assembly)
- IC CM8063701211600S-R0PK (CPU)
- IC HMT451S6BFR8A-PBN0 (memory module 204pin SO-DIMM)
- IC THNSNH060GMCT (SSD module (mSATA))

Required parts

- iAP-005 assy

- SSD module (M.2)
- +PSW (small round) (2.6): 1 pc (For installing M.2)
- CN-3934 mount
- Coaxial cable with connector: 2 pcs

Procedure

1. Remove the iAP-001 board assembly. (Refer to “5-22-3. iAP-001 Board Assembly”.)
2. Install the iAP-005 board assembly. (Refer to “5-23-2. iAP-005 Board Assembly”.)
3. Install the SSD module. (Refer to “5-23-1. SSD Module (M.2)”.)
4. Perform the actions after the replacement. (Refer to “5-2-6. After Replacing the iAP Board Assembly”.)

5-1-5. Non-reusable Parts

The following parts are not reusable. Prepare new parts in advance.

- Radiation sheet 0.5 (30X30)
- Radiation sheet (CPU)

5-1-6. Tightening Torque

Be sure to use a torque driver and tighten screws to the specified tightening torque.

Tightening torque
M2: 0.3 ±0.02 N·m
M2.6: 0.53 ±0.07 N·m
M3: 0.8 ±0.12 N·m
M4: 1.4 ±0.2 N·m

Tip

When using the torque driver with the notation of cN· m, interpret it as follows.
Example: 0.8 N·m = 80 cN·m

5-2. Actions to Be Taken Before/After Replacement

5-2-1. After Replacing the Lithium Battery

Note

This section describes the procedure to be taken when the Windows OS is installed in this unit.

When the lithium battery is replaced, the date and time in the internal clock need to be set. Set the date and time in the following procedures.

Required Equipment

- A USB mouse
- A USB keyboard
- A monitor

Procedure

1. Connect the mouse and the keyboard to the USB connectors.
2. Connect the monitor to the DisplayPort or the HDMI connector.
3. Turn on the unit.
4. Sign in to Windows with administrative privileges.
5. Select [Set the time and date] under [Date and Time] in the [Clock, Language, and Region] control panel.
6. Click [Change time zone] on the [Date and Time] tab, and select the time zone.
7. Click [Change date and time] on the [Date and Time] tab, and set the date and time.
8. Click the [Change settings] on the [InternetTime] tab.
9. Specify an NTP server, then click the [Update Now].
10. Place a check mark in [Synchronize with an Internettime server] to periodically correct the clock using the NTP server.

5-2-2. After Replacing the SSD Module (mSATA Assembly / M.2 Assembly)

After the SSD module is replaced, perform the initial settings for Windows.

The setting method conforms to the standard operation of the installed OS.

Windows initial settings

For Windows Embedded 8.1 Industry Pro pre-installed model

Required equipment

- A USB mouse
- A USB keyboard
- A monitor

Preparation

The unit must be turned off during the preparation.

1. Set the DIP switch S2201-1 on the MB-1204 board to ON.

   Tip

   To set the switch, detach the top panel.

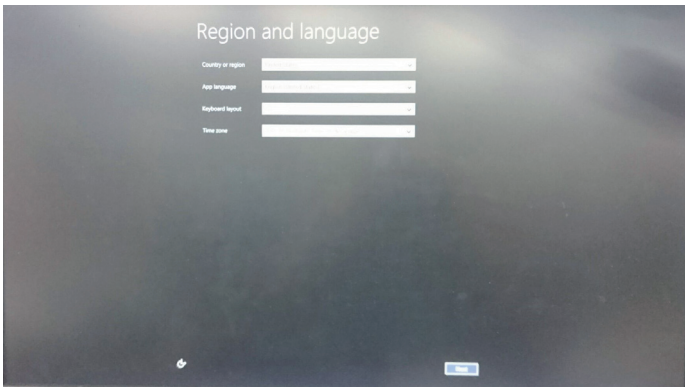
   Note

   An error will occur and the unit will not start up, if the unit starts up for the first time while any storages, such as group of front panel accessible HDDs for RAID and USB flash memories, other than an SSD module are connected. In such cases, you need to replace the SSD module and perform the procedure in this section again, or start up Windows PE using USB flash memory and recover from recovery image, to restore the unit.
   The group of the front panel accessible HDDs for RAID are disconnected when the DIP switch S2201-1 on the MB-1204 board is set to ON to stop the RAID controllers, so you don't need to disconnect the HDDs physically. On the other hand, the other kinds of storages like USB flash memories should be removed.

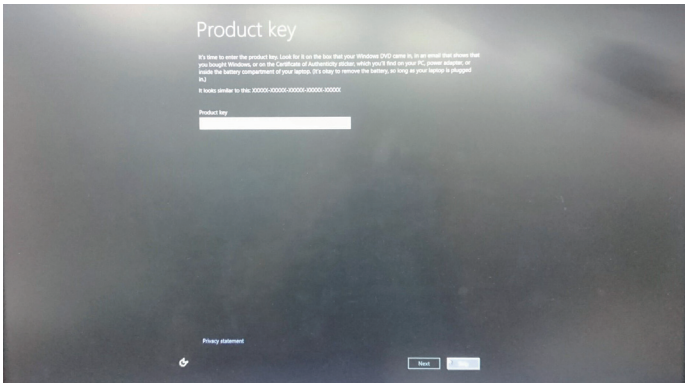
2. Connect the USB mouse and the USB keyboard to the USB connectors.
3. Connect the monitor to the DisplayPort or the HDMI connector.

Procedure

1. Turn on the unit to start Windows.
2. Leave the each item on the [Region and language] blank, and click [Next].



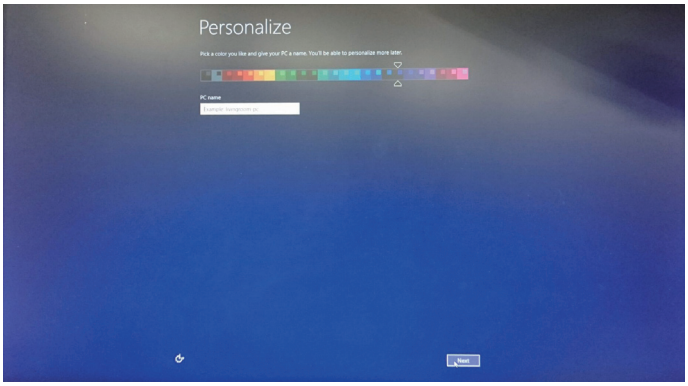
3. Leave the text box of [Product Key] blank, and click [Skip].



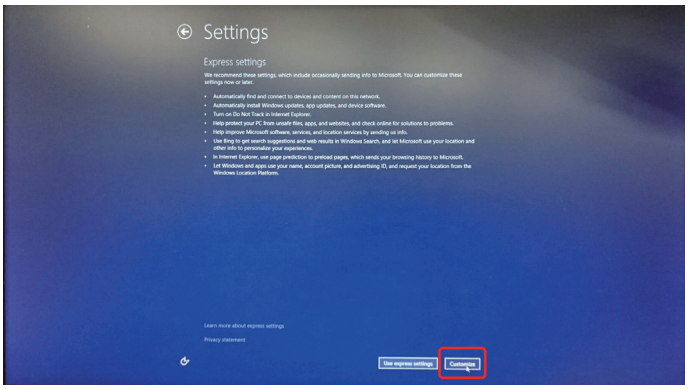
4. On the [Personalize] window, change the [PC name] “PWS-100” to “PWS-100-<serial number of the unit>”.

Tip

For example, type “PWS-100-101234” for the unit with a serial number of “101234”.
The serial number is written on the model name label.



5. Click [Customize] in “Express Settings” page of the [Settings].



6. On the “You've connected to a network. Do you want to find PCs, devices, and content on this network, and automatically connect to devices like printers and TVs?” window, make settings in accordance with the network environment.

Tip

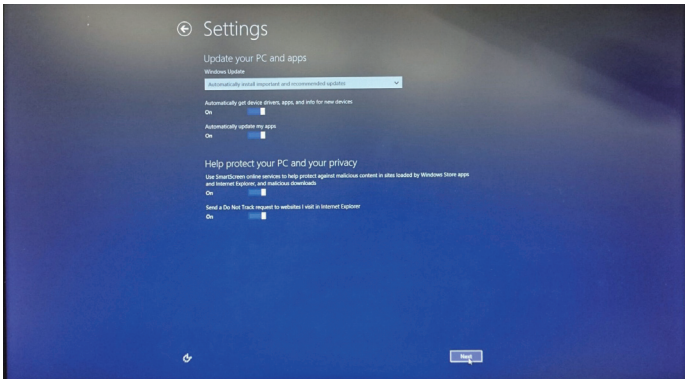
This menu may not be displayed depending on the network environment.

7. For item “Windows Update” in “Update your PC and apps”, select [Don't set up Windows Update].

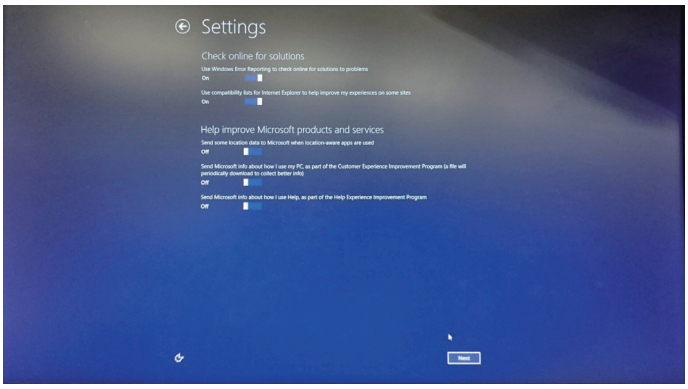
Tip

By this setting, automatic update and reboot that would disturb the work are not executed.

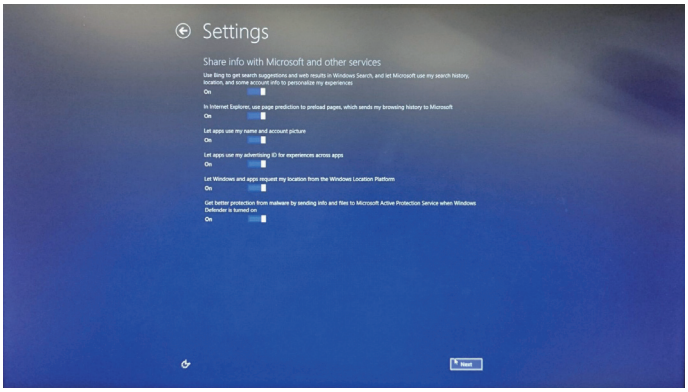
Set all other items to [Off].
After these settings, click [Next].



8. Set all items in “Check online for solutions” and “Help improve Microsoft products and services” to [Off].
After these settings, click [Next].



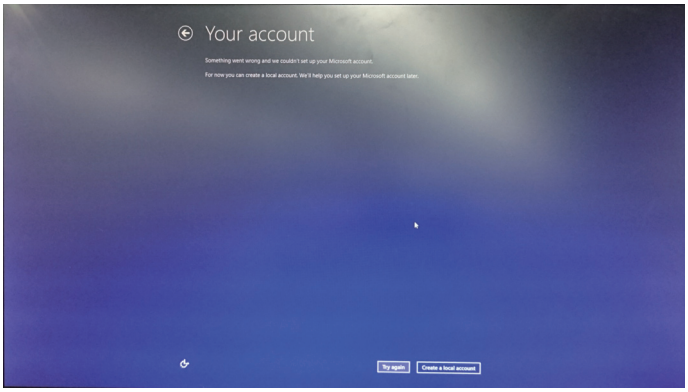
9. Set all items in “Share info with Microsoft and other services” to [Off].
After these settings, click [Next].



10. On the [Your account] window, click [Create a local account].

Tip

You are asked to sign in to your PC with Microsoft account when the unit is connected to the network. In this step, create a local account and sign in to your PC, without signing in with a Microsoft account.

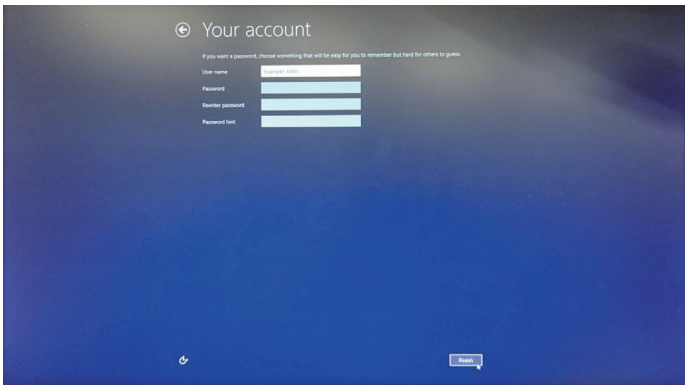


11. On the displayed window, enter as described below.
    - User name: pws
    - Password: pws
    - Reenter password: pws
    - Password hint: same

Tip

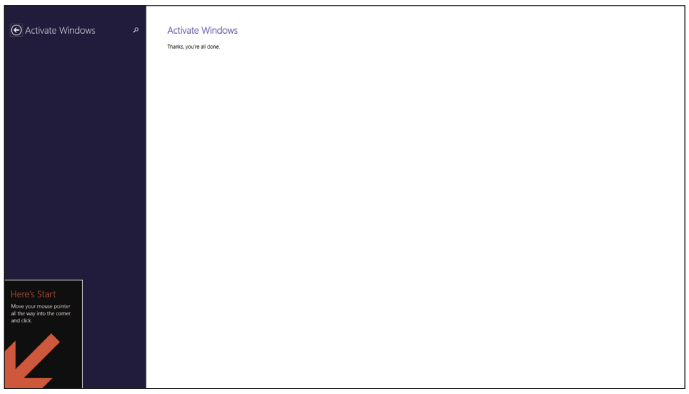
These are the factory default settings.

After typing these items, click [Finish].



12. After Windows starts, sign out of the system and confirm that sign-in is possible with the user registered in the previous step.
13. After the unit starts up, select [System] in from [System and Security] in the [Control Panel] and confirm if the [Computer name] is “PWS-100-<serial number of the unit>”.
14. Turn off the unit and perform the following work.
    - Set the DIP switch S2201-1 on the MB-1204 board to OFF.
15. Turn on the unit.

16. Activate Windows.
    (1) Connect the unit to the network.
    (2) Open [System] from [System and Security] in the [Control Panel].
    (3) Open [Activation] in the Windows activation.
    (4) Click [Activate].
    (5) Check that “Thanks, you’re all done” appears in [Activate Windows].



17. Update the application software.
    To update the application software, refer to “1-4. Software Update”.

    Note

    The application software installed in the SSD module is not the latest one. Therefore, install the latest version of application software.

For Windows Embedded 8 Standard pre-installed model

Required equipment

- A USB mouse
- A USB keyboard
- A monitor

Preparation

The unit must be turned off during the preparation.

1. Set the DIP switch S2201-1 on the MB-1204 board to ON.

   Tip

   To set the switch, detach the top panel.

   Note

   An error will occur and the unit will not start up, if the unit starts up for the first time while any storages, such as group of front panel accessible HDDs for RAID and USB flash memories, other than an SSD module are connected. In such cases, you need to replace the SSD module and perform the procedure in this section again, or start up Windows PE using USB flash memory and recover from recovery image, to restore the unit.
   The group of the front panel accessible HDDs for RAID are disconnected when the DIP switch S2201-1 on the MB-1204 board is set to ON to stop the RAID controllers, so you don't need to disconnect the HDDs physically. On the other hand, the other kinds of storages like USB flash memories should be removed.

2. Connect the USB mouse and the USB keyboard to the USB connectors.
3. Connect the monitor to the DisplayPort or the HDMI connector.

Procedure

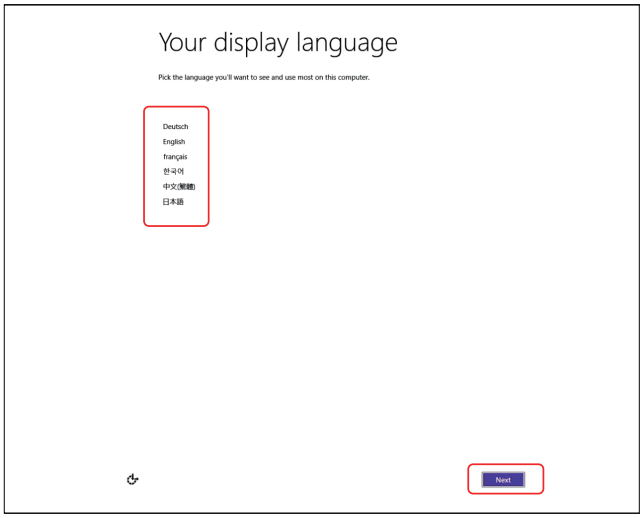
1. Turn on the unit to start Windows.

2. On the [Your display language] window, select the language to be used.

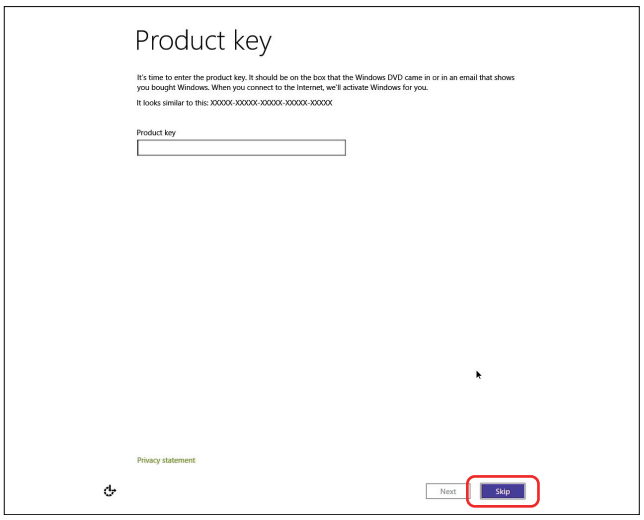
Tip

Factory setting: “English”

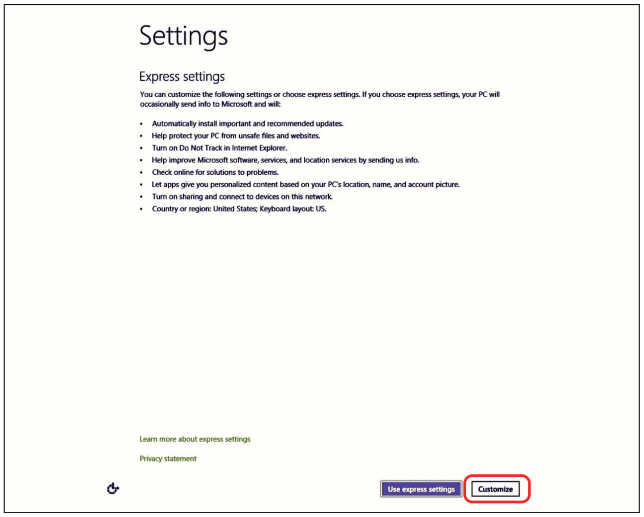
Then click [Next].



3. Leave the text box of [Product Key] blank, and click [Skip].



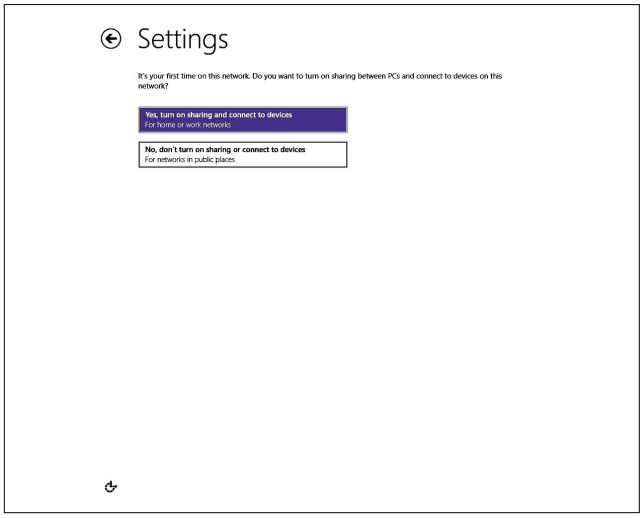
4. Click [Customize] in “Express Settings” page of the [Settings].



5. On the “It's your first time on this network. Do you want to turn on sharing between PCs and connect to devices on this network?” window, make settings in accordance with the network environment.

Tip

To share between PCs, select “Yes, turn on sharing and connect to devices.”

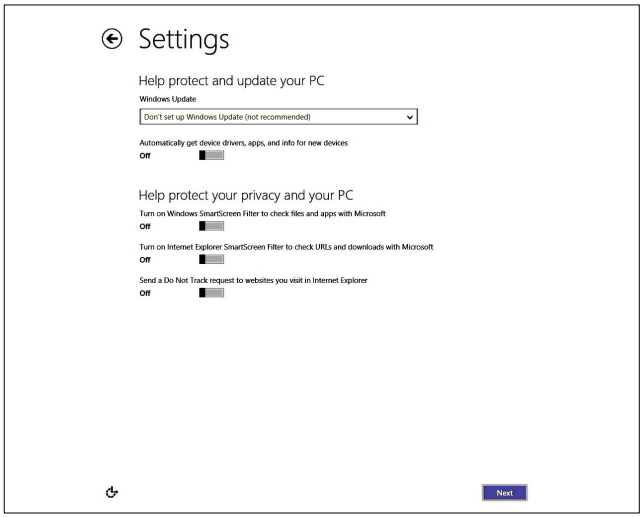


6. For item “Windows Update” in “Help protect and update your PC,” select [Don't set up Windows Update].

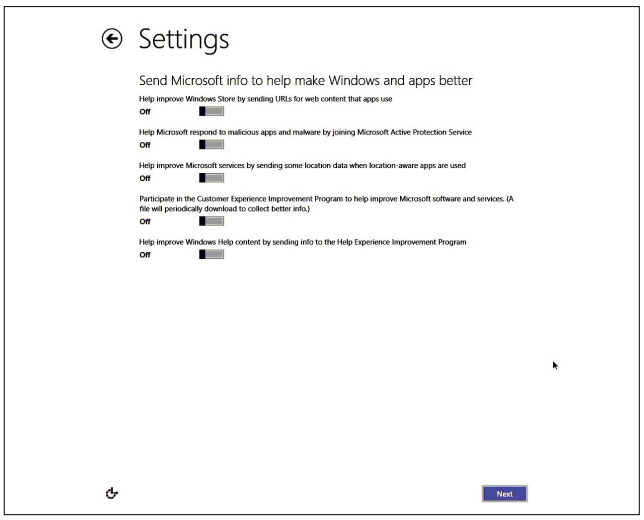
Tip

By this setting, automatic update and reboot that would disturb the work are not executed.

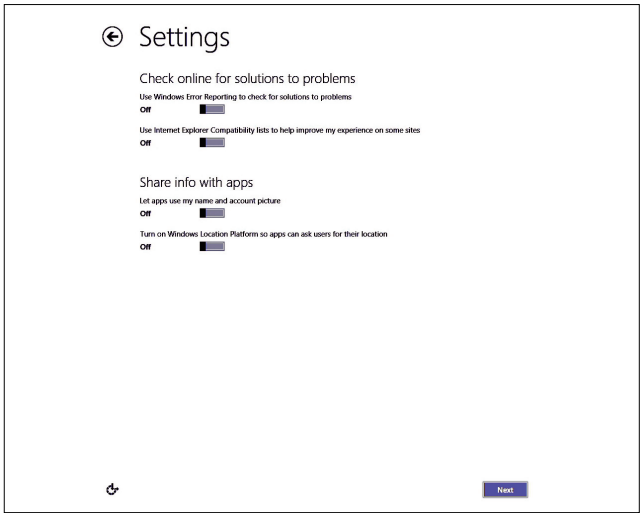
Set all other items to [Off].
After these settings, click [Next].



7. Set all items in “Send Microsoft info to help make Windows and apps better” to [Off].
After these settings, click [Next].



8. Set all items in “Share info with apps” to [Off].
   After these settings, click [Next].

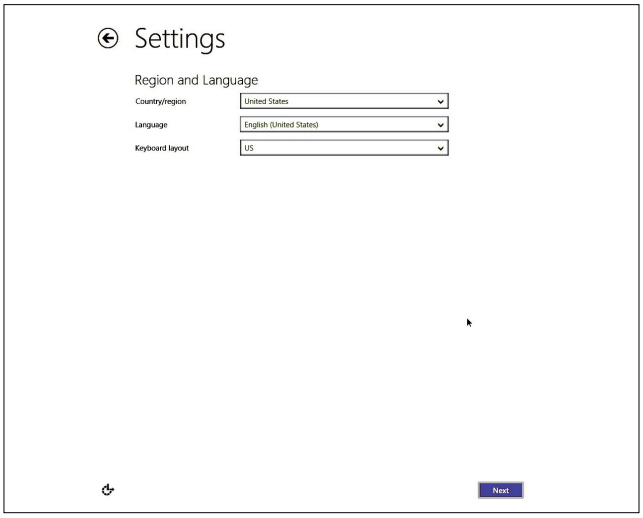


9. Set the PC according to your environment on the “Region and Language screen”.

Tip

Factory settings
Country/Region : United States
Language : English (United States)
Keyboard Layout : US

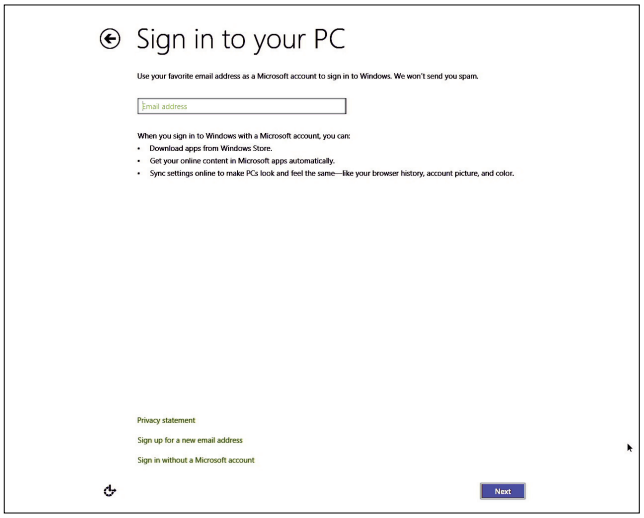
After selecting, click [Next].



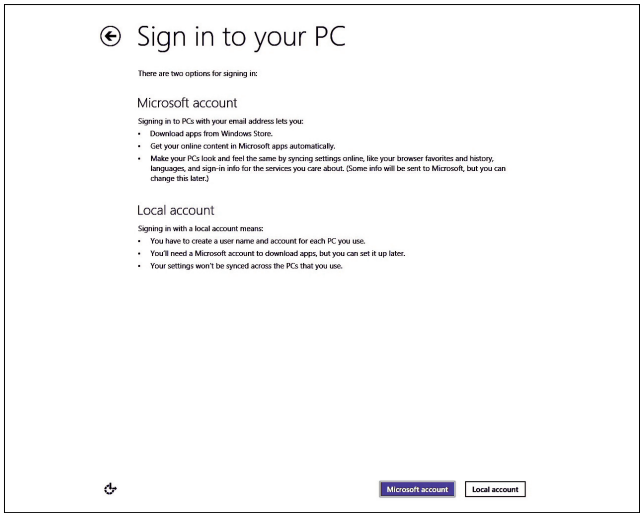
10. On the [Sign in to your PC] window, select [Sign in without a Microsoft accounts].
Then click [Next].

Tip

You are asked to sign in to your PC with Microsoft account when the unit is connected to the network.
In this step, create a local account and sign in to your PC, without signing in with a Microsoft account.



11. Click [Local account].

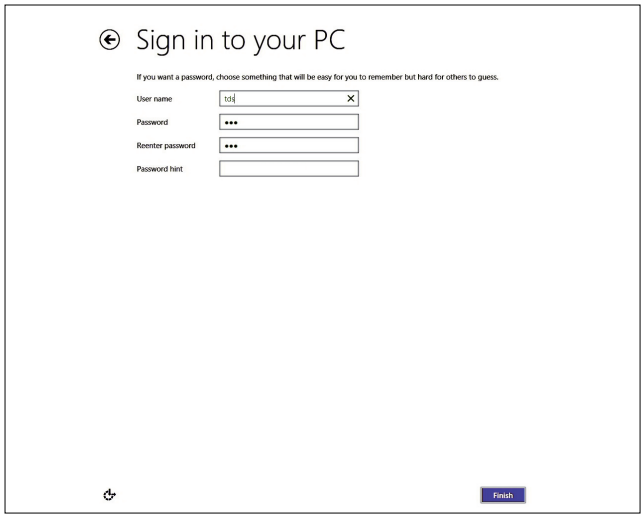


12. On the displayed window, enter as described below.
    - User name: pws
    - Password: pws
    - Reenter password: pws
    - Password hint: same

    Tip

    These are the factory default settings.

    After typing these items, click [Finish].

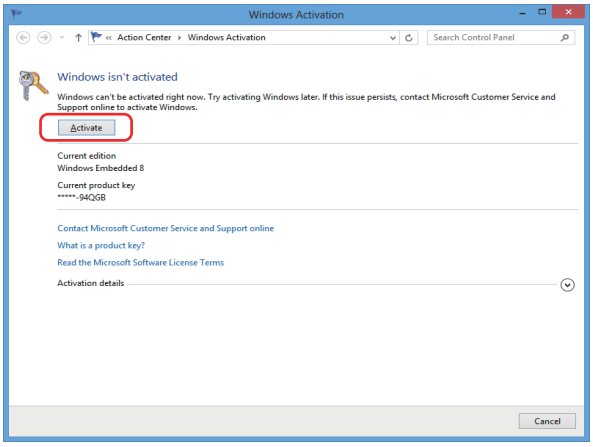


13. Confirm that Windows starts and it is possible to sign in to the PC with the user set in step 12.
14. Turn off the unit and perform the following work.
    - Set the DIP switch S2201-1 on the MB-1204 board to OFF.
15. Turn on the unit, and confirm that the drive can be recognized.

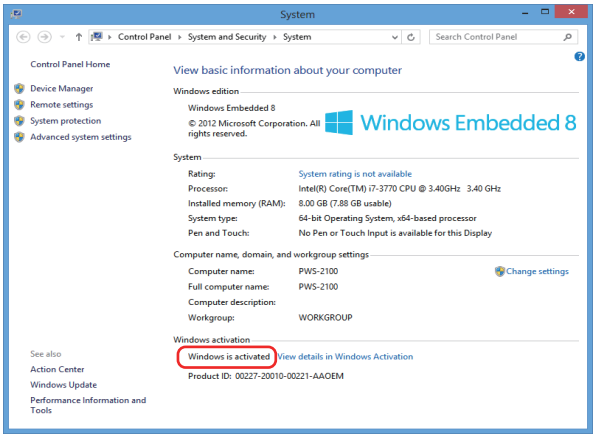
    Note

    Drive letter is assigned in alphabetical order from D.
    The number of disk drives depend on the RAID configuration.

16. Activate Windows.
    (1) Connect the PC to the network.
    (2) Open [System] from [System and Security] in the [Control Panel].
    (3) Open [Activation] in the Windows activation.
    (4) Click [Activate].



    (5) On the System window, confirm that “Windows is activated” is indicated.



17. Change the computer name of the unit.
    (1) Click [Change settings] on the right of the [Computer name] in the [System] dialog box.
    (2) Click the [Computer Name] tab.
    (3) Click [Change] of [To rename this computer or change its domain or workgroup, click Change].
    (4) Change the Computer name “PWS-100” to “PWS-100-<serial number of the unit>”.

Tip

For example, type “PWS-100-101234” for the unit with a serial number of “101234”.
The serial number is written on the model name label.

    (5) Click [OK].
    (6) When a confirmation dialog box is displayed, click [OK].
    (7) Click [Close] on the [System Properties] dialog box.
    (8) Click [Restart Now] on the confirmation dialog box.
    (9) After the unit starts up, select [System and Security] in [System] and confirm if the computer name is “PWS-100-<serial number of the unit>”.

18. Update the application software.
    To update the application software, refer to “1-4. Software Update”.

    Note

    The application software installed in the SSD module is not the latest one. Therefore, install the latest version of application software.

19. Set the Windows to open pdf files by using Chrome.
    Start the command prompt with administrative privileges and run the following commands.

```
$> assoc.pdf=chromepdf
$> ftype chromepdf="%ProgramFiles(x86)%\Google\Chrome\Application
\chrome.exe" %1
$> exit
```

For models with which OS installation media is supplied

Install the OS and software programs according to the Installation Guide.

For models in which OS is not pre-installed

Install the OS, application software, and other necessary programs.

For Windows 8.1 Professional pre-installed model

Install the OS, drivers, and the maintenance package. (Refer to PWS-100 Installation Guide.)

5-2-3. After Replacing the M.2 Assembly

After replacing the M.2 board, restore the initial BIOS settings.

Required equipment

- A USB mouse
- A USB keyboard
- A monitor

Procedure

1. Connect the mouse and the keyboard to the USB connectors.
2. Connect the monitor to the DisplayPort or the HDMI connector.
3. Connect the power cord.
4. Press and hold the Delete key and turn on the unit.
   BIOS setup screen appears.
5. Move to the [Save & Exit] tab by pressing the arrow keys on the keyboard.
6. Select “Restore Defaults” from [Default Options], and press the Enter key.
   [Load Optimized Defaults?] dialog is displayed.
7. Select “Yes”, and press the Enter key.
   [Save configuration and reset?] dialog is displayed.
8. Select “Yes”, and press the Enter key.
   The unit restarts and the settings are stored.

5-2-4. Before Replacing the MB-1204 Board

When the unit has any HDD assemblies, before replacing the MB-1204 board, the following work is required.

Backing up RAID management information

RAID management information is stored in the SRAM (IC2401) on the MB-1204 board. Before replacing the MB-1204 board, back up the RAID management information from the SRAM (IC2401) to the C drive. Perform the following procedure to back up RAID management information.

Note

If the MB-1204 board is replaced without backing up the RAID management information to the C drive, the previous RAID configuration cannot be restored after the MB-1204 board is replaced.

1. Select the following folder in the Explorer.
   C:\Program Files\Sony\PWS-100\hkp\client
2. Select "hkpc.exe" and select "Run as an administrator" from the context (right-click) menu.
3. When you are asked whether to enable execution, select "Yes."
4. When the command prompt window opens, enter the following command and press the Enter key.
   strgbackup␣filename.srm
   A desired character string can be used for "filename." This file name is required later, when writing back the RAID management information.
   Note
   If the RAID management information is backed up with the same file name, it is overwritten.
5. After the RAID management information is backed up to the C drive, "OK" appears on the command prompt window.
6. Turn off the power of the unit.

5-2-5. After Replacing the MB-1204 Board

After the MB-1204 board is replaced, the following steps must be performed in order.

1. Restoring the RAID Management Information (when HDD assemblies are installed)
2. Connecting the harnesses
3. Software version update
4. Writing the serial number
5. Final check

When the HDD assembly is not installed, start with "Connecting the Harnesses".

Restoring the RAID Management Information

If the unit has no HDD assembly, skip this procedure and proceed to "Connecting the Harnesses".
Before replacing the MB-1204 board, back up the RAID management information. After the MB-1204 board has been replaced, write the RAID management information to the SRAM (IC2401) on the new MB-1204 board. (For how to back up the RAID management information, refer to "5-2-4. Before Replacing the MB-1204 Board".)
Perform the following procedure to restore the RAID management information.

Procedure

Note

Do not connect harness to any of the following connectors on the MB-1204 board until RAID management information has been written. Connect harnesses to the following connectors after the following work has been completed.
MB-1204 board: CN1100, CN1101, CN1102

1. Turn on the unit.
2. Select the following folder in the Explorer.
   C:\Program Files\Sony\PWS-100\hkp\client
3. Select "hkpc.exe" and select "Run as an administrator" from the context (right-click) menu.

4. When you are asked whether to enable execution, select “Yes.”
5. When the command prompt window opens, enter the following command and press the Enter key.
   strgrestore␣filename.srm
   (Specify the file name used when it was stored.)
   When the RAID management information stored in the C drive is written to the SRAM on the MB-1204 board, “OK” appears on the command prompt window.
6. Turn off the unit.

Connecting the Harnesses

Procedure

1. Connect harnesses to the connectors (CN1100, CN1101, and CN1102) on the MB-1204 board.
2. Attach the top panel.

Software Version Update

Update the software version according to “1-4. Software Update”.

Writing the Serial Number

Write the Serial Number into the CPLD of new MB-1204 board.
Perform the following procedure.

Procedure

1. Turn on the unit.
2. Select the following folder in the Explorer.
   C:\Program Files\Sony\PWS-100\hkp\client
3. Select “hkpc.exe” and select “Run as an administrator” from the context (right-click) menu.
4. When you are asked whether to enable execution, select “Yes.”
5. When the command prompt window opens, enter the following command and press the Enter key.
   setserialno <serial number of the unit>

   Tip

   For example, type “setserialno 101234” for the unit with a serial number of “101234”.
   The serial number is written on the model name label.

Final Check

Procedure

1. Enter the following command and press the Enter key.
   getserialno
   Check that the entered serial number is displayed.
2. Turn off the unit.

5-2-6. After Replacing the iAP Board Assembly

When the iAP board assembly was replaced, the BIOS must be updated.

Before updating the BIOS, replace the battery with a new one because the battery on the iAP board assembly from parts center may have drained.
When the iAP board is replaced, the MAC address changes. Therefore, it may be necessary to reissue the software install key. For details, refer to the manual of application software for systems.

Required equipment

- Bootable USB memory (Refer to "5-2-7. Example of Creating Bootable USB Memory".)

  Note

  For obtaining the BIOS update file required to create bootable USB memory, contact your local Sony Sales Office/ Service Center.

- A USB mouse
- A USB keyboard
- A monitor

Required part

- Lithium battery (CR2032)

---

iAP-001 board assembly

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Replace the lithium battery (CR2032) on the iAP board assembly for repair with a new one.
3. Connect the power cord to the power connector on the rear panel to supply AC power.
4. Connect the USB mouse and the USB keyboard to the USB connectors.
5. Connect the monitor to the DisplayPort or the HDMI connector.
6. Connect the bootable USB memory to the USB connector.

   Tip

   Every USB connector is available.

Procedure

1. Turn on the unit.

   Note

   If the iAP board assembly mounted in this unit has never been used before, go to step 8.

   Since the highest priority is placed on the USB memory in the BIOS priority setting written in the iAP board, the USB memory is accessed on a priority basis after the unit is turned on.
2. Before a window appears on the monitor, press the [F2] key on the keyboard to open the BIOS screen.

   Tip

   If the BIOS screen does not open and the unit has started as usual, press the [Ctrl] key, [Alt] key, and [Delete] key at the same time to restart the unit, and then press the [F2] key on the keyboard again.

3. Move to the BOOT menu by using the arrow keys on the keyboard, then the following information is displayed on the monitor.
   Boot Option Priorities
   Boot Option #1 [SATA PM TOSHIBA...]
   Boot Option #2 [Sony Storage Media...]
   ...[SATA PM TOSHIBA...]
4. Change the arrangement of lines by using the arrow keys on the keyboard so that "...[SATA PM TOSHIBA...]" shown on the monitor comes to the top of the line.
5. Select "Save&Exit" shown on the monitor by using the arrow keys on the keyboard.

6. Select “Save Changes and Reset” on the monitor, then “Save configuration and reset?” appears. Select “Yes” by using the arrow keys on the keyboard, and then press Enter key.
7. The unit restarts automatically.
8. The DOS in the bootable USB memory runs.
   When “Enter new date (mm-dd-[cc]yy):-” appears on the monitor, press Enter key.
   When “Enter new time:-” appears, press Enter key.
   A command prompt “c:\” appears on the monitor.
9. Enter “update” following the command prompt “c:\” and then press Enter key.
   The BIOS update starts. After the update is completed, a command prompt “c:\” appears.
10. Turn off the unit.
11. Remove the bootable USB memory.
12. Turn on the unit.
13. Before a window appears on the monitor, press the [F2] key on the keyboard.

    Tip

    If the BIOS screen does not open and the unit has started as usual, press the [Ctrl] key, [Alt] key, and [Delete] key at the same time to restart the unit, and then repress the [F2] key on the keyboard.

14. In the “Project Version” column of the Main menu on the BIOS setup screen, make sure that the version updated by the above procedure is shown.
15. Turn off the unit.
16. Install the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)
17. Set the clock time. (Refer to “Setting date and time” in “Setting Up” in the Operation Manual.)

iAP-005 board assembly

Preparation

1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)
2. Replace the lithium battery (CR2032) on the iAP board assembly for repair with a new one.
3. Remove the M.2 assembly. (Refer to “5-23-1. SSD Module (M.2)”.)
4. Connect the power cord.
5. Connect the USB mouse and the USB keyboard to the USB connectors.
6. Connect the monitor to the DisplayPort or the HDMI connector.
7. Connect the bootable USB memory to the USB connector.

   Tip

   Every USB connector is available.

Note

Disconnect expanded equipment other than keyboard, mouse, monitor, and USB memory.

Procedure

1. Turn on the unit.
   BIOS startup screen appears on the monitor.
2. When the BIOS startup screen is displayed, press the DEL key on the keyboard.
   The BIOS screen is displayed.

   Tip

   If the BIOS screen is not displayed and normal startup or UEFI Shell is activated, hold down the Power button on the front panel to turn off the unit, and then retry this procedure from step 1.

3. Set [Boot option filter] in the BOOT menu to “Legacy Only”.
4. Execute the [Save Changes and Reset] in the Save & Exit menu.
   The unit restarts.

5. When the BIOS startup screen is displayed, press the DEL key on the keyboard.
   The BIOS screen is displayed.
6. Select USB memory from [Boot Override] in the Save & Exit menu.
   The DOS in the bootable USB memory runs.
7. When “Enter new date (mm-dd-[cc]yy):-” appears on the monitor, press Enter key.
8. When “Enter new time:-” appears, press Enter key.
   A command prompt (C:\) is displayed.
9. Enter “update” following the command prompt “C:\”, and then press Enter key.
   BIOS update starts.
   After the update is completed, “FPT Operation Successful” appears and then a command prompt “C:\” appears.
10. Turn off the unit.
11. Disconnect the bootable USB memory from the USB connector.
12. Disconnect the power cord.
13. Remove the lithium battery, and then reinstall it after 30 seconds. (Refer to “5-16. Lithium Battery”.)
14. Connect the power cord, and turn on the unit.
    The BIOS screen is displayed on the monitor.

    Note

    The unit may be turned on only by connecting the power cord.

15. When the BIOS startup screen is displayed, press the DEL key on the keyboard to display the BIOS screen.

    Tip

    Restart operation may automatically repeat until the BIOS screen is displayed.

16. Check whether the written version is displayed in [BIOS Version & Build Date] in the Main menu.
17. Execute the [Restore Defaults] in the Save & Exit menu.
18. Execute the [Save Changes and Reset] in the Save & Exit menu.
    The unit restarts.
19. Check that the screen changes to the UEFI Shell.

    Tip

    Restart operation automatically repeats until the UEFI Shell screen is displayed.

20. Turn off the unit and disconnect the power cord.
21. Attach the M.2 assembly to the unit. (“5-23-1. SSD Module (M.2)”.)
22. Connect the power cord.
23. Turn on the unit and check that the OS starts.
24. Turn off the unit.
25. Install the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)

5-2-7. Example of Creating Bootable USB Memory

This section describes how to create general bootable USB memory that is available in a PC environment.
An example of creating such bootable USB memory by using software FreeDOS and Win 32 Disk Imager on a Windows PC is shown below.

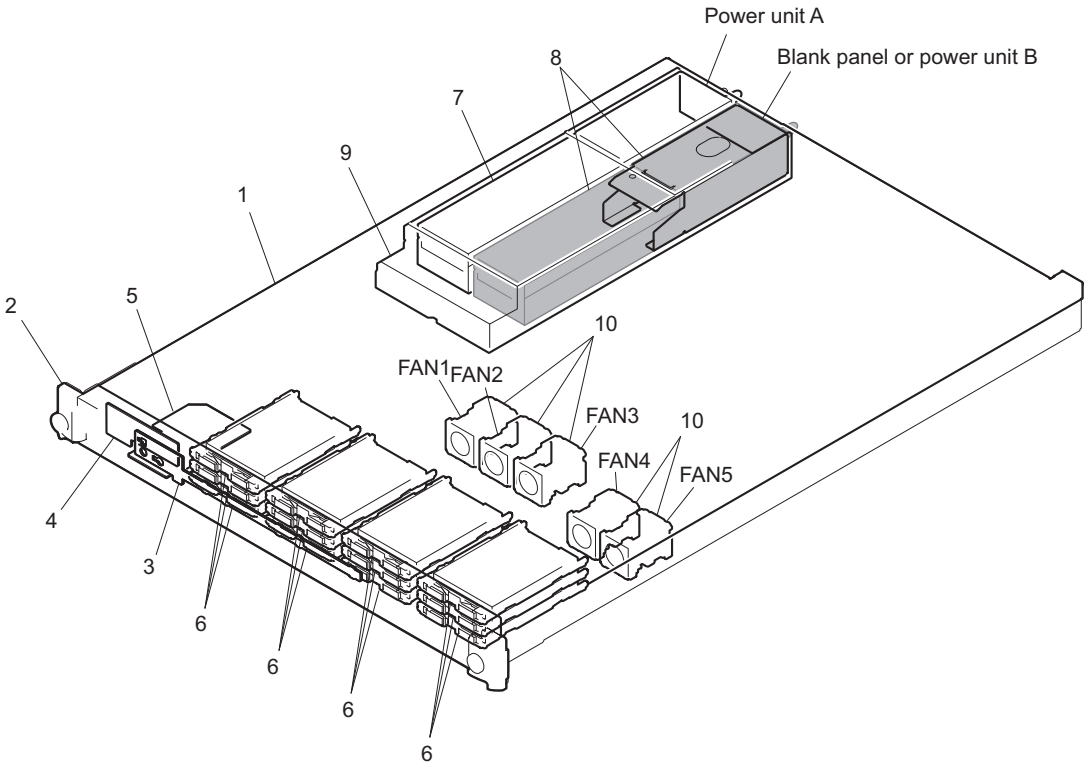
Procedure

1. Run the Win 32 Disk Imager.
2. On the Win 32 Disk Imager window, configure the software as follows.
   Image File: FreeDOS-1.1-USB-Boot.img
   Device: USB memory to be written
3. Click [Write] to write the DOS image to the USB flash memory.
4. Click [Exit] to exit the application programs.

5. Copy necessary files to the USB flash memory.
   Example) The following three files are necessary for BIOS Update.
   - Update.bat
   - AFUDOS.exe
   - AxxxPxxx.ROM

5-3. Location of Main Parts

This section describes replacement procedures of the parts listed below.

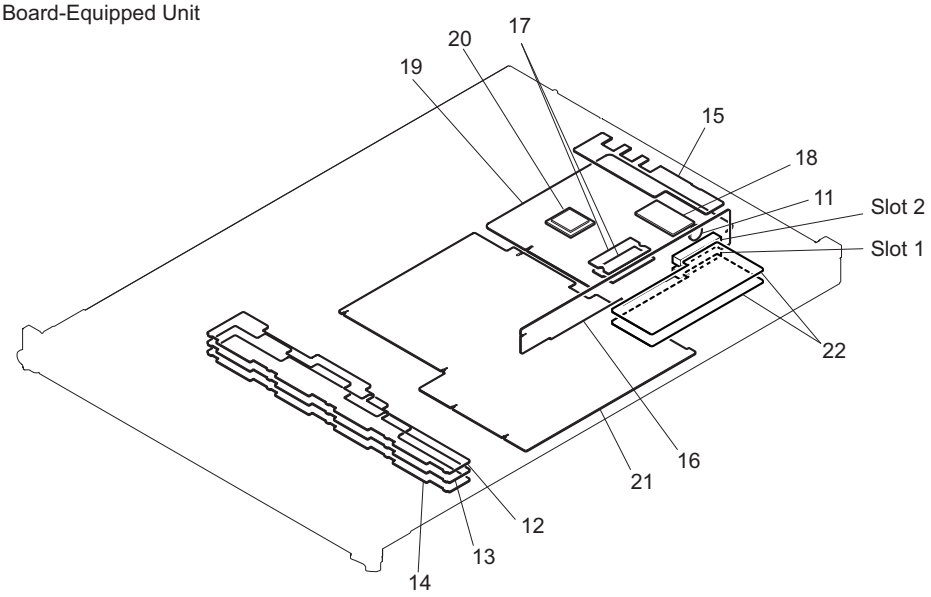


No.	Part Name	Procedure
1	Top Panel Assembly	“5-4. Top Panel Assembly”
2	Front Panel Assembly	“5-5. Front Panel Assembly”
3	LED-527 Board	“5-6. LED-527 Board”
4	SW-1627 Board	“5-7. SW-1627 Board”
5	DIO-98 Board	“5-8. DIO-98 Board”
6	ST blank assembly or HDD assembly*	“5-9. ST Blank Assembly”, “5-10. HDD Assembly”
7	Power Unit	“5-11. Power Unit”
8	Blank panel or power supply unit*	“5-12. Blank Panel”, “5-11. Power Unit”
9	Hot-Swap Unit	“5-13. Hot-Swap Unit”
10	Fan Assembly (FAN1 to 5)	“5-15. Fan Assembly”

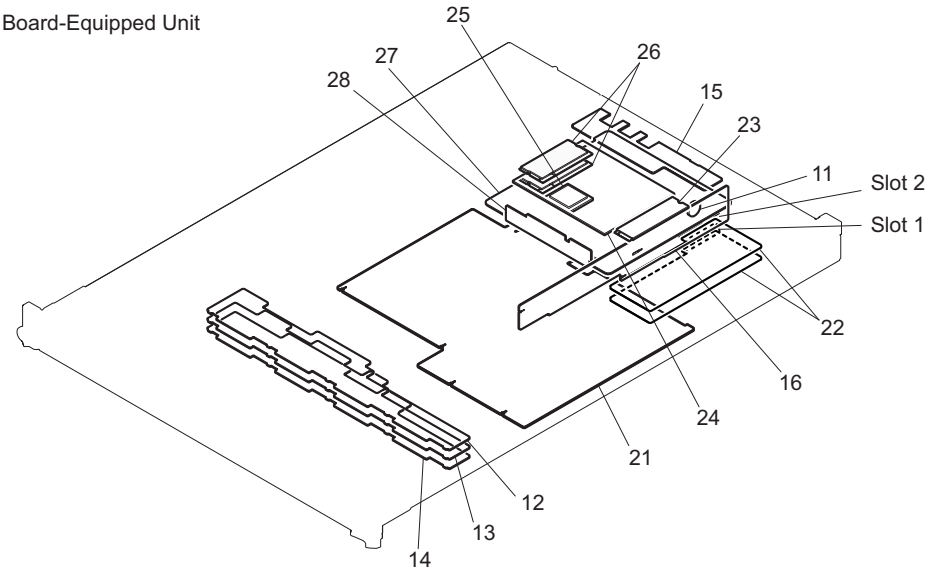
* Optional for PWS-100

Mounted parts in the configure-to-order (CTO) products vary depending on the customer's order.

iAP-001 Board-Equipped Unit



iAP-005 Board-Equipped Unit



No.	Part Name	Procedure
11	Lithium Battery	“5-16. Lithium Battery”
12	IF-1257 Board	“5-17. IF-1257 Board”
13	IF-1258 Board	“5-18. IF-1258 Board”
14	IF-1259 Board	“5-19. IF-1259 Board”
15	CN-3698 Board	“5-20. CN-3698 Board”
16	RC-110 Board	“5-21. RC-110 Board”
17	Memory Module (204pin SO-DIMM)	“5-22-1. Memory Module (204pin SO-DIMM)”
18	SSD module (mSATA)	“5-22-2. SSD Module (mSATA)”
19	iAP-001 board assembly	“5-22-3. iAP-001 Board Assembly”
20	CPU	“5-22-4. CPU”
21	MB-1204 Board	“5-24. MB-1204 Board”
22	PCI Express Card	“5-14. PCI Express Card”
23	SSD module (M.2)	“5-23-1. SSD Module (M.2)”

Continued

No.	Part Name	Procedure
24	iAP-005 board assembly	“5-23-2. iAP-005 Board Assembly”
25	CPU	“5-23-3. CPU”
26	Memory module (260pin SO-DIMM)	“5-23-4. Memory Module (260pin SO-DIMM)”
27	IF-1330 Board	“5-23-5. IF-1330 Board”
28	CN-3934 Board	“5-23-6. CN-3934 Board”

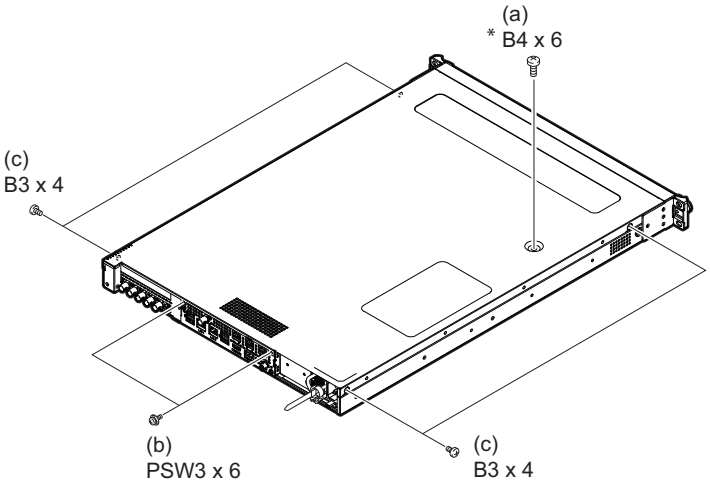
5-4. Top Panel Assembly

Procedure

1. Remove the screw (B4 x 6), four screws (B3 x 4), and two screws (PSW3 x 6).

   Tip

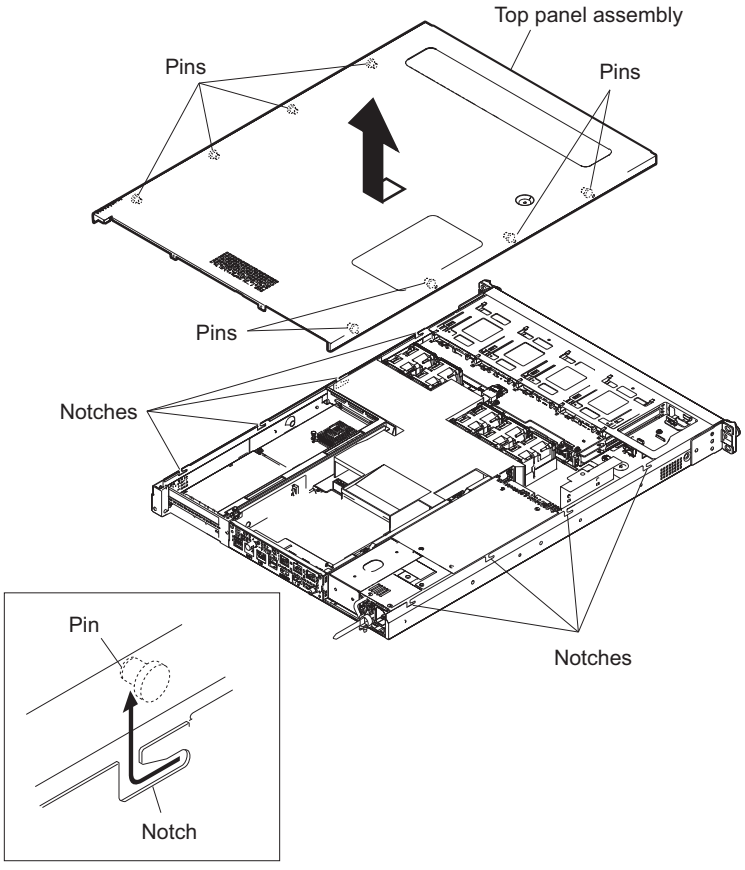
   The initial products use the one screw of * mark only.



   Note

   When installing the top panel assembly, tighten the screws in the following sequence: (a), (b), (c).

2. Remove the eight pins of the top panel assembly from the eight notches of the main unit, and then remove the top panel assembly in the direction of the arrow.

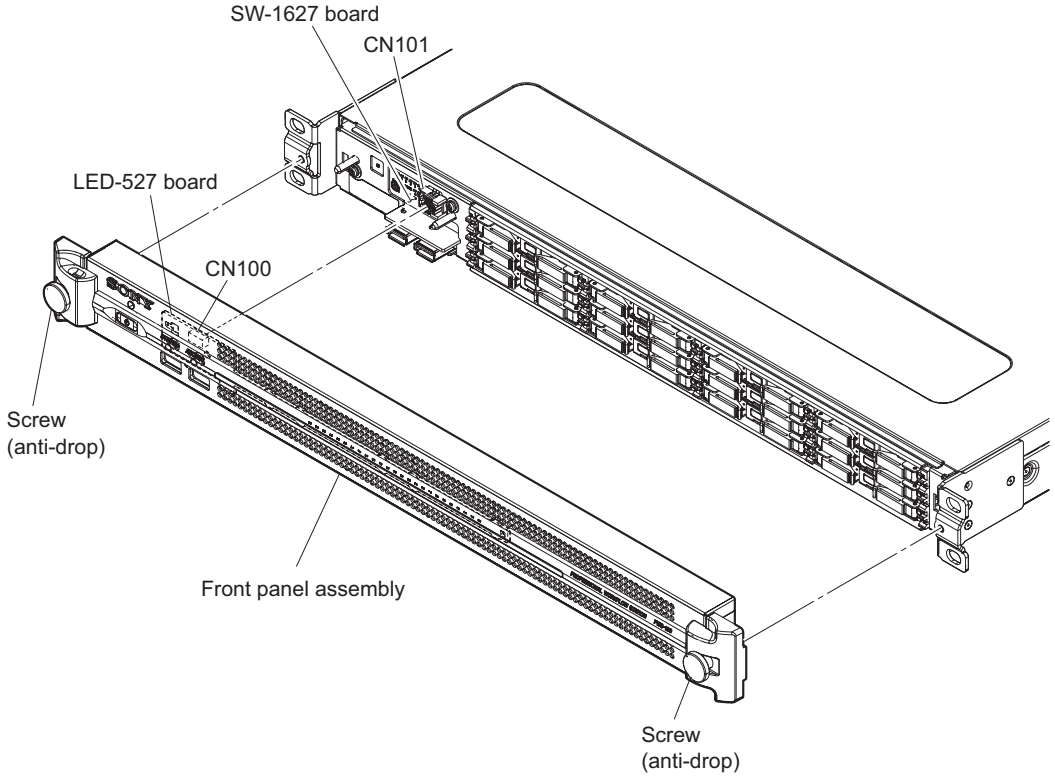


3. Install the removed parts by reversing the steps of removal.

5-5. Front Panel Assembly

Procedure

1. Loosen the two screws (anti-drop).
2. Disconnect the connector (CN100) on the LED-527 board from the connector (CN101) on the SW-1627 board and remove the front panel assembly.



3. Install the removed parts by reversing the steps of removal.

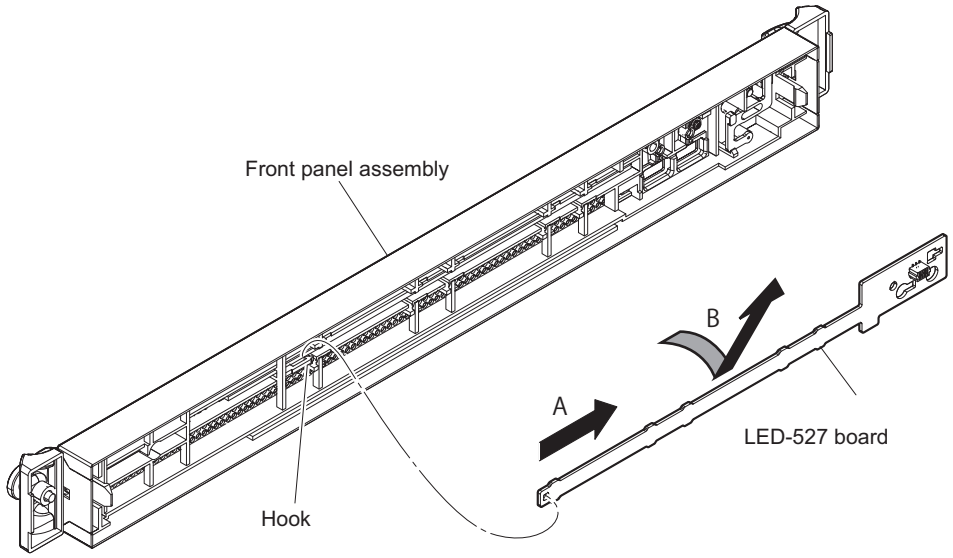
5-6. LED-527 Board

Preparation

1. Remove the front panel assembly. (Refer to "5-5. Front Panel Assembly".)

Procedure

1. Release the hook, then slide the LED-527 board in the direction of the arrow A.
2. Tilt the LED-527 board in the direction of the arrow B and remove the LED-527 board.



3. Install the removed parts by reversing the steps of removal.

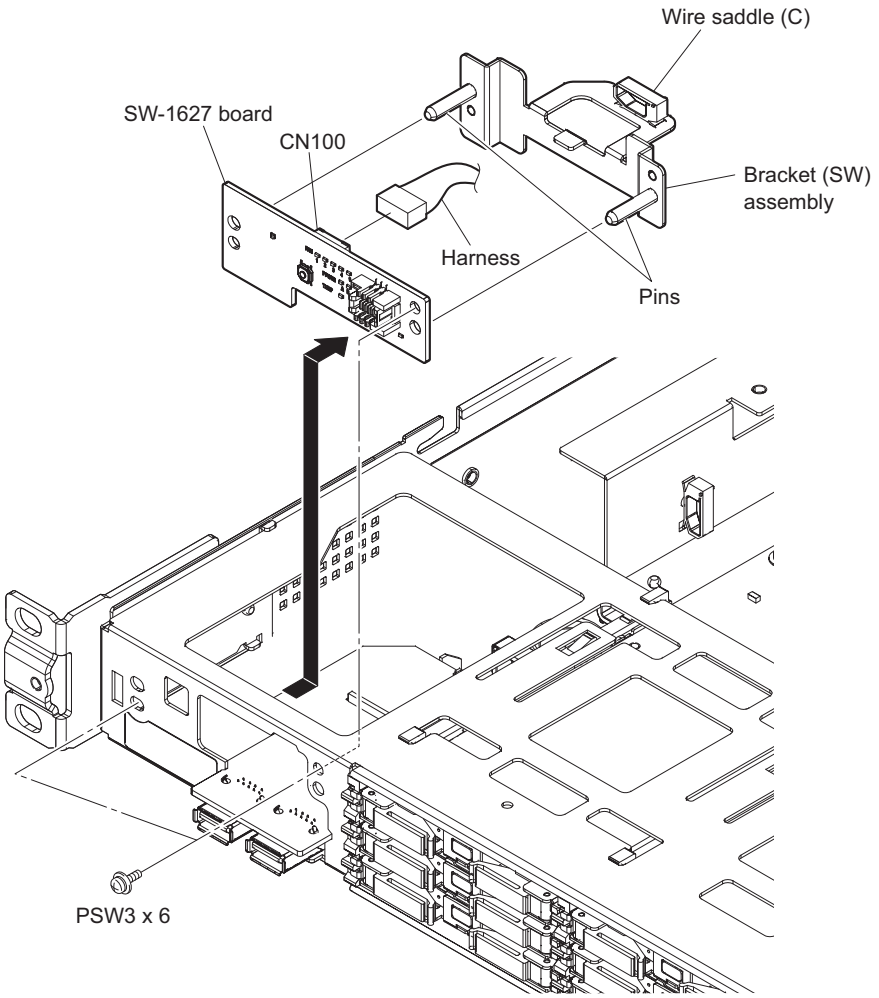
5-7. SW-1627 Board

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the front panel assembly. (Refer to "5-5. Front Panel Assembly".)

Procedure

1. Open the wire saddle (C) and disconnect the harness from the connector (CN100) on the SW-1627 board.
2. Remove the two screws, then remove the bracket (SW) assembly in the direction of the arrow.
3. Remove the SW-1627 board from the two pins of the bracket (SW) assembly.



4. Install the removed parts by reversing the steps of removal.

5-8. DIO-98 Board

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the front panel assembly. (Refer to "5-5. Front Panel Assembly".)
3. Remove the bracket (SW) assembly. (Refer to "5-7. SW-1627 Board".)

Procedure

1. Disconnect the fine-wire coaxial cable from the connector (CN200) on the DIO-98 board.

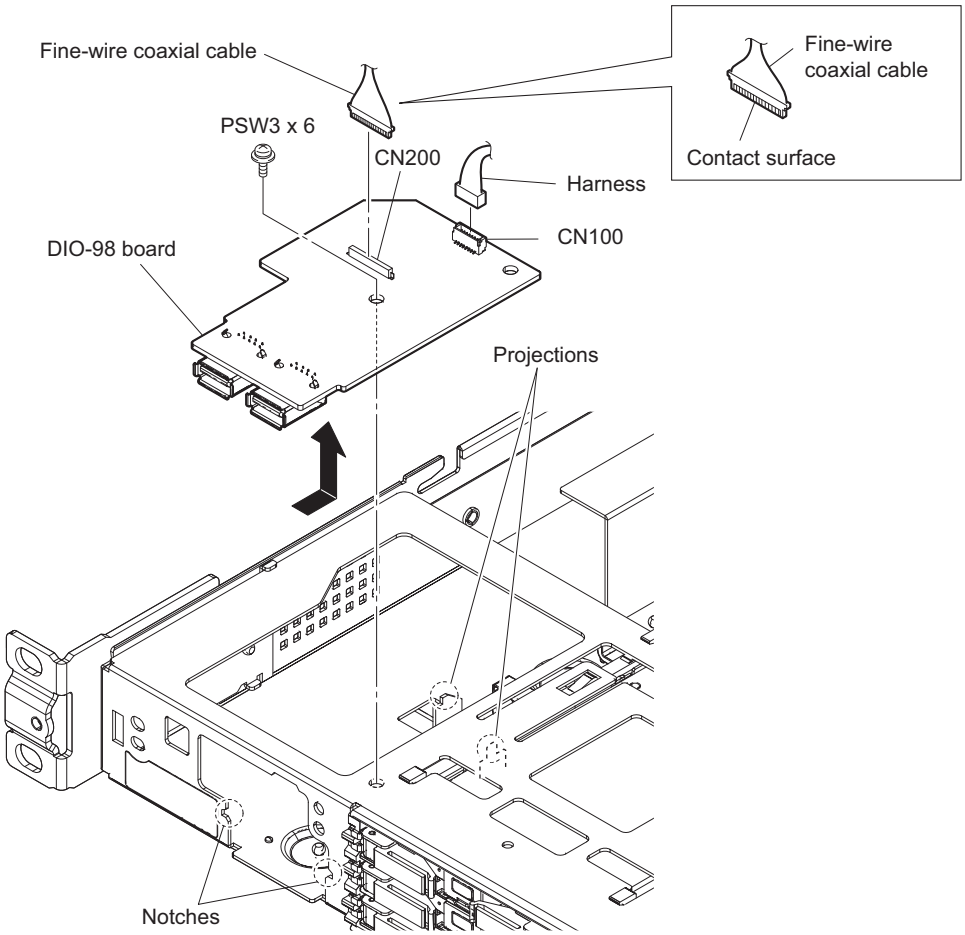
   Note

   When disconnecting the fine-wire coaxial cable, hold its connector between your fingers.

2. Disconnect the harness from the connector (CN100) on the DIO-98 board.
3. Remove the screw.
4. Lift the DIO-98 board off the two projections of the chassis.
5. Remove the DIO-98 board in the direction of the arrow.

   Note

   Be careful not to touch the bottom of the DIO-98 board to the chassis and not to break the board.



Note

- When installing the fine-wire coaxial cable, install it in the orientation shown in the figure.
- When installing the DIO-98 board, install it according to the two notches.

6. Install the removed parts by reversing the steps of removal.

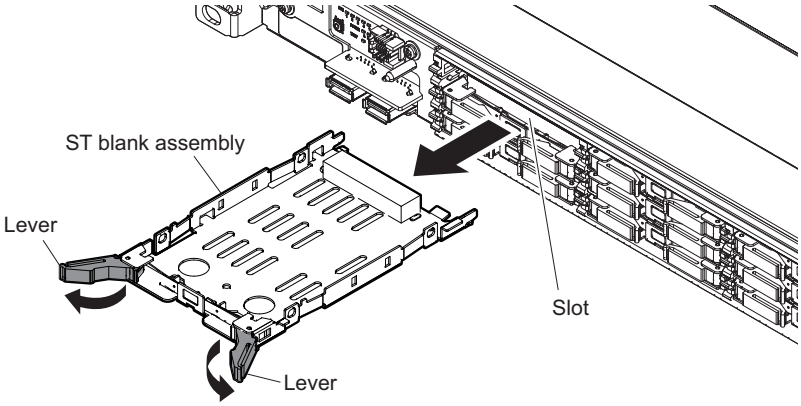
5-9. ST Blank Assembly

Preparation

1. Remove the front panel assembly. (Refer to “5-5. Front Panel Assembly”.)

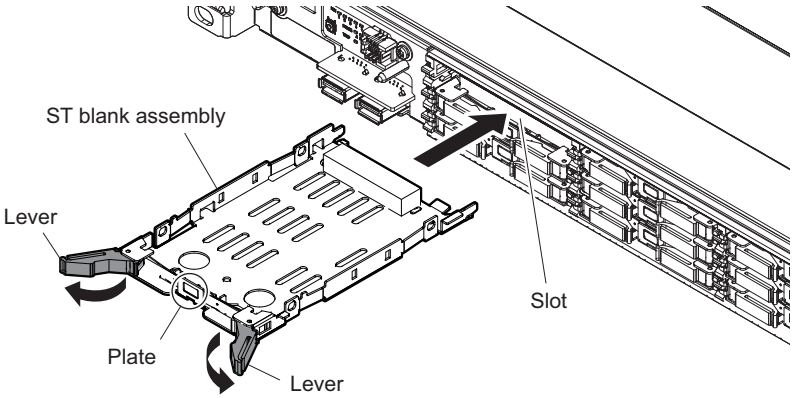
Removal

1. Open the lever of the ST blank assembly in the direction of the arrow and remove the ST blank assembly from a slot.

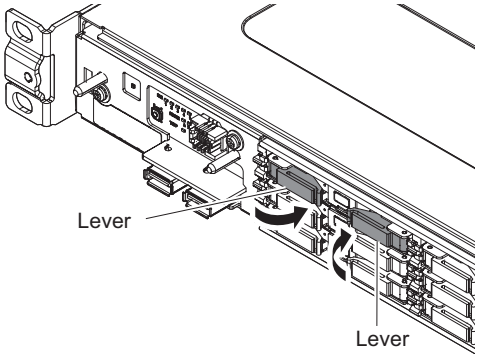


Installation

2. Open the lever of the ST blank assembly and insert the ST blank assembly into the slot.
3. When the ST blank assembly hits the end of the slot, push its plate.



4. Turn the levers in the direction of the arrows.



5-10. HDD Assembly

When the unit has HDD assemblies, work referring to the following.

HDD Assembly

Replacement HDD assembly (ST ASSY)

Note

The HDD of the unit can be swapped with the power turned on. In that case, spin down the faulty HDD by using the Maintenance menu. After confirming that the HDD has completely stopped, remove it. Immediately after a new HDD has been installed, it spins up. Do not apply vibration to the HDD.

Required part

- ST-No Sheet (1)

Tip

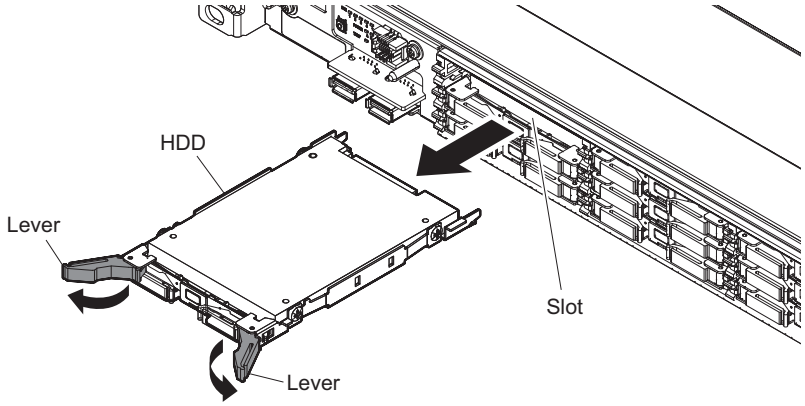
This part is supplied with the replacement HDD assembly (ST ASSY).

Preparation

1. Remove the front panel assembly. (Refer to "5-5. Front Panel Assembly".)

Procedure for removal

1. Open the lever of the HDD in the direction of the arrow and remove the HDD from a slot carefully.



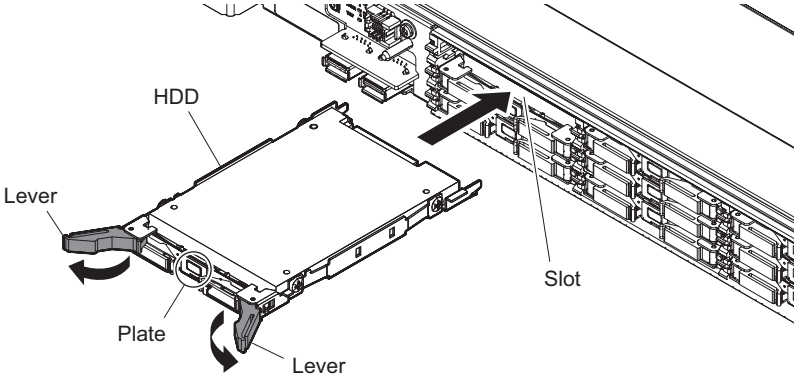
Procedure for installation

2. Open the lever of the HDD and insert the HDD slowly into the slot.

3. When the HDD hits the end of the slot, push its plate.

Note

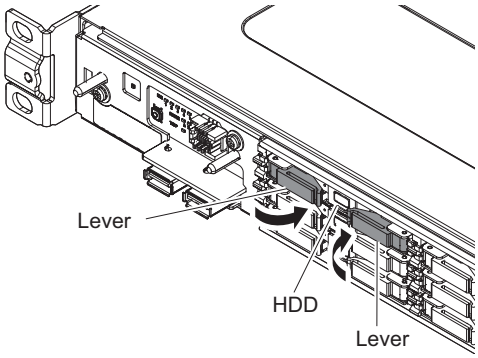
When the HDD is replaced with the power turned on, the power is supplied to the HDD in this step and the HDD spins up immediately. Be careful not to apply any vibration in this step and subsequent steps.



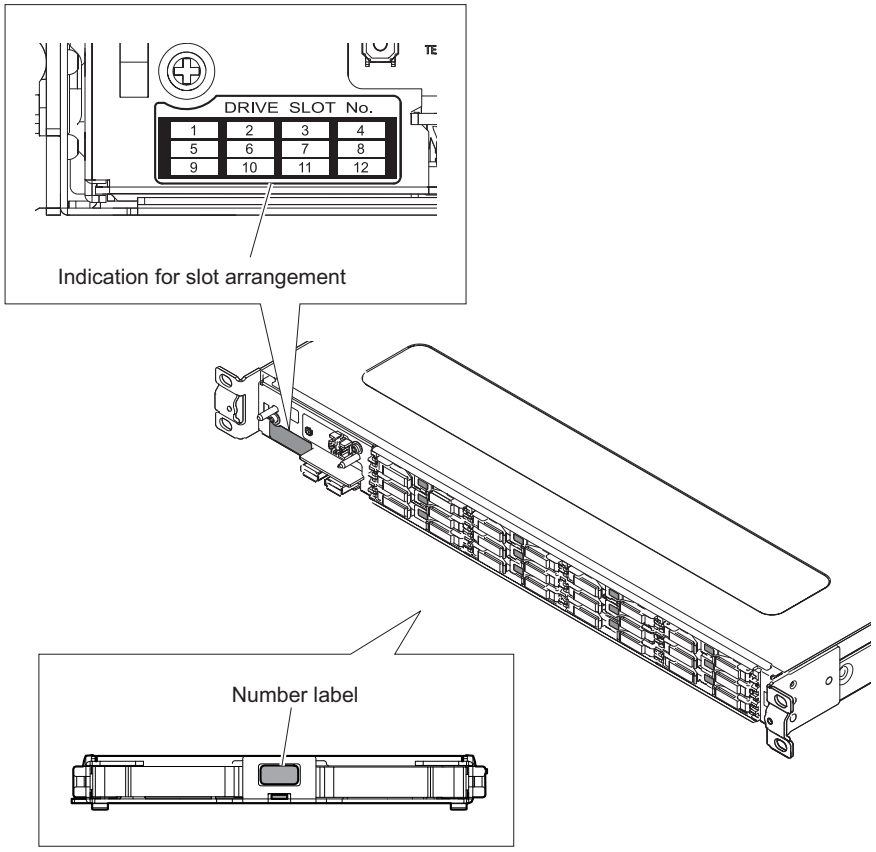
Tip

The unit will start rebuilding (restructuring RAID array), when the unit is turned on after replacing an HDD, or when an HDD is replaced without turning off the unit. In the case of an HDD with capacity of 500 GB, the estimated time required for rebuilding is six hours. Though the unit is usable during rebuilding, if the unit is used, rebuilding takes longer to finish than when the unit is not used. The progress of rebuilding can be checked in the Maintenance Web screen.

4. Turn the levers in the direction of the arrows.



5. Remove a piece of number label from the ST-No sheet and attach it to the front of the HDD assembly.



Note

Assign a number to the HDD assembly according to the slot number. The slot numbers are displayed at "Indication for slot arrangement" that is attached on the unit.

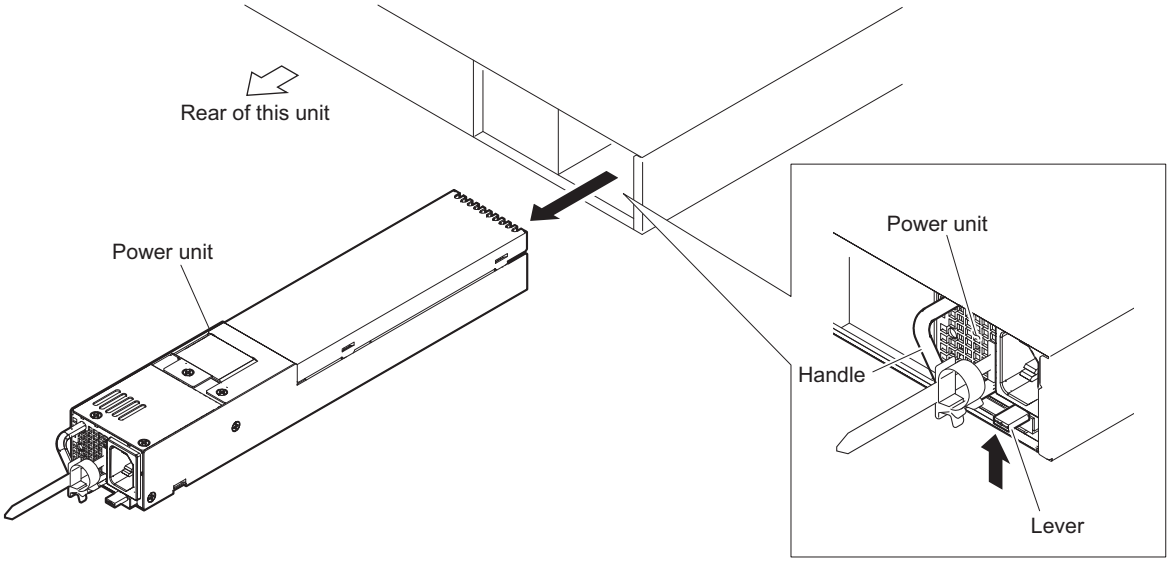
5-11. Power Unit

Note

Before removing or installing the power unit, be sure to unplug the power cord from the AC inlet.
The same procedure is applicable when the unit has two power supply units.

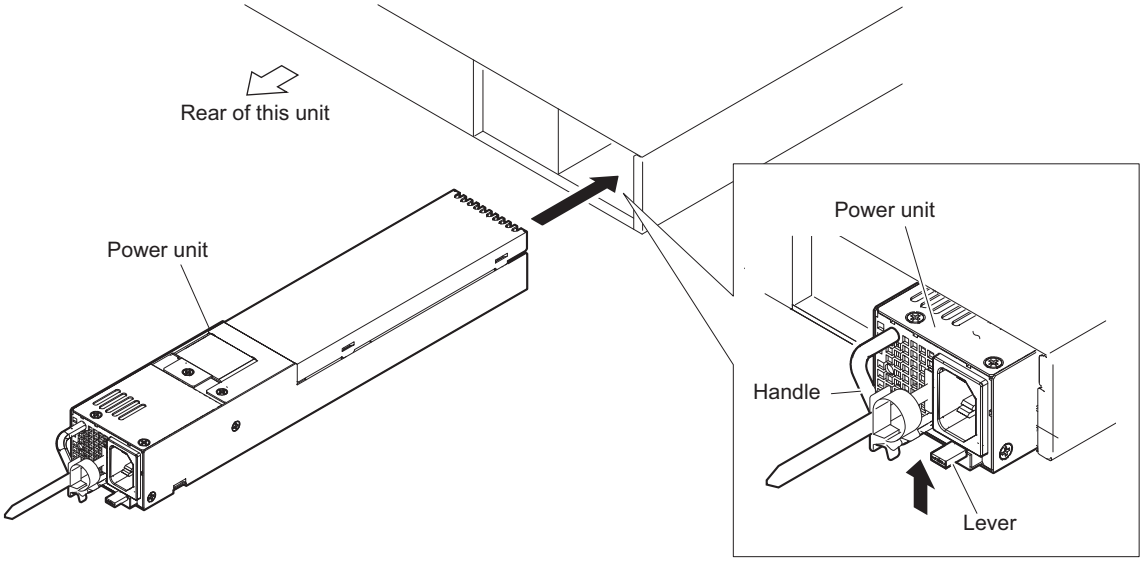
Removal

1. Pull up the lever in the direction of the arrow to unlock the power unit, and then pull the handle to draw out the power unit.



Installation

2. Pull up the lever in the direction of the arrow, and then insert the power unit.
3. Confirm that the power unit has been locked. (The power unit cannot be drawn out by pulling the handle without pulling up the lever.)



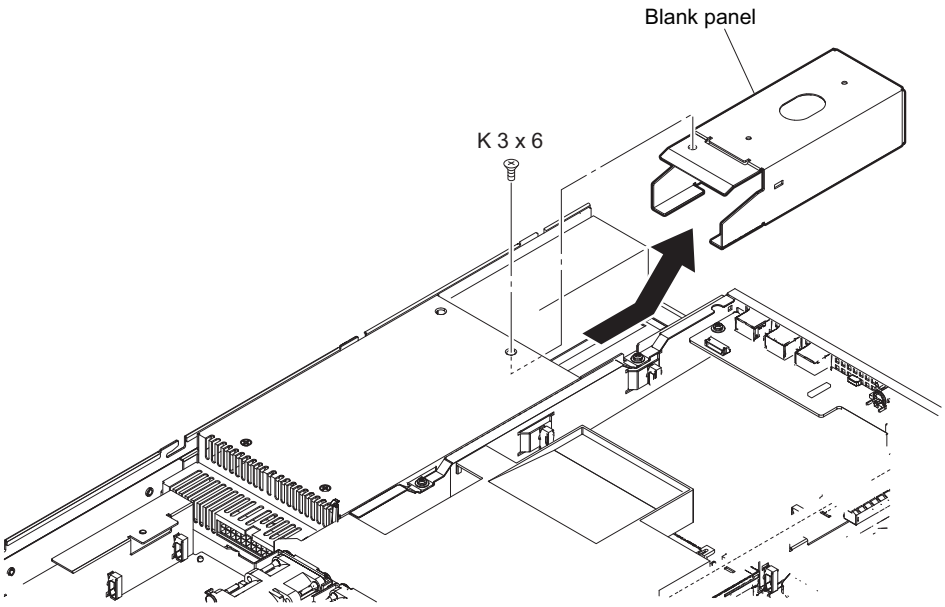
5-12. Blank Panel

Preparation

1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)

Procedure

1. Remove the screw and then pull out the blank panel in the direction of the arrow.



2. Install the removed parts by reversing the steps of removal.

5-13. Hot-Swap Unit

Preparation

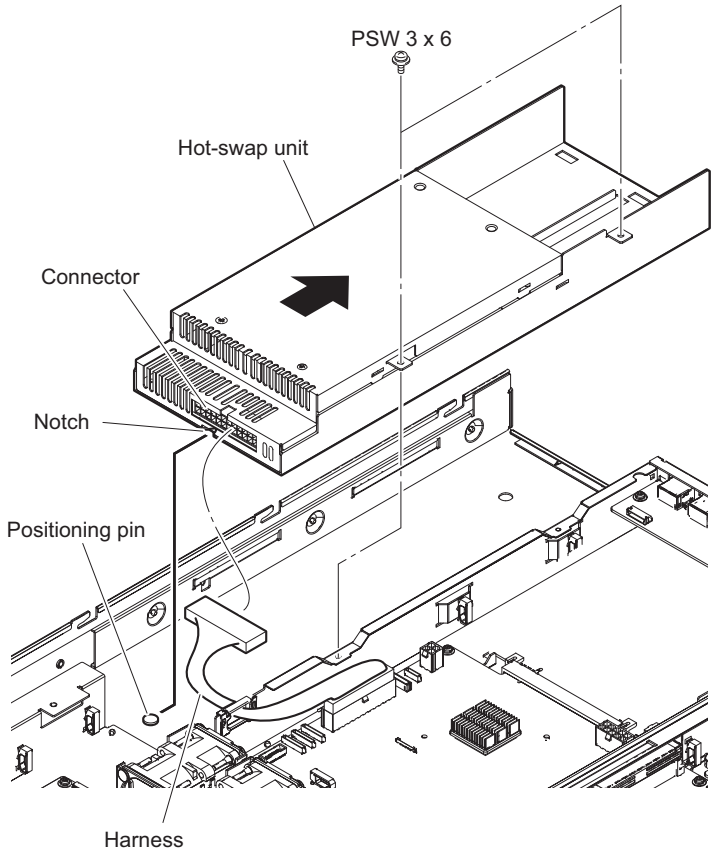
1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. When the unit has only one power supply unit, remove the power supply unit and the blank panel. When the unit has two power supply units, remove the two. (Refer to "5-11. Power Unit", "5-12. Blank Panel".)

Procedure

1. Disconnect the harness from the connector of the hot-swap unit.
2. Remove the two screws (PSW 3 x 6).
3. Slide the hot-swap unit in the direction of the arrow, then release the positioning pin from the notch of the hot-swap unit.

   Note

   Do not pull up the hot-swap unit without releasing the notch of the hot-swap unit from the positioning pin. Doing so may damage the positioning pin.



4. Install the removed parts by reversing the steps of removal.

5-14. PCI Express Card

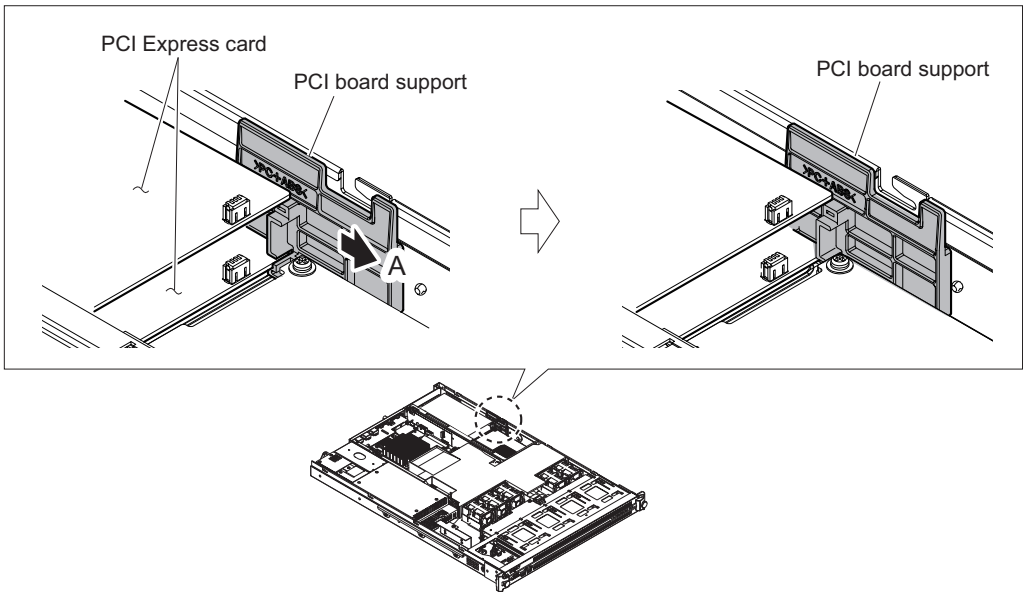
When the PCI Express card is installed, perform the work in accordance with the following.
This section describes the procedure to install two PCI Express cards.

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)

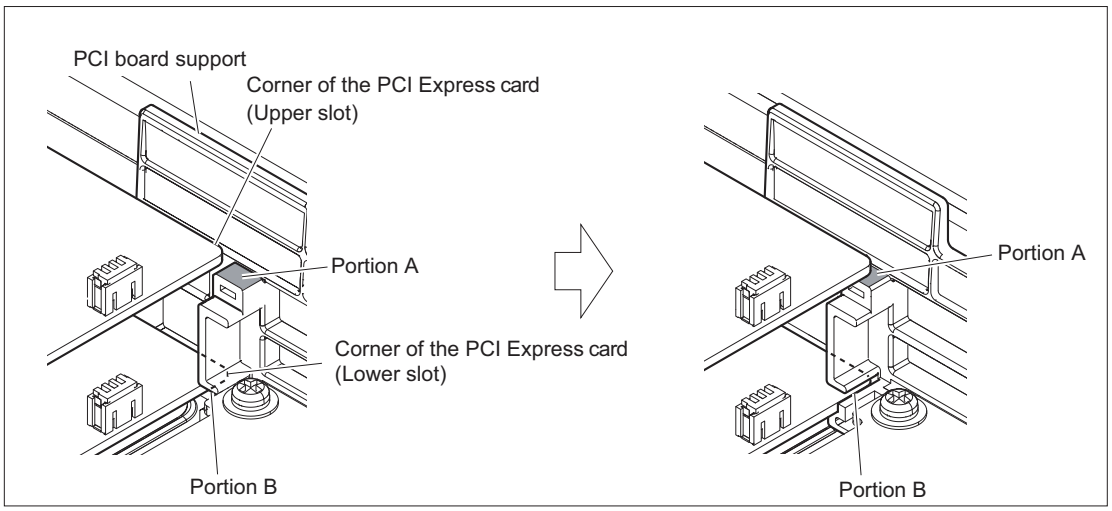
Procedure

1. Slide the PCI board support in the direction of the arrow A.



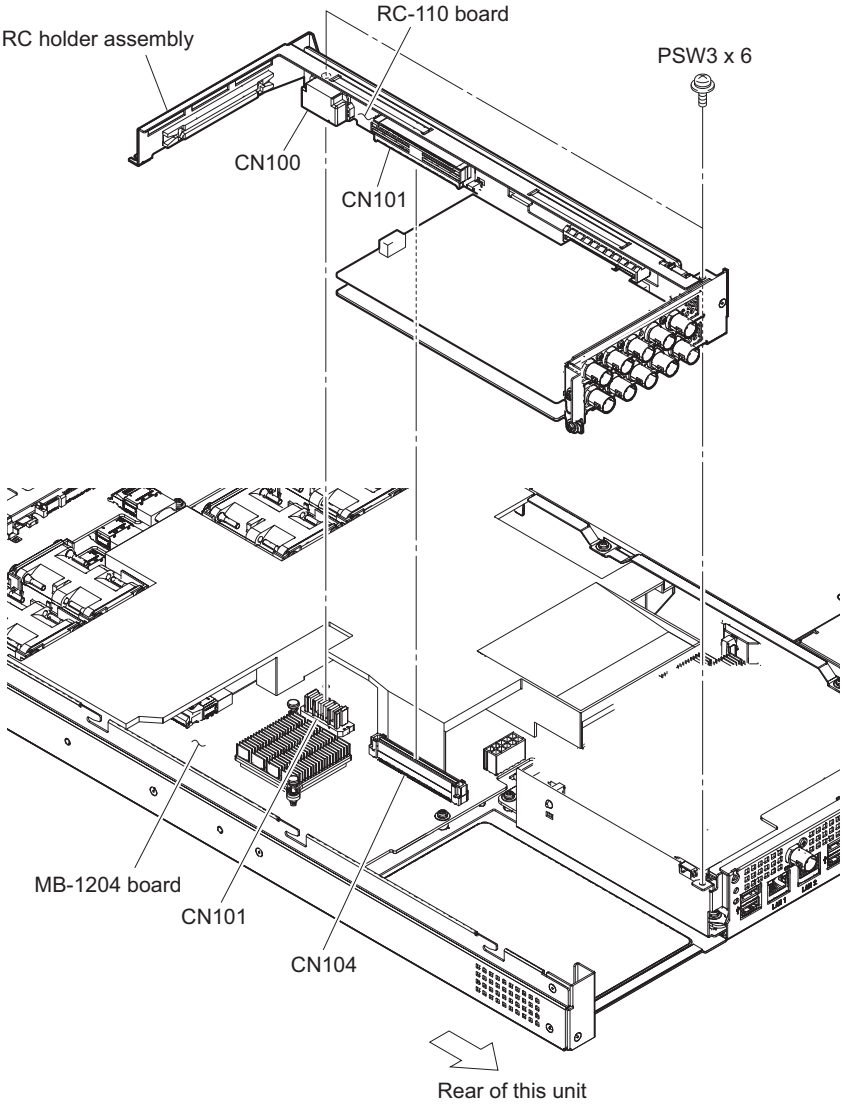
Note

The PCI board support is hard to slide because it is locked tightly enough not to disengage by vibration. On installation, slide the PCI board support in a way that the corner of the upper PCI Express card is placed on the portion A of the PCI board support, and the corner of the lower PCI Express card is fitted to the groove of the portion B as shown in the illustration. Make sure that there is no component mounted on the areas of the PCI Express card where touch the portion A or B of the PCI board support. If there are any components, do not use the PCI board support.

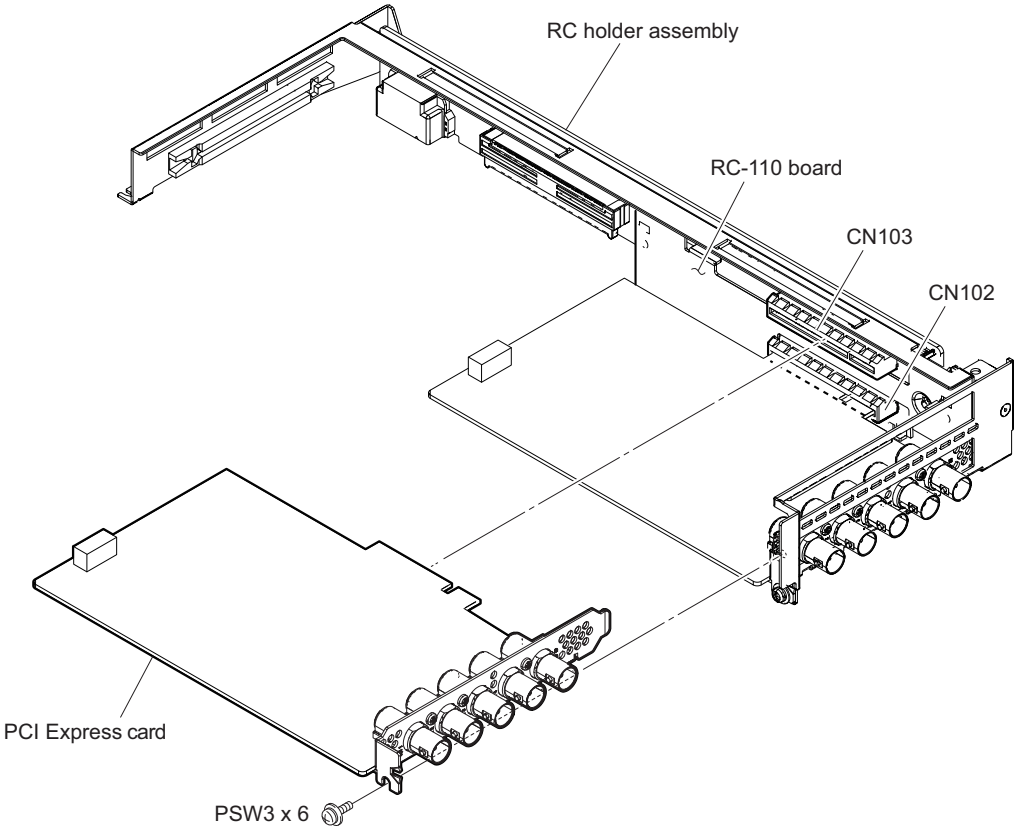


2. Remove the two screws.

3. Remove the RC holder assembly from the connectors (CN101 and CN104) on the MB-1204 board.



4. Remove the screw, then remove the PCI Express card from the connector (CN103) on the RC-110 board.



5. Remove the screw, then remove the lower PCI Express card from the connector (CN102) on the RC-110 board in the same way as the upper slot.
6. Install the removed parts by reversing the steps of removal.

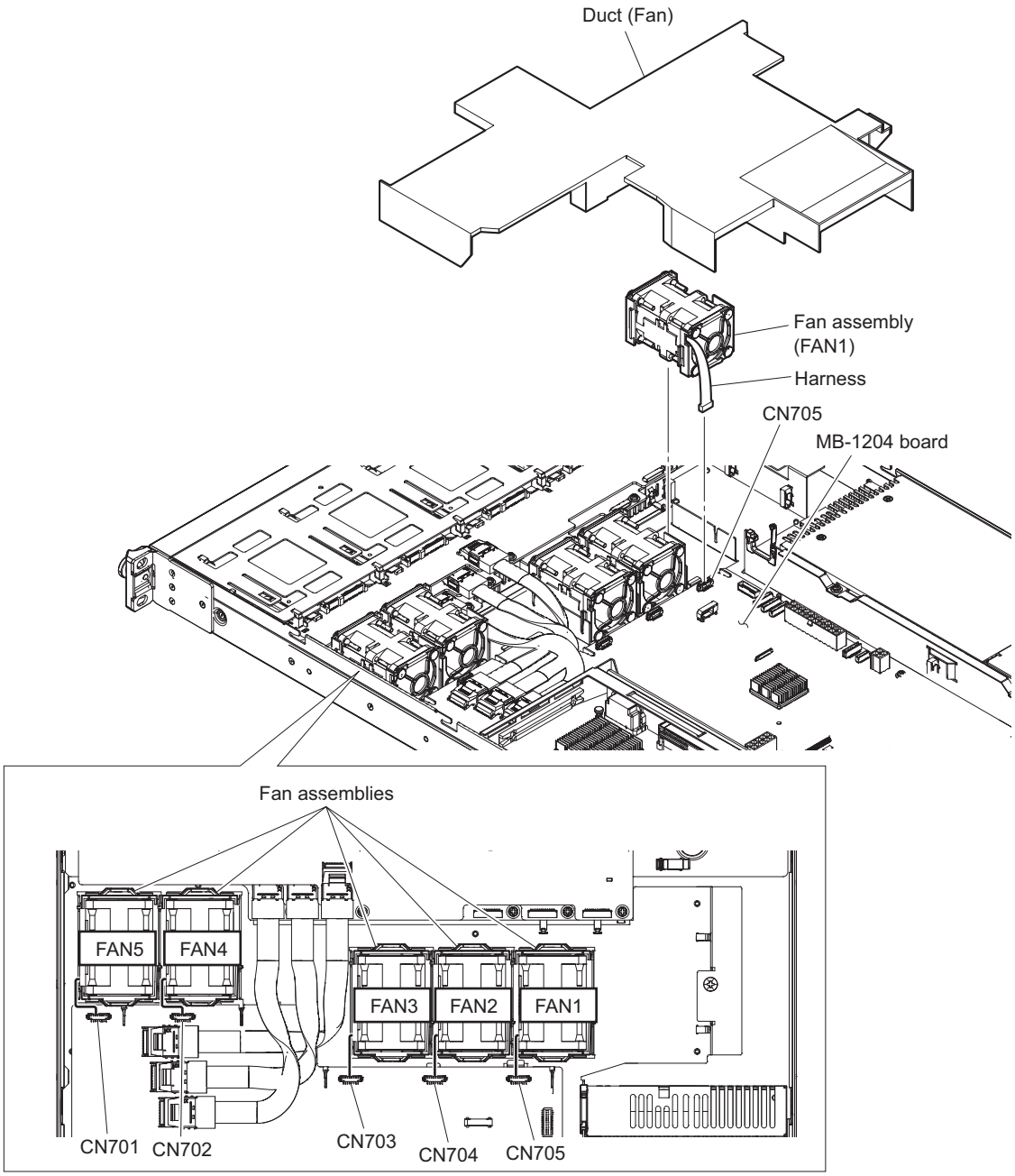
5-15. Fan Assembly

Preparation

1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)

Procedure

1. Remove the duct (fan).
2. Disconnect the harness from the connector (CN705) on the MB-1204 board and remove the fan assembly (FAN1).
3. Remove other fan assemblies (FAN2 to FAN5) in the same way as in step 2.



4. Install the removed parts by reversing the steps of removal.

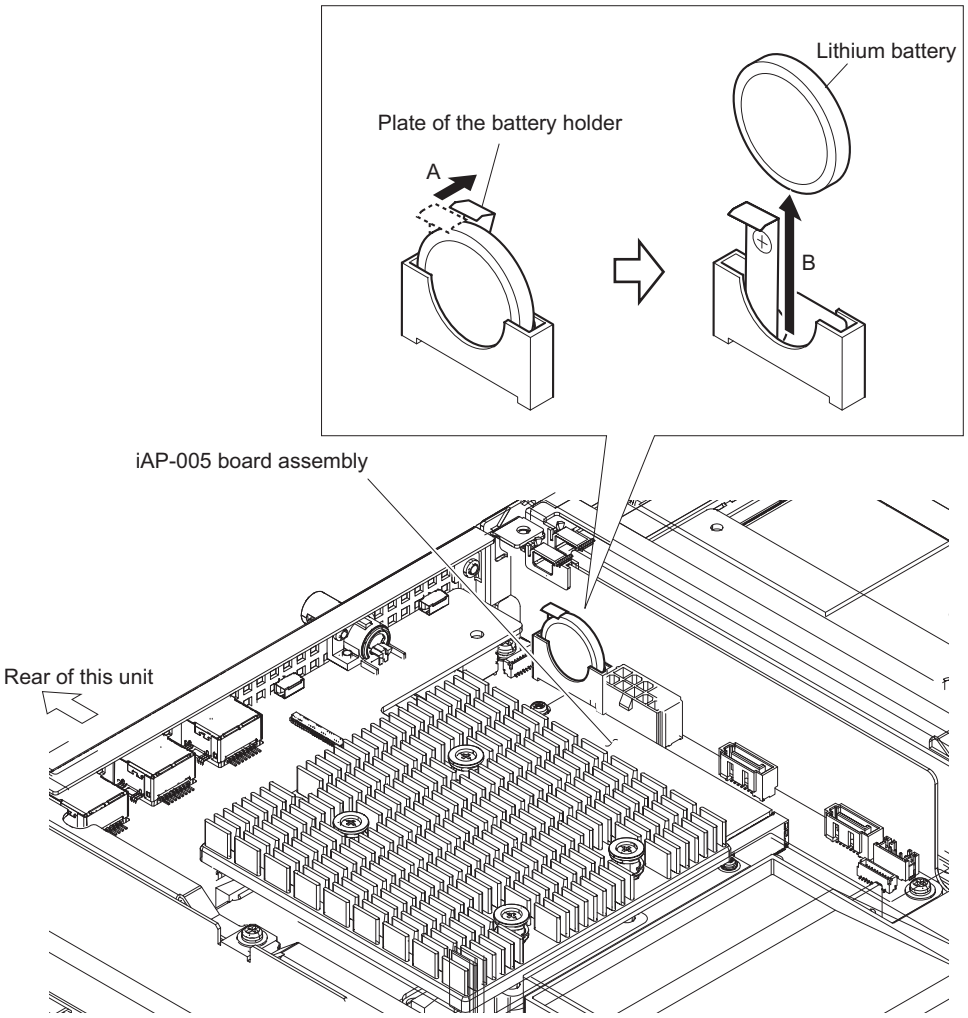
5-16. Lithium Battery

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)

Procedure

1. Pull back the plate of the battery holder in the direction of arrow A and remove the lithium battery in the direction of arrow B.



This illustration shows the unit containing the iAP-005 board.

2. Install the removed parts by reversing the steps of removal.

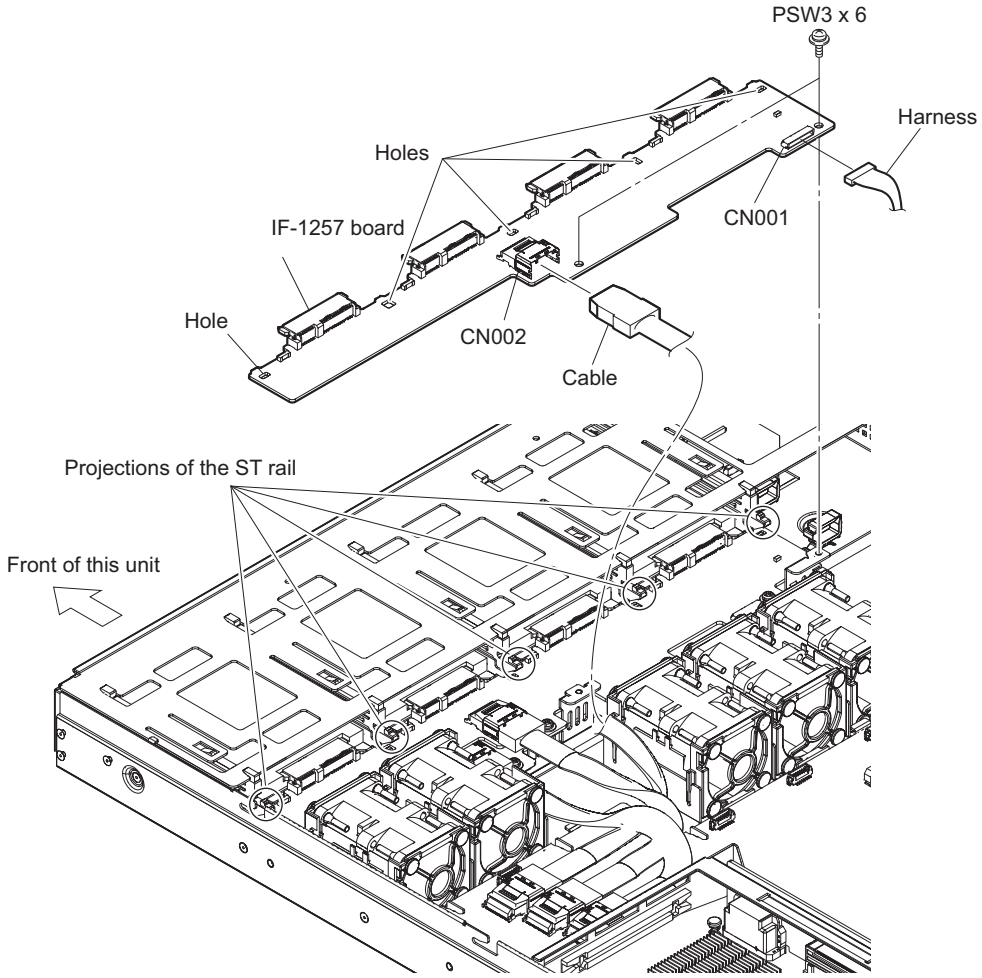
5-17. IF-1257 Board

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the front panel assembly. (Refer to "5-5. Front Panel Assembly".)
3. Remove the duct (fan). (Refer to "5-15. Fan Assembly".)
4. Remove the ST blank assemblies or HDD assemblies of slot No. 1 to 4. (Refer to "5-9. ST Blank Assembly", "5-10. HDD Assembly".)

Procedure

1. Disconnect the harness from the connector (CN001) on the IF-1257 board, then disconnect the cable from the connector (CN002) on the IF-1257 board.
2. Remove the two screws and detach the IF-1257 board.



Note

When attaching the IF-1257 board, align the five projections of the ST rail with the five holes of IF-1257 board.

3. Install the removed parts by reversing the steps of removal.

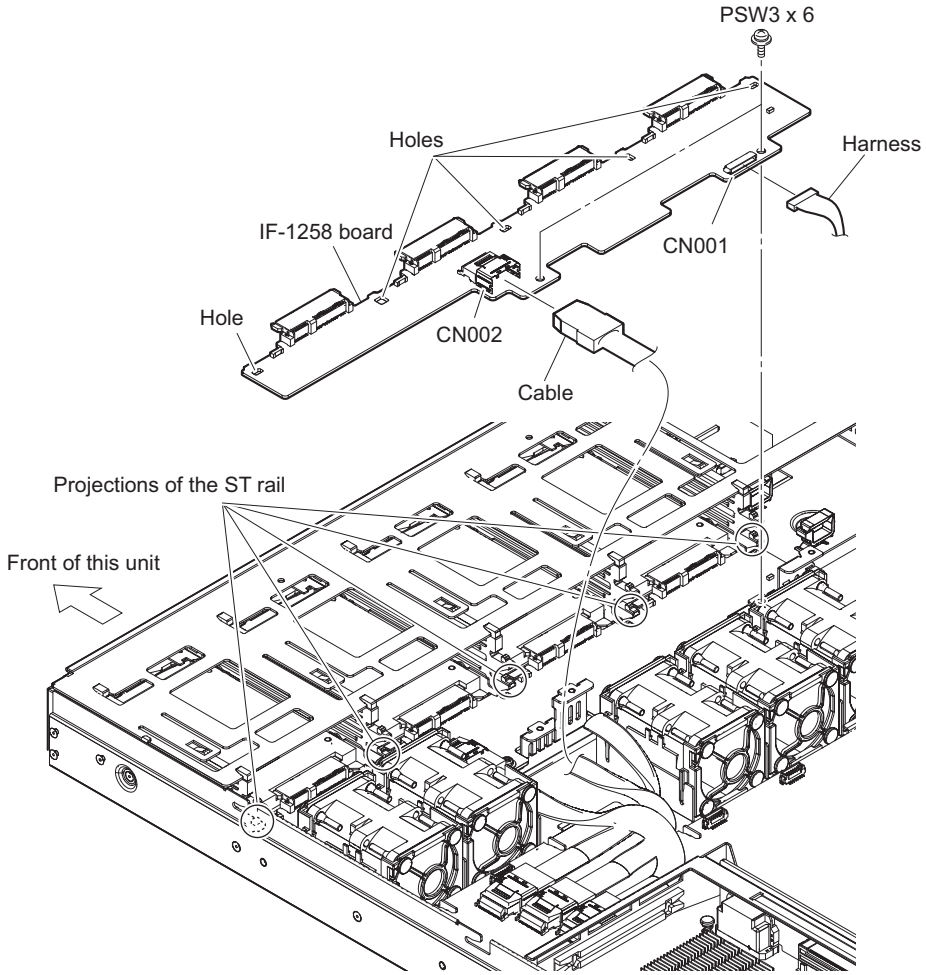
5-18. IF-1258 Board

Preparation

1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)
2. Remove the front panel assembly. (Refer to “5-5. Front Panel Assembly”.)
3. Remove the duct (fan). (Refer to “5-15. Fan Assembly”.)
4. Remove the ST blank assemblies or HDD assemblies of slot No. 1 to 8. (Refer to “5-9. ST Blank Assembly”, “5-10. HDD Assembly”.)
5. Remove the IF-1257 board. (Refer to “5-17. IF-1257 Board”.)

Procedure

1. Disconnect the harness from the connector (CN001) on the IF-1258 board, then disconnect the cable from the connector (CN002) on the IF-1258 board.
2. Remove the two screws and detach the IF-1258 board.



Note

When attaching the IF-1258 board, align the five projections of the ST rail with the five holes of IF-1258 board.

3. Install the removed parts by reversing the steps of removal.

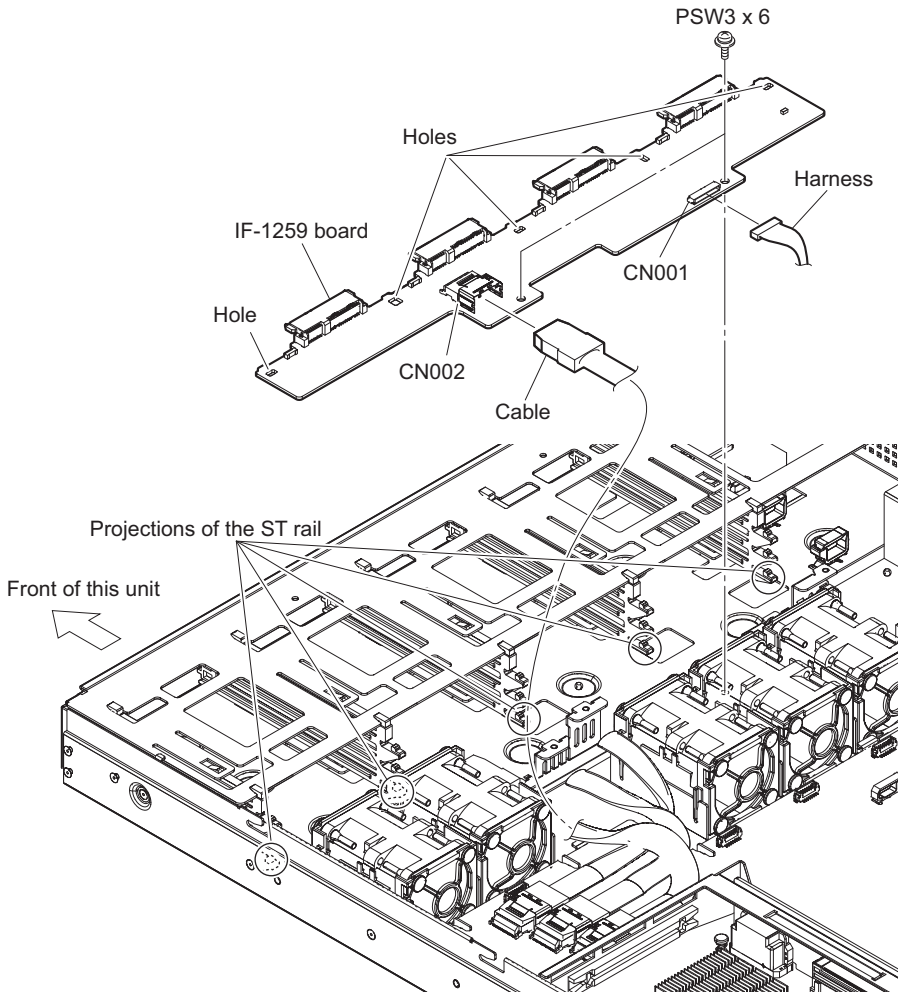
5-19. IF-1259 Board

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the front panel assembly. (Refer to "5-5. Front Panel Assembly".)
3. Remove the duct (fan). (Refer to "5-15. Fan Assembly".)
4. Remove the ST blank assemblies or HDD assemblies of slot No. 1 to 12. (Refer to "5-9. ST Blank Assembly", "5-10. HDD Assembly".)
5. Remove the IF-1257 board. (Refer to "5-17. IF-1257 Board".)
6. Remove the IF-1258 board. (Refer to "5-18. IF-1258 Board".)

Procedure

1. Disconnect the harness from the connector (CN001) on the IF-1259 board, then disconnect the cable from the connector (CN002) on the IF-1259 board.
2. Remove the two screws and detach the IF-1259 board.



Note

When attaching the IF-1259 board, align the five projections of the ST rail with the five holes of IF-1259 board.

3. Install the removed parts by reversing the steps of removal.

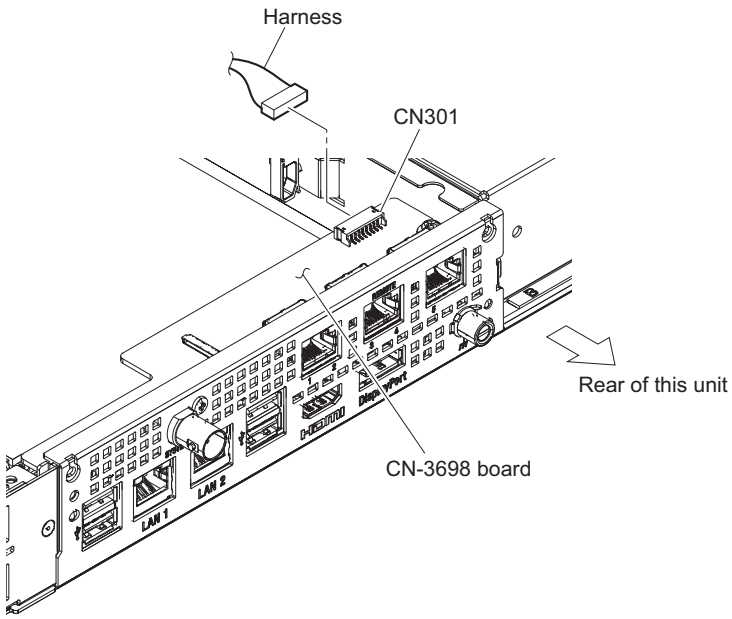
5-20. CN-3698 Board

Preparation

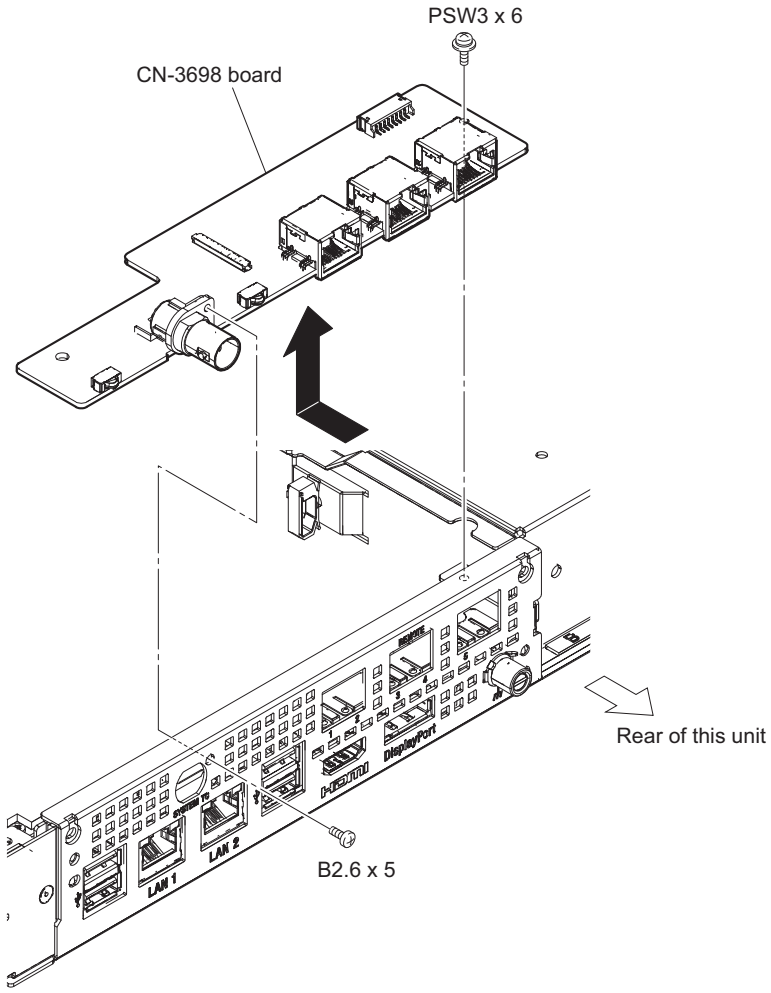
1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)

Procedure

1. Disconnect the harness from the connector (CN301) on the CN-3698 board.



2. Remove the screw (B2.6 x 5) and the screw (PSW3 x 6) to detach the CN-3698 board in the direction of the arrow.



3. Install the removed parts by reversing the steps of removal.

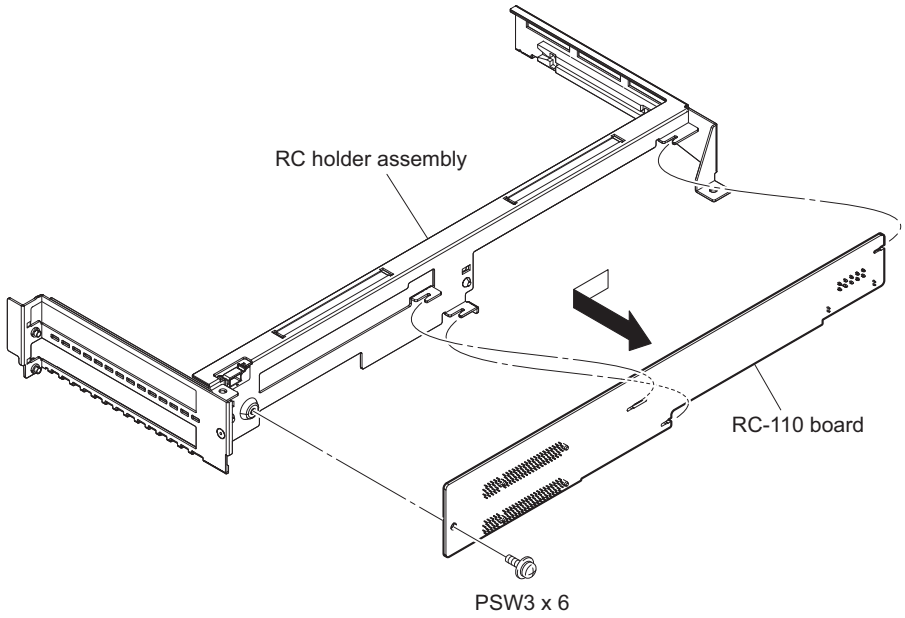
5-21. RC-110 Board

Preparation

1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)
2. Remove the RC holder assembly. (Refer to “5-14. PCI Express Card”.)

Procedure

1. Remove the screw to detach the RC-110 board in the direction of the arrow.



2. Install the removed parts by reversing the steps of removal.

5-22. iAP-001 Board-Equipped Unit

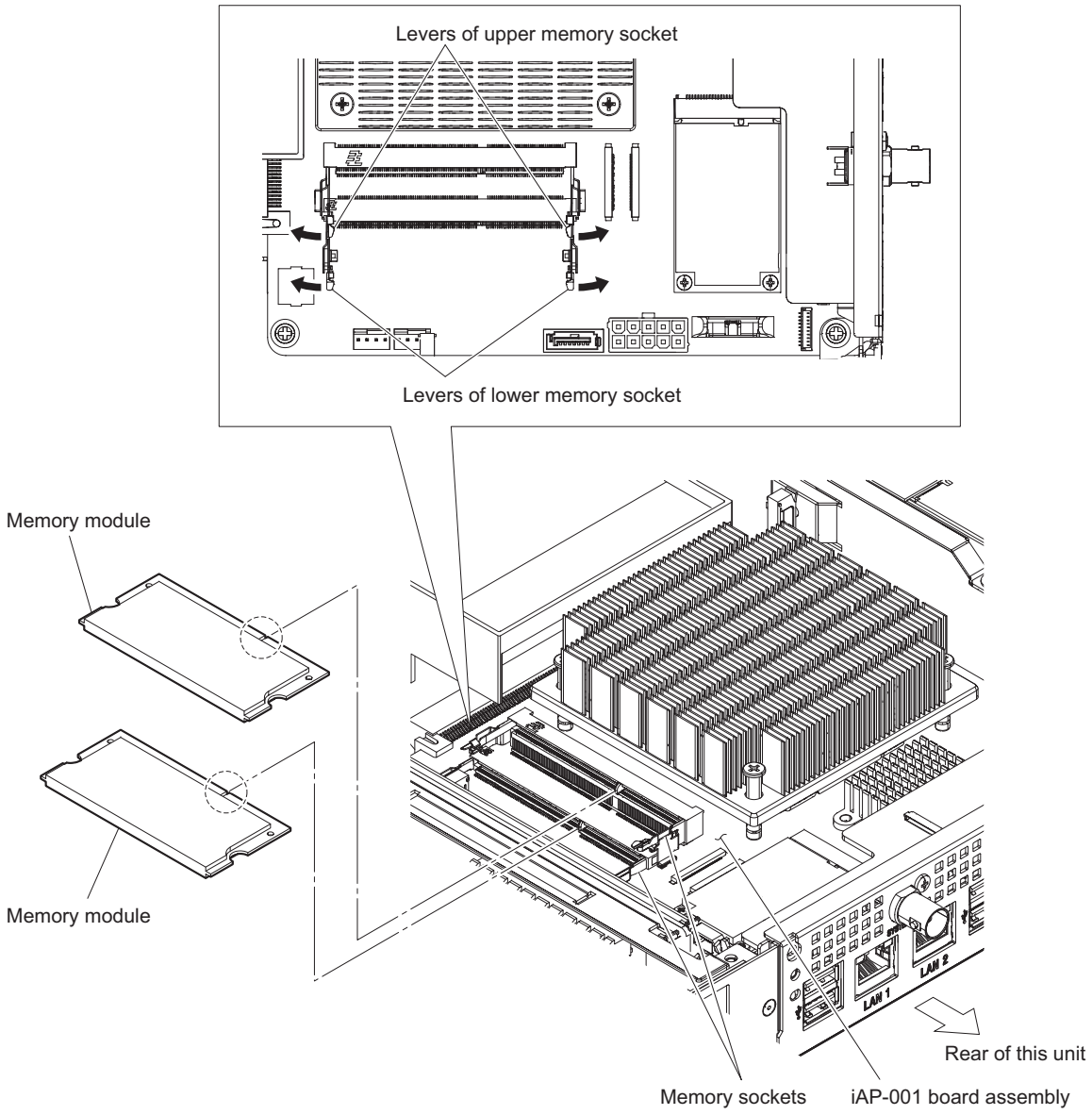
5-22-1. Memory Module (204pin SO-DIMM)

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)

Procedure

1. Pull the levers of the upper memory socket outward from the socket and remove the memory module.
2. Pull the levers of the lower memory socket outward from the socket and remove the memory module.



Note

When installing the memory modules, install them securely into the memory sockets.

3. Install the removed parts by reversing the steps of removal.

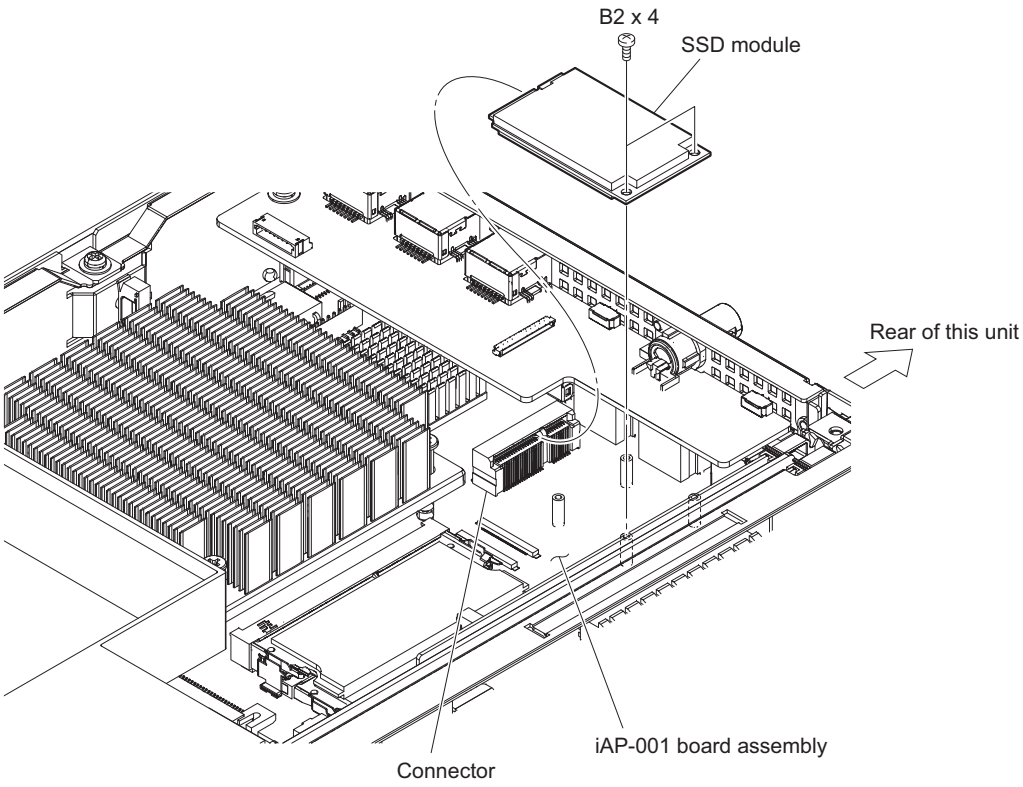
5-22-2. SSD Module (mSATA)

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)

Procedure

1. Remove two screws and then remove the SSD module from the connector.



Note

When installing the SSD module, insert it securely into the connector.

2. Install the removed parts by reversing the steps of removal.

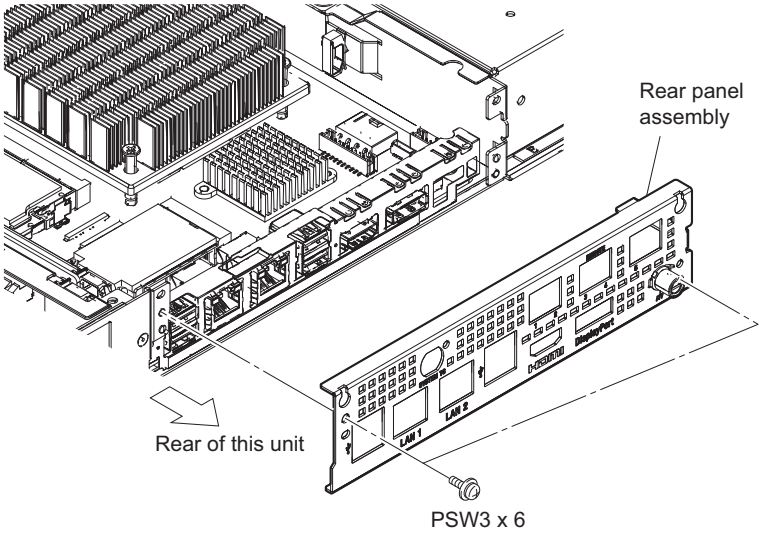
5-22-3. iAP-001 Board Assembly

Preparation

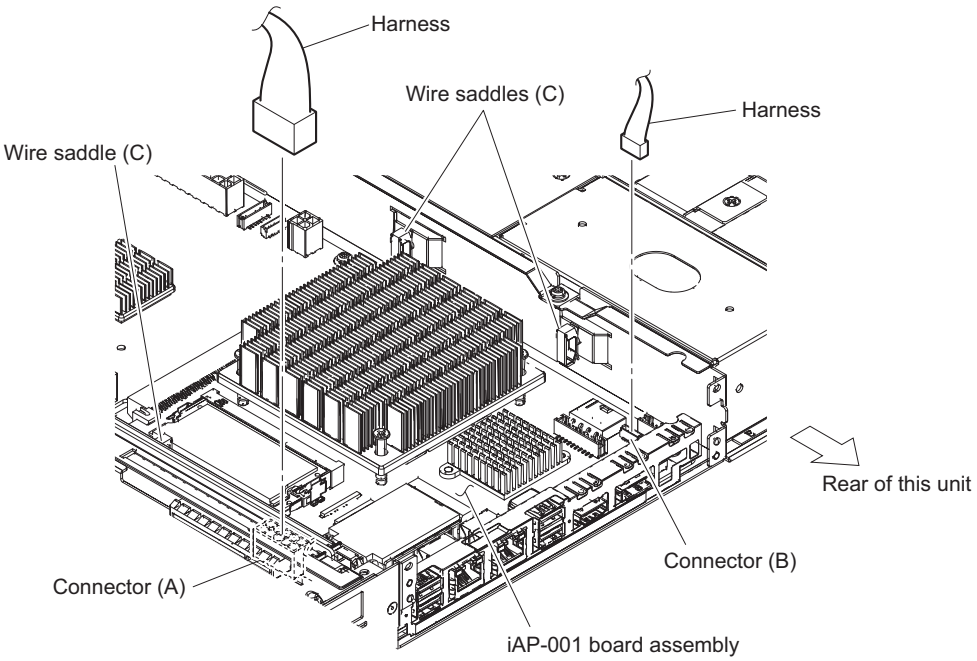
1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the fan duct. (Refer to "5-15. Fan Assembly".)
3. Remove the CN-3698 board. (Refer to "5-20. CN-3698 Board".)

Procedure

1. Remove the two screws and then detach the rear panel assembly.

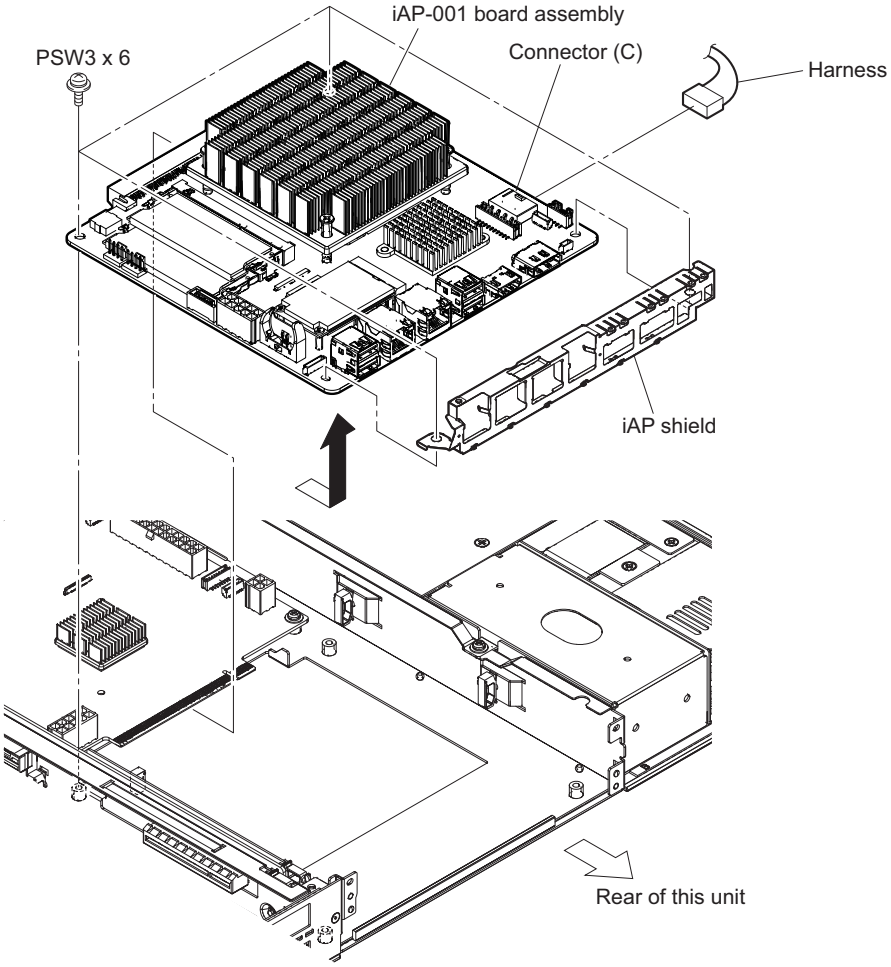


2. Open the three pieces of wire saddle (C) and disconnect the two harnesses from the connector (A) and the connector (B) of the iAP-001 board assembly.



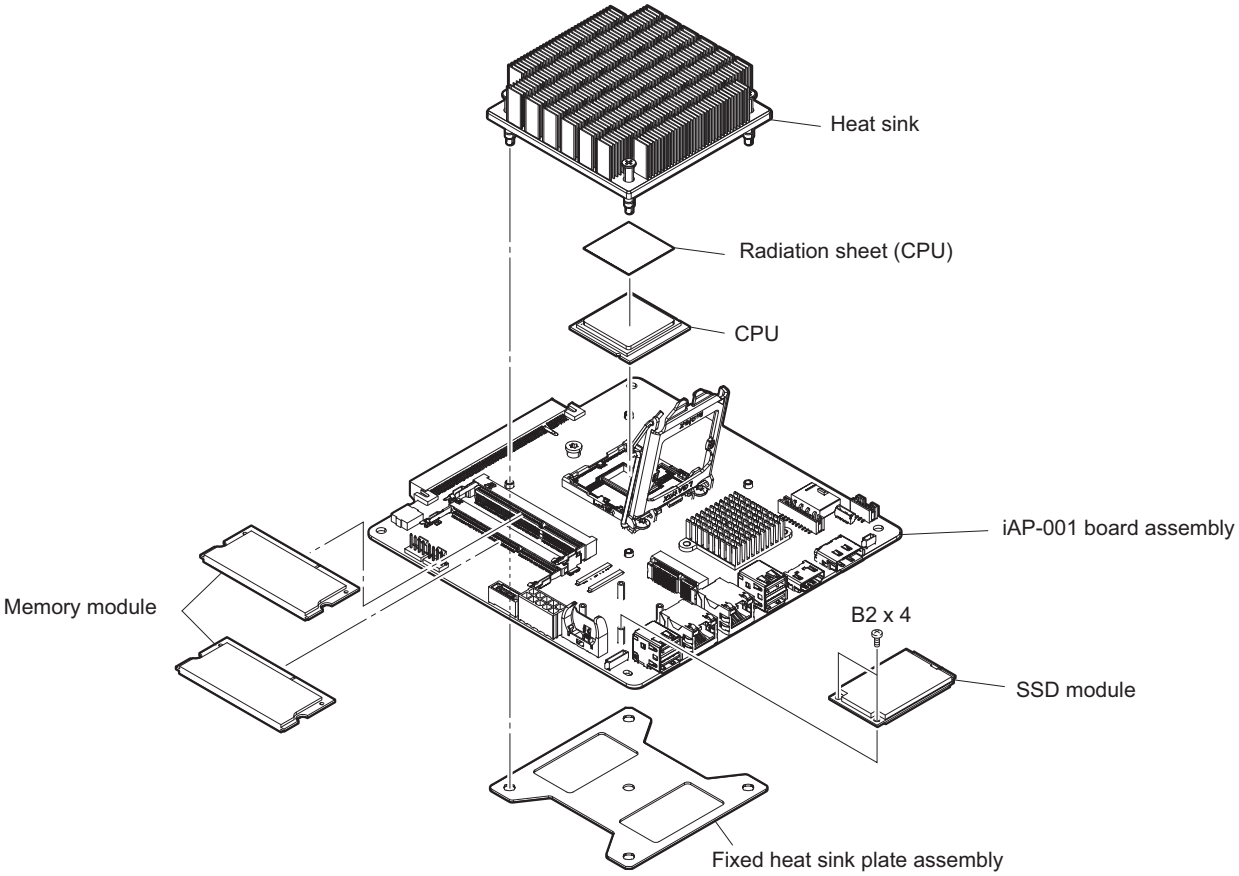
3. Remove the four screws and detach the iAP-001 board assembly in the direction of the arrow.
4. Disconnect the harness from the connector (C) of the iAP-001 board assembly.

5. Remove the iAP shield.



6. Remove the heat sink, the fixed heat sink plate assembly, the radiation sheet (CPU), and the CPU. (Refer to "5-22-4. CPU".)
7. Remove the two memory modules. (Refer to "5-22-1. Memory Module (204pin SO-DIMM)".)

8. Remove the SSD module. (Refer to "5-22-2. SSD Module (mSATA)".)



9. Install the removed parts by reversing the steps of removal.

5-22-4. CPU

Note

- The radiation sheet (CPU) may have cured and adhered to the heat sink. In that case, heat the central area of the heat sink to 50 to 60°C with a hair drier to soften the radiation sheet (CPU).
- The radiation sheet (CPU) is not reusable. Prepare new parts in advance.

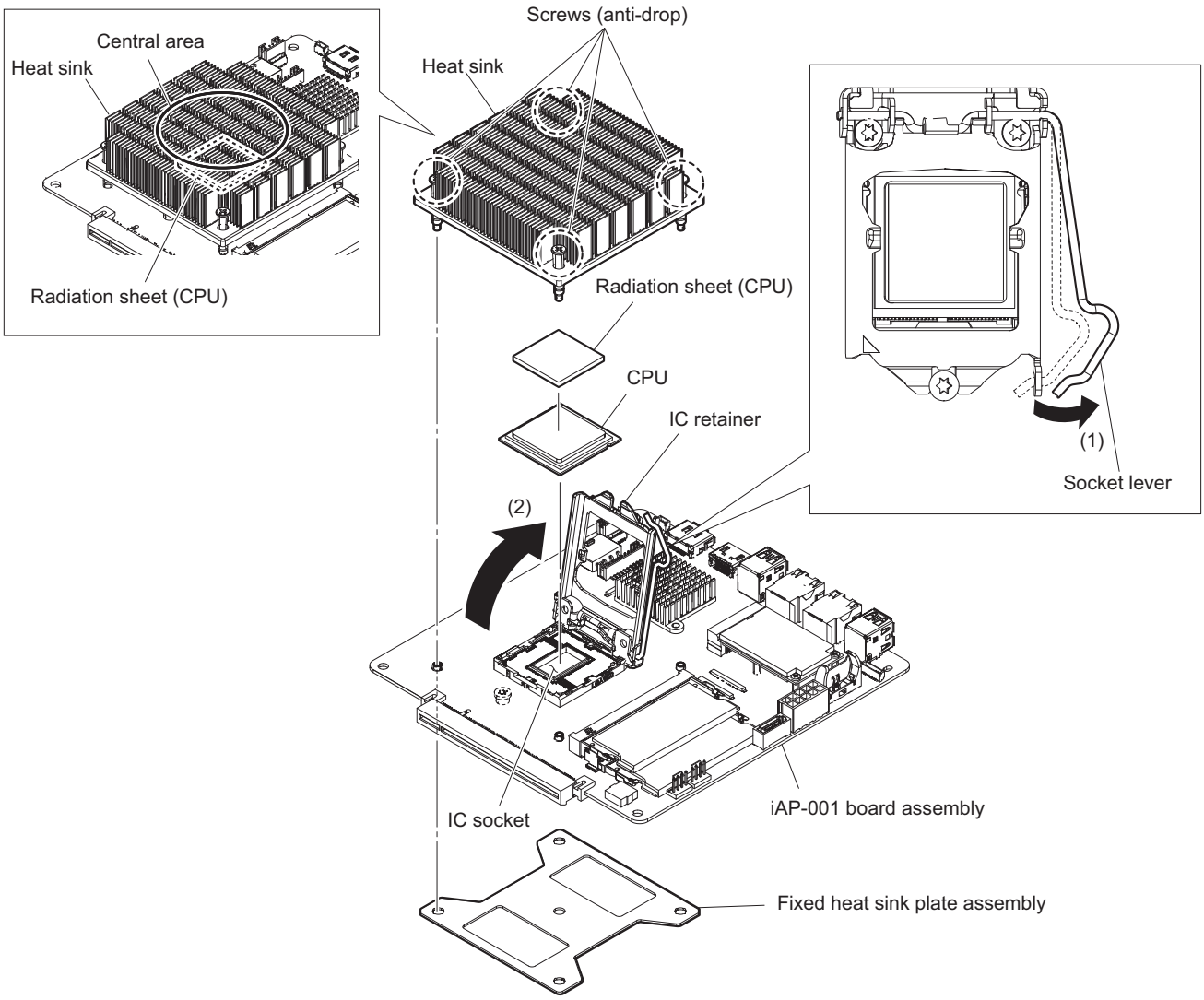
Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the fan duct. (Refer to "5-15. Fan Assembly".)
3. Remove the CN-3698 board. (Refer to "5-20. CN-3698 Board".)
4. Remove the iAP-001 board assembly. (Refer to "5-22-3. iAP-001 Board Assembly".)

Removal

1. Loosen the four screws (anti-drop).
2. Heat the central area of the heat sink to 50 to 60°C with a hair drier to soften the radiation sheet (CPU).
3. Remove the heat sink and the fixed heat sink plate assembly.
4. Remove the radiation sheet (CPU).
5. Release the lock of the socket lever in the direction of the arrow (1), then open the IC retainer in the direction of the arrow (2).

6. Remove the CPU from the IC socket.



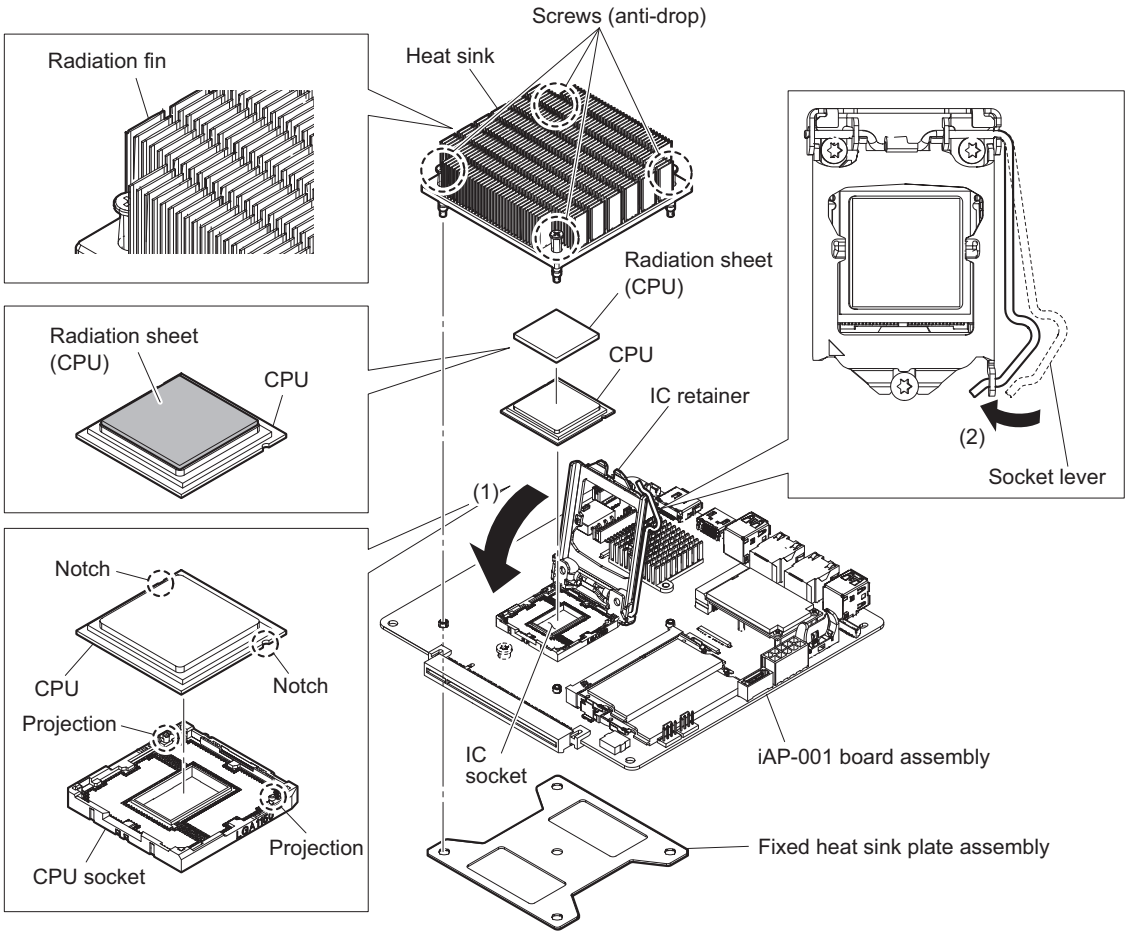
Installation

7. Install the CPU to the IC socket.
8. Close the IC retainer in the direction of the arrow (1) , then lock the socket lever in the direction of the arrow (2).
9. Attach the radiation sheet (CPU) to the CPU.

10. Install the heat sink and the fixed heat sink plate assembly with four screws (anti-drop).

Note

- When installing the CPU, align the projections of the CPU socket with the notches of CPU.
- When attaching the radiation sheet (CPU), note that the radiation sheet (CPU) stays within the CPU.
- Install the heat sink with its radiation fin directed as shown in the figure below.



11. Assemble this unit by reversing the steps of "Preparation".

5-23. iAP-005 Board-Equipped Unit

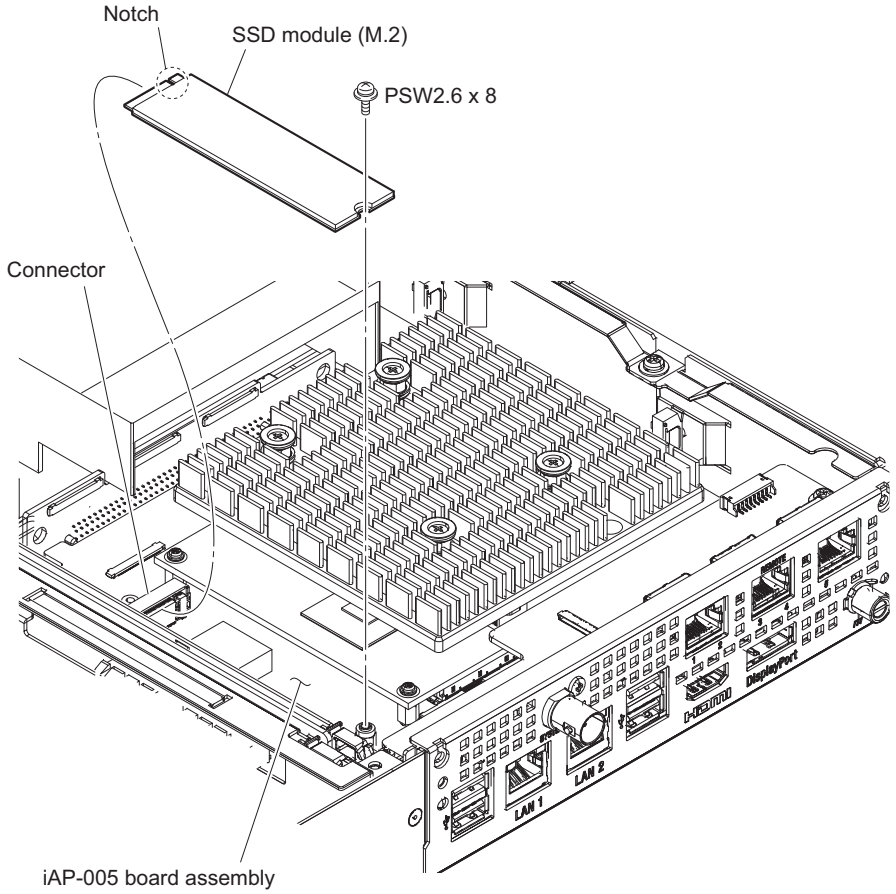
5-23-1. SSD Module (M.2)

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)

Procedure

1. Remove the screw and then remove the SSD module from the connector of the iAP-005 board assembly.



Note

When installing the SSD module, insert it securely into the connector of the iAP-005 board assembly.

2. Install the removed parts by reversing the steps of removal.

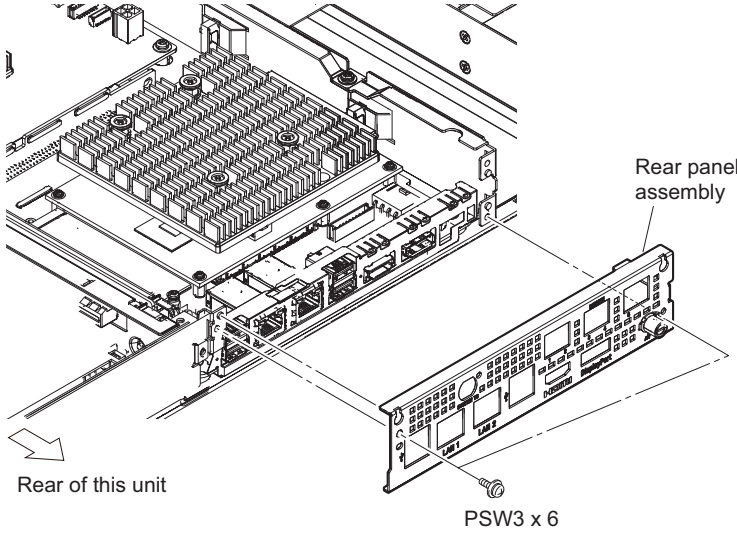
5-23-2. iAP-005 Board Assembly

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the fan duct. (Refer to "5-15. Fan Assembly".)
3. Remove the CN-3698 board. (Refer to "5-20. CN-3698 Board".)

Procedure

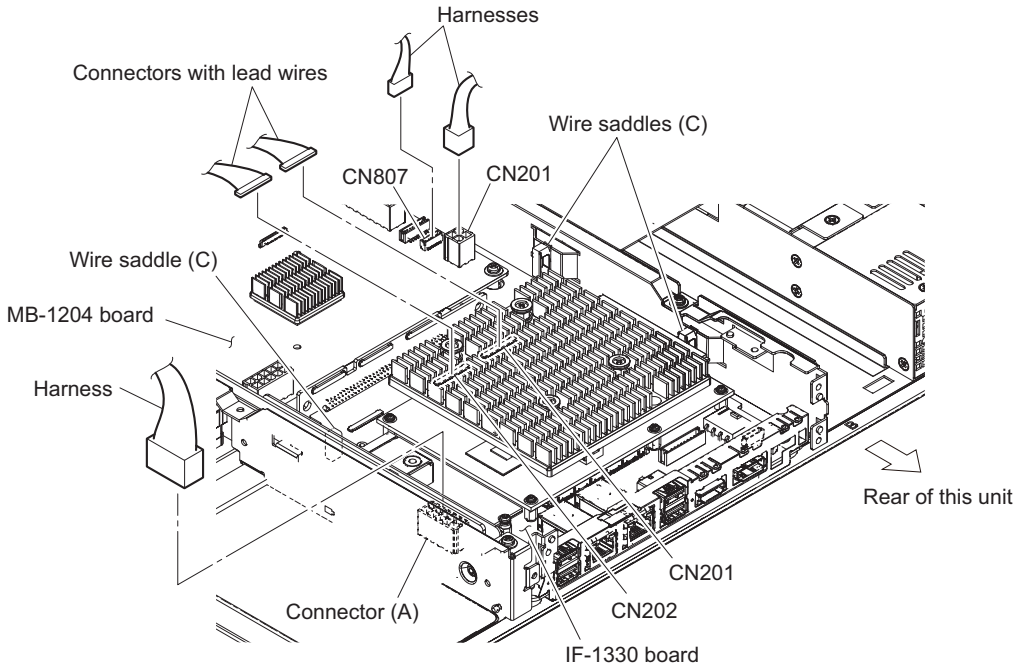
1. Remove the two screws and then detach the rear panel assembly.



2. Open the three pieces of wire saddle (C).
3. Disconnect the two harnesses from the connectors (CN201, CN807) on the MB-1204 board.
4. Disconnect the harness from the connector (A) of the iAP-005 board assembly.
5. Disconnect the two connectors with lead wires from the connectors (CN201, CN202) on the IF-1330 board.

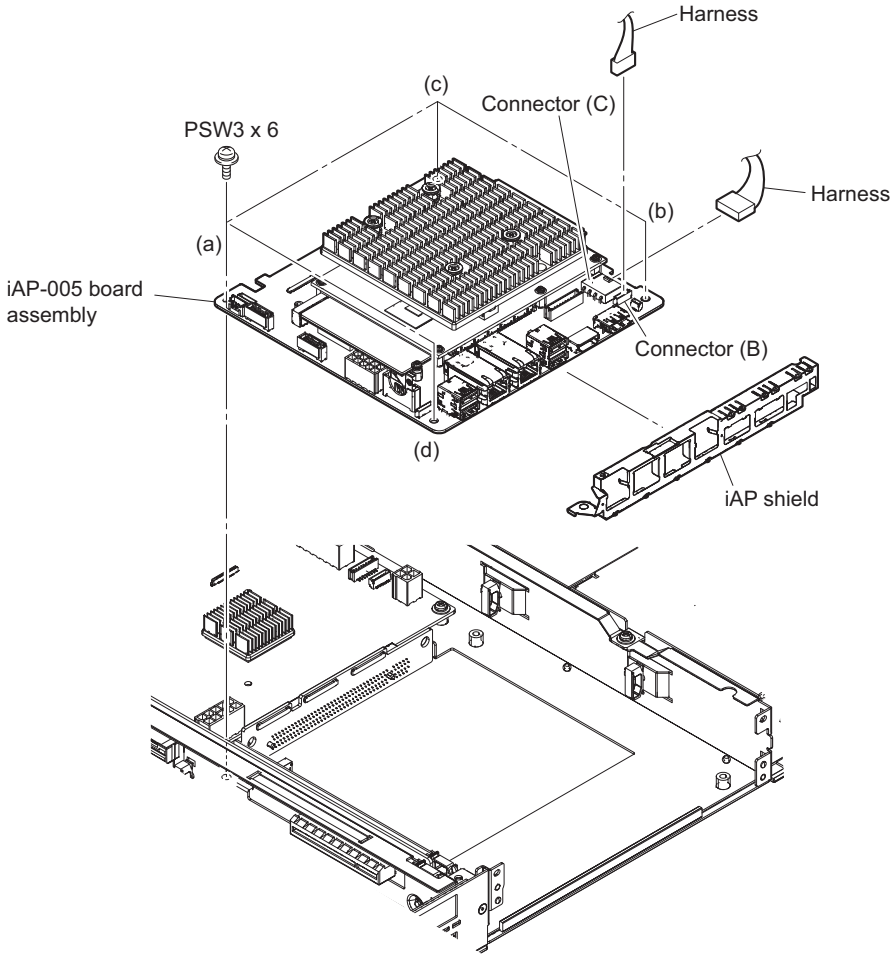
Note

When disconnecting the connector with lead wire, pull out the connector part with your fingers.



6. Remove the four screws and detach the iAP-005 board assembly.
7. Disconnect the two harnesses from the connector (B) and the connector (C) of the iAP-005 board assembly.

8. Remove the iAP shield.



Note

When installing the iAP-005 board assembly, tighten the screws in the following sequence: (a), (b), (c), (d).

9. Install the removed parts by reversing the steps of removal.

5-23-3. CPU

Note

The radiation sheet 0.5 (30X30) is not reusable. Prepare new parts in advance.

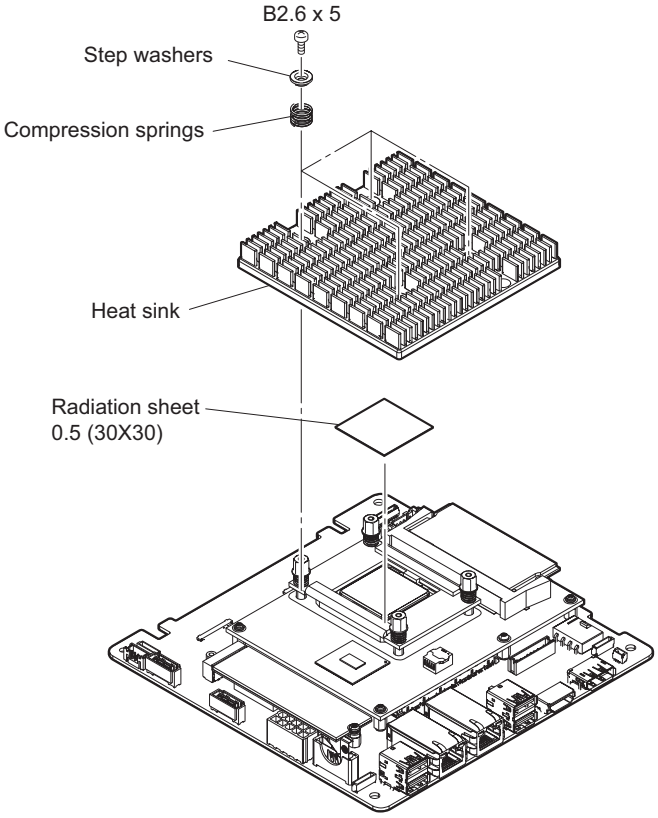
Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the iAP-005 board assembly. (Refer to "5-23-2. iAP-005 Board Assembly".)

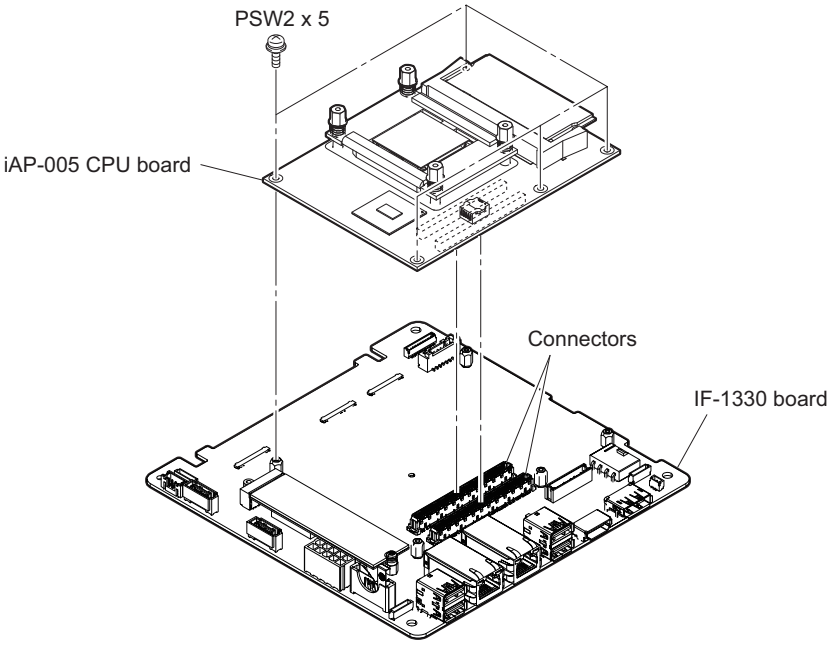
Removal

1. Remove the four screws, the four step washers and the four compression springs and detach the heat sink.

2. Remove the radiation sheet 0.5 (30X30).

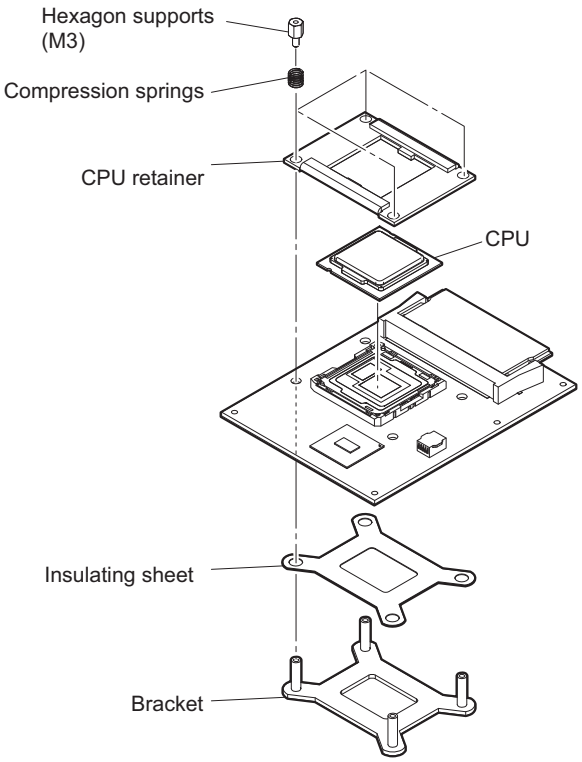


3. Remove the five screws, and then remove the iAP-005 CPU board from the connectors on the IF-1330 board.



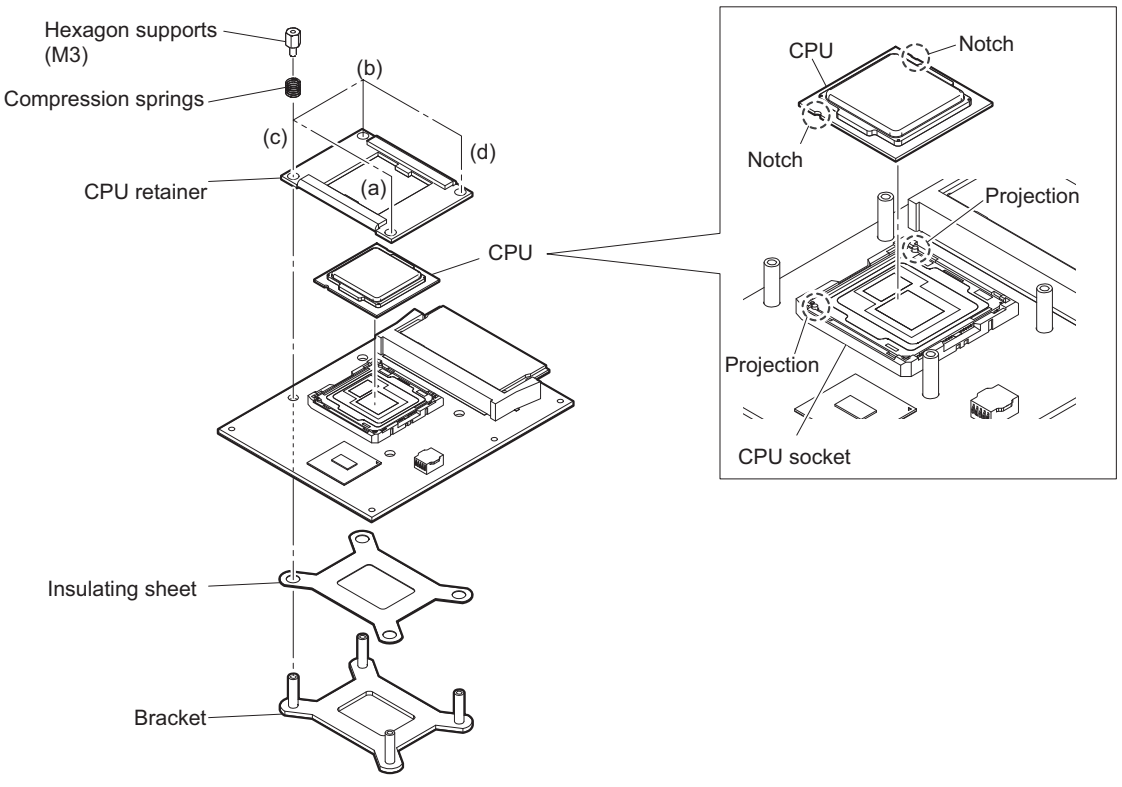
4. Remove the four hexagon supports and detach the four compression springs.
5. Remove the CPU retainer, the bracket and the insulating sheet.

6. Remove the CPU.



Installation

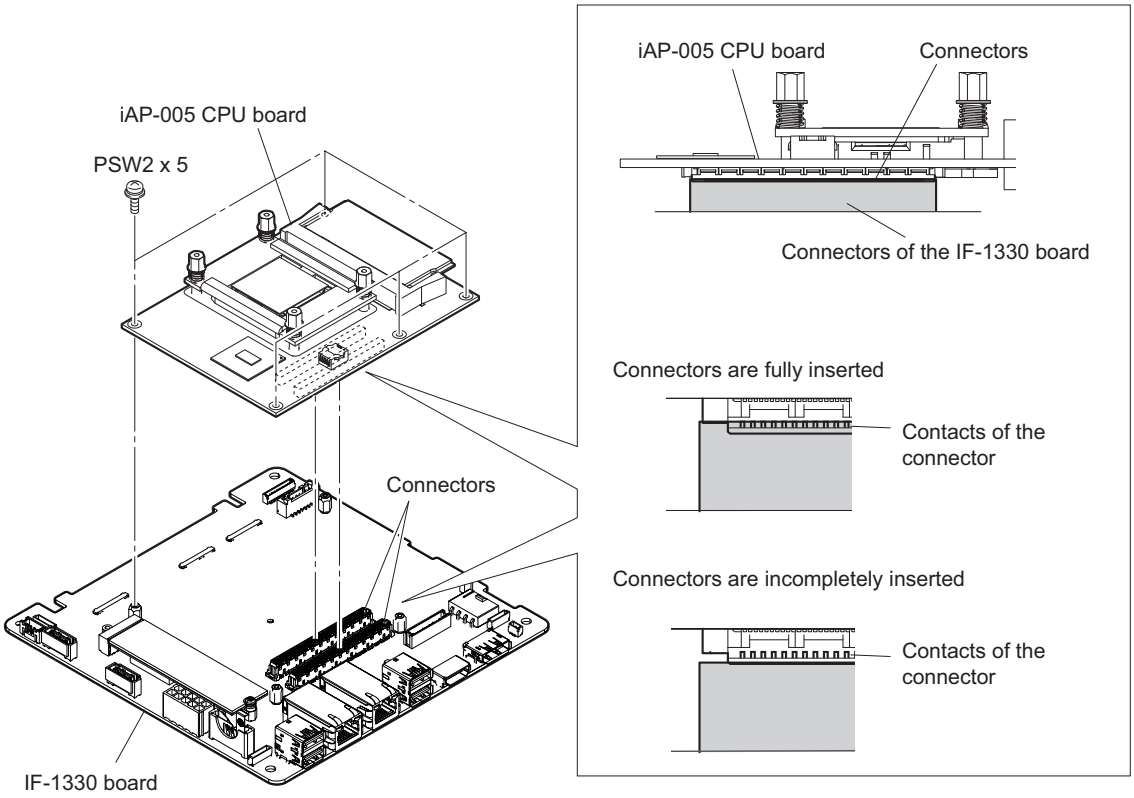
7. Align the two notches of the CPU with the two projections on the CPU socket, and then seat the CPU.
8. Attach the insulating sheet, the bracket and the CPU retainer.
9. Put four compression springs and four hexagon supports on the CPU retainer.
10. Press the CPU retainer and tighten the hexagon supports temporarily in diagonal sequence.
11. Tighten the hexagon supports to the specified torque in the following sequence: (a), (b), (c), (d).



12. Install the iAP-005 CPU board to the connectors on the IF-1330 board, and then tighten the five screws.

Note

When installing the iAP-005 CPU board, confirm that the connectors of the IF-1330 board are fully inserted.



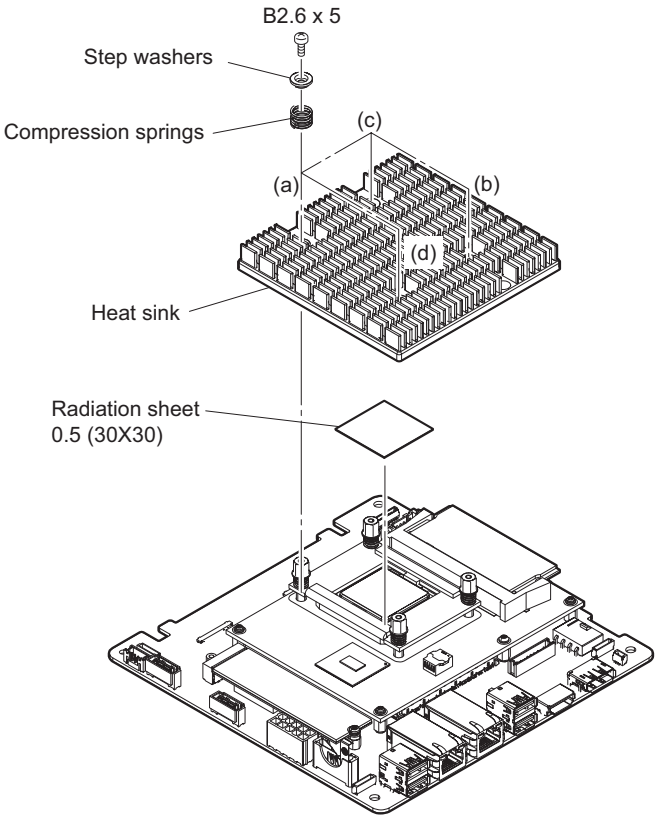
13. Attach the radiation sheet 0.5 (30X30).

Note

Check that the radiation sheet 0.5 (30X30) covers the CPU completely.

14. Put four compression springs and four step washers on the heat sink.
15. Press the center of the heat sink and tighten the screws temporarily in diagonal sequence.

16. Tighten the screws to the specified torque in the following sequence: (a), (b), (c), (d).



17. Assemble the unit by reversing the steps of "Preparation".

5-23-4. Memory Module (260pin SO-DIMM)

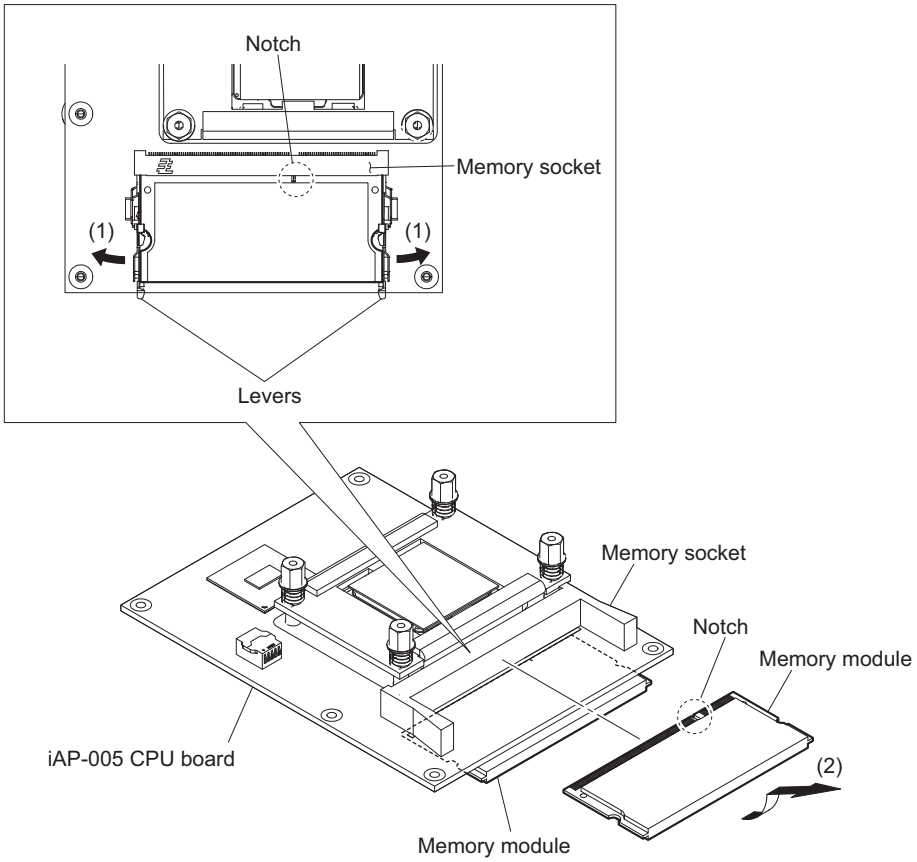
Preparation

1. Remove the top panel assembly. (Refer to “5-4. Top Panel Assembly”.)
2. Remove the iAP-005 board assembly. (Refer to “5-23-2. iAP-005 Board Assembly”.)
3. Remove the iAP-005 CPU board. (Refer to “5-23-3. CPU”.)

Procedure

1. Open the levers of the memory socket in the direction of the arrow (1).

2. Remove the memory module in the direction of the arrow (2).



Note

When installing the memory modules, insert them securely into the memory socket.

3. Remove another memory module in the same way as in steps 1, 2.
4. Install the removed parts by reversing the steps of removal.

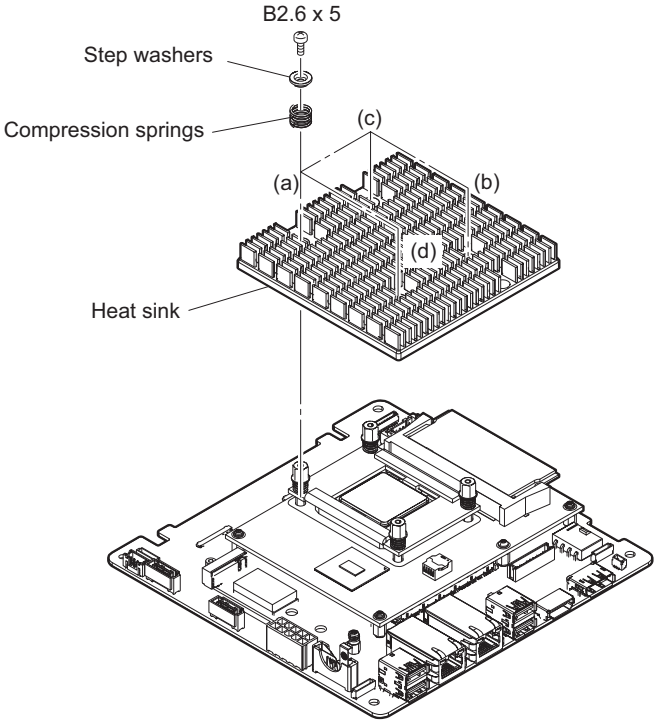
5-23-5. IF-1330 Board

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the fan duct. (Refer to "5-15. Fan Assembly".)
3. Remove the CN-3698 board. (Refer to "5-20. CN-3698 Board".)
4. Remove the RC holder assembly. (Refer to "5-14. PCI Express Card".)
5. Remove the SSD module. (Refer to "5-23-1. SSD Module (M.2)".)
6. Remove the iAP-005 board assembly. (Refer to "5-23-2. iAP-005 Board Assembly".)

Procedure

1. Remove the four screws, the four step washers and the four compression springs and detach the heat sink.

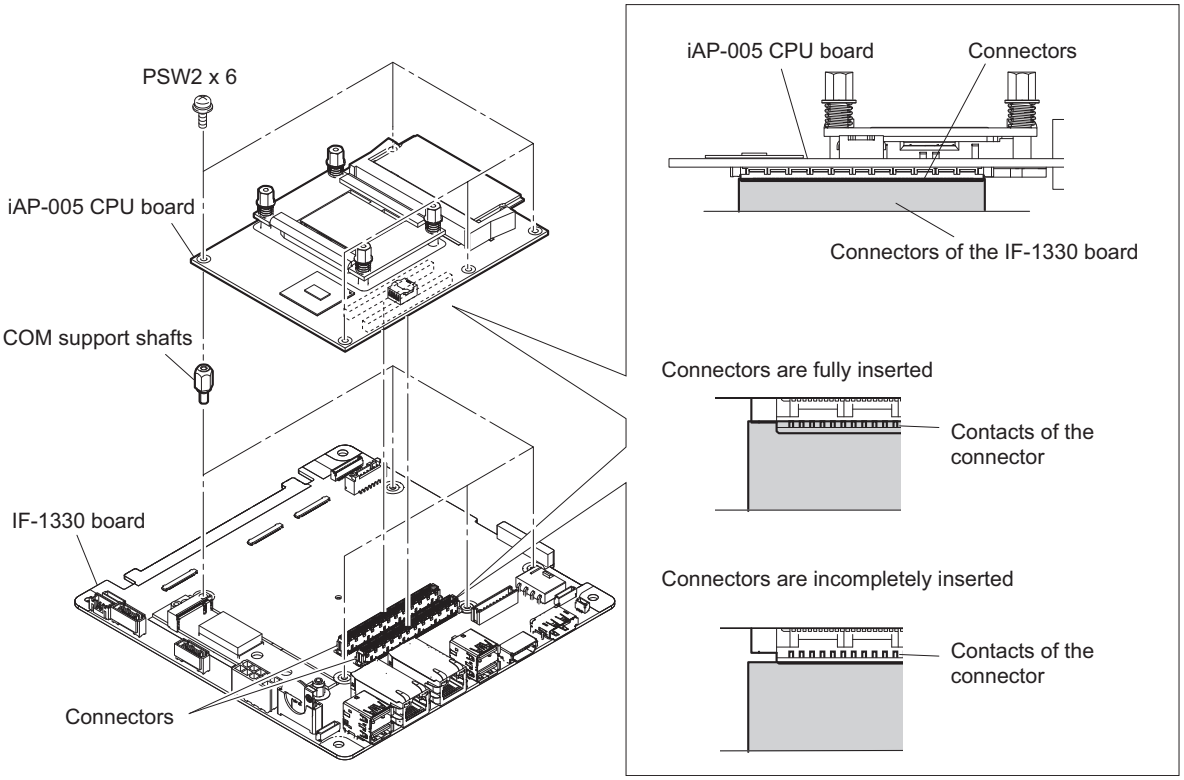


Note

At the time of the installation, tighten the screws to the specified torque in the following sequence: (a), (b), (c), (d).

2. Remove the five screws, and then remove iAP-005 CPU board from the connectors on the IF-1330 board.

3. Remove the five COM support shafts.



Note

When installing the iAP-005 CPU board, confirm that the connectors of the IF-1330 board are fully inserted.

4. Install the removed parts by reversing the steps of removal.

5-23-6. CN-3934 Board

Preparation

1. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
2. Remove the fan duct. (Refer to "5-15. Fan Assembly".)
3. Remove the CN-3698 board. (Refer to "5-20. CN-3698 Board".)
4. Remove the RC holder assembly. (Refer to "5-14. PCI Express Card".)
5. Remove the iAP-005 board assembly. (Refer to "5-23-2. iAP-005 Board Assembly".)

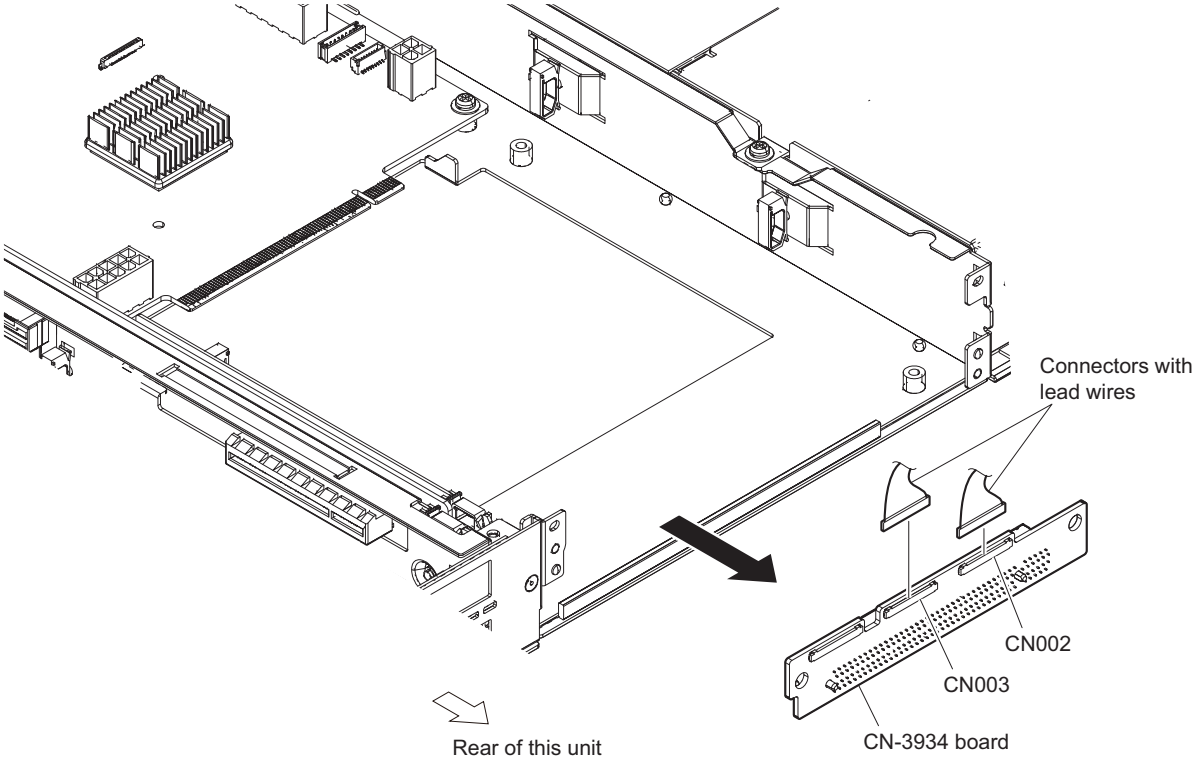
Procedure

1. Disconnect the two connectors with lead wires from the connectors (CN002, CN003) on the CN-3934 board.

Note

When disconnecting the connector with lead wire, pull out the connector part with your fingers.

2. Remove the CN-3934 board in the direction of the arrow.



3. Install the removed parts by reversing the steps of removal.

5-24. MB-1204 Board

Preparation

1. Back up the RAID management information. (Refer to "5-2-4. Before Replacing the MB-1204 Board".)

   Tip

   This work is not necessary when the unit has no HDD assembly.

2. Remove the top panel assembly. (Refer to "5-4. Top Panel Assembly".)
3. Remove the RC holder assembly. (Refer to "5-14. PCI Express Card".)
4. Remove the CN-3698 board. (Refer to "5-20. CN-3698 Board".)
5. Remove the duct (fan). (Refer to "5-15. Fan Assembly".)
6. Remove the iAP board assembly.
   For iAP-001 board-equipped unit, refer to "5-22-3. iAP-001 Board Assembly".
   For iAP-005 board-equipped unit, refer to "5-23-2. iAP-005 Board Assembly".

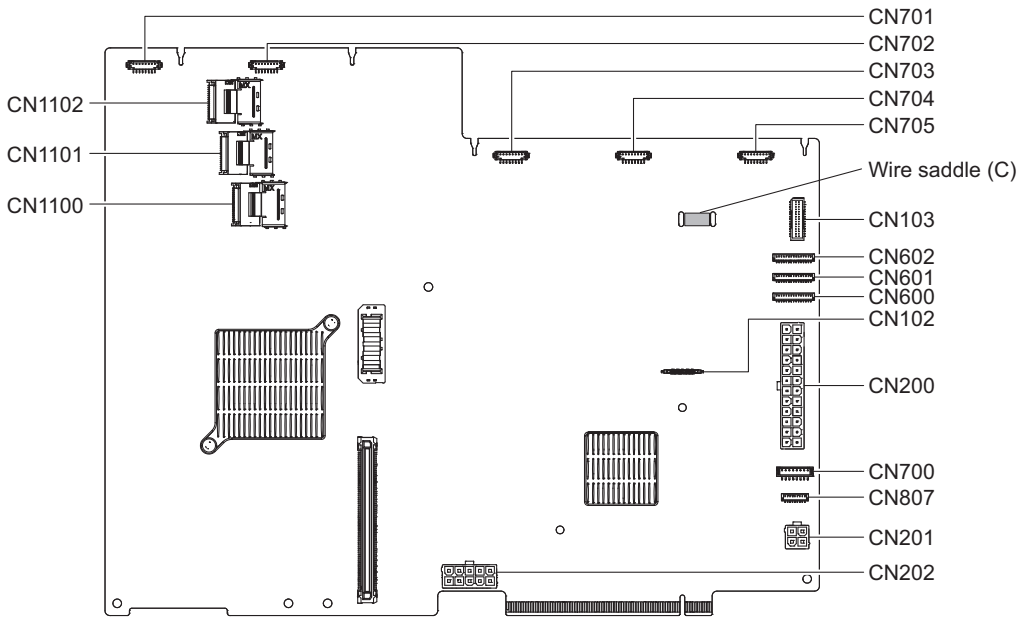
Procedure

1. Open the wire saddle (C) and disconnect the fine-wire coaxial cable from the connector (CN102) on the MB-1204 board.

   Note

   When pulling out the fine-wire coaxial cable, pull out the connector part with your fingers.

2. Disconnect all harnesses connected to the MB-1204 board.



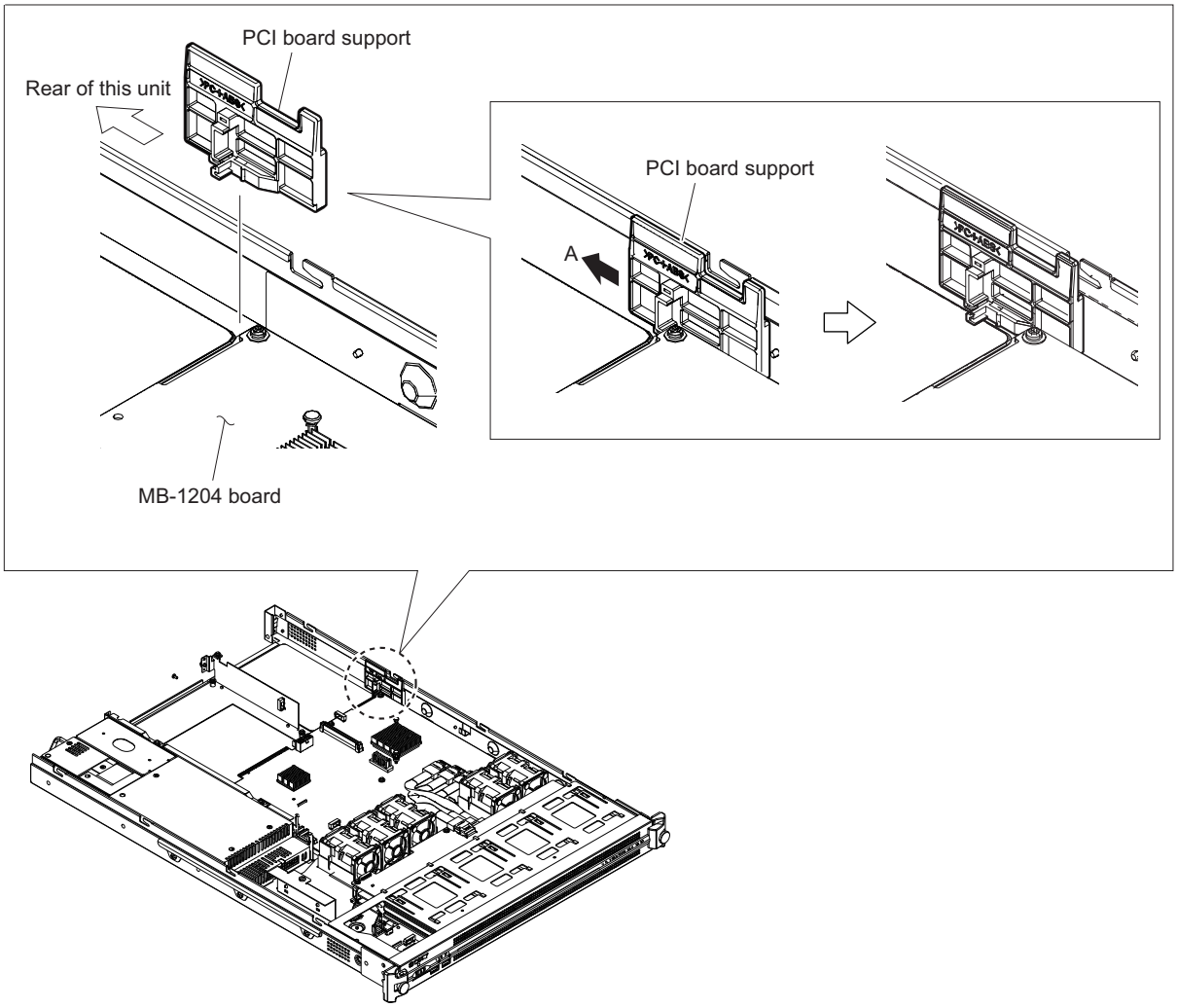
Note

When the unit has HDD assemblies and removed parts are reinstalled, do not connect the harnesses to the three connectors (CN1100, CN1101, and CN1102) on the MB-1204 board until RAID management information has been written back.

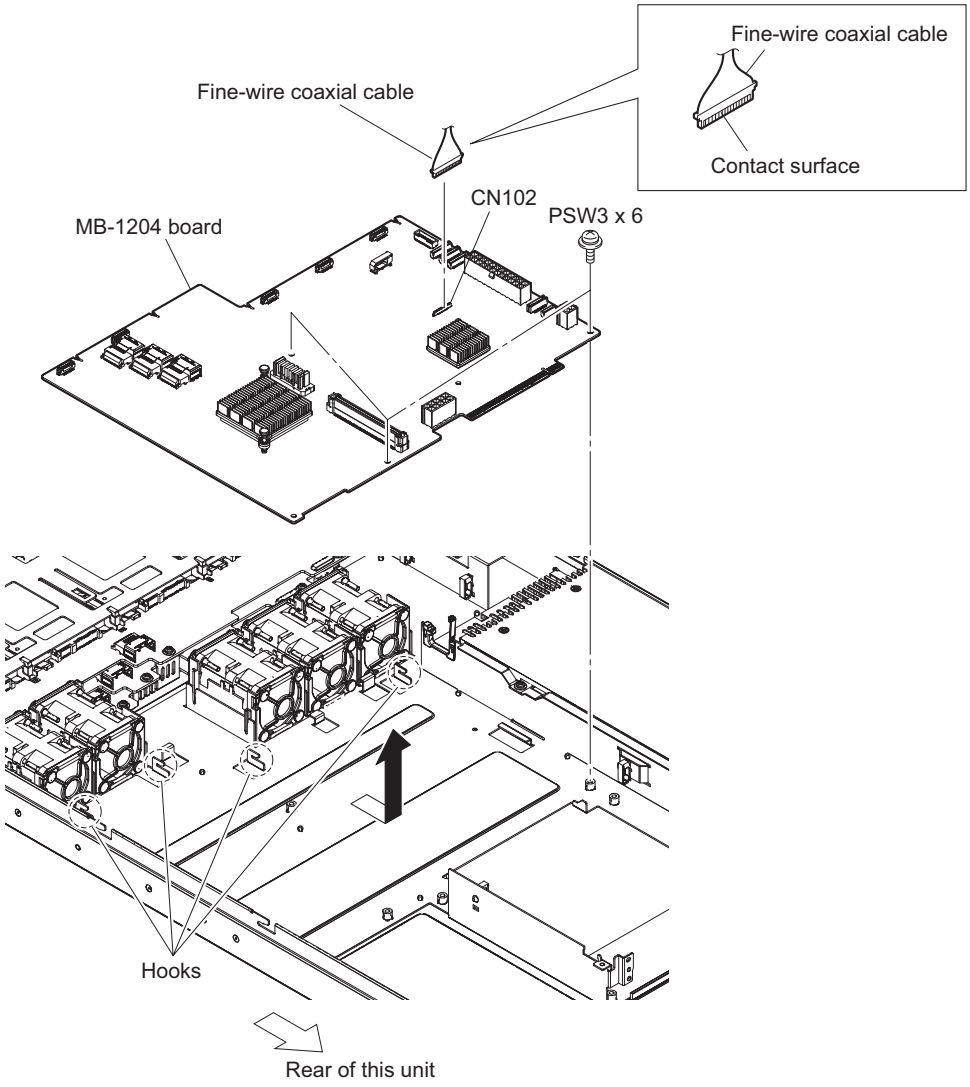
3. Slide the PCI board support in the direction of the arrow A, and then remove the PCI board support.

Note

The PCI board support is hard to slide because it is locked tightly enough not to disengage by vibration.



4. Remove the three screws and release the four hooks, then remove the MB-1204 board in the direction of the arrow.



Note

When installing the fine-wire coaxial cable, install it in the direction shown in the figure.

5. Install the removed parts by reversing the steps of removal.

Note

When the unit has HDD assemblies, do not connect the harnesses to the three connectors (CN1100, CN1101, and CN1102) on the MB-1204 board at this time. And do not install the duct (fan) and top panel assembly.

6. Take necessary actions after the MB-1204 board has been replaced. (Refer to "5-2-5. After Replacing the MB-1204 Board".)

Section 6
Spare Parts

6-1. Note on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

3. Stock of Parts

Parts marked with "o" at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

Harnesses with no part number are not registered as spare parts.

1. 安全重要部品

⚠警告

⚠印のついた部品は安全性を維持するために重要な部品です。したがって，交換する時は必ず指定の部品を使ってください。

2. 部品の共通化

ソニーから供給する補修用部品は，セットに使われているものと異なることがあります。
これは部品の共通化，改良等によるものです。

3. 部品の在庫

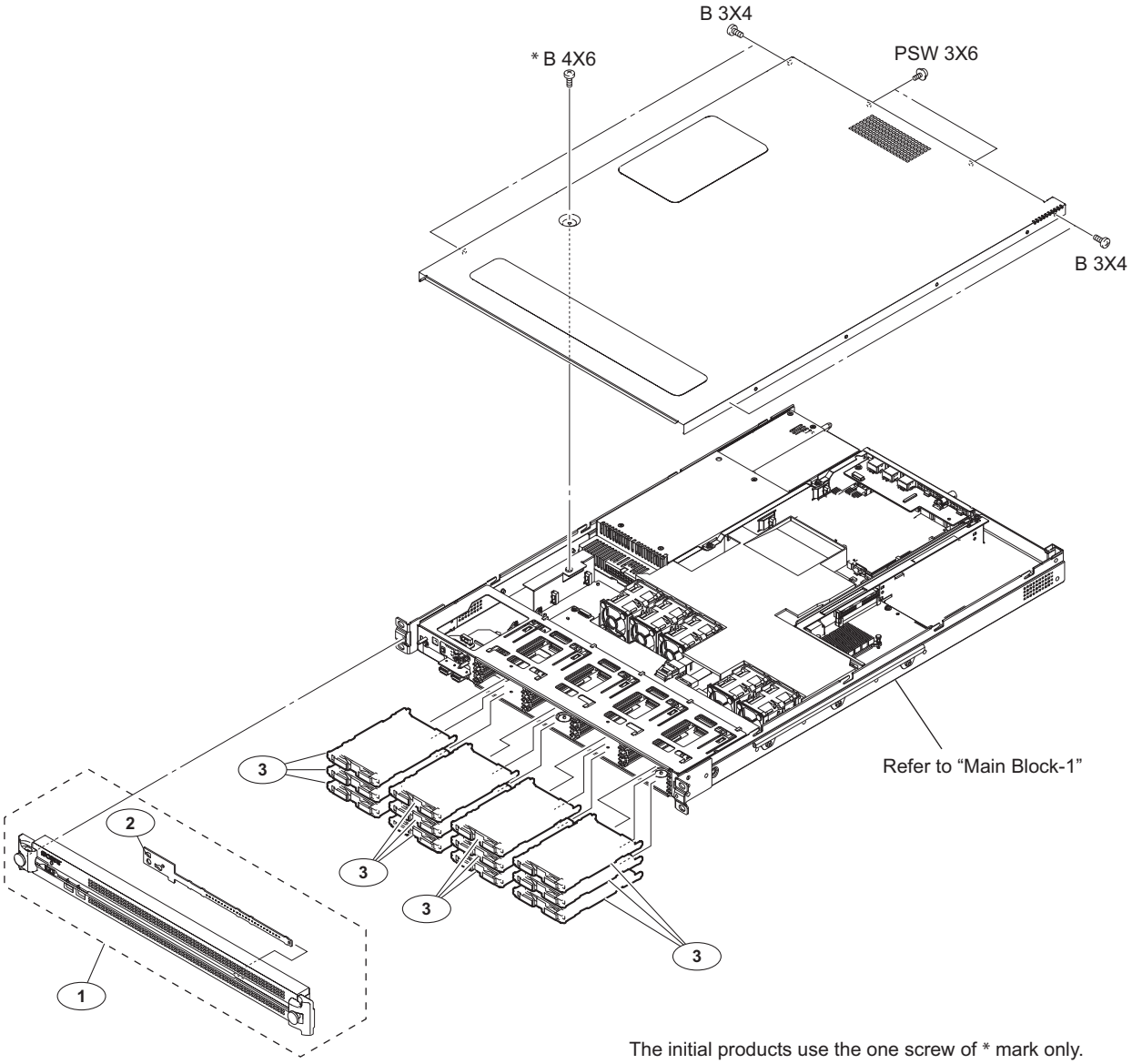
部品表の SP（Supply code）欄に "o" で示される部品は在庫していないことがあり，納期が長くなることがあります。

4. ハーネス

部品番号の記載されていないハーネスは，サービス部品として登録されていません。

6-2. Exploded Views

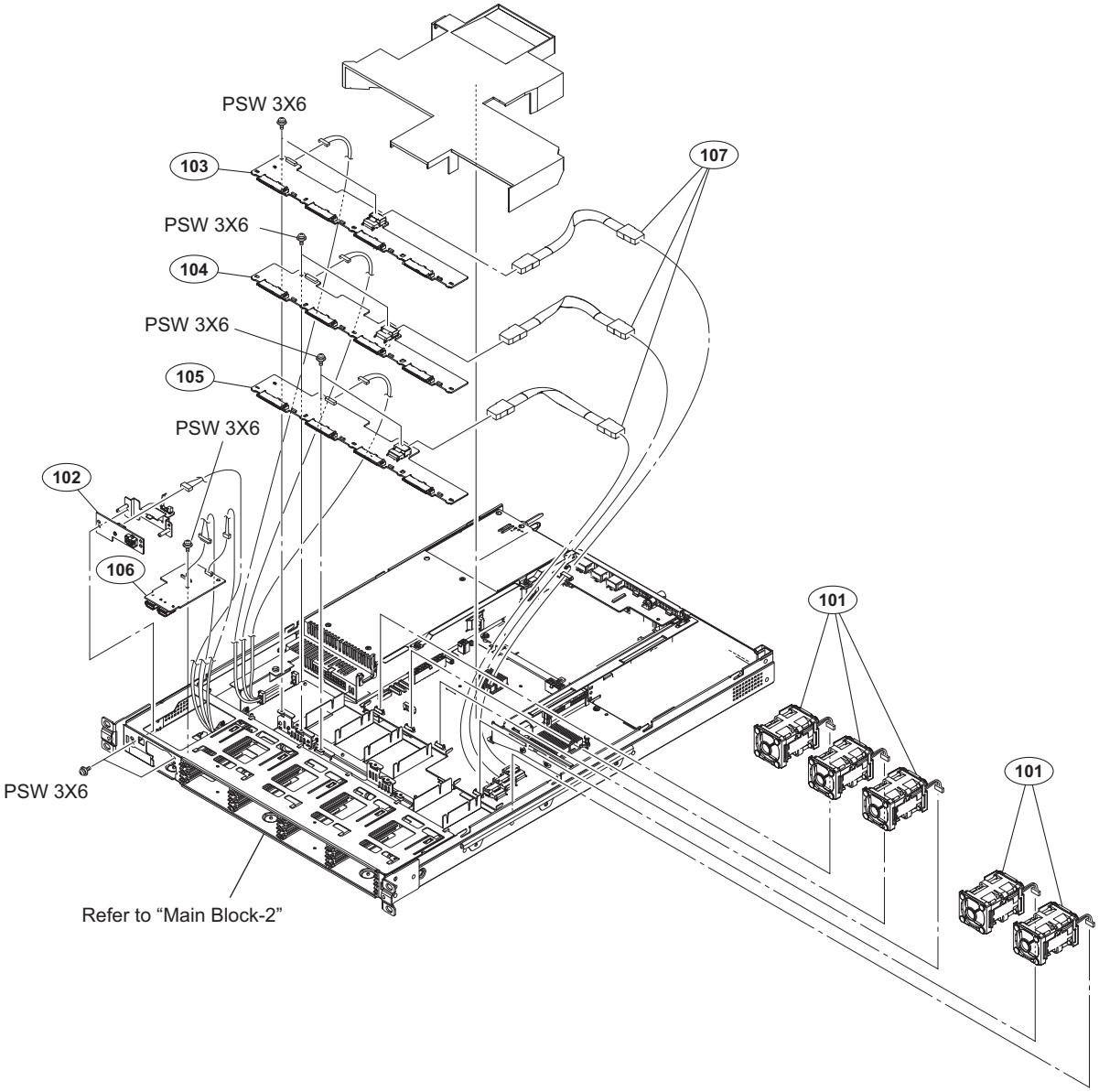
Overall



The initial products use the one screw of * mark only.

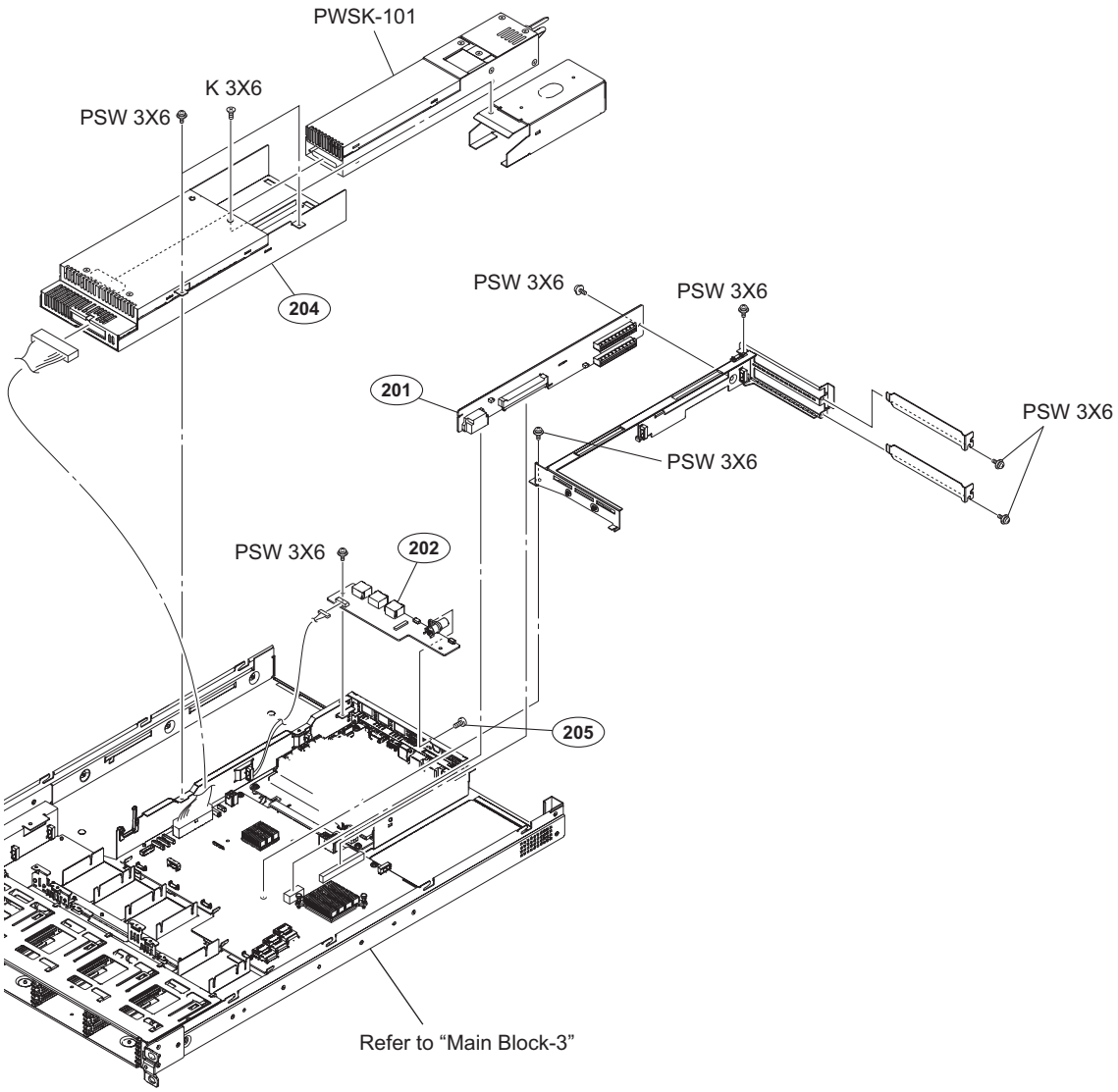
No.	Part No.	SP	Description
1	A-1990-555-A	s	FRONT PANEL ASSY
2	A-2040-582-A	s	MOUNTED CIRCUIT BOARD, LED-527
3	A-2061-305-A	s	ST BLANK ASSY
	7-682-545-09	s	SCREW +B 3X4
	7-682-560-09	s	SCREW +B 4X6
	7-682-947-09	s	SCREW +PSW 3X6

Main Block-1



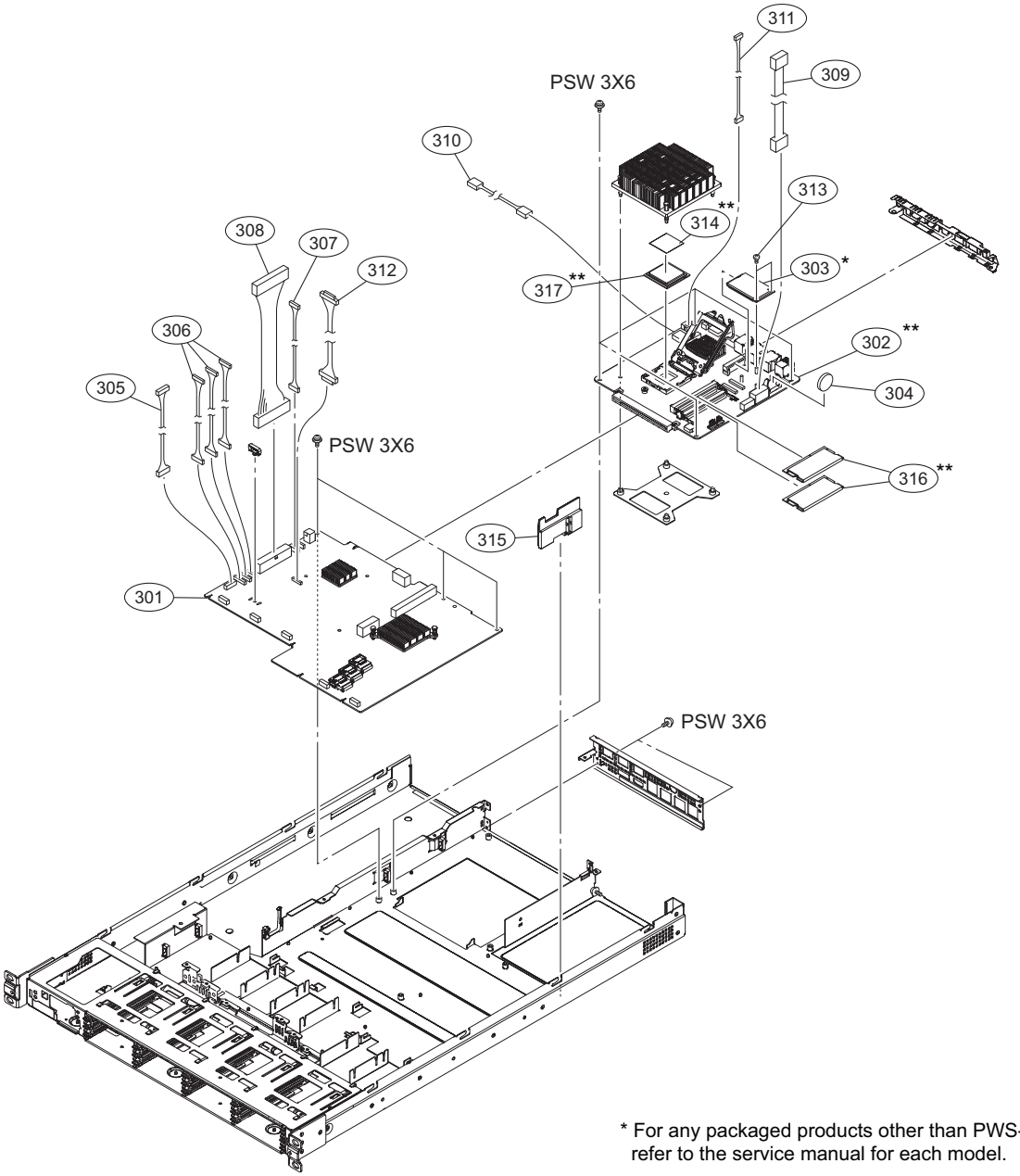
No.	Part No.	SP	Description
101	A-1998-530-A	s	FAN ASSY
102	A-2040-583-A	s	MOUNTED CIRCUIT BOARD, SW-1627
103	A-2040-585-A	s	MOUNTED CIRCUIT BOARD, IF-1257
104	A-2040-586-A	s	MOUNTED CIRCUIT BOARD, IF-1258
105	A-2040-587-A	s	MOUNTED CIRCUIT BOARD, IF-1259
106	A-2040-588-B	s	MOUNTED CIRCUIT BOARD, DIO-98
107	1-848-266-11	s	CABLE, MINI SAS
	7-682-947-01	o	SCREW +PSW 3X6

Main Block-2



No.	Part No.	SP	Description
201	A-2040-584-A	s	MOUNTED CIRCUIT BOARD, RC-110
202	A-2040-589-A	s	MOUNTED CIRCUIT BOARD, CN-3698
204	⚠ 1-474-591-12	s	OPTION
205	2-655-586-01	s	SCREW +B M2.6 EG
	7-682-247-04	s	SCREW +K 3X6
	7-682-947-01	s	SCREW +PSW 3X6

Main Block-3 (iAP-001 Board-Equipped Unit)

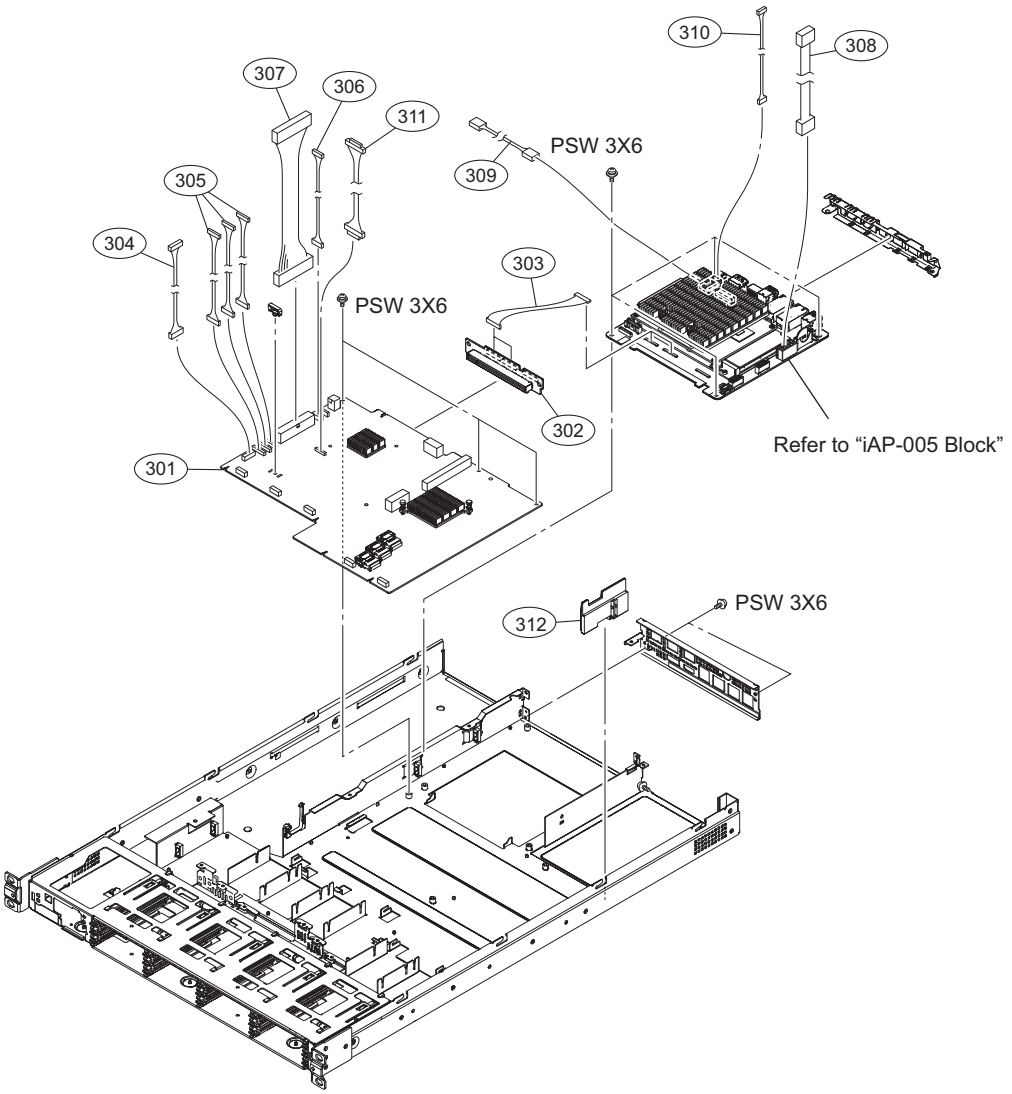


* For any packaged products other than PWS-100, refer to the service manual for each model.

** Refer to "5-1-4. Solutions for Discontinued Parts".

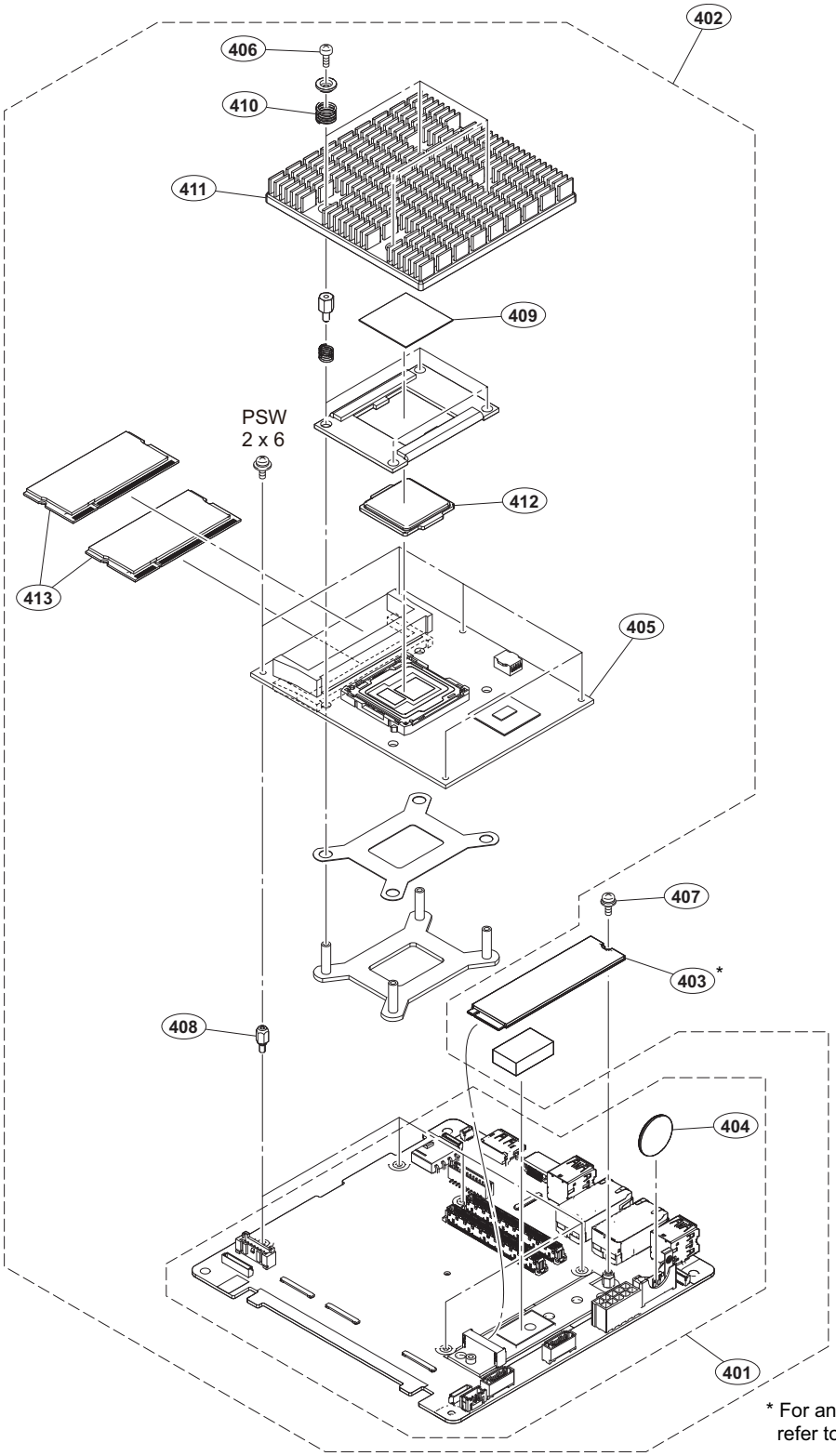
No.	Part No.	SP	Description
301	A-2040-590-A	s	MOUNTED CIRCUIT BOARD, MB-1204
302	A-2047-105-A	s	IAP BOARD (PWS-100) RP ASSY
303	6-721-234-01	s	IC THNSNH060GMCT (for PWS-100BU1 installed Windows 10 Pro)*
	A-2092-101-A	s	MSATA (BU1-WIN7PRO) ASSY(RP) (for PWS-100BU1 installed Win7)*
	A-2092-103-A	s	MSATA (CV1) ASSY(RP) (for PWS-100CV1)*
304	1-528-174-33	s	BATTERY, LITHIUM (CR2032 TYPE)
305	1-970-059-11	s	HARNESS, SUB (MB-SW/DIO)
306	1-970-061-11	s	HARNESS, SUB (MB-IF)
307	1-970-063-11	s	HARNESS, SUB (MB-CN)
308	⚠ 1-970-064-11	s	HARNESS, SUB (MB-POWER)
309	1-970-065-11	s	HARNESS, SUB (MB-IAP PW)
310	1-970-066-11	s	HARNESS, SUB (MB-IAP CPU PW)
311	1-970-067-11	s	HARNESS, SUB (MB-IAP CTL)
312	1-970-161-11	s	WIRE, CONNECTOR WITH LEAD
313	3-729-076-11	s	SCREW (+B) (2X4)
314	4-473-456-01	s	SHEET(CPU), RADIATION
315	4-546-058-02	s	SUPPORT, PCI BOARD
316	6-722-143-01	s	IC HMT451S6BFR8A-PBN0
317	6-721-446-01	s	IC CM8063701211600S-R0PK
	7-682-947-01	s	SCREW +PSW 3X6

Main Block-3 (iAP-005 Board-Equipped Unit)



No.	Part No.	SP	Description
301	A-2040-590-A	s	MOUNTED CIRCUIT BOARD, MB-1204
302	A-2179-677-A	s	CN-3934 MOUNT
303	1-849-031-11	s	COAXIAL CABLE WITH CONNECTOR
304	1-970-059-11	s	HARNESS, SUB (MB-SW/DIO)
305	1-970-061-11	s	HARNESS, SUB (MB-IF)
306	1-970-063-11	s	HARNESS, SUB (MB-CN)
307	1-970-064-11	s	HARNESS, SUB (MB-POWER)
308	1-970-065-11	s	HARNESS, SUB (MB-IAP PW)
309	1-970-066-11	s	HARNESS, SUB (MB-IAP CPU PW)
310	1-970-067-11	s	HARNESS, SUB (MB-IAP CTL)
311	1-970-161-11	s	WIRE, CONNECTOR WITH LEAD
312	4-546-058-02	s	SUPPORT, PCI BOARD
	7-682-947-01	s	SCREW +PSW 3X6

iAP-005 Block (iAP-005 Board-Equipped Unit)



* For any packaged products other than PWS-100, refer to the service manual for each model.

No.	Part No.	SP	Description
401	A-2179-678-A	s	IF-1330 COMPL-NC
402	A-2195-574-A	s	IAP-005 ASSY(RP)
403	6-723-530-01	s	IC SSDPEKKR128G7XN950525 (for PWS-100BU1 installed Windows 10 Pro)*
	A-2189-259-A	s	M2 (BU1-WIN7PRO) ASSY(RP) (for PWS-100BU1 installed Win7)*
	A-2189-260-A	s	M2 (CV1) ASSY(RP) (for PWS-100CV1)*
404	⚠ 1-528-174-74	s	BATTERY, LITHIUM (CR2032 TYPE)
405	1-897-138-11	s	MOUNTED CPU BOARD, IAP-005
406	2-655-586-01	s	SCREW +B M2.6 EG
407	3-669-607-22	s	+PSW (SMALL ROUND) (2.6)
408	4-273-810-01	s	SHAFT, COM SUPPORT

iAP-005 Block (iAP-005 Board-Equipped Unit)

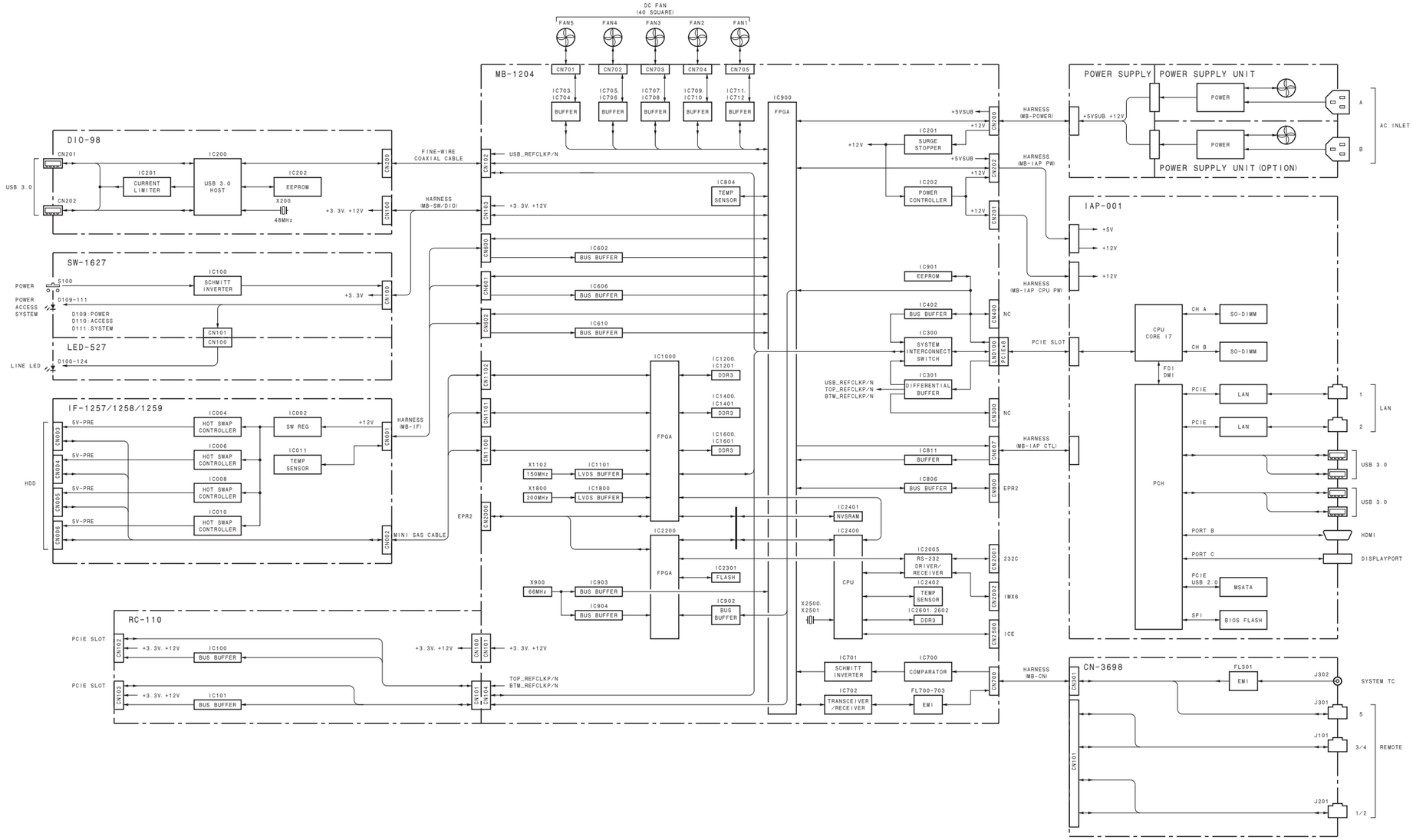
No.	Part No.	SP	Description
409	4-726-504-01	s	SHEET (0.5 (30X30)), RADIATION
410	4-726-506-01	s	SPRING, COMPRESSION
411	4-726-507-01	s	SQUARE, HEAT SINK (100)
412	6-723-527-01	s	IC CM8066201937801S-R2LP
413	6-724-230-01	s	IC HMA851S6CJR6N-VKN0
	7-628-000-05	s	+PSW 2X6

6-3. Supplied Accessories

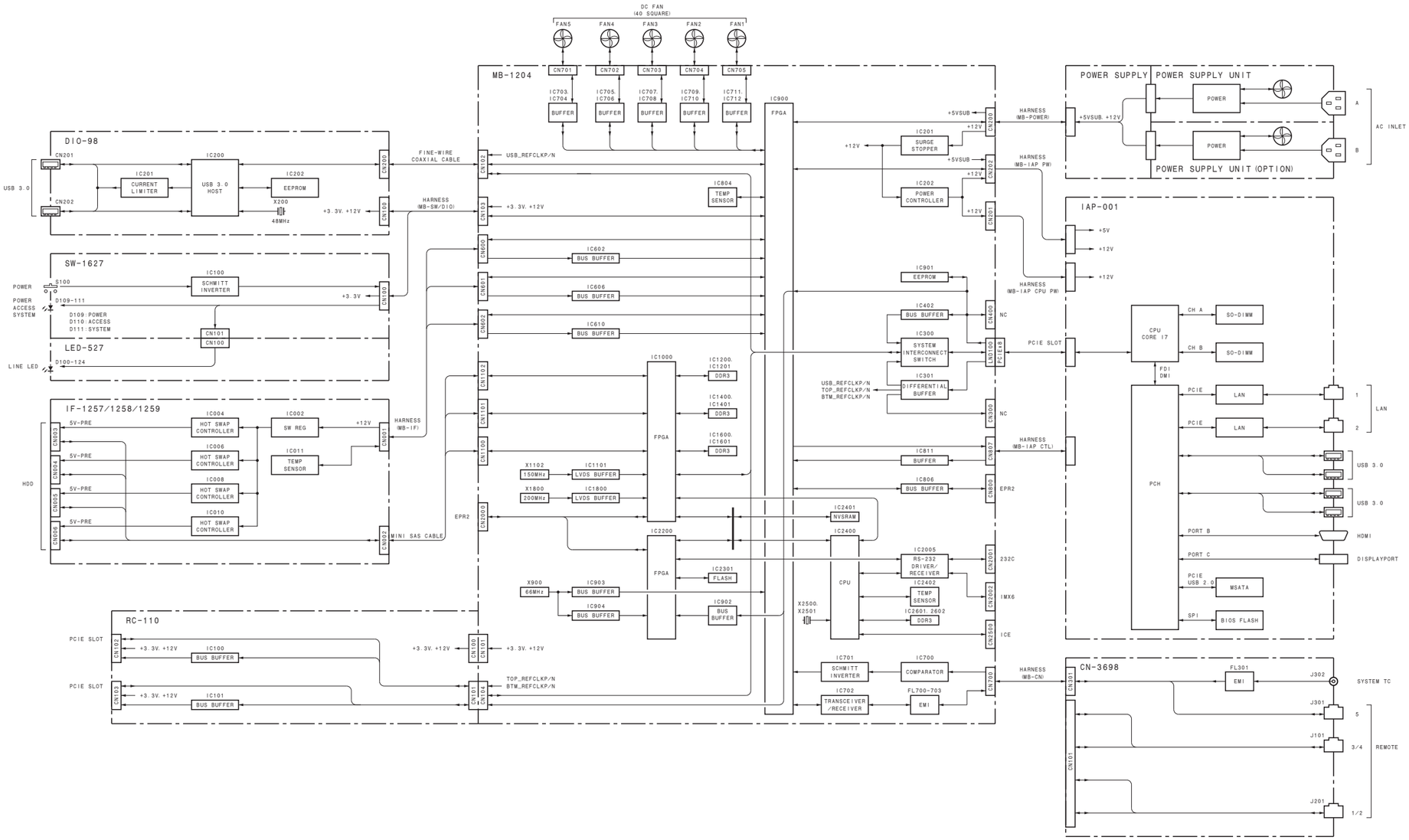
Q'ty	Part No.	SP	Description
1pcs	⚠ 1-833-005-12	s	AC POWER-SUPPLY CORD (Supplied for CN)

Section 7
Block Diagrams and Frame Wiring

Overall (iAP-001)



Overall (iAP-005)



PWS-100 (SY)
PWS-100 (CN) J, E
9-878-617-05

Sony Corporation

Printed in Japan
2018. 7 08