dynabook

Maintenance Manual

PORTEGE X40-J Series

File Number (960-942)

Revision History

Rev.	Rev. on	Description	Div. Dept	Prepared
00	2020-11-12	Initial release	(DBH)[DT](SYD)	Rong Jing
01	2023-8-18	Update to Dynabook version	(DBH)[DT](SYD)	Rong Jing

Copyright

Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for your computer at the time of this manual's production. However, succeeding computers and manuals are subject to change without notice. Dynabook assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the computer and the manual.

Any references in this Guide to "Dynabook" shall mean Dynabook Inc. and/or its affiliates.

Trademarks

Intel, Intel logo, Thunderbolt, Thunderbolt logo are trademark of Intel Corporation or its subsidiaries in the United States and/or other countries.

Microsoft, Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

The Bluetooth® word mark is a registered trademark owned by Bluetooth SIG, Inc.

The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are registered trademarks or trademarks of HDMI Licensing LLC in the United States and other countries.

Wi-Fi is a registered trademark of Wi-Fi Alliance.

USB Type-C™ and USB-C™ are trademarks of USB Implementers Forum.

All other company names, product names, and service names mentioned herein may be trademarks of their respective companies.

Preface

This maintenance manual describes how to perform hardware service maintenance for the computer.

The procedures described in this manual are intended to help service technicians isolate faulty Field Replaceable Units (FRUs) and replace them in the field.

Safety Icons

Safety icons are used in this manual to bring important information to your attention. Each type of message is identified as shown below.

Indicates a potentially hazardous situation, which could result in death or serious injury, if you do not follow instructions.

A caution informs you that improper use of equipment or failure to follow instructions may cause data loss, equipment damage, or may result in minor or moderate injury

Please read. A note is a hint or advice that helps you make best use of your equipment.

Improper repair of the computer may result in safety hazards. Dynabook requires service technicians and authorized dealers or service providers to ensure the following safety precautions are adhered to strictly.

■ Be sure to fasten screws securely with the right screwdriver. If a screw is not fully fastened, it could come loose, creating a danger of a short circuit, which could cause overheating, smoke or fire.

■ If you replace the battery pack or RTC battery, be sure to use only the same model battery or an equivalent battery recommended by Dynabook. Installation of the wrong battery can cause the battery to explode.

The manual is divided into the following parts:

Chapter 1

Hardware Overview describes the system unit and each FRU.

Chapter 2

Troubleshooting Procedures explains how to diagnose and resolve FRU problems.

Chapter 3

Test and Diagnostics describes how to perform test and diagnostic operations for maintenance service.

Chapter 4

Replacement Procedures describes the removal and replacement of the FRUs.

Appendices

The appendices describe the following:

- Handling the LCD module
- Board layout
- Pin assignments
- Keyboard scan/character codes
- Key layout
- Wiring diagrams
- BIOS rewrite procedures
- EC/KBC rewrite procedures
- Reliability

dynabook

Table of Contents

List of Figures

List of Tables

Chapter 1

Hardware Overview

1.1 Features and System Unit Block Diagram

Dynabook Personal Computer uses extensive Large Scale Integration (LSI), and Complementary Metal-Oxide Semiconductor (CMOS) technology extensively to provide compact size, minimum weight, low power usage and high reliability. This computer incorporates the following features/major components.

There are some models and options. Refer to the Parts List for the configuration of each model and options.

The system unit configuration is shown below:

Figure 1-1 System unit configurations

FSAPSY*

FSAPYN*

FSAPCN*

Type-C #1 CN8820

Type-C #2 CN8821

HDMI I/P CN6590

JK320 Audio Jack

Speaker I/P CN2310

SSD I/P

LCD I/P CN5390

Finger CN665 I/F

FAN I/F CN5310

SDRAM MEM

SO-DIMM MEM

Battery KB I/P CN3260 CN3021

CPU

Flash light CN3240

N/A ME3630

SYS*-Sub* I/P CN9602

Smart card CN2170

N/A ME3380

CAM I/P CN9640

Sub* I/P CN8801

USB-A Port_2 CN4860

USB-A Port_1 CN4860
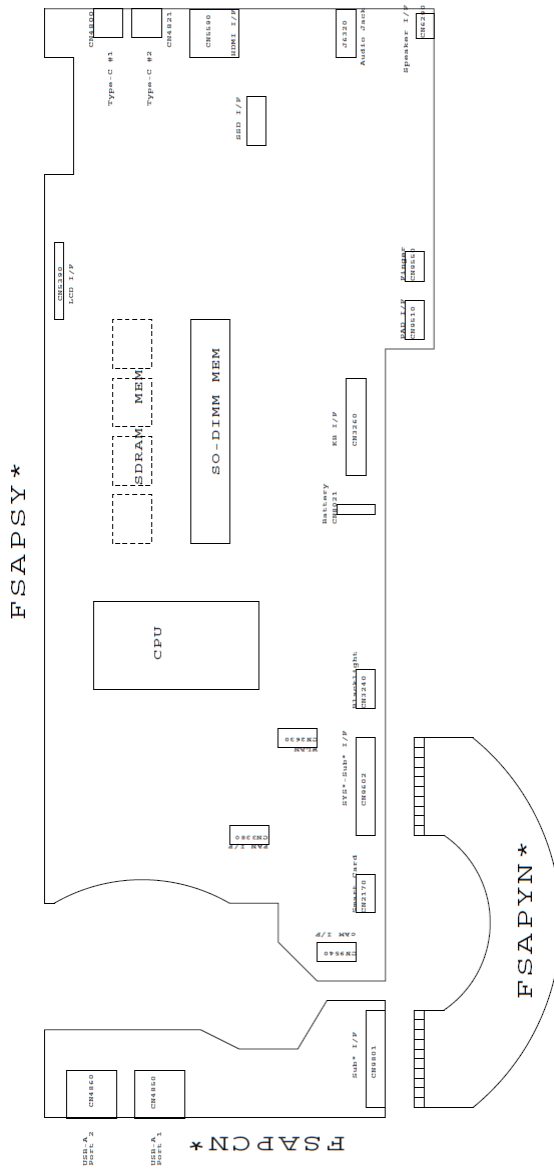
Figure 1-2 is a block diagram of the system unit.

Figure 1-2 System unit block diagram
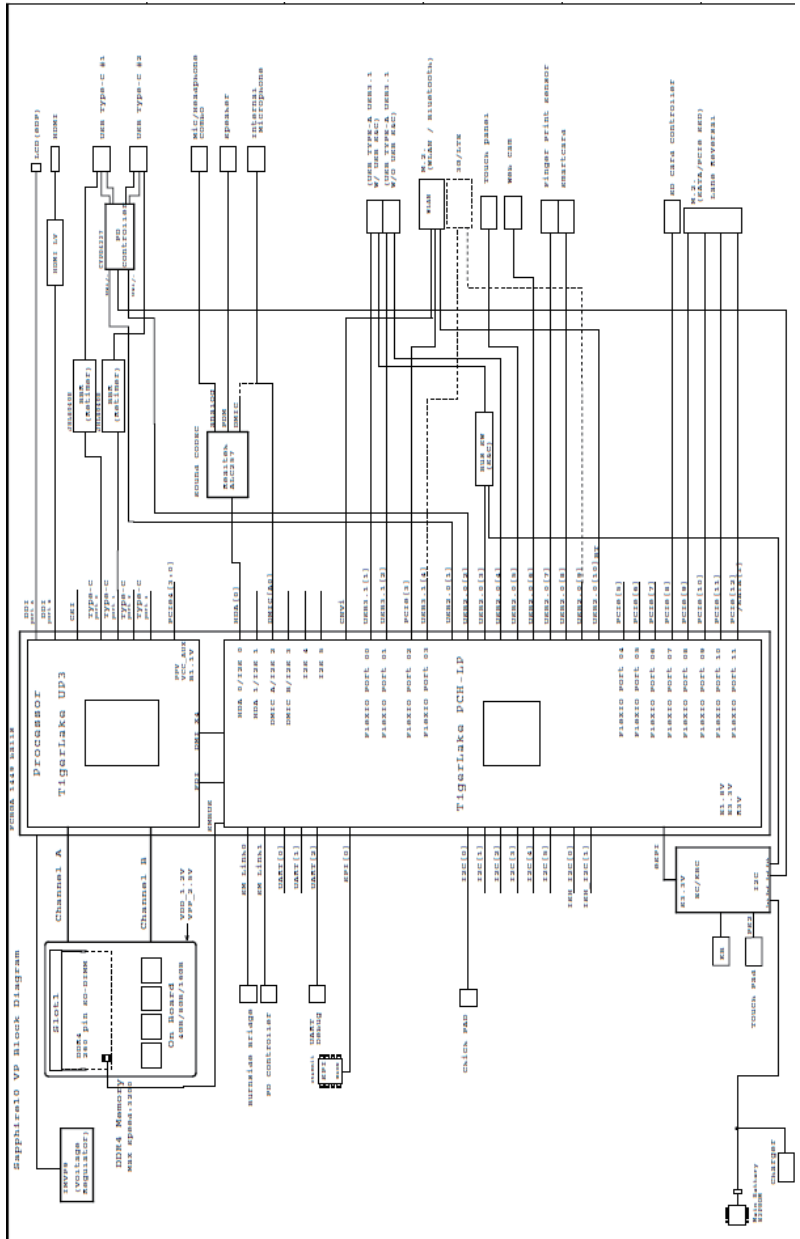
■ Microprocessor

The computer is equipped with an Intel$^®$ Processor.

The PC comes in with one of the following speeds:

Core Frequency	L3 Cache Size	Turbo	Number of cores/number of threads
Tiger Lake-UP3 i7-1165G7 No-IPU	12MB	4.70GHz	4/8
Tiger Lake-UP3 i5-1135G7 No-IPU	8MB	4.20GHz	4/8
Tiger Lake-UP3 i3-1115G4 No-IPU	6MB	4.10GHz	2/4

■ Memory

One DDR4 3200 On Board Memory + one DDR4 3200 SDRAM slot. Memory modules can be installed to provide a maximum of 48GB. Memory modules are available in 4 GB, 8 GB, 16GB and 32GB sizes.

■ VGA Controller

The PC comes in with the following type:

■ The internal graphics controller in Intel Processor (Core i*) is used.

■ SSD

The computer supports M.2 SSD. The following capacities are available.

■ 256GB (PCIe I/F)
■ 512GB (PCIe I/F)
■ 1TB (PCIe I/F)

■ Display

The PC comes in with one of the following types:

■ 14.0" FHD (1920x1080) Non CSV

■ Keyboard

The computer's keyboard layouts are compatible with a 104/105-key enhanced keyboard - by pressing some keys in combination, all of the 104/105-key enhanced keyboard functions can be performed on the computer.

The number of keys available on your keyboard will depend on which country/region your computer is configured for, with keyboards being available for numerous languages.

In use there are different types of keys, specifically typewriter keys, function keys, hot keys, and Windows special keys.

■ AccuPoint

A pointer control device located in the center of the keyboard is used to control the onscreen pointer.

■ Touch Pad

The Touch Pad located in the palm rest is used to control the movement of the on-screen pointer.

■ Batteries

The computer has a rechargeable Lithium-Ion main battery pack. A part of this battery pack is used for RTC battery function.

■ Universal Serial Bus (USB) port

The computer has two type-C and two type-A USB ports. The type-C port (Thunderbolt 4/USB Type-C port) complies to USB3.2 Gen2, PD, DP, TBT, USB3.0, USB2.0 and USB1.1. The type-A port complies with USB3.2 Gen1, USB3.0, USB2.0 and USB1.1, and also supports Power Off and Charge function.

■ HDMI out port

HDMI out port can connect with Type A connector HDMI cable.

■ Memory media slot

This slot lets you insert a micro SD™/SDHC™/SDXC™ memory card.

■ Sound system

The sound system is equipped with the following features:

■ Stereo speakers: No-brand

■ Built-in microphone (Webcam, provided with some models)

■ Headphone/Microphone jack

■ Corresponding to Cortana Premium Voice recognition rate

■ Wireless LAN/Bluetooth

As a wireless module, Intel802.11ax supporting also bluetooth function is mounted.

■ Web Camera

Web Camera is a device that allows you to record video or take photographs with your computer. You can use it for video chatting or video conferences using a communication tool such as Windows Live Messenger. The Web Camera equipped on some models can support face recognition feature for Windows Hello.

■ Sensors and others

■ Finger print sensor: on SecurePad (BTO)

■ EC/KBC (Embedded Controller/Keyboard Controller): SMSC ME C1632

1.2 SSD

1.2.1 M.2 SSD

The computer supports a 256GB, 512GB or 1TB SSD.

The SSD specifications are listed in Table 1-1, Table 1-2 and Table 1-3.

Table 1-1 M.2 SSD specifications (KIOXIA)

Items	Specifications	
	G8BC000CD250	G8BC000CD510
Width (mm)	22.00 ± 0.15	22.00 ± 0.15
Height mm)	2.23 Max	2.23 Max
Depth (mm)	80.0 ± 0.15	80.0 ± 0.15
Weight (g)	5.2 typ.	5.2 typ.
Storage size (formatted)	256GB	512GB

Table 1-2 M.2 SSD specifications (Samsung)

Items	Specifications		
	G8BC000CL250	G8BC000CL510	
Width (mm)	22.00 ± 0.15	22.00 ± 0.15	
Height mm)	2.38 Max	2.38 Max	
Depth (mm)	80.0 ± 0.15	80.0 ± 0.15	
Weight (g)	6.0 Max	6.0 Max	
Storage size (formatted)	256GB	512GB	
	G8BC000CG250	G8BC000CG510	G8BC000CG1A0
Width (mm)	22.00 ± 0.15	22.00 ± 0.15	22.00 ± 0.15
Height mm)	2.38 Max	2.38 Max	2.38 Max
Depth (mm)	80.0 ± 0.15	80.0 ± 0.15	80.0 ± 0.15
Weight (g)	9.0 Max	9.0 Max	9.0 Max
Storage size (formatted)	256GB	512GB	1TB

Table 1-3 M.2 SSD specifications (Phison)

Items	Specifications	
	G8BC000CJ250	G8BC000CJ510
Width (mm)	22.00 ± 0.15	22.00 ± 0.15
Height mm)	1.35 Max	1.35 Max
Depth (mm)	80.0 ± 0.15	80.0 ± 0.15
Weight (g)	6.9 typ.	6.9 typ.
Storage size (formatted)	256GB	512GB

1.3 Keyboard

The computer's keyboard layouts are compatible with a 104/105-key enhanced keyboard - by pressing some keys in combination, all of the 104/105-key enhanced keyboard functions can be performed on the computer.

Figure 1-3 is a view of the keyboard. See Appendix E about the layout of the keyboard.

Figure 1-3 Keyboard
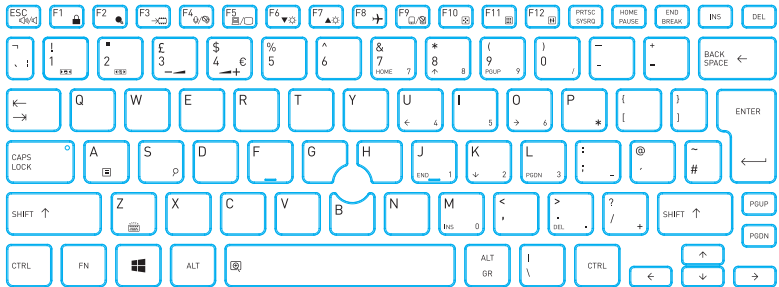
1.4 Display

The display consists of 14.0-inch FHD LCD module.

1.4.1 LCD Module

The LCD module used for the TFT color display uses a backlight as the light source and can display a maximum of 16M colors with 14.0-inch FHD (1920x1080) resolutions.

Figure 1-4 shows a view of the LCD module and Table 1-4 lists the specifications.

Figure 1-4 LCD module
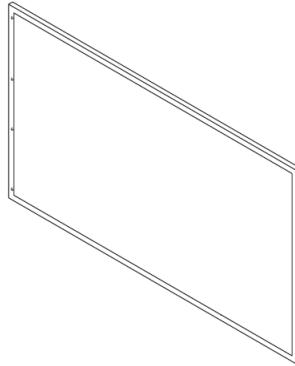
Table 1-4 LCD module specifications

Item	G33C000AC110	G33C0009S110	G33C000A9110
Number of Dots	1920(W) × 1080(H)	1920(W) × 1080(H)	1920(W) × 1080(H)
Dot pitch (mm)	0.161(H)×0.161(V)	0.161(H)×0.161(V)	0.161(H)×0.161(V)
Active area (mm)	309.31(W) × 173.99(H)	309.31(W) × 173.99(H)	309.31(W) × 173.99(H)
Outline (mm)	315.81±0.3(W) × 185.74±0.3(H) × 3.0max. w/PCB(D)	315.81±0.3(W) × 186.07±0.3(H) × 3.1max. w/PCB(D)	315.01±0.3(W) × 196.14±0.5(H) × 3.0max. w/PCB(D)

1.5 Power Supply

The power supply supplies different voltages to the system board and performs the following functions:

1. Judges that the DC power supply (AC adaptor) is connected to the computer.
2. Detects DC output and circuit malfunctions.
3. Controls DC IN/Battery icon.
4. Turns the battery charging system on and off and detects a fully charged battery.
5. Turns the power supply on and off.
6. Provides more accurate detection of a low battery.
7. Calculates the remaining battery capacity.
8. Controls the transmission of the status signal of the main battery.

The power supply output rating is specified in Table 1-5.

Table 1-5 Power supply output rating

	ACPI state		S0	S3		S4		S5		G3	
	M state		M0	M3	Moff	M3	Moff	M3	Moff		
Power	Voltage	Sig. Name									
P	0-1.8	PPV	○/✕ (*1)	✕	✕	✕	✕	✕	✕	✕	Processor (VCC)
	0-1.8	VCCAUX-EYV	○/✕ (*1)	✕	✕	✕	✕	✕	✕	✕	Processor (VCCIN_AUX)
	0.60	0R60-P0V	○/✕ (*2)	✕	✕	✕	✕	✕	✕	✕	DDR4 Termination (VTT)
	1.0	VCCSTG-E1V	○	✕	✕	✕	✕	✕	✕	✕	PCH (VCCSTG)
	3.3	P3V	○	○	○	✕	✕	✕	✕	✕	M.2-SSD, Flash Media Controller, Smart Card, Codec(DVDD) ,Click Pad, Finger Print Sensor, Web Camera, Memory(VDDSPD)
		PNL-P3V	○	✕	✕	✕	✕	✕	✕	✕	LCD(eDP)
	5.0	P5V	○	○	○	✕	✕	✕	✕	✕	Smart Card Cont, KB(CAPS LED, Backlight), Codec(AVDD1,PVDD), FAN
	1.2	1R2-B1V	○	○	○	✕	✕	✕	✕	✕	Processor (VDD2), Memory(VDD) , HDMI Level Shifter
	2.5	2R5-B2V	○	○	○	✕	✕	✕	✕	✕	Memory(VPP)
E	1.0	VCCST-E1V	○	○	○	✕	✕	✕	✕	✕	PCH (VCCST)
	1.8	1R8-E1V	○	○	○	✕	✕	✕	✕	✕	PCH(VCCACLKLDO_1P8,VCCPRIM_1P8),EC
	3.3	E3V	○	○	○	✕	✕	✕	✕	✕	PCH(VCCPRIM_3P3,VCCDSW_3P3, 3G, SPI ROM,TPM, WLAN, 5G,HDMI Level Shift
	5.0	E5V	○	○	○	✕	✕	✕	✕	✕	HDMI
		US3PS1-E5V US3PS2-E5V	○	○	○	✕	✕	✕	✕	✕	USB Ports
S	3.3	S3V	○	○	○	○	○	○	○	✕	EC/KBC, Thermal Sensor, Magnetic Sensor. PD controller
	5.0	M5V	○	○	○	○	○	○	○	✕	LED
R	3.0	PCH-R3V	○	○	○	○	○	○	○	○	PCH(VCCRTC)

プルアップ電源、および PVT 等の電源回路部は除く

(*1)✕: Package C9,C10 State

(*2)✕: メモリ省電力機能動作時

1.6 Batteries

The computer has one battery as follows:

■ Main battery pack

The battery specifications are listed in Table 1-6.

Table 1-6 Battery specifications

Battery name	Parts Code	Material	Output voltage	Capacity
Main battery	G71C000M8110	Lithium-Ion	TBD	53Wh, 4 cell
	G71C000MA110	Lithium-Ion	TBD	53Wh, 4 cell

1.6.1 Main Battery

The rmain battery pack is the computer's main power source when the AC adaptor is not attached. The main battery maintains the state of the computer when the computer enters in sleep mode.

1.6.2 Battery Charging Control

Battery charging is controlled by a power supply microprocessor. The microprocessor controls whether the charge is on or off and detects a full charge when the AC adaptor and battery are attached to the computer. The system charges the battery.

Battery Charge

When the AC adaptor is attached, there are two types of charge: When the system is powered off and when the system is powered on. Table 1-7 lists the charging time required for charges.

Table 1-7 Time required for charges

Battery type	Power off	Power on
Battery (53Wh, 4 cell)	about 3.5 hours	about 3.5 to 10.0 hours

The time required when the system is powered on is affected by the amount of power the system is consuming. Use of the fluorescent lamp and frequent disk access diverts power and lengthens the charge time.

If any of the following occurs, the battery charge process stops.

1. The battery becomes fully charged.
2. The AC adaptor or battery is removed.
3. The battery or output voltage is abnormal.

Data preservation time

When turning off the power in being charged fully, the preservation time is as following Table 1-8.

Table 1-8 Data preservation time

Battery type	Sleep Mode	Shut Down Mode
Battery (53Wh, 4 cell)	about 7 days	about 50 days

1.7 AC adaptor

The AC adaptor is also used to charge the battery. At the charging, connect it to Thunderbolt 4/USB Type-C connector on the PC or to the USB Type-C adapter. It corresponds to USB-PD.

Table 1-9 lists the AC adaptor specifications.

Table 1-9 AC adaptor specifications
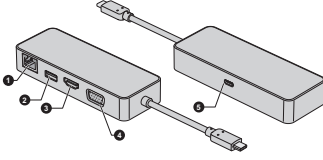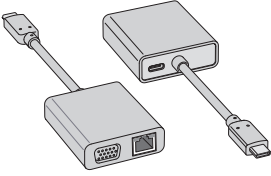
Parameter	Specification	
	USB-C straight	
	G71C000LR210 (2-pin)	G71C000LS210 (3-pin)
Power	65W	
Input voltage	100V/240V	
Input frequency	50Hz to 60Hz	
Input current	1.5 A (100V-240V)	
Output voltage	5 ~ 20 V	
Output current	3 A (Peak 3.25 A)	

1.8 USB Type-C Adapter

To expansion the PC functions, some USB Type-C adapters are prepared.

Table 1-10 lists the USB Type-C adapter specifications.

Table 1-10 USB Type-C adapter specifications

Item	Specifications	
Maker	Goodway	
Appearance		
Specifications	USB-C to HDMI/VGA Travel Adapter	USB-C to VGA/LAN Adapter
Parts code	G83C000L2110	G83C000LP110
Functions	USB 3.0 port/HDMI out port/RGB monitor port/LAN jack/USB Type-C port (Power Delivery Charging)	RGB monitor port/LAN jack/USB Type-C™ port (Power Delivery Charging)

dynabook

Chapter 2

Troubleshooting Procedures

2.1 Troubleshooting

This chapter describes how to determine which Field Replaceable Unit (FRU) in the computer is causing the computer to malfunction. (The "FRU" means the replaceable unit in the field.) The FRUs covered here are as follows:

1. Power supply
2. System Board
3. USB
4. M.2 SSD
5. Keyboard
6. Touch Pad (Click Pad)
7. Display
8. Wireless LAN + Bluetooth
9. Sound
10. Memory media (SD Card) slot
11. Fingerprint sensor
12. Web camera
13. HDMI
14. USB Type-C adapter

* Please note that some units are installed only on some models.

The Test Program operations are described in Chapter 3, *Tests and Diagnostics*. Detailed *Replacement Procedures* are described in Chapter 4.

Before exchanging a system board, write down the DMI information on TOP Menu. Register this DMI information after exchanging a system board by performing "DMI Entry utility" in the test program. For details, refer to *3.3 Entry of the DMI information*.

Also update with the latest EC/KBC as described in Appendix H "EC/KBC Rewrite Procedures".

After replacing the LCD, update with the latest EC/KBC as described in Appendix H "EC/KBC Rewrite Procedures" to set the SVP parameter.

2.2 Troubleshooting Flowchart

Use the flowchart in Figure 2-1 and Figure 2-2 as a guide for determining which troubleshooting procedures to execute. Before going through the flowchart steps, verify the following:

■   Ask the user if a password has been registered and, if so, ask him or her to enter the password.

■   Verify with the customer that Windows is installed on the hard disk. Non-Windows operating systems can cause the computer to malfunction.

■   Make sure all optional equipment is removed from the computer.

■   If the USB Type-C adapter is bundled with the tested computer, connect the AC adapter via the Type-C adapter.

Figure 2-1 Troubleshooting flowchart (1/2)

```
                    ┌─────────────┐
                    │    START    │
                    └─────────────┘
                           │
          ┌────────────────────────────────┐
          │ Connect the AC adapter (and     │
          │ USB type-C adapter, if bundled) │
          │ to the USB Type-C connector.    │
          └────────────────────────────────┘
                           │
                    .DC IN/Battery      No    ┌────────────────────────────┐
                    indicator on?   ─────────▶│ Follow the power supply    │
                                              │ Diagnostic Procedure       │
                         │ Yes                └────────────────────────────┘
                  ┌──────────────────┐
                  │ Turn the power on.│
                  └──────────────────┘
                           │
                    Any error message   Yes   ┌────────────────────────────┐
                    is displayed?   ─────────▶│ Follow the system board    │
                                              │ Diagnostic Procedure       │
                         │ No                 └────────────────────────────┘
                    dynabook logo       No    ┌────────────────────────────┐
                    is displayed?   ─────────▶│ Follow the display         │
                                              │ diagnostic Diagnostic      │
                                              │ Procedure                  │
                         │ Yes                └────────────────────────────┘
          ┌──────────────────────────────┐
          │ If the "Password=" message    │
          │ displays, type the password.  │
          └──────────────────────────────┘
                           │
                    Does Windows OS     No    ┌────────────────────────────┐
                    be loaded?      ─────────▶│ Follow the  SSD diagnostic │
                                              │ Diagnostic Procedure       │
                         │ Yes                └────────────────────────────┘
                        ( 1 )
```

Figure 2-2 Troubleshooting flowchart (2/2)

```
                    ①
                    │
                    ▼
         ◇ Keyboard works well? ◇ ──No──▶ ┌─────────────────────────┐
                    │                      │ Follow the keyboard     │
                   Yes                     │ Diagnostic Procedure    │
                    │                      └─────────────────────────┘
                    ▼
         ◇ Touch pad works well? ◇ ──No──▶ ┌─────────────────────────┐
                    │                       │ Follow the touch pad    │
                   Yes                      │ Diagnostic Procedure    │
                    │                       └─────────────────────────┘
                    ▼
  ┌──────────────────────────────────────────┐
  │ Set the device containing the test program│
  │ for maintenance to the PC, and start the  │
  │ test program.                             │
  │ (The reboot of the PC is required.)       │
  └──────────────────────────────────────────┘
                    │
                    ▼
      ◇ Diagnostic Program Loaded? ◇ ──No──▶ ┌──────────────────────────────┐
                    │                         │ Follow the Diagnostic Procedure│
                   Yes                        └──────────────────────────────┘
                    │
                    ▼
          ┌───────────────────┐
          │ Perform each test │
          └───────────────────┘
                    │
                    ▼
  ◇ Any error detected by the Diagnostic test? ◇ ──Yes──▶ ┌────────────────────────────┐
                    │                                       │ Identify the test resulting│
                   No                                       │ in the error and perform   │
                    │                                       │ the appropriate            │
                    ▼                                       │ Diagnostic Procedure       │
      ┌──────────────────────────┐                         └────────────────────────────┘
      │ Perform/repeat running test│
      └──────────────────────────┘
                    │
                    ▼
  ◇ Any error detected by the Diagnostic test? ◇ ──Yes──▶ ┌────────────────────────────┐
                    │                                       │ Identify the test resulting│
                   No                                       │ in the error and perform   │
                    │                                       │ the appropriate            │
                    ▼                                       │ Diagnostic Procedure       │
      ┌──────────────────┐                                 └────────────────────────────┘
      │ System is normal.│
      └──────────────────┘
                    │
                    ▼
             (  END  )
```
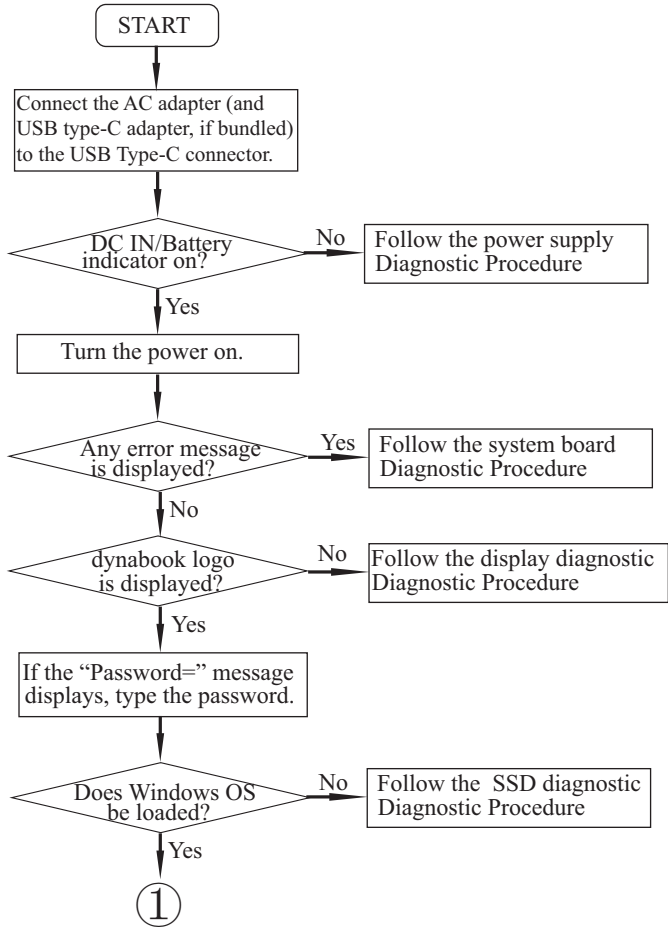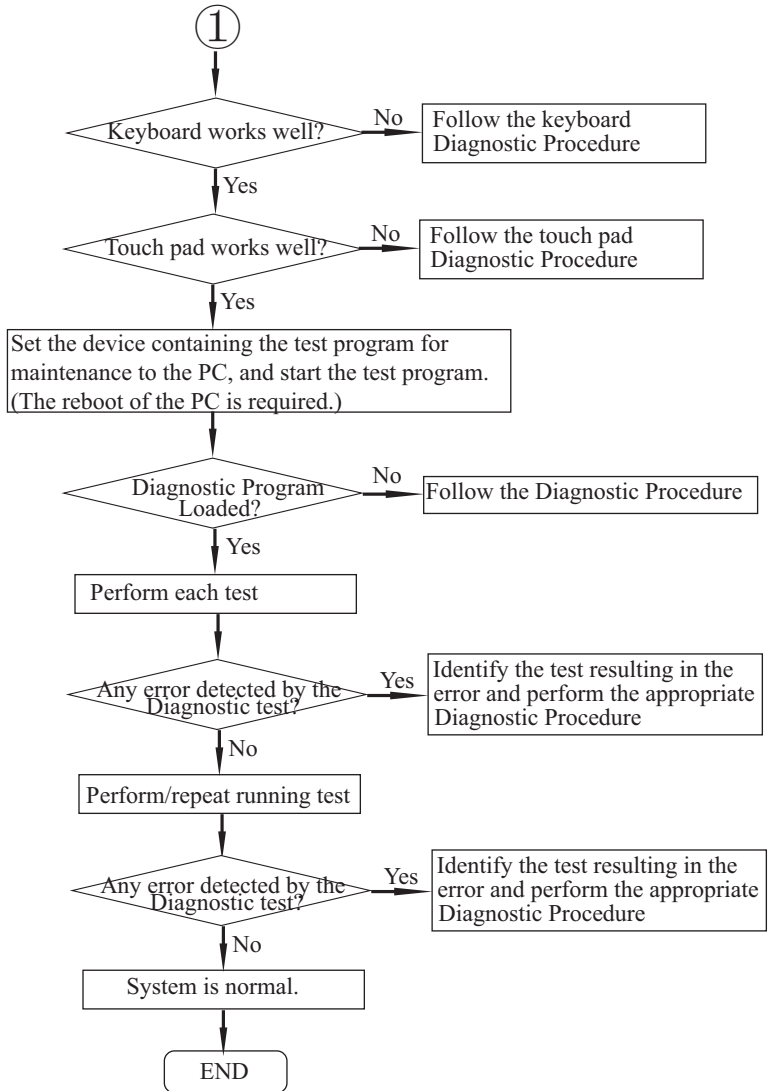
If the diagnostics program cannot detect an error, the problem may be intermittent. The Test program should be executed several times to isolate the problem. Check the Log Utilities function to confirm which diagnostic test detected an error(s), and then perform the appropriate troubleshooting procedures as follows:

1. If an error is detected on the power supply, perform the power supply Troubleshooting Procedures in *2.3 Power Supply Troubleshooting*.

2. If an error is detected by an error message or a Memory test, perform the System Board Troubleshooting Procedures in *2.4 System Board Troubleshooting*.

3. If an error is detected on the USB, perform the USB Troubleshooting Procedures in *2.5 USB Troubleshooting*.

4. If an error is detected on HDD/SSD test, perform the SSD Troubleshooting Procedures in *2.6 SSD Troubleshooting*.

5. If an error is detected on the Keyboard test, perform the Keyboard Troubleshooting Procedures in *2.7 Keyboard Troubleshooting*.

6. If an error is detected on the Touch Pad test, perform the touch pad Troubleshooting Procedures in *2.8 Touch Pad (Click Pad) Troubleshooting*.

7. If an error is detected on the LCD Panel test, perform the Display Troubleshooting Procedures in *2.9 Display Troubleshooting*.

8. If an error is detected on the Wireless LAN + Bluetooth test, perform the Wireless LAN + Bluetooth Troubleshooting Procedures in *2.10 Wireless LAN + Bluetooth Troubleshooting*.

9. If an error is detected on the sound, perform the Sound Troubleshooting Procedures in *2.11 Sound Troubleshooting*.

10. If an error is detected on the Memory media (SD Card) Slot, perform the Memory media (SD Card) Slot troubleshooting Procedures in *2.12 Memory media (SD Card) Slot Troubleshooting*.

11. If an error is detected on the Fingerprint sensor, perform the Fingerprint sensor Troubleshooting Procedures in *2.13 Fingerprint sensor Troubleshooting*.

12. If an error is detected on the Web camera, perform the Web camera Troubleshooting Procedures in *2.14 Web camera Troubleshooting*.

13. If an error is detected on the HDMI port, perform the HDMI Port Troubleshooting Procedures in *2.15 HDMI Port Troubleshooting*.

14. If a malfunction is detected on the USB Type-C adapter, perform the USB Type-C adapter Troubleshooting Procedures in *2.16 USB Type-C adapter Troubleshooting*.

2.3 Power Supply Troubleshooting

The power supply controller controls many functions and components. To determine if the power supply is functioning properly, start with Procedure 1 and continue with the other procedures as instructed. The procedures described in this section are:

2.3.1 Procedure 1 Power Status Check

The following icons indicate the power supply status:

■ DC IN/Battery indicator

■ Power indicator

The power supply controller displays the power supply status with the DC IN/Battery indicator as listed in the tables below.

Table 2-1 DC IN/Battery indicator

DC IN/Battery indicator	Power supply status
Amber	Indicates the AC adaptor is connected and the battery is charging.
White	Indicates the AC adaptor is connected and the battery is fully charged.
Flashing Amber	The battery charge is low. The AC adaptor must be connected in order to recharge the battery.
Flashing White	Indicates a problem with the computer.
Doesn't light	Any condition other than those above.

Table 2-2 Power indicator

Power indicator	Power supply status
White	Indicates power is being supplied to the computer and the computer is turned on.
Doesn't light	Any condition other than those above.

If the DC IN/Battery indicator is flashing white and the power supply controller detects a malfunction, perform the following procedure:

1. Remove the AC adapter and USB Type-C adapter (if bundled) to cut off the power.

2. Re-connect the AC adapter and USB Type-C adapter (if bundled).

When the DC IN/Battery indicator is still flashing, go to Procedure 2. When the DC IN/Battery indicator is turned off, perform the followings:

Check 1   If the USB Type-C adapter is not used, go to Procedure 3.

Check 2   If any other devices except to the AC adapter are not connected to the USB Type-C adapter, go to Check 3. If any devices are connected, remove all the devices except to the AC adapter and check the DC IN/Battery indicator again. If the indicator lights, there is no problem. If not, go to Check 3.

Check 3   Remove the USB Type-C adapter and connect the AC adapter to the computer directly. Then check the DC IN/Battery indicator again. If the indicator doesn't light, go to Procedure 3. If it lights, go to Check 4.

Check 4   The USB Type-C adapter may be faulty or the battery pack may be exhausted. Connect the AC adapter to the computer via a new USB Type-C adapter. If the DC IN/Battery indicator lights, it shows that the original USB Type-C adapter has any trouble. If the indicator still does not light, the battery pack may have any trouble. So go to Procedure 4.

■ Use a supplied AC adapter G71C000LR210 (2pin) or G71C000LS210 (3pin).
■ Use only the Type-C adapter comes with the PC or authorized adapter.

2.3.2 Procedure 2 Error Code Check

If the power supply microprocessor detects a malfunction, the DC IN/battery indicator flashes white. The blink pattern indicates an error as shown below.

■ Start   Off for 2 seconds
■ Error code (8 bit)

"1"   On for one second
"0"   On for half second
Interval between data bits   Off for half second

The error code begins with the least significant digit.

Example: Error code 11h (Error codes are given in hexadecimal format.)
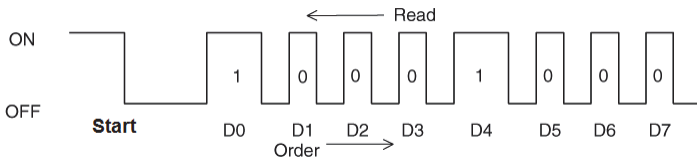
Check 1 Convert the DC IN/battery indicator blink pattern into the hexadecimal error code and compare it to the tables below.

Table 2-3 Error code

Abnormal definition	Error code	Conditions
E power output error during power on process	20h	During power on process, PCNFEV signal still de-assertion timeout more than 1s after EVON signal assertion.

E power output error during power on status	21h	During power on status, PCNFEV signal change to deassertion.
E power output error during power off status (output inactive)	22h	During power off (PS3/PS4 with wakeup facor) status, PCNFEV signal change to deassertion.
E power output error during power off status (output active)	23h	During power off (S5) status, PCNFEV signal change to assertion.
B power output error during power on process	30h	During power on process, PCNFBV signal timeout more than 1s after EVON signal assertion.
B power output error during power on status	31h	During power on status, PCNFBV signal change to deassertion.
B power output error during power off status (output inactive)	32h	During power off (PS3) status, PCNFBV signal change to deassertion.
B power output error during power off status (output active)	33h	During power off (S5) status, PCNFBV signal change to assertion.
P power output error during power on process	40h	During power on process, PPVOK(PCNFPV) signal timeout more than 1s after EVON signal assertion.
P power output error during power on status	41h	During power on status, PPVOK(PCNFPV) signal change to de-assertion.
P power output error during power off status (output active)	43h	During power off (S5) status, PPVOK(PCNFPV) signal change to assertion.

2.3.3 Procedure 3 Connection Check

The wiring diagram related to the power supply is shown below:
Figure 2-3 Connection Check
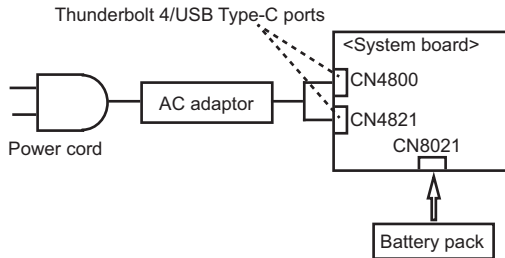
Any of the connectors may be disconnected. Perform Check 1.

■ Check 1   Make sure the AC adaptor and the AC power cord are connected firmly each other and to the outlet and computer. If these cables are connected firmly, go to Check 2.

■ Check 2   Replace the AC adaptor and the AC power cord with new ones.

■ Check 3   Make sure the battery pack is installed in the computer correctly. If the battery is properly installed and the battery icon still does not light or flashes white, go to Procedure 4.

2.3.4   Procedure 4 Charging Check

Check if the power supply controller charges the battery pack properly. Perform the following procedures:

■ Check 1   The battery pack may be completely discharged. Wait a few minutes to charge the battery pack while connecting the battery pack and the AC adaptor. If the battery pack is still not charged, go to Check 2.

■ Check 2   The battery's temperature is too high or low. Leave the battery for a while to adjust it in the right temperature. If the battery pack is still not charged, go to Procedure 5.

2.3.5   Procedure 5 Replacement Check

The power is supplied to the system board by the AC adaptor or the battery pack. If one of them was damaged, perform the following Checks.

To disassemble the computer, follow the steps described in Chapter 4, *Replacement Procedures*.

When AC adaptor is connected:

■ Check 1   AC adaptor may be faulty. Replace the AC adaptor with a new one. If the problem still occurs, perform Check 2.

■ Check 2   System board may be faulty. Replace the system board with a new one.

When AC adaptor is not connected (while powered by the battery pack):

■ Check 1   Battery harness may be faulty. Replace it with a new one. If the problem still occurs, perform Check 2.

■ Check 2   Battery pack may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3.

■ Check 3   System board may be faulty. Replace it with a new one.

2.4   System Board Troubleshooting

This section describes how to determine if the system board is malfunctioning or not. Start with Procedure 1 and continue with the other procedures as instructed. The procedures described in this section are:

2.4.1 Procedure 1 Message Check

When the power is turned on, the system performs the Initial Reliability Test (IRT) installed in the BIOS ROM. The IRT tests each IC on the system board and initializes it.

■ If an error message is shown on the display, perform Check 1.

■ If there is no error message, go to Procedure 2.

Check 1

If one of the following error messages is displayed on the screen, press a key or button specified by the message.

If you press the key or button, the SETUP screen will appear. Set the correct date and time. If the following error message appears often at power-on, replace the battery pack or RTC battery (if RTC battery is installed).

If any other error message other than below is displayed, perform Check 2.

```
(a)**** Date and Time reset to default ****
   Press [F2] key to set Date and Time.
(b)**** Date and Time reset to default ****
   Press Windows button to set the Date/Time in OS.
(c)**** Date and Time reset to default ****
   Press ENTER to set Date and Time.
```

Check 2

If the following error message is displayed on the screen, perform Check 3. If any other error message is displayed, perform Procedure 3.

```
Insert system disk in drive.
Press any key when ready....
Please check if the Boot Mode is correct in the BIOS
settings.
The BIOS settings menu is launched by pressing the [F2] key
after you reboot.
```

Check 3

A device without any system information is installed and it may be designated as the boot device. Remove the device, press any key and reboot the computer. At the reboot, press **F2** to display the BIOS setup screen. Set the correct boot device and repeat Procedure 1. If any error occurs or any device is not installed, go to Procedure 2.

2.4.2 Procedure 2 Diagnostic Test Program Execution Check

Execute the following tests from the Diagnostic Test Menu. These tests check the system board. Refer to Chapter 3, *Tests and Diagnostics* for more information on how to perform these tests.

Table 2-4 Main Test Menu

Test No	Test Name	Sub Test No	Sub Test Name
1	MEMORY	1 2	Main Memory Test V-RAM Memory Test
2	HDD/SSD Test	1 2 3 4 5	Sequential Read Test Partial Read Test Address Jump Test Address Uniqueness Test Specify Address Test
3	Keyboard Test	1 2	Key-code Test Touch Pad Test
4	LCD Panel Test	1 2 3 4	LCD Panel Test All dot on/off for LCD H - pattern display LCD brightness
5	Battery Charge Test		
6	Fan Test		
7	Acceleration Sensor Test		
8	EXIT to TOP Menu		

If an error is detected during these tests, go to Procedure 3.

2.4.3 Procedure 3 Replacement Check

System board may be faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and replace system board with a new one.

2.5 USB Troubleshooting

To check if the USB is malfunctioning or not, follow the troubleshooting procedures below as instructed.

2.5.1 Procedure 1 The test program reading check for maintenance by a USB unit

2.5.2 Procedure 2 Connector Check and Replacement Check

2.5.1 Procedure 1 The test program reading check for maintenance by a USB unit

USB connector and the test program for maintenance is read. If the test program cannot be executedon the computer, go to Procedure 2.

2.5.2 Procedure 2 Connector Check and Replacement Check

USB unit is connected to USB ports on USB board and System board. The connection of the cable and board may be defective. Otherwise, they may be faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks.

If the error is detected on Type-A connector, go to Check 1. If the error is detected on Type-C connector, go to Check 5.

Figure 2-4 Connection Check
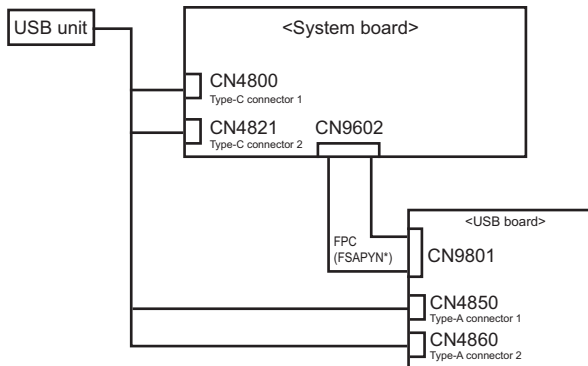
Check 1

Make sure USB unit is firmly connected to USB port. If the connection is loose, connect firmly and repeat Procedure 1. If the problem still occurs, go to Check 2

When checking the connection, be sure to check it with care for the followings.

1. USB unit can not be disconnected from the connector.
2. USB unit is connected straight to the connector.
3. USB unit is connected all the way seated in the connector.
4. USB unit or connector can not be broken.

Check 2

Connect USB unit to other USB port and check if it works properly. If it does not work properly, perform Check 3

Check 3

USB unit may be faulty. Replace it with a new one. If the problem still occurs, perform Check 4

Check 4

USB board or FPC (FSAPYN*) may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 5.

Check 5

System board may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*.

2.6 SSD Troubleshooting

To check if the M.2 SSD is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Diagnostic Test Program Execution Check

Procedure 2: Connector Check and Replacement Check

> ⚠ The contents of the hard disk/SSD will be erased when the hard disk/SSD troubleshooting procedures are executed. Save the required contents of the hard disk/SSD to other storage drive in advance. For the backup, refer to the User's Manual.

2.6.1 Procedure 1 Diagnostic Test Program Execution Check

The hard disk/SSD test program is stored in the Diagnostic Test Program. Perform all of the HDD/SSD tests in the HDD/SSD Test. Refer to Chapter 3, *Tests and Diagnostics*, for more information about the HDD/SSD test program.

2.6.2 Procedure 2 Connector Check and Replacement Check

The SSD may be disconnected, or the SSD or system board may be damaged. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks:

Check 1

Make sure the M.2 SSD is firmly connected to CN1900 on the system board.
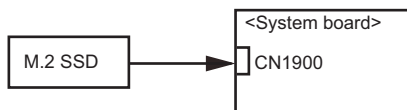
If any of the connections are loose, reconnect firmly and repeat Procedure 1. If there is still an error, go to Check 2.

Check 2

The M.2 SSD may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures* and check the operation. If the problem still exists, perform Check 3.

Check 3

System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*

2.7 Keyboard Troubleshooting

To check if the computer's keyboard is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Diagnostic Test Program Execution Check

Procedure 2: Connector Check and Replacement Check

2.7.1 Procedure 1 Diagnostic Test Program Execution Check

Execute the Keyboard Test, pressed key display test and Touch Pad test in the Diagnostic Program. Refer to Chapter 3, *Tests and Diagnostics*, for more information on how to perform the test program.

Press Fn+Z key after starting Windows. By repeating the key operation twice, it checks that keyboard illuminations light up or put out the light.

If an error occurs, go to Procedure 2. If an error does not occur, keyboard is functioning properly.

2.7.2 Procedure 2 Connector Check and Replacement Check

The connection of cable and board may be disconnected or faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1

Make sure keyboard cable is firmly connected to CN3260 and CN3240 on the system board.
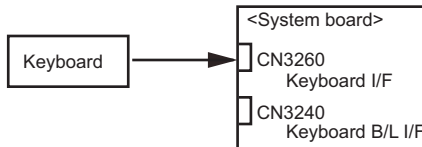
If the connection is loose, reconnect firmly and repeat Procedure 1. If the problem still occurs, go to Check 2.

Check 2

Keyboard may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 3.

Check 3

System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.8 Touch Pad (Click Pad) Troubleshooting

To check if the computer's Touch Pad (Click Pad) is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Diagnostic Test Program Execution Check

Procedure 2: Connector Check

Procedure 3: Replacement Check

2.8.1 Procedure 1 Diagnostic Test Program Execution Check

Execute the Keyboard test, pressed key display test and Touch pad test in the Diagnostic Program. Refer to Chapter 3, *Tests and Diagnostics*, for more information on how to perform the test program.

If an error occurs, go to Procedure 2. If an error does not occur, touch pad is functioning properly.

2.8.2 Procedure 2 Connector Check

The connection of the Touch Pad (Click Pad) and board may be defective. Otherwise, they may be faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1

Make sure the cables are firmly connected to the system board.
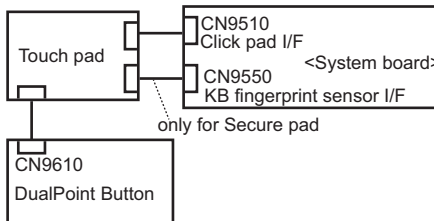
If the connection is loose, reconnect firmly and repeat Procedure 1. If the problem still occurs, go to Procedure 3.

2.8.3 Procedure 3 Replacement Check

■ If Accupoint button does not work properly, perform check 1.

■ If Touch Pad (Click pad) does not work properly, perform check 2.

Check 1

DualPoint Button board may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, go to Check 2.

Check 2

Touch Pad (Click Pad) or the cable(s) may be faulty. Replace them with new ones following the instructions in Chapter 4, *Replacement Procedures*. If the problem still occurs, go to Check 3.

Check 3

System board (FSAPSY*) may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.9 Display Troubleshooting

This section describes how to determine if the computer's display is functioning properly.

To check the touch function, start with Procedure 1. To check the display function, start with Procedure 2.

Procedure 1: Check on Windows OS

Procedure 2: Diagnostic Test Program Execution Check

Procedure 3: Connector Check and Replacement Check

2.9.1 Procedure 1 Check on Windows OS

This procedure checks if the touch screen (provide with some models) is working properly by using the function of Windows.

Check 1

> Make sure the mouse cursor is following your finger when you move your finger on the display. If it does not work properly, go to Procedure 2.

Check 2

> Make sure the "click" function works properly when you tap the display with the finger. If it does not work properly, go to Procedure 2.

2.9.2 Procedure 2 Diagnostic Test Program Execution Check

Execute the Display Test, pressed LCD panel test in the Diagnostic Program. See Chapter 3, *Tests and Diagnostics* for information on how to perform the test.

If an error is detected in the test, go to Procedure 3. If no error is detected, the display itself is normal.

2.9.3 Procedure 3 Connector Check and Replacement Check

The connection among LCD and board may be disconnected or faulty. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1

> Make sure the LCD cable is securely connected to CN5390 on the system board.
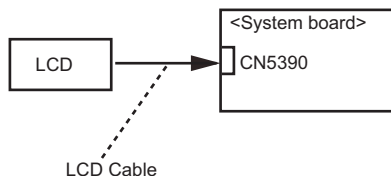
If the connection is loose, reconnect firmly and restart the computer. If there is still an error, go to Check 2.

Check 2

The LCD cable may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures* and test the display again. If the problem still exists, perform Check 3.

Check 3

The LCD module may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures* and test the display again. If the problem still exists, perform Check 4

Check 4

The display controller on the system board may be damaged. Replace the system board with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.10 Wireless LAN + Bluetooth Troubleshooting

To check if the computer's Wireless LAN + Bluetooth module is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Module/Antennas' Check

Procedure 2: Connection Check

Procedure 3: Replacement Check

2.10.1 Procedure 1 Module/Antennas' Check

Check 1

This procedure checks if the Wireless LAN and Bluetooth is working properly by using the function of Windows. Refer to Chapter 3, *Tests and Diagnostics* for more information.

If the computer passes the test, the function is correctly working. If the computer does not pass the test, perform Procedure 2.

2.10.2 Procedure 2 Connection Check

The wireless LAN/Bluetooth module's wiring diagram is shown below:
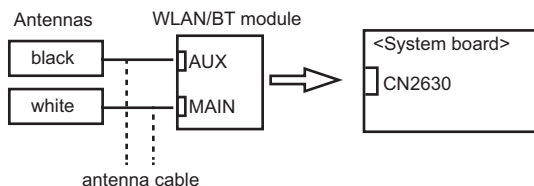
Any of the connections may be defective. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1

> Make sure Wireless LAN/Bluetooth Combo module is firmly connected to the CN2630 on the system board. If the connection is loose, connect it firmly and perform Procedure 1. If the problem still occurs, perform Check 2.

Check 2

> Make sure that antenna cables for wireless function (black and white) are firmly connected to the connectors on the module. If the cables are not connected properly, connect them firmly and perform Procedure 1. If the problem still occurs, go to the Procedure 3.

2.10.3 Procedure 3 Replacement Check

Wireless LAN/Bluetooth module, antenna for wireless function or system board may be faulty. Refer to Chapter 4, *Replacement Procedures*, for instructions on how to disassemble the computer and then perform the following checks:

Check 1

> Wireless LAN/Bluetooth Combo module may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 2.

Check 2

> The antennas for wireless function may be faulty. Replace them with new ones following the instructions in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 3.

Check3

> System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.11 Sound Troubleshooting

To check if the sound function is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Check on Windows OS

Procedure 2: Connector Check

Procedure 3: Replacement Check

2.11.1 Procedure 1 Check on Windows OS

This procedure checks if the Sound is working properly by using the function of Windows.

If any error is detected, go to Procedure 2.

2.11.2 Procedure 2 Connector Check

The connection of sound system is shown in the following figure.
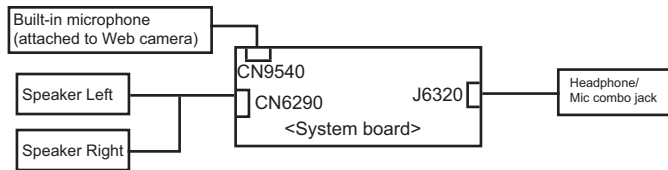
As the connection may be defective, disassemble the computer and check each connection.

If the problem still occurs, go to Procedure 3.

2.11.3 Procedure 3 Replacement Check

■ If headphone (HP/Mic Combo Jack in) does not work properly, perform Check 1.

■ If external microphone does not work properly, perform check 2.

■ If built-in microphone (Web camera) does not work properly, perform check 3.

■ If Speaker Right does not work properly, perform check 4.

■ If Speaker Left does not work properly, perform check 5.

Check 1

Headphone (HP/Mic Combo Jack in) may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 6.

Check 2

External microphone (HP/Mic Combo Jack in) may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 6.

Check 3

Built-in microphone (Web camera) may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 7.

Check 4

Speaker Right or harness may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 6.

Check 5

Speaker Left or harness may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 6.

Check 6

> System board may be faulty. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.12 Memory media (SD Card) Slot Troubleshooting

This section describes how to determine if the computer's Memory media (microSD Card) functions are functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

Procedure 1: Check on Windows OS

Procedure 2: Connector Check and Replacement Check

2.12.1 Procedure 1 Check on Windows OS

Insert a microSD Card into the slot. Check if the installed Windows recognizes automatically the microSD Card and the data in the microSD Card can be read.

If the card is not recognized or data are not read, go to Procedure 2.

2.12.2 Procedure 2 Connector Check and Replacement Check

The Memory media (microSD Card) connection is shown in the following figure.
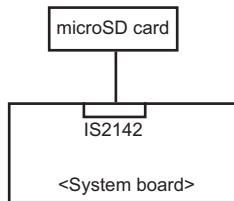
```
          ┌──────────────┐
          │ microSD card │
          └──────┬───────┘
                 │
     ┌───────────┴──────────────┐
     │        IS2142            │
     │                          │
     │     <System board>      │
     └──────────────────────────┘
```

As the connection may be defective, disassemble the computer and check each connection.

If the problem still occurs, go to Check 1.

Check 1

> Memory media (microSD Card) may be disconnected. Make sure the Memory media is firmly inserted to IS2142. If not, insert it firmly. If the it is still not functioning properly, perform Check 2.

Check 2

> Memory media (microSD Card) may be faulty. Replace it with a new one following the step in Chapter 4 *Replacement Procedures*. If the problem continues, perform Check 3.

Check 3

> System board may be faulty. Replace it with a new one following the step in Chapter 4 *Replacement Procedures*.

2.13 Fingerprint sensor Troubleshooting

> *To delete the account for confirming the fingerprint operation, it is necessary to log on by the account with the management authority. If the sign-in password has been set, ask the password to the user beforehand.*

To check if the Fingerprint sensor works correctly or not, follow the troubleshooting procedures below as instructed.

When failed in Procedure 1 to Procedure 3, execute Procedure 4.

Procedure 1: Setting Windows sign-in password

Procedure 2: Registration of PIN and fingerprint

Procedure 3: Authentication of fingerprint

Procedure 4: Connector Check and Replacement Check

Scan your finger shown below:

Straight your finger and touch the center of the fingerprint sensor lightly and lift your finger.

Figure 2-5 Scan the finger
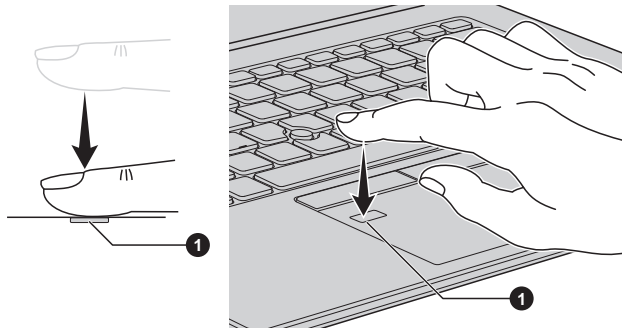
2.13.1 Procedure 1 Setting Windows sign-in password

To use the fingerprint functions, registration of your fingers on "Windows Hello" after setting the Windows sign-in password and PIN.

2.13.2 Procedure 2 Registration of PIN and fingerprint

1. Sign-in to a user account where you want to register the fingerprint information.
2. Click [Start] button.
3. Click [Settings].
4. Click [Accounts] -> [Sign-in options].
5. Click [Add] of [Windows Hello PIN].
   The message to confirm the account's password will appear.

6. Input the Windows password to [Password] and click [OK] button.
    The display to set PIN will appear.

7. Input numbers you want to set to [New PIN].
    Set four or more numbers as the PIN.

8. Input the PIN number you set to [PIN confirmation] and click [OK].

9. Then click [Setup] of [Windows Hello Fingerprint] in [Sign-in options].
    [Windows Hello Setup] screen will appear.

10. Click [Start].
    The screen with a message for checking the user will appear.

11. Input PIN number to [PIN].
    The screen requesting to swipe on the fingerprint sensor will appear.

12. Touch your finger on the fingerprint sensor and lift it.
    Repeat it until setup is complete. (The message to show the completion
    will appear.)

13. When the message to show the registration completion appears, click
    [Close].
    To register another finger, click [Add another finger] and repeat steps
    from the step 12.

2.13.3 Procedure 3 Authentication of fingerprint

1. Turn on the computer to start up Windows.

2. Touch your registered finger on the fingerprint sensor and lift it.
    When your fingerprint is authenticated, you can sign-in Windows.

If you fail this authentication continually five times, you can not use the
fingerprint authentication. In that case, type the password to sign in to
Windows. If you want to type the password on the finger print
authentication screen, press **BACKSPACE**.

2.13.4 Procedure 4 Connector Check and Replacement Check

The fingerprint sensor is installed in the Secure Pad (Touch pad) and touch
pad is connected as follows.
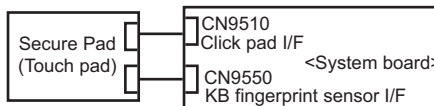
Disassemble the computer following the steps described in Chapter 4,
Replacement Procedures, and perform the following checks:

Check 1

> The connection between Secure Pad and System board may be
> loose. Make sure the cables are firmly connected to both the
> Secure pad and system board. If the problem still occurs, go to
> Check 2.

Check 2

> The cables may be faulty. Replace it with a new one. If the
> problem still occurs, perform Check 3.

Check 3

> The Secure pad may be faulty. Replace it with a new one. If the problem still occurs, perform Check 4.

Check 4

> System board may be faulty. Replace it with a new one following the step in Chapter 4, *Replacement Procedures*.

2.14 Web camera Troubleshooting

To check if the computer's web camera is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Check on Windows OS

Procedure 2: Connector Check and Replacement Check

2.14.1 Procedure 1 Check on Windows OS

Use the application software which is originally installed in the computer to check if the web camera can record/replay still images and moving images (including sound) without problems.

Click **Start** -> **Camera** to open the Camera app.

If any troubles occur on recording/replaying of still or moving images, perform Procedure 2.

2.14.2 Procedure 2 Connector Check and Replacement Check

If Web camera malfunctions, there may be a bad connection between web camera and system board, or either of these two components might be faulty. Disassemble the computer following the steps described in Chapter 4 and perform the following checks.

Check 1

> Make sure the Web camera harness and FPC are firmly connected to the system board and the Web camera module. Then perform Procedure 1 again. If the problem still occurs, perform Check 2.
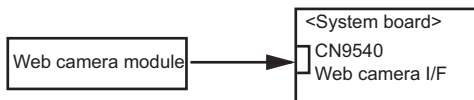
Check 2

> Web camera module or the harness/FPC may be faulty. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still occurs, perform Check 3.

Check 3

> System board may be faulty. Replace it with a new one following the step in Chapter 4, *Replacement Procedures*.

2.15 HDMI Port Troubleshooting

To check if the computer's HDMI is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Check on HDMI port

Procedure 2: Connector Check and Replacement Check

2.15.1 Procedure 1 Check on HDMI TV

HDMI (High-Definition Multimedia Interface) port digitally transfers both video and audio data without reducing the quality. HDMI-compatible external display devices including televisions can be connected via the HDMI port.

To connect an HDMI-compatible display device, follow the steps as detailed below:

As the port operation of all HDMI (High-Definition Multimedia Interface) monitors have not been confirmed, some HDMI monitors may not function properly.

1.Plug one end of the HDMI cable into the HDMI in port of the HDMI display device.

2.Plug the other end of the HDMI cable into the HDMI out port on your computer.

3.Turn the HDMI display device's power on.

Figure 2-6 Connecting the HDMI out port
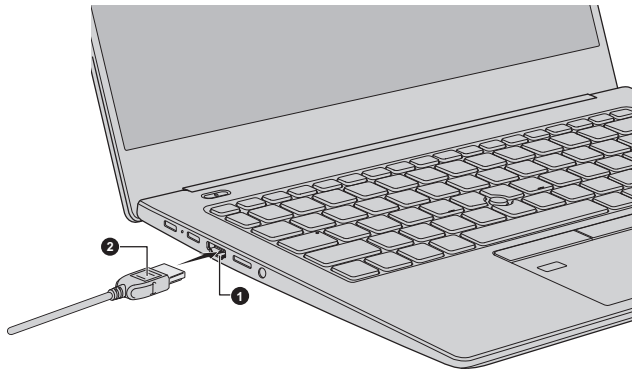
1. HDMI out port   2. HDMI cable

2.15.2 Procedure 2 Connector Check and Replacement Check

The connection of cables, boards and module may be defective. Otherwise, they may be faulty. Disassemble the computer following the steps described in Chapter 4 and perform the following checks:

Check 1

Make sure HDMI TV is firmly connected to the HDMI out port on the system board. If the problem still occurs, perform Check 2.

Check 2

It checks whether there are any abnormalities in a setup of HDMI TV, and returns to Procedure 1. In addition, an HDMI setup of television should check "the instructions manual of attachment on HDMI TV." If the problem still exists, perform Check 3.

Check 3

HDMI cable may be damaged. Replace it with a new one. If the problem still exists, perform Check 4.

Check 4

HDMI TV may be damaged. Replace it with a new one and check the operation. If the problem still exists, perform Check 5.

Check 5

System board may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.16 USB Type-C adapter Troubleshooting

On some models, one of the USB Type-C adapters is bundled. The following functions are available with the USB Type-C adapters. But supporting functions vary depending on the USB Type-C adapter bundled.

■ RGB port

■ LAN port

To check if each function of USB Type-C adapter work properly or not, follow the steps below.

2.16.1 RGB port

To check if RGB port is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Check on external display

Procedure 2: Connector Check and Replacement Check

Procedure 1 Check on external display

Connect an external display to the RGB port on the USB Type-C adapter. If the RGB port works, a desktop screen of Windows will appear on the external display.

Connecting to the computer

1. Connect the USB Type-C adapter to the Thunderbolt 4/USB type-C connector on the computer.
2. Plug one end of the cable into the RGB port of the external display.
3. Turn on the power of the external display.

4. Plug the other end of the cable into the RGB port on the USB Type-C adapter.

Switching the image output from computer's screen to the external display

When you press **FN** + **F5**, the screen for selecting the device to show image will appear. Select [Second screen only]. Then check if the desktop image is shown on the external display. If any problem occurs on sound and image output, perform Procedure 2.

Procedure 2 Connector Check and Replacement Check

Check 1

> Make sure the external display is connected to RGB port with the cable. If the connection is loose, reconnect it firmly and repeat Procedure 1. If there is still an error, go to Check 2.

Check 2

> Check the setup condition of the external display and returns to Procedure 1. As for the setting of the external display, refer to the instructions manual for the external display. If the problem still exists, perform Check 3.

Check 3

> The external display may be damaged. Replace it with a new one and repeat Procedure 1. If the problem still exists, perform Check 4.

Check 4

> USB Type-C adapter may be damaged. Replace it with a new one. If the problem still exists, check the PC condition.

2.16.2 LAN port

To check if the LAN port is malfunctioning or not, follow the troubleshooting procedures below as instructed.

Procedure 1: Check on Windows OS

Procedure 2: Connector Check and Replacement Check

Procedure 1 Check on Windows

The test program to check the LAN function is not prepared on the diagnostic test for maintenance program. So check if the LAN is working properly by using the function of Windows. How to connect the LAN cable is as follows:

1. Connect the USB Type-C adapter to the Thunderbolt 4/USB type-C connector on the computer.
2. Turn off the other devices connected to the computer and the USB Type-C adapter.
3. Plug the one end of the LAN cable to the LAN port of the USB Type-C adapter.

4. Plug the other end of the LAN cable into the connector on the network device.

If any error is detected by the test, go to Procedure 2.

Procedure 2 Connector Check and Replacement Check

Check 1

Make sure LAN cable is firmly connected to the LAN port on the USB Type-C adapter. If connection is loose, reconnect it firmly and return to Procedure 1. If the problem still occurs, perform Check 2.

Check 2

LAN cable may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3.

Check 3

USB Type-C adapter may be faulty. Replace it with a new one. If the problem still exists, check the PC condition.

dynabook

Chapter 3

Tests and Diagnostics

3.1 Test program for maintenance

The test program for maintenance consists of the following items:

■ Check and update of ME FW information
■ Check of hardware information
■ Check and update of BIOS information
■ Check and update of EC/KBC information
■ Diagnostic test programs

After performing the Diagnostic test programs, setting to "Battery Off mode" state with the tool released separately is needed.

3.1.1 Check and update of ME FW information

The ME FW version is checked and if the update is needed, the message is displayed.

3.1.2 Check of hardware information

The information about hardware, such as HDD/SSD, memory and DMI, is displayed.

If no DMI information is registered, the message to request the DMI information registration is displayed.

3.1.3 Check and update of BIOS information

The BIOS version is checked and if it is not the latest one, the message to confirm if update is needed or not.

3.1.4 Check and update of EC/KBC information

The EC/KBC version is checked and if it is not the latest one, the message to confirm if update is needed or not.

3.1.5 Diagnostic test programs

There are programs to write the HW information and to check the function of HW components in the diagnostic test.

You will need the following equipment to perform some of the diagnostic test programs.

- **The diagnostic program for maintenance (USB Memory),**
- **A Headphones and microphone (Sound test)**
- **The calibration tool for sensor (USB memory, depending on the model to be tested)**

3.1.6 Setting of Battery Off mode

Before returning to user, set the "Battery Off mode" to the PC.

You will need the following equipment for it.

- **The Battery Off mode setting tool for maintenance (USB Memory)**

3.2 How to execute the test program

To start the test program for the maintenance, follow these steps below:

Step 1: Insert the USB memory which includes the test program into the USB connector.

Step 2: Turn on the computer while pressing F12 of the keyboard.

Step 3: Chose USB device on the selection screen, and press Enter of the keyboard.

Step 4: Then this program executes the followings automatically.

Procedure 1: Check and update of ME FW information

The ME FW version is checked and if the update is needed, the following message is displayed.

```
Do you want to update ME-FW(AMT)?(Y)?
```

When the message above is displayed, press **Y**. The ME FW will be updated and the computer will restart. Then repeat from Step 2.

Procedure 2: Check of hardware information

The program checks and displays the hardware information such as HDD and SSD of the computer.

When a system board is exchanged and DMI information is not written in, the DMI information can be registered with this program.

Refer to *3.3 Entry of the DMI information* for details.

Procedure 3: Check and update of BIOS information

The BIOS version is checked and if it is not the latest one, the message to confirm if update is needed or not. The current version is displayed at upper part of the display.


```
Does it update BIOS (Vx.xx->Vx.xx)? (Y or N),
or press [Enter] (Selection=Y)?
```

When the message above appears, pressing **ENTER** will start BIOS update.

Then, since the computer reboots automatically, repeat from Step 2.

If BIOS update is not needed, press **N**.

Procedure 4: Check and update of EC/KBC information

The EC/KBC version is checked and if it is not the latest one, the message to confirm if update is needed or not. The current version is displayed at upper part of the display.

```
Does it update EC/KBC (Vx.xx->Vx.xx)? (Y or
N), or press [Enter] (Selection=Y)?
```

When the message above appears, pressing **ENTER** will start EC/KBC update.

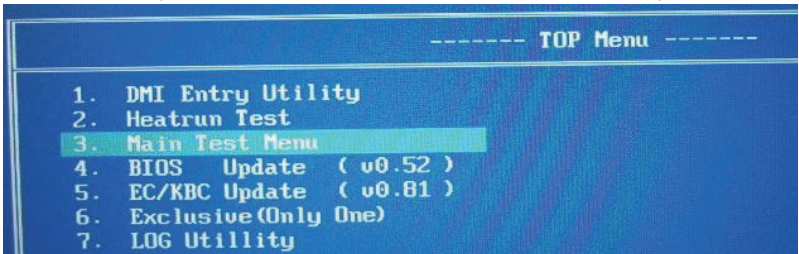Then, since the computer reboots automatically, repeat from Step 2.

If BIOS update is not needed, press **N**.

> 1. *Connect the AC adaptor and the charged battery to the computer when you update the BIOS, EC/KBC or ME FW.*
> 2. *Do not turn off the power while you are updating the BIOS or EC/KBC. If the update fails, it might be impossible to start up the computer.*
> 3. *If the update rewrite fails, when you next turn on the power, a message may be displayed that the contents of the BIOS or EC/KBC have been erased. In that case, turn on the power again and perform Procedure 2 or 3.*

After the work for procedures 1-4 is completed, the following test program menu (Top Menu) is displayed.

(The menu below shows an example of screen.)


```
-------- TOP Menu --------
1.  DMI Entry Utility
2.  Heatrun Test
3.  Main Test Menu
4.  BIOS   Update   ( v0.52 )
5.  EC/KBC Update   ( v0.81 )
6.  Exclusive(Only One)
7.  LOG Utility
```

Select Menu ([NUm] or[↑][↓] – → [Enter]

To start the DMI Entry Utility, press **1** and **Enter**.

To start the Heatrun Test, press **2** and **Enter**.

To start the Main Test Menu, press **3** and **Enter**.

> *Before starting the diagnostics, be sure to follow these steps:*
> 1. *Check all cables are connected firmly.*
> 2. *Exit any application and close Windows.*

3.3 Entry of the DMI information

To execute the DMI Entry Utility, select **1** from the test program menu (Top Menu), press **Enter**.

> When replacing the system board, be sure to execute the following procedures.
>
> Before replacing the system board, make a note of DMI information of the current PCB. The information can be confirmed by the "System Information" screen displayed after start of test program.
>
> After replacing the system board, execute "DMI Entry utility" to register the DMI information to the new system board according to the note.

The following message will appear. Press **Y**.

```
**** Warning : Update DMI really? (y/n) ***
```

The PC will restart. Press **F12** and select the USB memory as the boot device. Then the following screen will appear.
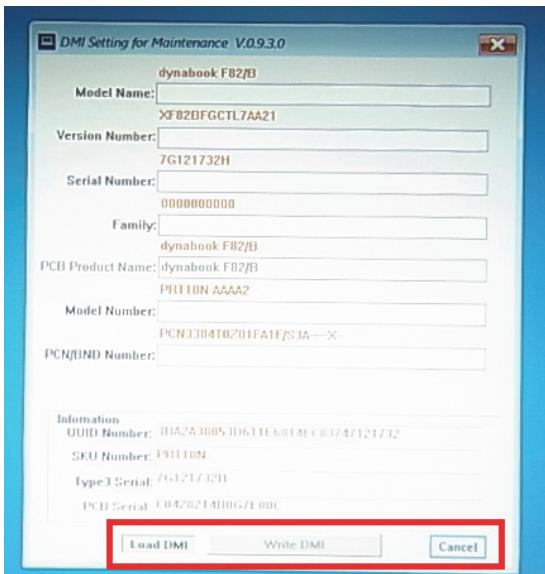
Input the information one by one. (If you have not replaced the system board, the DMI information should not be changed.)

■ Model Name (e.g. PORTEGE Z830)

■ Version Number (e.g. XF82BFGCTL7AA21)

■ Serial number (e.g. 7G121732H)

■ Model Number (e.g. PRT10N-AAAA2)

■ PCN/BND Number (e.g. PCN3384T0Z01FA1F/XXX)

The meaning of buttons at the bottom is as follows:

■ Load DMI : reads out the current DMI information and display it.

■ Write DMI : writes the DMI information input to this screen when pressed.

■ Cancel : ends this program.

When Write DMI button is pressed, the message will appear. Select WRITE button and then OK button.

To finish this utility, press Cancel button. The PC will restart. Press **F12** and select the USB memory as the boot device. Then this program will return to the test program screen.

3.4 Heatrun Test

The Heatrun test is an automatic test program that executes the following tests successively.

1. Main Memory test
2. V-RAM Memory test
3. Sequential Read Test

To execute this test, select **2** from the test program menu (Top Menu), and press **Enter**.

Explanation of each test:

1. Main Memory test
    Refer to Subtest 1 of 3.6 Memory Test

2. V-RAM Memory test
    This test sets the display mode to the maximum resolution. Then it writes/reads the test data to/from the VRAM area, and compares them. This test checks the VRAM area in order with the following 4 test data: FFFFFFFFh, AAAAAAAAh, 55555555h, 00000000h.

3. Sequential Read Test
    Refer to Subtest 1 of 3.7 Hard disk/SSD Test

To terminate the program, press **[SHIFT] + [Q]**.

3.5 Main Test Menu

To display the Main Test Menu, select **3** from the test program menu (Top Menu) and press **Enter**. (The menu below shows an example of screen.)


```
------- Diagnostics TEST Menu ----
1.  Memory Test
2.  HDD/SSD Test
3.  Keyboard Test
4.  LCD Panel Test
5.  Battery Charge Test
6.  Fan Test
7.  EXIT to TOP Menu



Select Menu ([ Num ]  or   [ ↑ ][ ↓ ])--->[ Enter ]   ( Presse
```
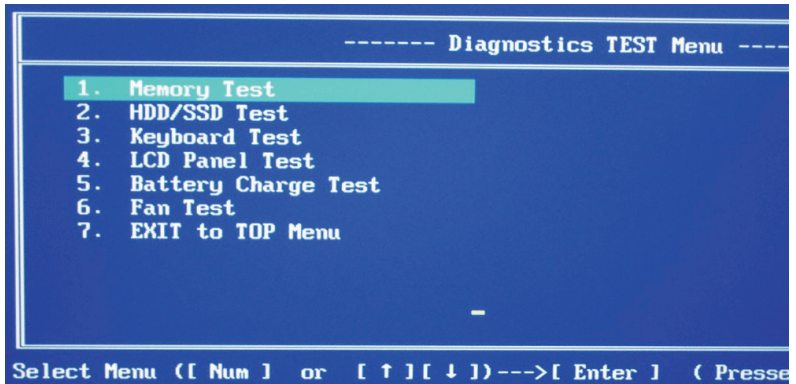
> If you want to stop the test program under running temporarily, press **SHIFT + Q**.
>
> After the stop, pressing **C** continues the test and pressing **E** ends the test.

To return to the Top menu, move the cursor to `EXIT to TOP Menu` on the screen above and press **ENTER**.

Others are the diagnostic tests. Move the cursor on the test item you want to execute and press **ENTER**.

The following table shows the subtests names of each test.

TEST NO.	TEST NAME	SUBTEST No.	SUBTEST NAME
1	MEMORY	1	Main Memory Test
2	HDD/SSD Test	1 2 3 4 5	Sequential Read Test Partial Read Test Address Jump Test Address Uniqueness Test Specify Address Test
3	Keyboard Test	1 2	Key-code Test Touch Pad Test
4	LCD Panel Test	1 2 3 4	LCD Panel Test All dot on/off for LCD H - pattern display LCD brightness
5	Battery Charge Test	-	-
6	Fan Test	-	-
8	EXIT to TOP Menu		

After a subtest is selected, the following message may appear.

The meaning of each item is as follows:

■ Test Loop

Select No: After testing, the program returns to the screen to select Error Stop and Test Loop item selection.

Select Yes: After testing, the pass count is increased by one, and the test is performed again from the test top. Repeat the test until **SHIFT + Q** is entered.

The setting of Yes/No can be changed by pressing **ENTER**.

■ Error Stop

Select Yes: if any error occurs during the test, the test is suspended and key input is required.

Enter **C** ……Restarts the test execution

Enter **E**…….Ends the test. The program returns to the screen to select Error Stop and Test Loop item selection.

Select No: though any error occurs during the test, the test is continued.

The setting of Yes/No can be changed by pressing **ENTER**.

■ Go to Test

The subtest is started in the conditions selected above by entering **ENTER**.

For more information about the tests in the Main Test Menu and other tests, refer to Section 3.6 or later.

3.6 Memory Test

To execute the Memory Test, select **1** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. (Move the highlight bar to the subtest you want to execute and press **Enter**.)

Subtest 1 **[Main memory Test]**

This test writes/reads the test data to/from the main memory, and compares them.

The test procedure is as follows:

(1) This test gets the memory map table.

(2) It seeks empty area more than 1MB.

(3) To the whole empty area, it writes the test data and reads out them to compare the test data and read data.

(4) Up to the maximum address of the mounted memory, it repeats to seek the empty area, to write the test data, to read out the data and to compare the test data and read data.

(5) It repeats the process from (1) to (4) above with the 4 test data.

The test patterns are 4-byte data: 00000000h, 55555555h, AAAAAAAAh and FFFFFFFFh. If empty area less than 3-byte length is found, the test data is not written.

If the empty memory is 64MB or less, this test is not executed. In the case that this test is never executed because of the memory size shortage, this test displays the message "Data Not Found "and writes the information to the text file

(errorlog.txt) as an error log.

If the test data and read data is not the same at comparing, this test displays the message "Data Compare error "and writes the information to the text file (errorlog.txt) as an error log.

As for the details of the error log, refer to 3.12 Log utility.

3.7 Hard Disk (&SSD) Test

To execute the Hard Disk Test, select **2** from the DIAGNOSTIC TEST MENU (Main Test Menu), press **Enter** and follow the directions on the screen. (Move the highlight bar to the subtest you want to execute and press **Enter**.)

**Subtest 1   [Sequential Read Test]**

This test reads out the whole data from the address of LBA 0 to the last. The data is read by 64-LBA unit.

If any errors occur, this test displays the message "HDD Read error "and writes the information to the text file (errorlog.txt) as an error log.

Subtest 2   [Partial Read Test]

This test reads the data from the top and middle of the HDD area by 1GB. It reads also from 1GB area before of the last address to the last.

If any errors occur, this test displays the message "HDD Read error "and writes the information to the text file (errorlog.txt) as an error log.

T&D Test Area	1GB
T&D Test Area	1GB
T&D Test Area	1GB
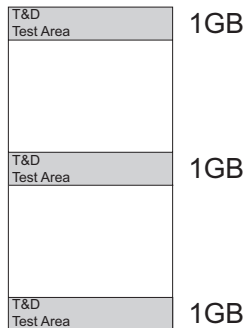
Subtest 3   [Address Jump Test]

This test writes the test data (AAAAAAAh) to

1. LBA 63 (by 512-byte)
2. LBA 22 (=63 - 41) (by 512-byte)
3. LBA 86 (=22 + 64) (by 512-byte)
4. LBA 45 (=86 - 41) (by 512-byte)

At Step 1, this test starts from the LBA 63 and writes the test data by 512-byte.

At Step 2, it writes the 512-byte data to the LBA decreased by 41 LBAs from the LBA designated at the previous step.

At Step 3, it writes the 512-byte data to the LBA increased by 64 LBAs from the LBA designated at the previous step.

At Step 4, it writes the 512-byte data to the LBA decreased by 41 LBAs from the LBA designated at the previous step.

By repeating the decrease and increase of the LBA's address, this test continues to write the test data up to the last address. After that, it reads out the data from the same LBAs to compare.

If there are no 64 LBAs at last, this test is not executed for the last address.

If any errors occur, this test displays the message "HDD Write error "and writes the information to the text file (errorlog.txt) as an error log.

Subtest 4   [Address Uniqueness Test]

This test writes the number of passes (UNIT32) (default is 0) per LBA and the LBA number (UNIT32). To the rest of a LBA (calculated as "LBA size - (UNIT32)*2"), it writes "0".

This test writes the test data up to the last address. Then it reads out the data to compare. The number of passes will be 0 (default value) unless comparing of the whole data is completed. At the beginning of the test in the second round, the number would become 1 (when Test Loop Yes is selected. When Test Loop No is selected, the number will not be changed. In that case, the number remains 0 at the end of the test.) If the test data and read data is not the same, this test displays a message of "Data Compare error" and writes the information to the text file (errorlog.txt) as an error log.

(1 LBA (512-byte))

Number of Passes (UINT32)	LBA No. (UINT32)	0 0 0 0 0 0 . . . .

Subtest 5   [Specify Address Test]

First, specifying of the address of the start LBA, the data length and test data for writing (Dword) is needed for this test. Then this test writes the specified test data to the specified address and read them to compare.

If any errors occur at comparing, this test displays the message "Compare error" and writes the information to the text file (errorlog.txt) as an error log.

As for the details of the error log, refer to 3.12 Log utility.

3.8 Keyboard Test

To execute the Keyboard Test, select **3** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. (Move the highlight bar to the subtest you want to execute and press **Enter**.

Subtest 1   [key-code Test]

This test displays the key code and scan code of a pressed key. To back to the main menu screen, press **Del** + **Enter**.

(Displayed information)

```
( Presses Key Code : xx )
```

```
( Presses Scan Code : xx )
```

Subtest 2   [Touch Pad Test]

This test gets the information of moving amount of the touch pad, both for direction X and Y, and pressing (ON)/releasing (OFF) information of the button A (left click button) and B (right click button), and displays the information in real time. To back to the main menu screen, press the button A and B.

(Displayed information)

[X: xxxx] [Y: xxxx] [Button A : x] [Button B : x]

3.9 LCD Panel Test

To execute the LCD Panel Test, select **4** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen. Move the highlight bar to the subtest you want to execute and press **Enter**.

Subtest 1   [LCD Panel Test]

This test displays the following 4 colors, Red, Green, Blue and Yellow, from the left side of the display to right side, from the black to the maximum brightness. To back to the main menu screen, press **ENTER**.

(Screen sample)
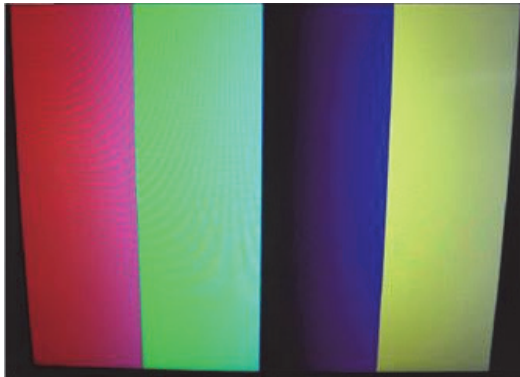
Subtest 2   [All dot on/off for LCD]

This test displays the white screen for 5 sec. and then the black screen for 5 sec. After that, this test backs to the main menu screen automatically.

Subtest 3   [H - pattern display]

This test displays the letter "H" on the whole screen. To back to the main menu screen, press **ENTER**.

Subtest 4   [LCD brightness]

This test displays the white screen and changes the LCD brightness to the maximum, middle and low setting in order with 5-sec intervals. After that this test backs to the main menu screen automatically.
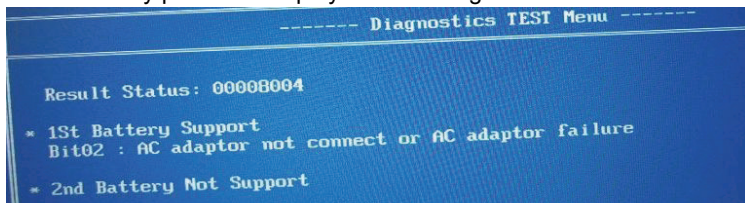
3.10 Battery Charge Test

To execute the Battery Charge Test, select **5** from the DIAGNOSTIC TEST Menu (Main Test Menu), press **Enter** and follow the directions on the screen.

When this test program is selected, the following message appears.
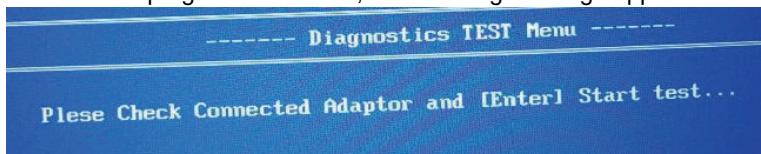
The test starts by pressing **ENTER**. The test gets the charging status of the mounted battery pack and displays the message.

To back to the main menu screen, press **ENTER**.

3.11 Fan Test

To execute the FAN Test, select **6** from the test program menu (Top Menu), press **Enter** and follow the directions on the screen.

This subtest checks if FAN works properly.

```
FAN Low-speed ... Target Low: XXXX Rpm Result
Low: XXXX Rpm OK/NG

FAN High-speed... Target High: XXXX Rpm Result
High: XXXX Rpm OK/NG
```

OK appears in the display if the test ends without an error.

NG appears in the display if an error is found during the test.

To back to the main menu screen, press **ENTER**.

3.12 Log Utility

This function logs error information generated while a test is in progress and stores the results in USB memory.

(file name: errorlog.txt)

1. Each test description

To execute the Log Utility, select `LOG Utility` from the test program menu (Top Menu), and press **ENTER**. The following screen will appear.

Display examples

```
T-Name    Pass      Sts       Address        Write      Read
HDD_001_12345678_1234_1234567812345678_00000000_55555555
RAM_001_12345678_1234_1000007812345678_00000000_55555555
```

• T-NAME..... Test name

(Test name example)
RAM_01.....Main Memory Test
HDD_01.....Sequential Read Test
HDD_02.....Partial Read Test
HDD_03.....Address Jump Test
HDD_04.....Address uniqueness Test
HDD_05.....Specify Address Test
BAT_01.....Battery Charge Test

• Pass..... Pass count which the error occurred
• Sts..... . Status

(Value)
00FF..... Data compare error (Memory Test/HDD Test)
00E0.....Data Not Found (Memory Test)
0002..... Protocol error (Memory Test/HDD Test)

• Address… Address (Memory Test/HDD Test…Sector No.)
• Write..... ... Write value (Memory Test/HDD Test)
• Read.... ...... Read value (Memory Test/HDD Test/ Battery Charge Test)

To clear the log information, press **C**. To back to the main menu screen, press **ENTER**.

3.13 Wireless Module Test

Since there is no test program to check the wireless function, check if the wireless module and antenna are working without problem on Windows.

3.13.1 Check of the wireless module

Turn on the wireless communication function and check the module name via the application, PC system information. On this model, a combo module which has both wireless LAN and Bluetooth function is mounted.

<How to display PC system information screen>
1) Click Start button.
2) Click [dynabook PC Information].
   Check the content of "Netwrok".
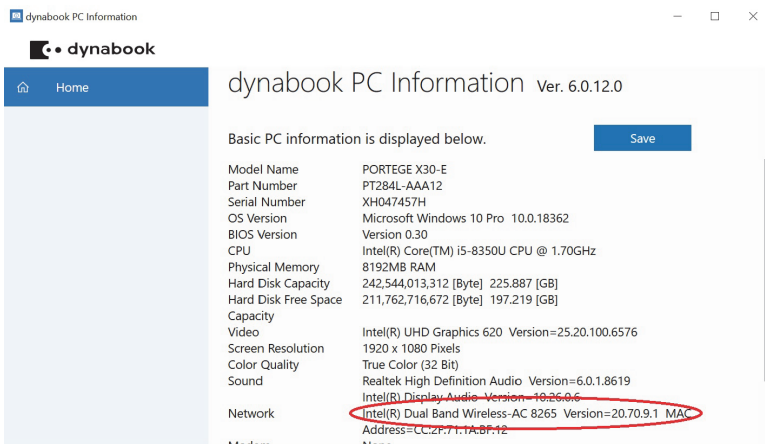
If "Wireless**" appears in the screen, it means the wireless module has been recognized.

3.13.2 Check of the antenna connection

Confirm that the icon for wireless LAN appears at the lower right of the screen under the circumstances the wireless communication function is available.

Click the icon. If the computer can find any AP (Access Point), the network names like below will appear. It shows the antenna cables are surely connected to the wireless module.

If the antenna cables are not connected to the wireless module or no available AP is found, the following icon will appear.

In the case of no-antenna connection

If AP should be ready but no AP point appears, any problem might occur on the wireless module or on the antenna connection.

3.14 Sound Test

Since there is no sound test in the test program for maintenance, check the functions related to sound on Windows with music data, etc.

3.15 SETUP

3.15.1 Function Description

This program displays the current system setup information as listed below:

Main menu

- ■ System Time (System time)
- ■ System Date (System time)
- ■ CPU Type
- ■ CPU Speed
- ■ HDD/SSD
- ■ Total Memory Size
- ■ System BIOS Version
- ■ EC Version
- ■ Language

Security menu

- ■ BIOS Password
  - ■ User
  - ■ Supervisor
- ■ HDD/SSD Password
  - ■ Mode
- ■ Secure Boot
- ■ Clear Secure Boot keys (*1)
- ■ Clear Fingerprint data (*1)
- ■ Clear System data (*1)
- ■ TPM
- ■ Clear TPM Owner
- ■ Hide TPM
- ■ BIOS Access Rights (*1)
- ■ Boot Menu (*1)
- ■ USB Provisioning of AMT (*1)
- ■ Device Access Control/Device Boot Control (*1)

*1 : This item is shown only when a supervisor password is set.

Power Management menu

- ■ Wak on Keyboard
- ■ Critical Battery Wake-up
- ■ Panel Open – Power On
- ■ Power on by AC
- ■ Intel Turbo Boost Technology
- ■ Intel Display Power Management
- ■ SATA interface setting
- ■ Keyboard Backlight Control Mode
- ■ Backlight Lighting Time

Advanced menu

- Virtualization Technology
- SW Guard Extensions (SGX)
- Select Owner EPOCH input type
- Beep Sound
- Sleep and charge
- USB Power in Off State
- USB Legacy Emulation
- Wireless LAN Configuration
  - Wi-Fi Configuration
  - TIs Auth Configuration
- System Configuration
  - Wireless LAN
  - Bluetooth
  - Web Camera
  - SD Host Controller
  - Fingerprint Sensor
  - Internal Thunderbolt Controller
  - Microphone
  - Memory Performance Mode
  - LAN Boot Selection
  - MAC Address Pass Through
  - Power On Display
  - Boot Up NumLock Status
  - Function Keys Mode (without pressing Fn first)
  - Large aperture graphics adapters
- Thunderbolt Configuration
  - Devices under Thunderbolt
  - Native Thunderbolt Support
- Evaluation
  - Advanced
  - Chipse
  - Main
  - Security
  - Boot
  - Save & Exit

Boot menu

- Boot Option #1
- Boot Option #2
- Boot Option #3
- Boot Option #4
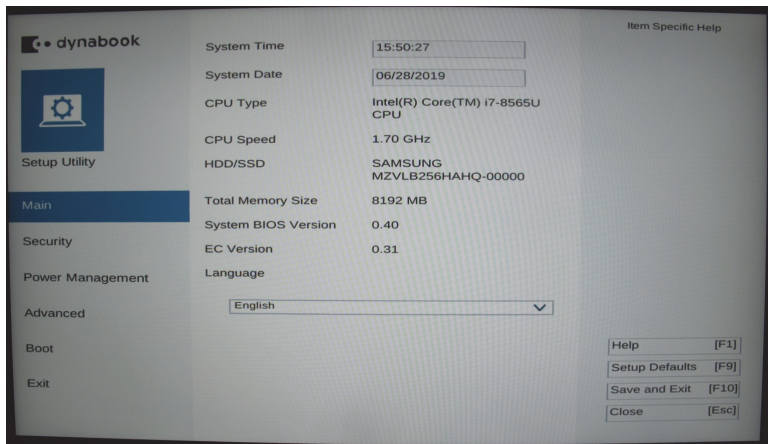- Priority for devices

Exit menu

- Exit Saving Changes
- Exit Discarding Changes
- Load Setup Defaults
- Save Changes and Power off

3.15.2 Accessing the SETUP Program
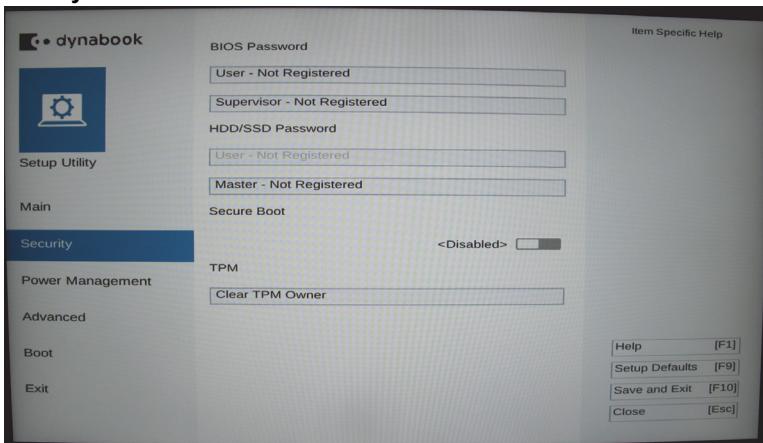
Turn on the power SW.

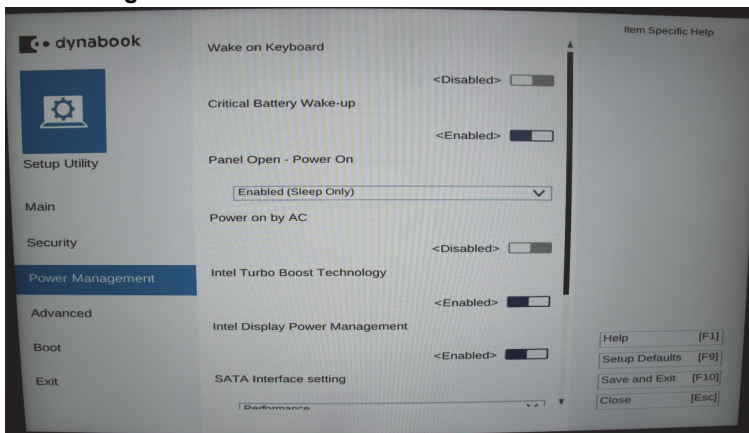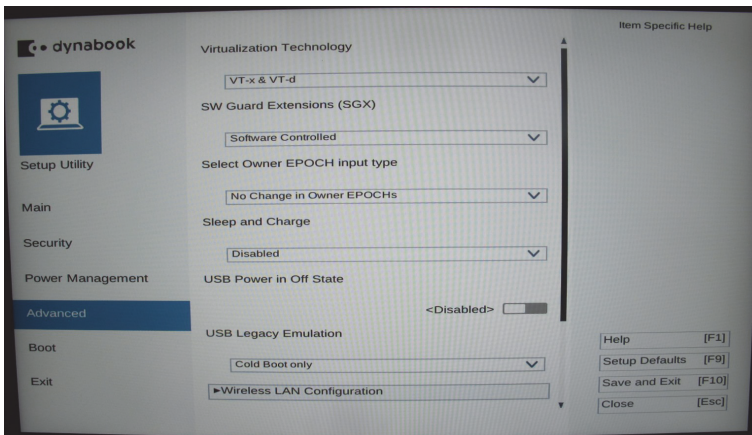Then press **F2** key of the keyboard. The following display appears.

Main menu screen

Security menu screen

Power Management menu screen

Advanced menu screen

Boot menu screen
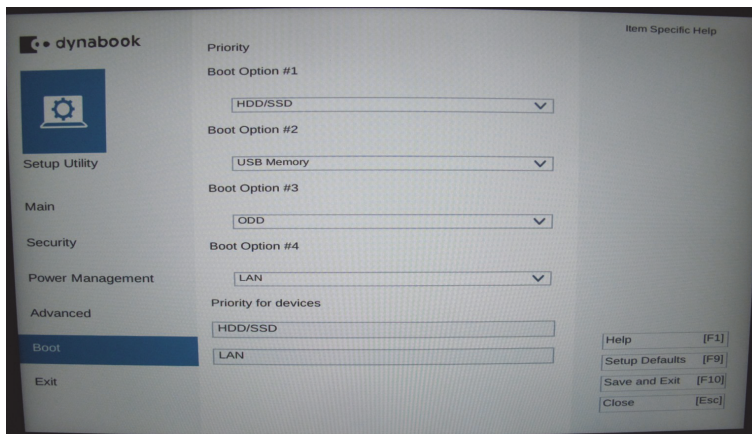
Exit menu screen
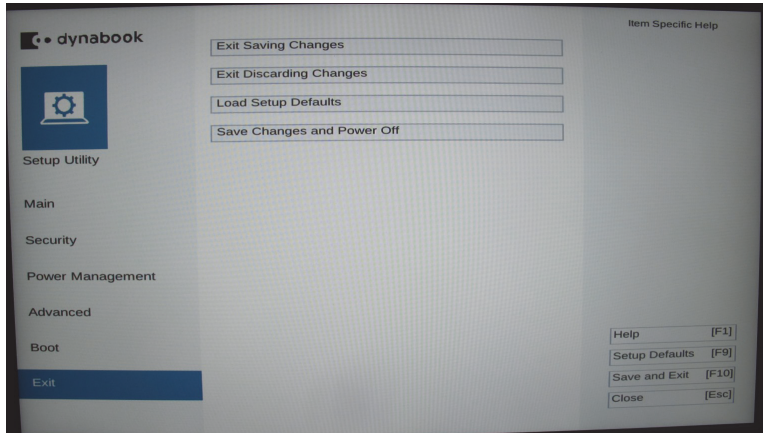
Moving Within the SETUP Menu and Changing Values

1. Press ← and → to move between the two columns. Press ↑ and ↓ to move between items in a column.
2. Press the **[Enter]** Key to change the value.

Accepting Changes and Exiting the SETUP Window

1. Press **[F10]** key to accept the changes you made.
2. To make other changes, press **N**. Repeat the steps above.
3. To accept the changes, press **Y**.

*You can press **ESC** to quit at any time without saving changes. SETUP asks you to confirm that you do not want to save your changes. When SETUP is displayed at the next time, the current configuration appears.*

The Factory Preset Configuration

When you access SETUP, the current configuration is displayed.

1. To load the factory preset configuration, press **[F9]** key.
2. To accept the default settings, press **[Y]** key.

How to change setup Options

Since a help is displayed on the right-hand side of each menu screen, refer to it before change.

3.16 Battery Off mode setting tool

3.16.1 Outline

This tool should be needed to set "Battery Off mode" status before returning the PC to the user.

> *Before implementing this tool, be sure to the version of EFI Shell is V2.1 or later.*

3.16.2 Preparation

Download the tool to a USB memory.

1. To get the EFI Shell start program (Shell.efi), click "Download" on the URL below.
   https://github.com/tianocore/edk2/blob/master/ShellBinPkg/UefiShell/X64/Shell.efi
2. Format a USB memory in FAT32.
3. Create "efi\boot\" folder on the root folder of the USB memory.
4. Change the name of the downloaded Shell.efi file to "BOOTx64.efi".
5. Copy the "BOOTx64.efi" file to the "efi\boot\" folder on the USB memory.
6. Download and unzip the SetBatOffMode_R***.zip, registered as 360082949 to the system, and copy to the root folder on the USB memory.

3.16.3 Start and procedure

> *If the test program doesn't start, set Secure Boot to "Disabled" in Setup program. As for Setup program, refer to 3.17 SETUP.*

1. Insert the USB memory created in the preparation step into the USB connector.
2. Turn on the computer while pressing **F12** to display the screen to select a boot device.
3. Choose USB device on the selection screen, and press **Enter**. The following message will appear.

```
Battery Off Mode Setting tool
                  Vx.xx
Select test Menu
    [1] Set - Battery Off Mode
    [0] Exit
=====================================
Input key of 1 or 0.
```

4. When you press **1**, the Battery Off mode should be set and display the result.

When the result shows "OK", the Battery Off mode should be set surely. Press any key to turn off the PC.

When the result shows "NG", check the message.

Message	Meaning
`ERROR : Could not execute this tool because it is not a Support model`	The Battery Off mode program doesn't support this PC. The Program ends automatically.
`Error Code : (0x8300)`	The written data is incorrect.
`Get Status : Disabled (0x0000)`	The setting was done but it but it has not affected.
`Get Status : Error (0x****)`	Any other error occurs. When any key is pressed, the program returns to Step 3. Retry to do this program several times. If NG continues, end the program in Step 3 by pressing 0 key and check the PC condition.

When turning on the power just after setting this mode, it will take 13 to 14 sec until the logo display. Do not press the power button again before logo display.

Chapter 4

Replacement Procedures

This chapter describes the procedure for removing and replacing the field replaceable units (FRUs) in the PC. It may not be necessary to remove all the FRUs in order to replace one. The chart below provides a guide as to which other FRUs must be removed before a particular FRU can be removed. The numbers in the chart indicate the relevant section numbers in this manual.

In all cases when removing an FRU, the battery pack must also be removed. When repairing an FRU that is the potential cause of a computer fault, use the chart to determine the order in which FRUs need to be removed.

Table 4-1 the case for the following example

4.9 Memory media														
4.10 Cover Assembly and Base Assembly														
Cover													4.23 LCD Assembly	
4.11 Battery pack	4.12 Memory module	4.13 SSD	4.14 Smart Card slot	4.15 Dual button unit/Click pad	4.16 Speaker	4.17 Wireless LAN card	4.18 USB board	4.19 Fan	4.20 Fin	4.21 System board	4.22 Keyboard/Cover Assembly		4.24 Camera module/Wireless antennas	4.25 Display hinges

Chart Notation

The chart shows the case for the following example:

Removing the Memory module

All FRUs (*4.9 Memory media*, *4.10 Cover Assembly and Base Assembly*, *4.11 Battery pack*) above " *4.12 Memory module*" unit must be removed.

Please prepare required parts in advance, when replacing the relevant items.

4.1 Safety Precautions

Please read the following safety instructions before disassembling the computer and always follow the instructions while working on the computer.

1. Always use the genuine battery that is authorized by Dynabook or compatible with the unit. Since other battery packs have different specifications, they may be incompatible with the unit, and may burst or explode.
   Never heat or disassemble the battery pack, as that could cause leakage of alkaline solution. Never throw the battery pack into a fire, as that could cause the battery pack to explode.
2. The power supply and other components carry high voltages. If you need to turn on the power of a partially disassembled computer to check its operation, be very careful not to touch connectors or components, in order to avoid the risk of electric shock.
   Also, do not disassemble individual components in first-level maintenance.

1. Turn off the power and disconnect the AC adaptor from the power source, to avoid exposure to electric shock.
2. Batteries in the computer retain an electrical charge, so there is danger of electrical shock even when the computer is disconnected from an AC power source. Remove any metal jewelry or accessories such as necklaces, bracelets or rings, in order to reduce the risk of electric shock. Never work with wet or damp hands.
3. Be careful of edges and corners as these may cut.

1. When you change a component, be sure the replacement component meets the required specifications. Never use foreign parts, to avoid any risk of damage to the computer.
2. To avoid any risk of short-circuit, fire or other internal damage, never allow any metal objects such as screws or paper clips to fall into the unit. Be sure to replace screws with the same size as those removed. Make sure all screws are securely fastened. Loose screws can cause short circuits, resulting in heat, smoke or fire.
3. Before lifting out an FRU or other component, make sure all cables to the component have been disconnected, in order to reduce the risk of accidental electric shock.
4. If you use AC power, be sure to use the cable that came with the computer or one recommended by Dynabook.
5. Make sure that all replacement components meet the specifications for the computer and that all cables and connectors are securely fastened, in order to avoid the risk of electric shock.
6. Some parts inside the computer, such as the CPU and cooling module, become very hot during operation. Conduct repair work after they have cooled. Be careful around the CPU and cooling module to avoid burns.

4.2 Before You Begin

Take note of the following points before starting work. Always remove the AC adaptor and battery pack before commencing any of the procedures. The procedure for removing the battery pack is described in *4.11 Battery pack*.

1. Do not disassemble the computer unless it is operating abnormally.
2. Use the recommended tools.
3. Ensure that the environment for working on and storing parts does not contain any of the following.
   - Dust or dirt
   - Static electricity
   - Extremely hot, cold, or humid conditions
4. Perform the diagnostic tests described in Chapter 2 to identify the FRU that has probably caused the system failure.
5. Do not perform any unnecessary work. Always work in accordance with the disassembly and re-assembly procedures in this manual.
6. Keep parts removed from the computer in a safe place away from the computer where they will not be damaged or interfere with your work.
7. Disassembling requires the removal of a large number of screws. Keep removed screws in a safe place such that you can determine which screws belong to which part.
8. When re-assembling, ensure that you use the correct screws and fit parts in the correct position. Screw sizes are noted in the text and figures.
9. As all parts have sharp edges and corners, take care not to cut yourself.
10. After replacing an FRU, check that the computer and replaced part operate correctly.

4.3 Disassembly Procedure

Four main types of cable connector are used.
- Pressure plate connector
- Spring connector
- Back flip connector
- Normal pin connector

For pressure plate connectors, slide the pressure plate holding tags on both sides of the plastic pressure plate on the connector and pull the cable out from the connector. When reconnecting the cable to the pressure plate connector, slide the pressure plate holding tags on both sides of the plastic pressure plate on the connector and insert the cable into the connector. Push both tags of the pressure plate such that the cable is fixed in the correct position. Pull the cable to ensure that it is securely connected.

For spring connectors, lift up the stopper frees the cable and allow it to be pulled out. To reconnect, hold the stopper in the up position and insert the cable, then lower the stopper to secure the cable. Pull the cable to ensure that it is securely connected.

For back flip connectors, lift up the flip plate frees the cable and allow it to be pulled out. To reconnect, hold the flip plate in the up position and insert the cable, then lower the flip plate to secure the cable. Pull the cable to ensure that it is securely connected.

Normal pin connectors are used for all other cables. Simply pull out or push in these connectors to disconnect or reconnect.

Figure 4-1 Pressure plate connector/Spring connector/Back flip connector
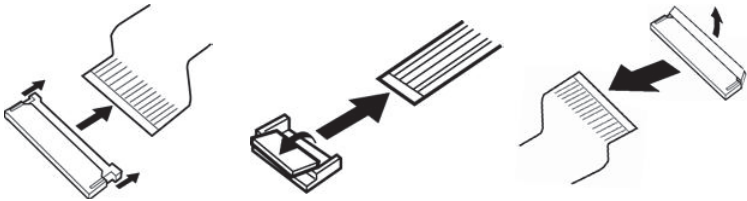
4.4 Assembly Procedures

After the computer has been disassembled and the part that caused the fault has been repaired or replaced, the computer must be reassembled.

Take note of the following general points when assembling the computer.

■ Take your time and follow the instructions carefully. Hurrying the assembly work will only introduce new problems.

■ Check that all cables and connectors are securely connected.

■ Before fastening FRUs or other parts in place, ensure that no cables are caught on screws or the FRU.

■ Check that all latches are securely closed.

■ Ensure that you have installed all FRUs correctly and do not have any screws left over. Using an incorrect screw may damage the thread or screw head and result in the FRU not being securely fastened in place.

After installing FRUs, check that the computer operates correctly.

4.5 Tools and Equipment

For your safety and the safety of the people around you, it is important that you use Electrostatic Discharge (ESD) equipment. Correctly utilizing of the equipment increases the percentage of successful repairs and saves on the cost of damaged or destroyed parts. The following equipment is required for disassembly and assembly.

■ One Philips screwdriver with type 0 bit (for S-THIN HEAD screws)

■ One Philips screwdriver with type 1 bit (for screws other than above)

■ One flat-blade screwdriver (for removing the CPU)

■ Tweezers (for lifting screws)

■ ESD mats (lay on work table or floor)

■ An ESD wrist strap and heel grounder

■ Anti-static carpet or flooring

■ Air-ionizers in highly static sensitive areas

■ Antenna coaxial cable disconnector

■ Special syringe (for applying grease)

4.6 Screw Tightening Torque

When you fasten screws, be sure to follow the torque list below.

Overtightening can damage components and screws; undertightening can result in electrical shorts or other damage if screws or components come loose.

Dynabook recommends that you use an electric screw driver for quick and easy operations.

■ M2   (2mm)   0.167 N•m   (1.7 kgf cm)
■ M2.5 (2.5mm)   0.294 N•m   (3.0 kgf cm)

To prevent damage to THIN HEAD screws, use type 0 bit philips screwdriver. Press along the axis of the screwdriver while turning the screw. This is because the contact area between the screw and driver is less than for a pan head screw (standard pan-shaped screw head).
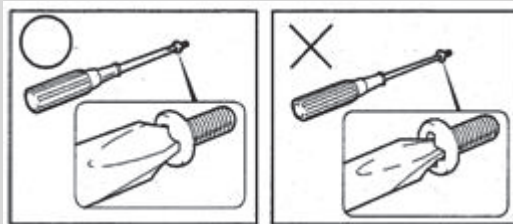
4.7   Grip Color

Some screws have a colored grip area to help you determine the length of the screw.

[Normal grip]

■   Normal length screws: Blue

■   Special length screws: Green

■   Tight grip screw: Yellow

"Special length screw" means screws whose length is indicated in an integral number to the first decimal places such as 2.5 mm, 2.6 mm and so on.

Grip area

4.8   Screw Notation

To make maintenance of the computer easier, markings of the kinds of the screws including the types and lengths of the screws are indicated on the computer body.

Screw type + Screw length (mm)

Screw shape

B: Bind screw

F: Flat head screw

S: Super thin head screw

T: Tapping screw

U: Other screws (Unique screws: pan head, stud, etc.)

Example: B6 ... 6mm BIND screw

Screw color/material

B: Black/Nickel

C: Silver/Non-Hexavalent Chromate

U: Other screws (Unique screws: such as stud, etc.)
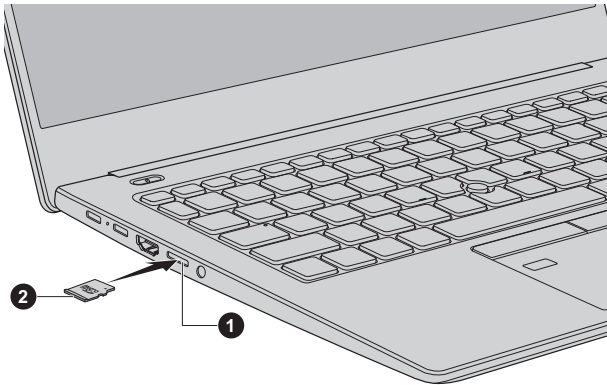
4.9   Memory media

Insert or remove a Memory media in accordance with any instructions in each Memory Media manual or the manuals of the computer system you are using.

4.9.1 Installing the Memory media

To insert memory media, follow the steps as detailed below and refer to Figure 4-2.

1. Turn the memory media so that the contacts (metal areas) face down.
2. Insert the memory media into the memory media slot on your computer.
3. Press the memory media gently until it clicks into place.

Figure 4-2 Inserting memory media

1. Memory media slot   2. Memory media

4.9.2 Removing the Memory media

To remove memory media, follow the steps as detailed below and refer to Figure 4-2.

1. Open the **Safely Remove Hardware and Eject Media** icon on the Windows Taskbar.
2. Select the memory media that you want to remove.
3. Push the memory media until you hear a click to partially release it.
4. Grasp the media and remove it.

4.10 Cover Assembly and Base Assembly

4.10.1 Removing the Cover Assembly and Base Assembly

To remove the Base Assembly, follow the steps below and refer to Figure 4-3 to Figure 4-4.

1. Close the display panel and turn the computer face down.

2. Remove the following screws securing the Cover Assembly and the Base Assembly.

Figure 4-3 Removing the Base Assembly (1)
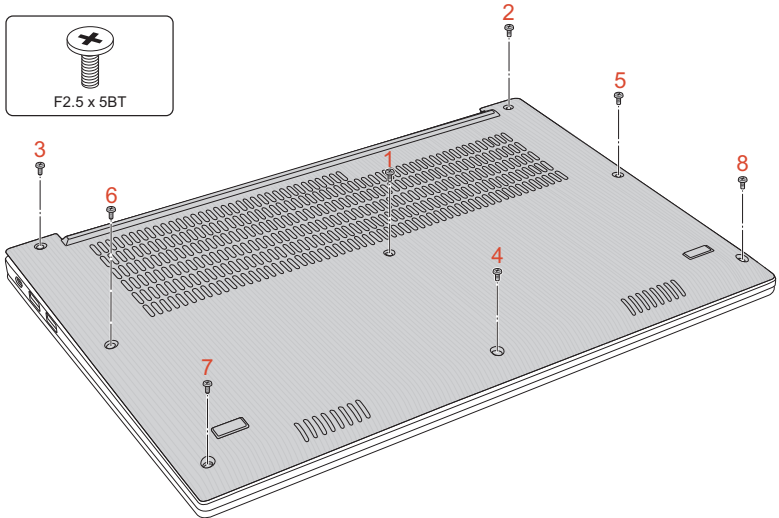
3. Separate the **Base Assembly** and **Cover Assembly** while releasing the latches using a plectrum.

Figure 4-4 Removing the Base Assembly (2)
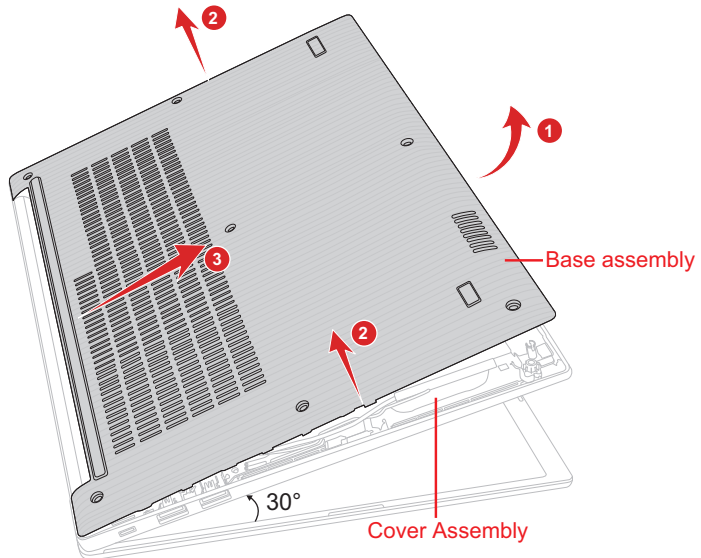
4.10.2 Installing the Base Assembly

To install the Base Assembly, follow the steps below and refer to Figure 4-3 to Figure 4-5.

For models with 0GB/4GB/8GB/16GB memory module installed:

■ When replacing the Base Assembly with a new one, stick a new **INSU BASE MEM** on the new Base Assembly in place.

INSU BASE MEM
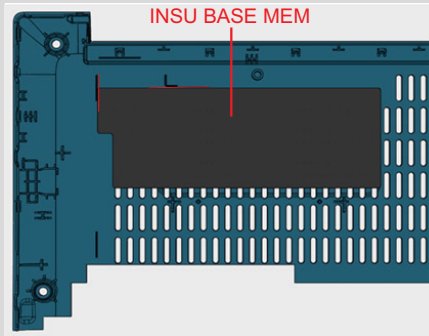
1. Set the Cover Assembly on the Base Assembly while securing the latches.

Figure 4-5 Installing the Base Assembly
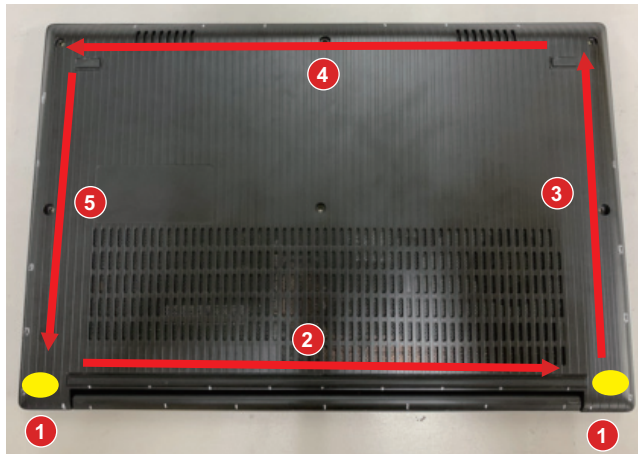
2. Secure the Cover Assembly and Base Assembly with the screws.

When securing the Base Assembly, be sure to drive the screws in the order of the number on Figure 4-3.

3. Turn the computer, and open the display.

4.11 Battery pack

4.11.1 Removing the Battery pack

To remove the battery pack, follow the steps below and refer to Figure 4-6.

Take care not to short circuit the terminals when removing the battery pack. Similarly, do not drop, knock, scratch, disassemble, twist, or bend the battery pack.

1. Peel off the **INSU SQUARE** and disconnect the **BATTERY HARNESS** from the connector **CN8021** on the SYSTEM board.
2. Remove the following screws and the battery pack.

Figure 4-6 Releasing the battery pack
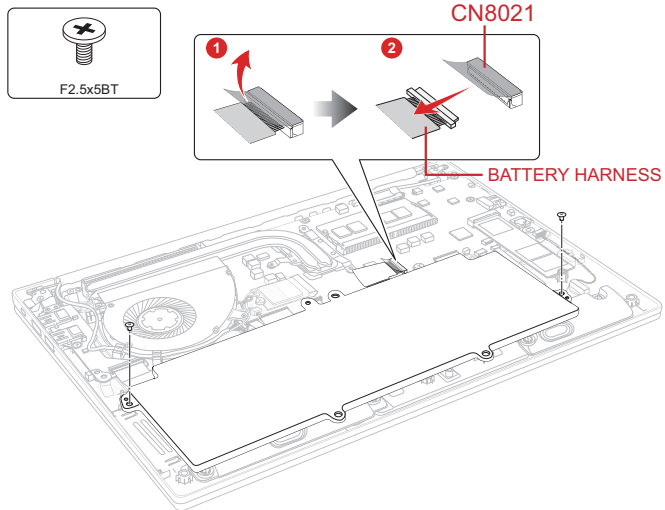
Dispose of the used/removed battery pack in accordance with the laws and ordinances of your local authority.

4.11.2 Installing the Battery pack

To install the battery pack, follow the steps below and refer to Figure 4-6.

The lithium ion battery pack may explode if not fitted, operated, handled, or disposed correctly. Dispose always the used battery pack in accordance with the laws and ordinances of your local authority.

Use only the batteries approved by Dynabook.

> Check the battery's terminals visually. If they are dirty, wipe them clean with a dry cloth.

1. Set the battery pack to the COVER ASSY and secure it with the screws.
2. Connect the **BATTERY HARNESS** to the connector **CN8021** on the SYSTEM board and stick one piece of INSU SQUARE in place.

4.12 Memory module

4.12.1 Removing the Memory module

To remove the memory module, follow the steps as detailed below:

> Do not touch the connectors on the memory module or on the computer. Dust or stains on the connectors may cause memory access problems.
>
> Never press hard or bend the memory module.

1. Open the left and right **latches** outside and remove the **memory module(s)**.

Figure 4-7 Removing the memory module(s)
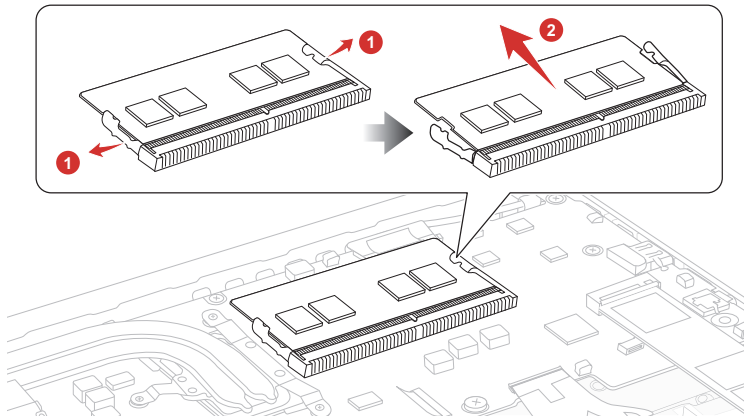
1. Latches   2. Memory module

4.12.2 Installing the Memory module

To install a memory module, follow the steps as detailed below:

1. Align the notch of the memory module with that of the memory slot and gently insert the module into the slot at about a 30 degree angle before holding it down until the latches on either side snap into place.

Figure 4-8 Seating the memory module
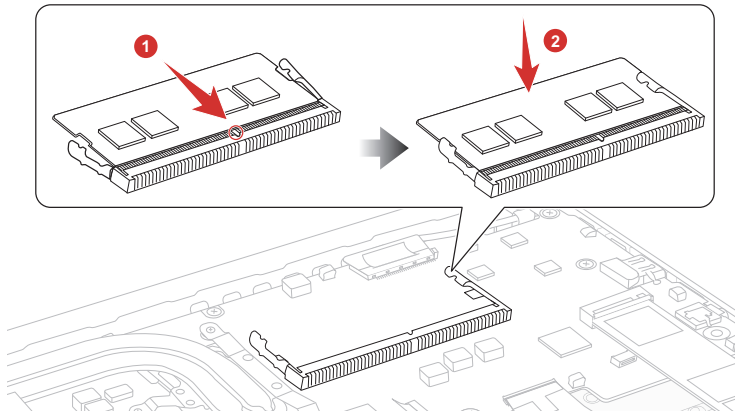
> ⚠️ After installing the memory module, make sure that the memory module is secured with the left and right latches.

4.13 SSD

4.13.1 Removing the SSD

To remove the SSD, follow the steps below and refer to Figure 4-9.

> ⚠️ Take care not to press on the top or bottom of a SSD. Pressure may cause the data loss or damage to the device.

1. Remove the the following screw and disconnect the **SSD** from the connector **CN1900** on the SYSTEM board.

Figure 4-9 Removing the SSD
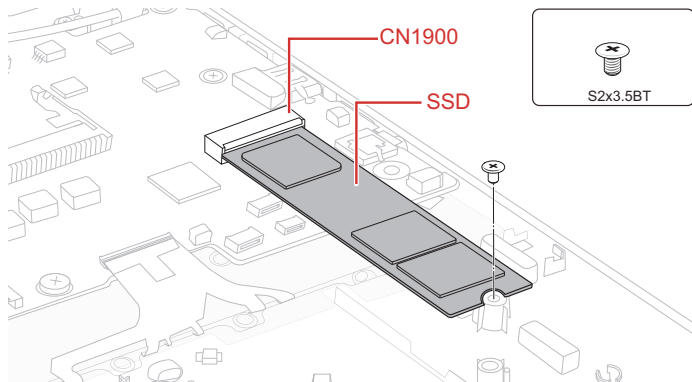
4.13.2 Installing the SSD

To install the SSD, follow the steps below and refer to Figure 4-10.

⚠️ To avoid damage, always hold the SSD only by its sides.

To prevent the SSD from being distorted when installing the SSD pack into the computer, do not press the center of the SSD pack. Always hold the SSD pack by its sides.

1. Insert the **SSD** to the connector **CN1900** on the **System Board (FSAPSY*)** slantwise.

2. Push down the **SSD** and secure it with the screw.

Figure 4-10 Installing the SSD
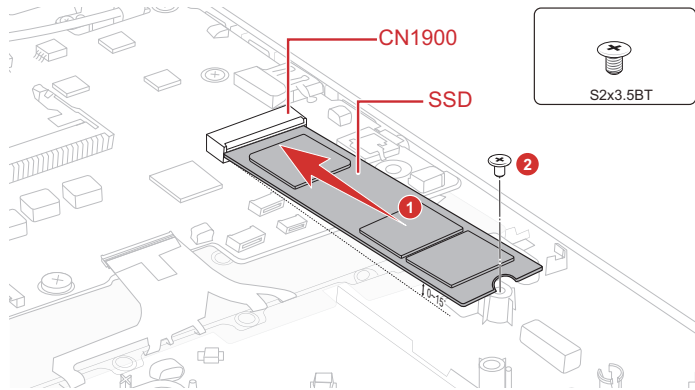
4.14 Smart Card slot

4.14.1 Removing the Smart Card slot

To remove the Smart Card slot unit, follow the steps below and refer to Figure 4-11 to Figure 4-13.

1. Disconnect the **FPC (FSAPYN*)** from the connector **CN9602** on the SYSTEM board and **CN9801** on the USB board.

Figure 4-11 Removing the Smart Card slot (1)
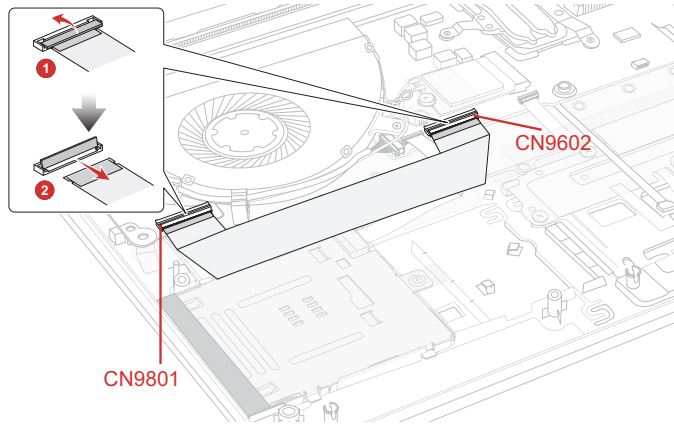
2. Peel off the **INSU SC** and disconnect the **Smart Card FFC** from the connector **CN2170** on the system board.

3. Remove the following screw, and then slide and lift the Smart Card slot unit shown in the following figure to remove the Smart Card slot.

Figure 4-12 Removing the Smart Card slot (2)
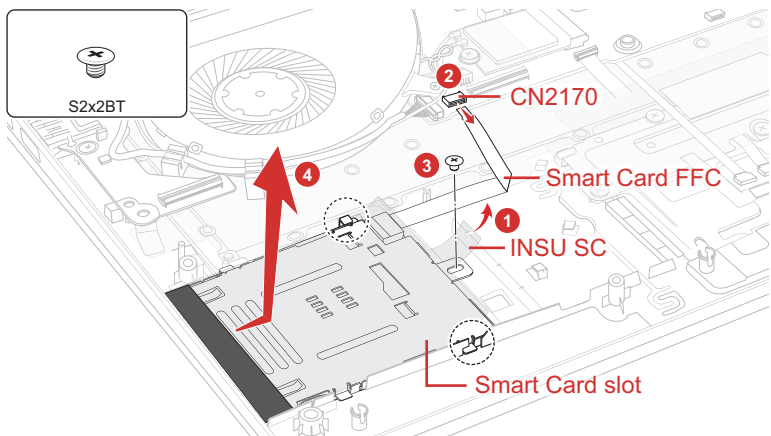
4. Disconnect the **Smart Card FFC** from the connector on the Smart Card slot.

Figure 4-13 Removing the Smart Card slot (3)
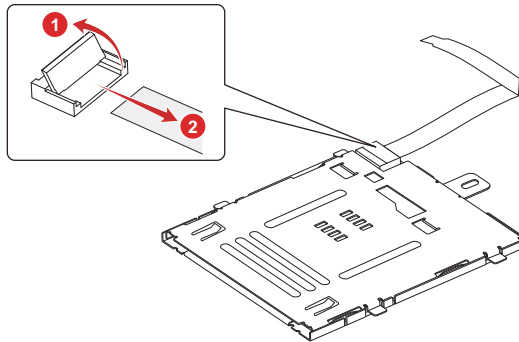
4.14.2 Installing the Smart Card slot

To install the Smart Card slot, follow the steps below and refer to Figure 4-11 to Figure 4-14.

1. Connect the **Smart Card FFC** to the connector on the Smart Card slot.

2. Set the **Smart Card slot** in place and secure it the with the screw.

3. Connect the **Smart Card FFC** to the connector **CN2170** on the system board.

4. Stick the **INSU SC** in place.

Figure 4-14 Installing the Smart Card slot

INSU SC
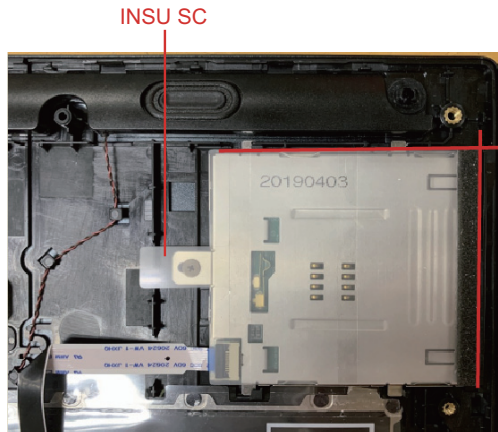
5. Connect the **FPC (FSAPYN*)** to the connector **CN9602** on the SYSTEM board and **CN9801** on the USB board.

4.15 Dual button unit/Click pad

4.15.1 Removing the dual button unit/Click pad

To remove the dual button unit and click pad, follow the steps below and refer to Figure 4-15 to Figure 4-20.

1. Disconnect the **Click Pad FFC** and **Fingerprint FFC** from the connectors on the Click Pad and the connectors **CN9510** and **CN9550** on the **System Board**.

Figure 4-15 Removing the dual button unit/Click pad (1)
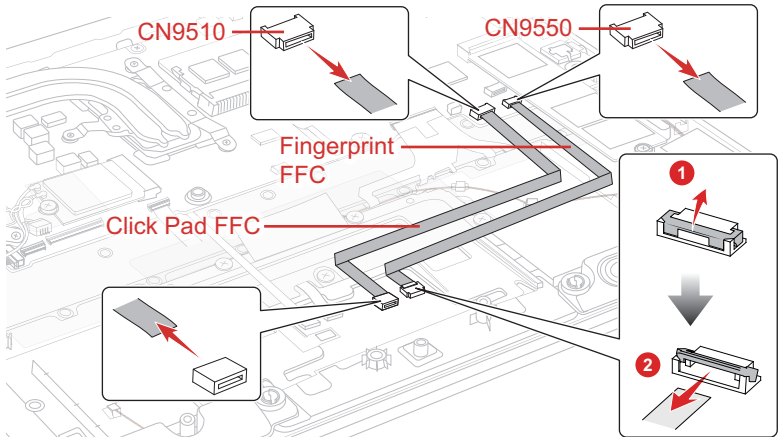
2. Disconnect the **Accupoint FPC** from the connector on the Click Pad.

Figure 4-16 Removing the dual button unit/Click pad (2)
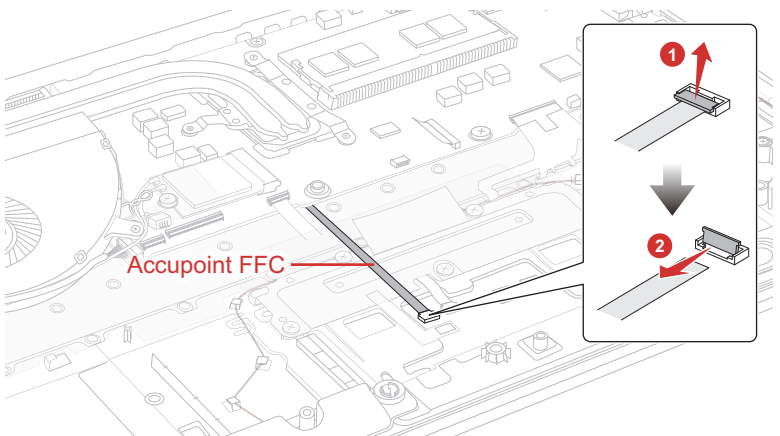
3. Peel off the **INSU D BUTTON PLT** and stick tape on the dual button plat.

4. Peel off the **SQUARE CUSHION** and **GASKET TAPE CPAD** on the Click Pad and Click Pad RIM ASSY.

5. Disconnect the **Dual button FPC** from the connector on the Click Pad.

6. Remove the following screws and then remove the dual button plat.
   Figure 4-17 Removing the dual button unit/Click pad (3)
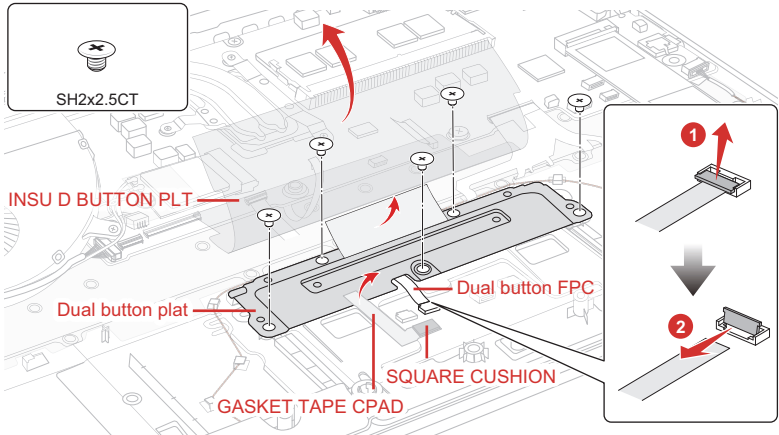
7. Remove the following screws and then release the **Dual button FPC** from the dual button plat.
   Figure 4-18 Removing the dual button unit/Click pad (4)
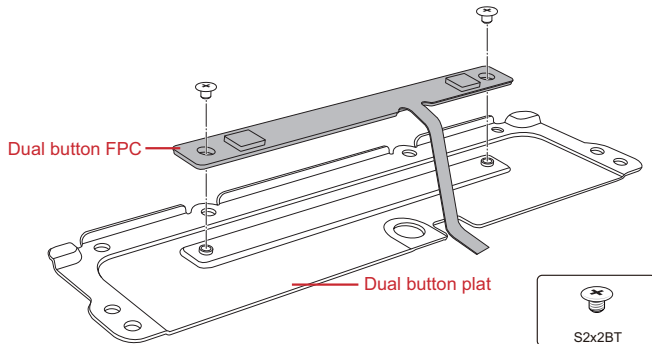
8. Remove the **Dual button** from the Cover Assembly.

Figure 4-19 Removing the dual button unit/Click pad (5)
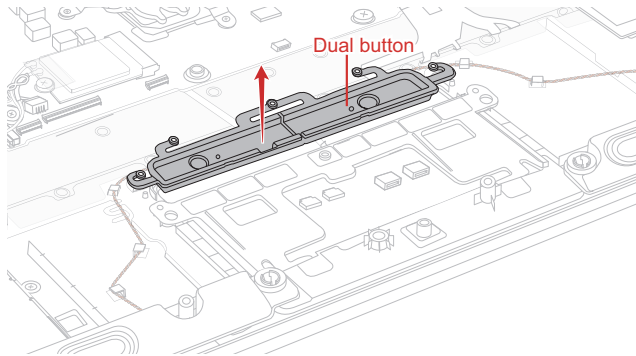
9. Remove the **Click Pad RIM ASSY** from the Cover Assembly.

Figure 4-20 Removing the dual button unit/Click pad (6)
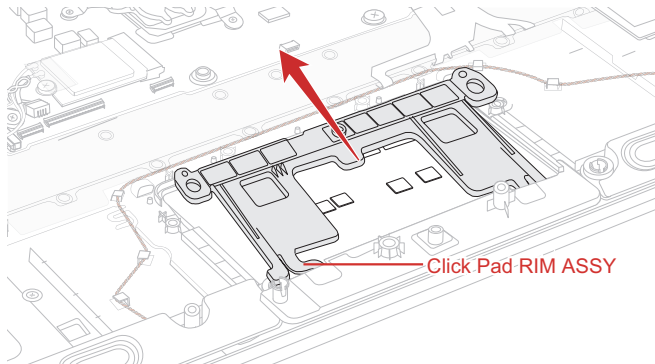
4.15.2 Installing the dual button unit/Click pad

To install the dual button unit and Click pad, follow the steps below and refer to Figure 4-15 to Figure 4-23.

1. Set the **Click Pad RIM ASSY** to the Cover Assembly.

Figure 4-21 Installing the dual button unit/Click pad (1)

Click Pad RIM ASSY
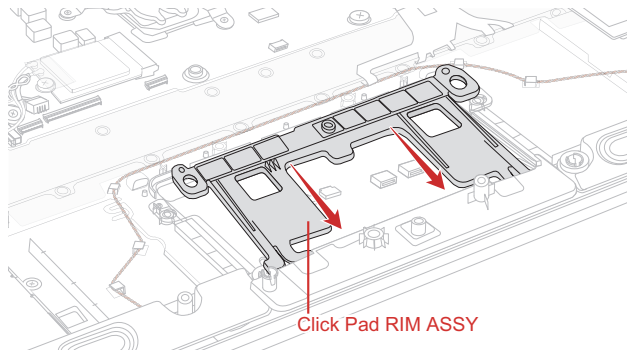
2. Set the **Dual button** to the Cover Assembly in place.
3. Set the **Dual button FPC** to the dual button plat and secure it with the screws.
4. Set the **Dual button plat** to the Cover Assembly and secure it with the screws.
5. Peel off the separator on the new Click Pad RIM ASSY and stick a new **Click pad** to the Cover Assembly.

> For Click Pad without Fingerprint sensor, stick the Click Pad FACE SHEET to the new Click Pad before use.

Figure 4-22 Installing the dual button unit/Click pad (2)
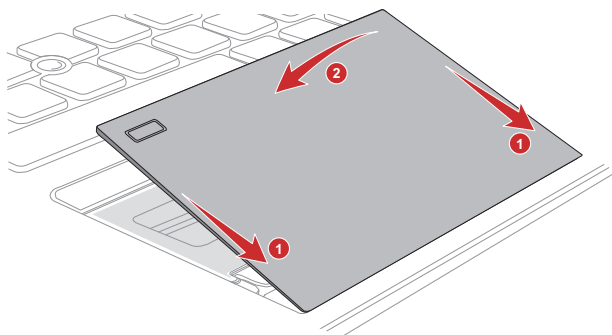
6. Stick a new **GASKET TAPE CPAD** and **SQUARE CUSHION** to the Click pad and Click Pad RIM ASSY.

Figure 4-23 Installing the dual button unit/Click pad (3)
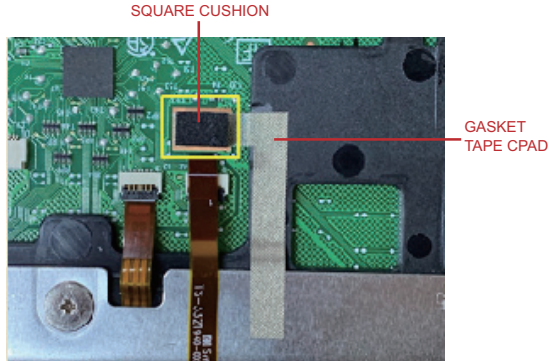
7. Connect the **Dual button FPC** to the connector on the Click Pad. Stick a new stick tape and **INSU D BUTTON PLT** to the dual button plat in place.

8. Connect the **Accupoint FPC** to the connector on the Click Pad.

9. Connect the **Click Pad FFC** and **Fingerprint FFC** to the connector on the Click Pad and the connector **CN9510** and **CN9550** on the **System Board**.

4.16 Speaker

4.16.1 Removing the Speaker

To remove the Speaker, follow the steps below and refer to Figure 4-24 to Figure 4-25.

1. Disconnect the **Speaker harness** from the connector **CN6290** on the system board.

2. Open the stick tape. Release the **Speaker harness** from the guides.

Figure 4-24 Removing the Speaker (1)
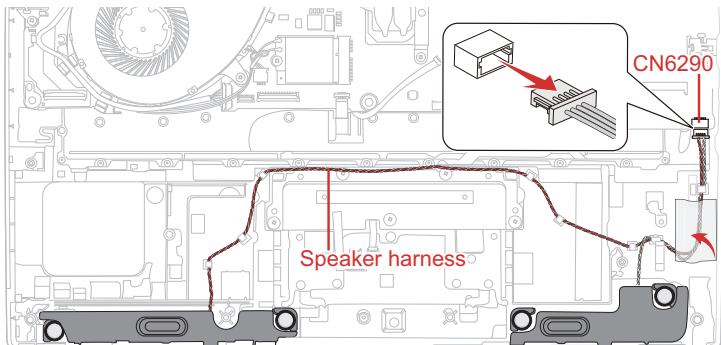
3. Remove the Speaker from the Cover Assembly.

Figure 4-25 Removing the Speaker (2)
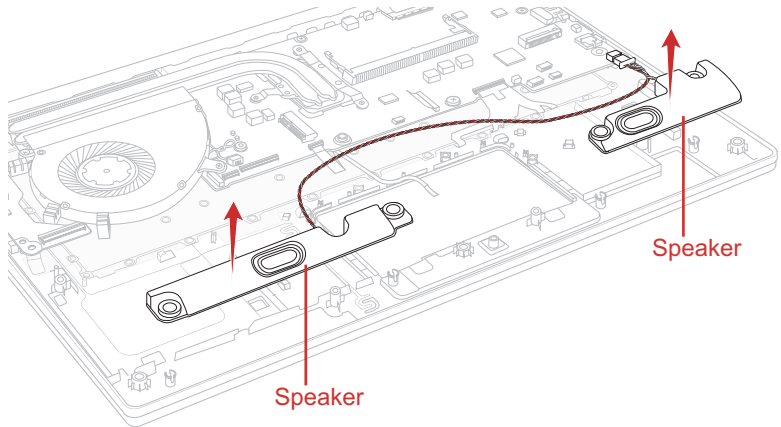
Speaker

Speaker

4.16.2 Installing the Speaker

To install the Speaker, follow the steps below.

1. Set the speakers to the Cover Assembly in place.

Figure 4-26 Installing the Speaker (1)
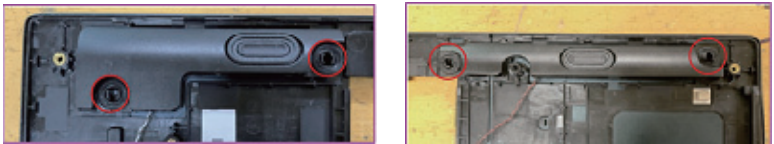
2. Arrange the **Speaker harness** under the guides as shown below.

3. Connect the **Speaker harness** to the connector **CN6290** on the system board.

4. Arrange the rest of **Speaker harness** as shown below, and fix it with new stick stape.

Figure 4-27 Installing the Speaker (2)
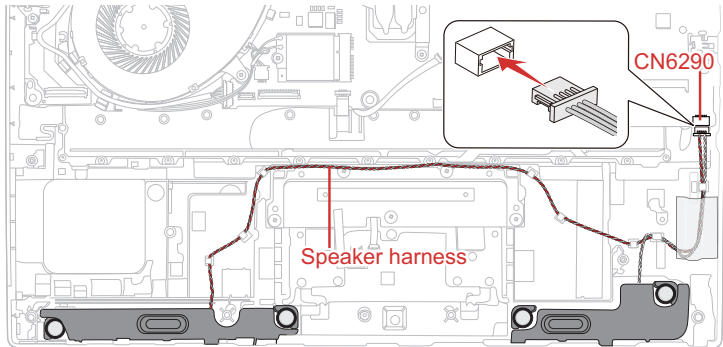
4.17 Wireless LAN card

4.17.1 Removing the Wireless LAN card

To remove the Wireless LAN card, follow the steps below and refer to Figure 4-28.

1. Peel off the **INSU WL**.

2. Disconnect the **Wireless LAN antenna cable** from the connector on the Wireless LAN card (black cable from "**AUX** or "**1**" and black cable with white cover from "**Main**" or "**2**").

3. Disconnect the **Camera harness** from the connector **CN9540** on the system board and release the camera harness from the guides on the Cover Assembly.

4. Release the **Wireless LAN antenna cable** from the guides on the Cover Assembly.

5. Remove the screw securing the **Wireless LAN card**.

6. Disconnect the **Wireless LAN card** from the connector **CN2630** on the **System Board (FSAPSY*)**.

Figure 4-28 Removing the Wireless LAN card
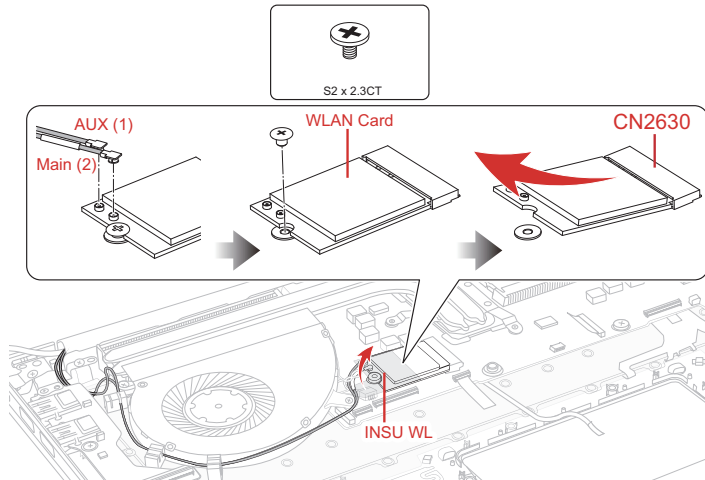
4.17.2 Installing the Wireless LAN card

To install the Wireless LAN card, follow the steps below.

1. Insert the **Wireless LAN card** to the connector **CN2630** on the **System Board (FSAPSY*)** slantwise and press it to connect firmly.

2. Push down the **Wireless LAN card** and secure it with the screw.

3. Arrange the **Wireless LAN antenna cables** and **Camera harness** to the guides as below.

4. Connect the Camera harness to the connector CN9540 on the system board.

5. Connect the **Wireless LAN antenna cables** to the connectors (black cable to "**AUX**" or "**1**" and black cable with white cover to "**Main**" or "**2**") on the **Wireless LAN card**.

Figure 4-29 Installing the Wireless LAN card (1)

Camera harness

Wireless LAN antenna cables
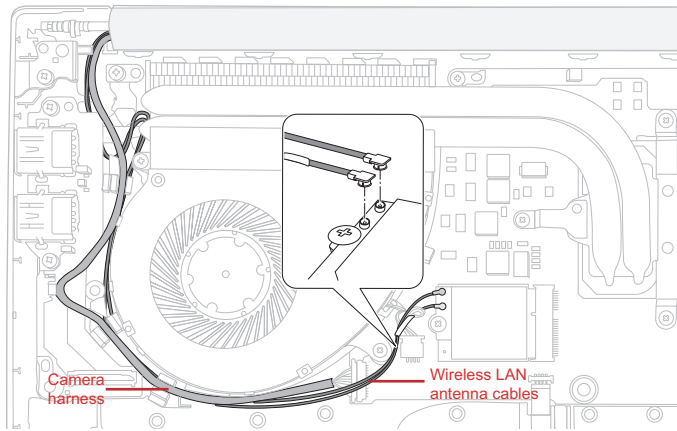
6. Stick a new **INSU WL** in place.

Figure 4-30 Installing the Wireless LAN card (2)

INSU WL

4.18 USB board

4.18.1 Removing the USB board

To remove the USB board, follow the step below and refer to Figure 4-31.

1. Remove the following screws and the USB board from the Cover Assembly.

Figure 4-31 Removing the USB board
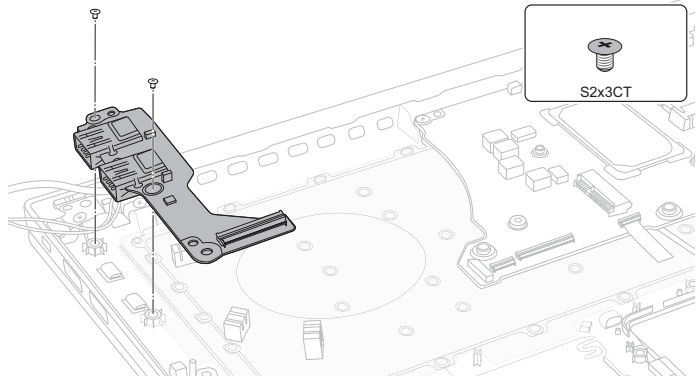
4.18.2 Installing the USB board

To install the USB board (FSAPCN*), follow the step below and refer to Figure 4-31.

When replacing the USB board with a new one, stick one piece of **GUM CUSHION** on the USB board in place.
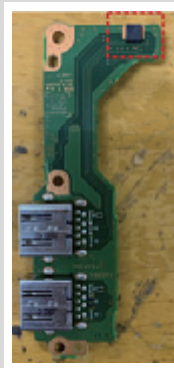
1. Set the **USB board (FSAPCN*)** to the Cover Assembly in place and secure it with the screws.

4.19 Fan

4.19.1 Removing the Fan

To remove the Fan, follow the steps below and refer to Figure 4-32.

1. Disconnect the **Fan harness** from the connector **CN3380** on the **System Board (FSAPSY*)**.

2. Remove the following screws and the **Fan** from the Cover Assembly.

Figure 4-32 Removing the Fan
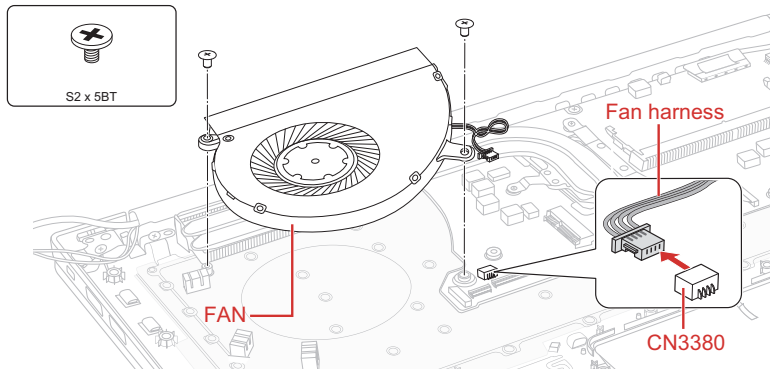
4.19.2 Installing the Fan

To install the Fan, follow the steps below and refer to Figure 4-32.

1. Set the **Fan** in place on the Cover Assembly and secure it with the screws.

2. Connect the **Fan harness** to the connector **CN3380** on the **System Board (FSAPSY*)**.

4.20 Fin

4.20.1 Removing the Fin

To remove the Fin, follow the steps below and refer to Figure 4-33.

1. Remove the following screws and then the **Fin**.

Figure 4-33 Removing the Fin
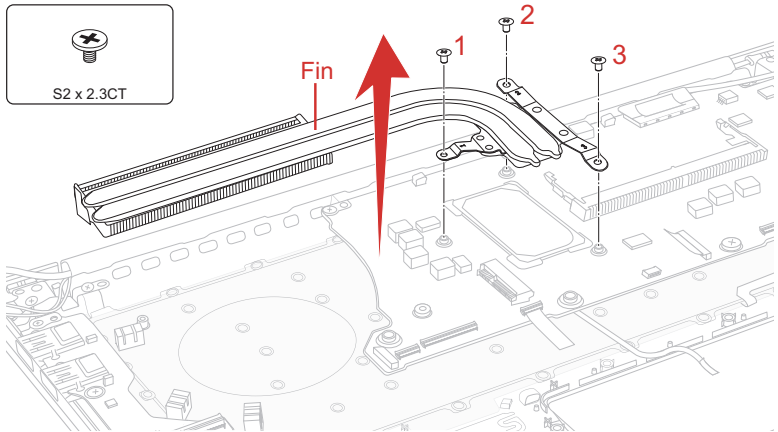
> When removing the Fin, be sure to remove the screws in the reverse order of the number marked on the Fin.

4.20.2 Installing the Fin

To install the Fin, follow the steps below and refer to Figure 4-33.

1. Set the **Fin** in place and secure it with the screws.

> When installing the Fin, be sure to install the screws in the order of the number marked on the Fin.

4.21 System board

> 1. If replacing with a new system board, update the DMI information as described in Chapter 3, *Tests and Diagnostics*. Also update with the latest BIOS and EC/KBC as described in Appendix G, *BIOS Rewrite Procedures*, and Appendix H, *EC/KBC Rewrite Procedures*.
> 2. When replacing the system board with a new one, the ProductKey (MBR-DPK) must be written on the system board.
> 3. When removing/installing the system board, do not handle with the handling prohibition area.
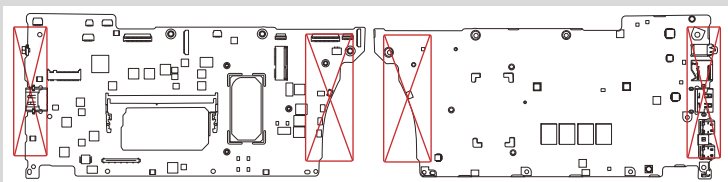
■ When replacing the system board with a new one, stick three pieces of new **GUM CUSHION** and one piece of new **CUSHION LED** on one side of the system board in place.
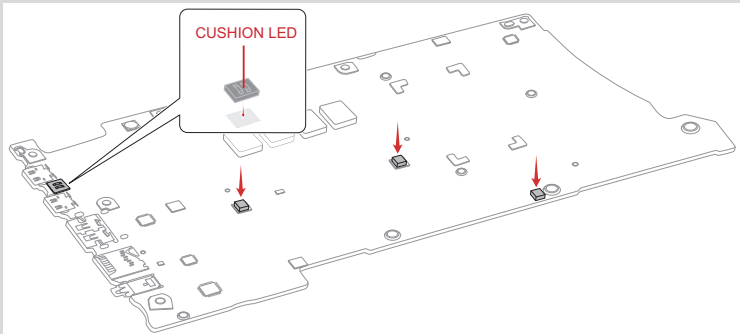
■ When replacing the system board with a new one, stick two pieces of new **COOL SHEET** on the other side of the system board in place.
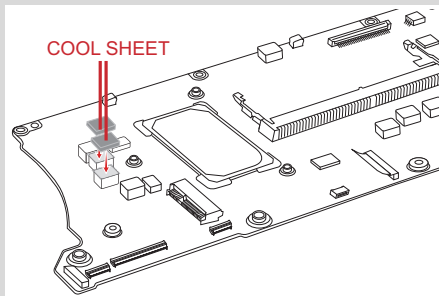
4.21.1 Removing the System board

To remove the system board, follow the steps below and refer to Figure 4-34 to Figure 4-36.

1. Disconnect the **Keyboard FPC** from the connector **CN3260** and **Keyboard Backlight harness** from the connector **CN3240** on the **System Board (FSAPSY*)**.

Figure 4-34 Removing the system board (1)
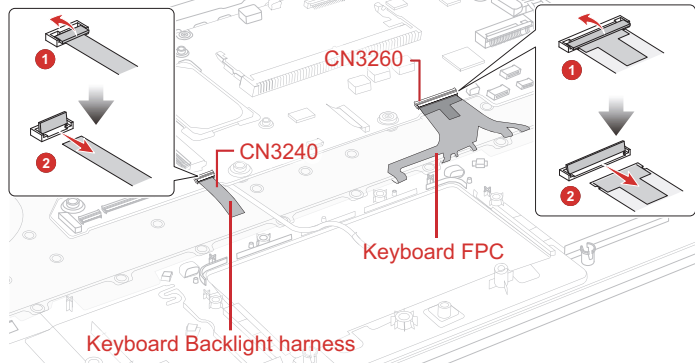
2. Disconnect the **LCD harness** from the connector **CN5390** on the **System Board (FSAPSY*)** and release the harness from the guide on the Cover Assembly.

Figure 4-35 Removing the system board (2)
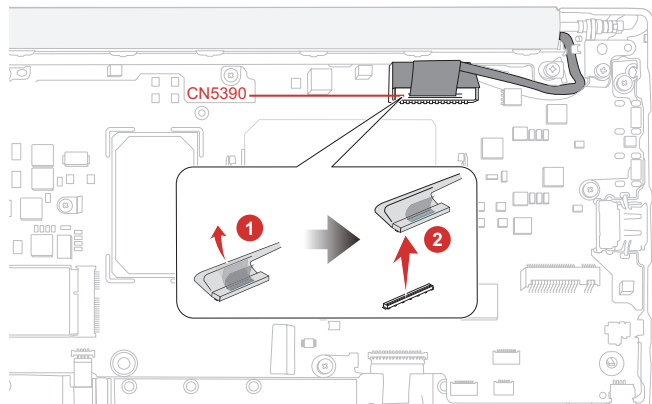
3. Remove the following the screws. Carefully lift up the system board.

Figure 4-36 Removing the system board (3)
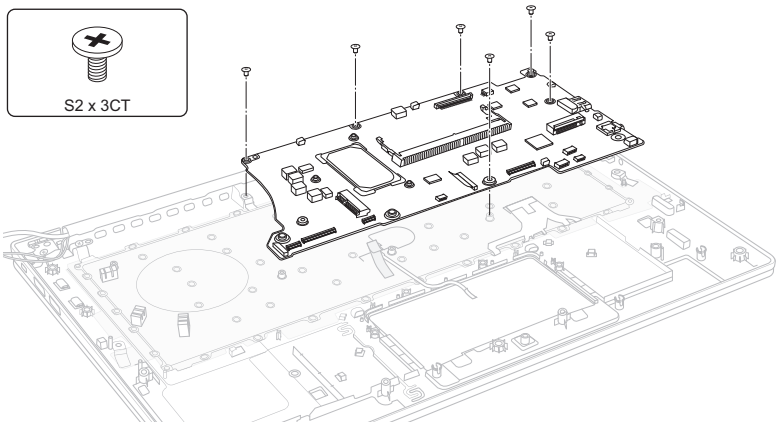
4.21.2 Installing the System board

To install the system board, follow the steps below and refer to Figure 4-34 to Figure 4-37.

1. Set the system board in place.

Figure 4-37 Installing the system board
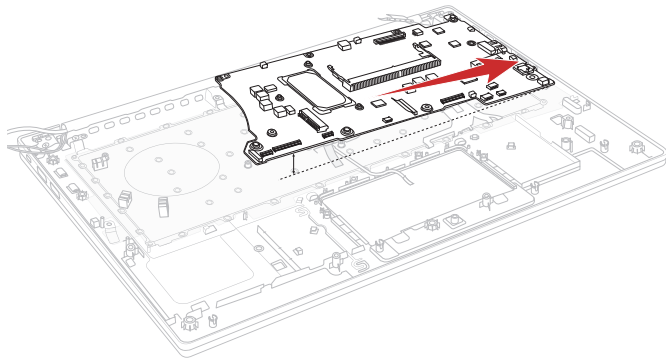
2. Secure the system board with the screws.

3. Connect the LCD harness to the connector **CN5390** on the **System Board (FSAPSY*)** and arrange the harness to the guide on the Cover Assembly.

4. Connect the **Keyboard FPC** to the connector **CN3260** and **Keyboard Backlight harness** to the connector **CN3240** on the **System Board (FSAPSY*)**.

4.22 Keyboard/Cover Assembly

The keyboard is assembled to the Cover Assembly by hot melt glue. When either the keyboard or the Cover Assembly needs to be replaced with a new one, please replace them all with a new set of keyboard and Cover Assembly which are already assembled.

4.22.1 Removing the Keyboard/Cover Assembly

To remove the Keyboard/Cover Assembly, follow the step below and refer to Figure 4-38.

⚠️ As the keytop may fall out, when handling the keyboard, always hold it by the frame and do not touch the key top.

1. Release the following screws and separate the **LCD Assembly** and **Cover Assembly.**

Figure 4-38 Removing the Keyboard/Cover Assembly
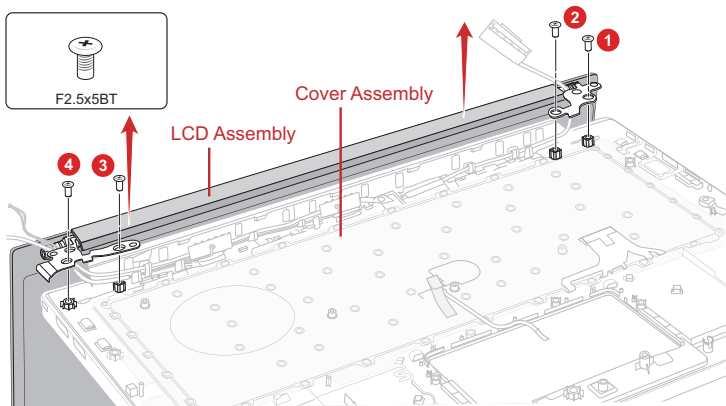
4.22.2 Installing the Keyboard/Cover Assembly

To install the Keyboard/Cover Assembly, follow the step below and refer to Figure 4-38.

1. Set the LCD Assembly on the Cover Assembly and secure them with the screws.

Note: When replacing the Cover Assembly with a new one

■ Stick the **CU LAMI COVER** on the cover assembly in place.

CU LAMI COVER
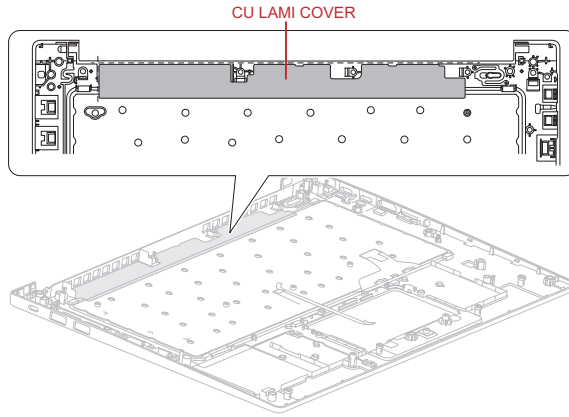
■ Stick the **INSU COVER GRAPHITE** on the cover assembly in place.

INSU COVER GRAPHITE
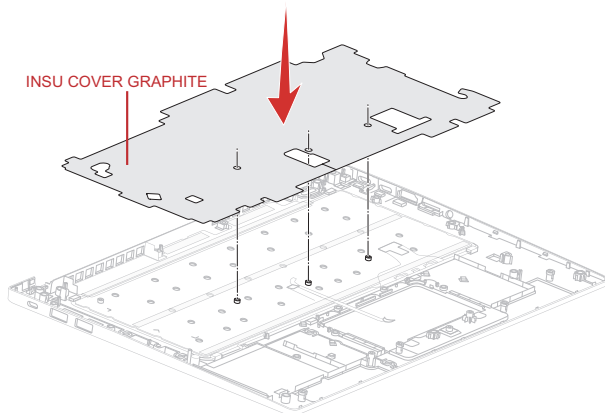
■ Stick one piece of **GUM CUSHION** on the INSU COVER GRAPHITE and three pieces of **RUBBER HNS HLD** on the cover assembly in place.

GUM CUSHION

RUBBER HNS HLD
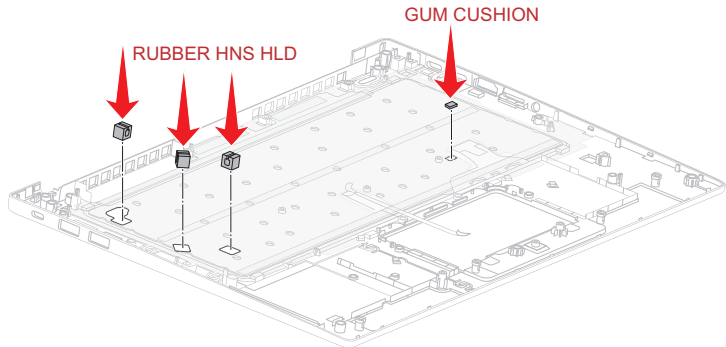
■ **(For Smart Card model)** Stick one piece of **GASKET** on the cover assembly in place.

GASKET
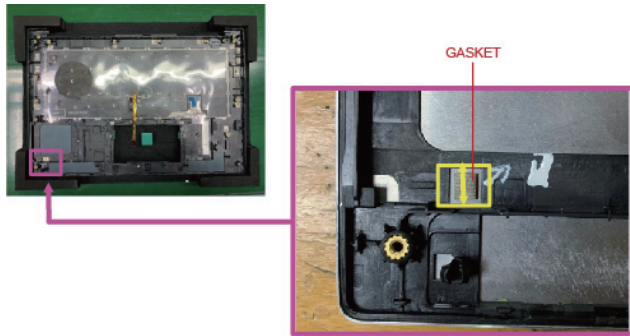
4.23   LCD Assembly

4.23.1   Removing the LCD unit

To remove the LCD unit, follow the steps below and refer to Figure 4-39 to Figure 4-41.

1. Detach the LCD mask from the top side of the LCD cover first. Release the latches from the second one (on the left as marked in the following figure) to the right.

2. Release the latches from the left and right sides and then the bottom side.

Figure 4-39 Removing the LCD unit (1)
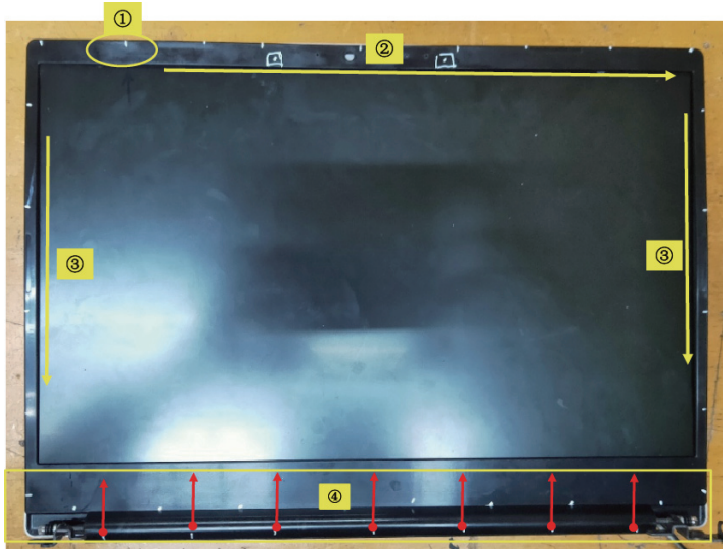
> Do not lift the LCD mask too much from the LCD covers when detaching the LCD mask.

3. Remove the LCD mask.

> The Web Camera Shutter is attached to the LCD mask by magnet. Please be care not to lose it during removing the LCD mask.

Web Camera Shutter
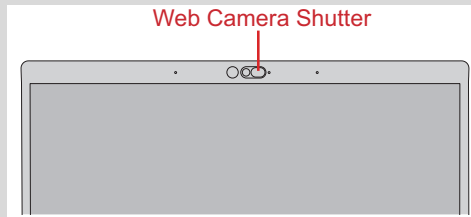
4. Release the LCD harness from the guides on the LCD cover.
5. Grasp the bound & detach tapes and pull out the tapes slowly and parallelly from the LCD cover.

Figure 4-40 Removing the LCD unit (2)
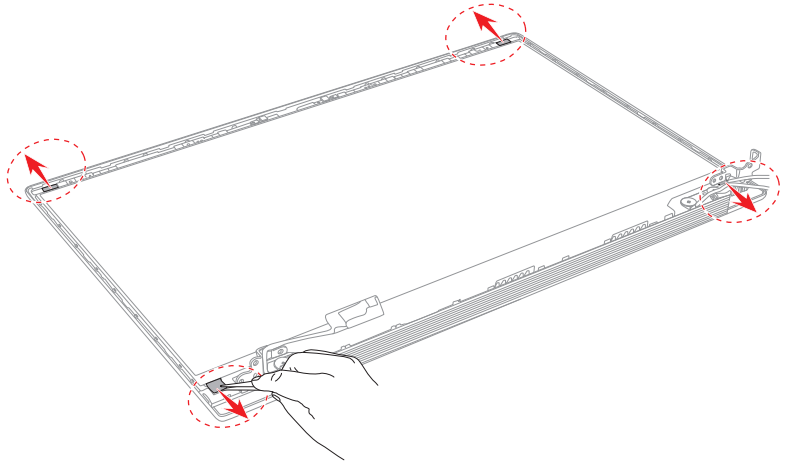
6. Take out the LCD unit.

   Be careful that the LCD harness is connected to the connector on the back of the LCD unit.

7. Peel the pull tape and disconnect the LCD harness from the connector on the LCD unit.

Figure 4-41 Removing the LCD unit (3)
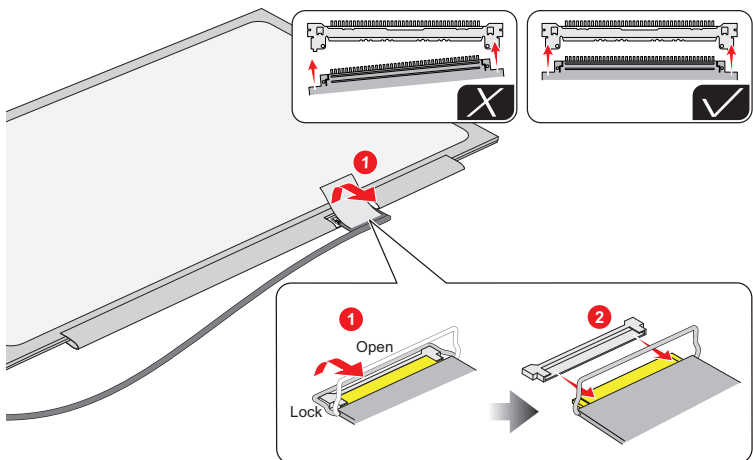
4.23.2 Installing the LCD unit

To install the LCD unit, follow the steps below.

1. Connect the LCD harness to the connector on the LCD unit and secure it with the pull tape and glass tape.

> ⚠️ When connect the LCD harness, make sure to connect the right and left side at the same time as shown in the figure below.
>
>
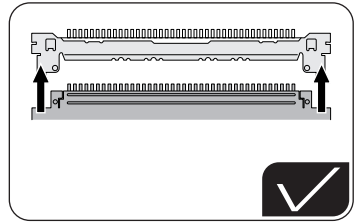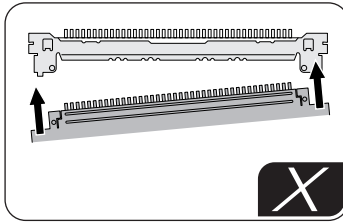
2. Peel off the separators on the bound & detach tapes on the LCD cover.

Figure 4-42 Installing the LCD unit (1)

3. Set the LCD unit in place.
4. Arrange the LCD harness under the guides of the LCD cover.

Figure 4-43 Installing the LCD unit (2)
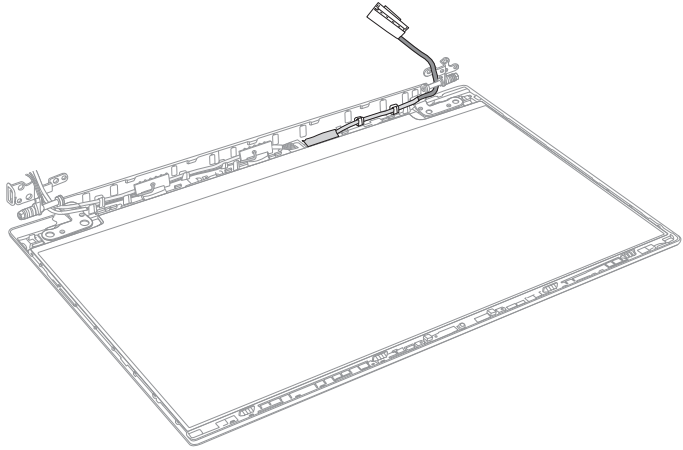
5. Remove the separators of the camera panel and bottom side on the LCD mask.

(For IR camera model) When replacing the LCD mask with a new one, Stick one piece of **SQUARE CUSHION** on the LCD mask in place.
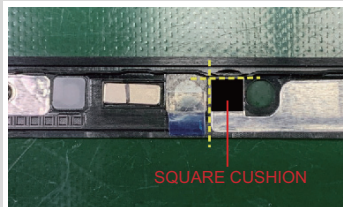
6. Align and install the LCD mask to the bottom side of the LCD cover first.

Figure 4-44 Installing the LCD unit (4)
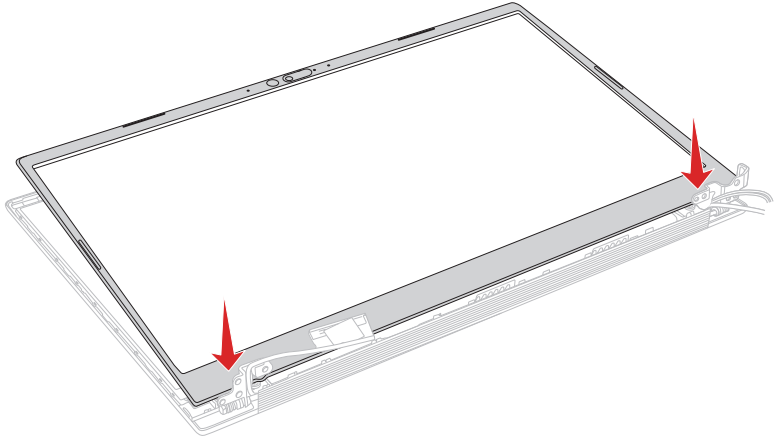
7. Set the LCD mask on the LCD cover while engaging the latches.

Figure 4-45 Installing the LCD unit (5)
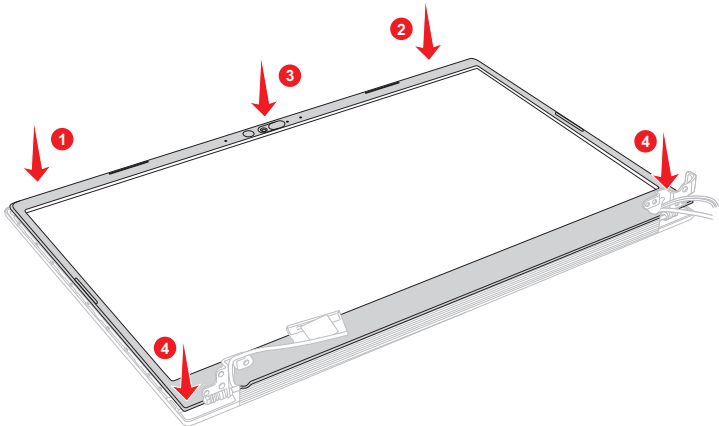
8. Engage all the latches following the order in the figure below.

Figure 4-46 Installing the LCD unit (6)

4.24 Camera module/Wireless antennas

4.24.1 Removing the Camera module

To remove the camera module, follow the steps below and refer to Figure 4-47 to Figure 4-49.

1. Remove two pieces of **GASKET** and peel off two pieces of **AL TAPE** on the camera module.

Figure 4-47 Removing the camera module (1)
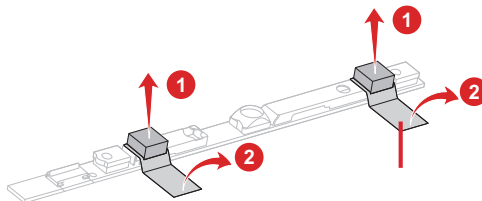
2. Disconnect the camera FPC from the connector on the camera module and peel off the FPC from the LCD cover.

Figure 4-48 Removing the camera module (2)
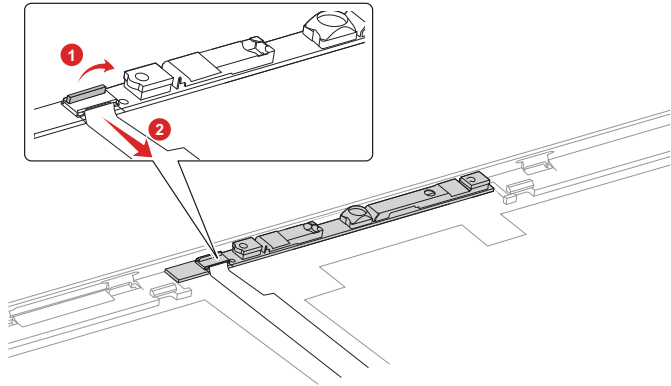
3. Peel off the **camera module** from the LCD cover.

Figure 4-49 Removing the camera module (3)
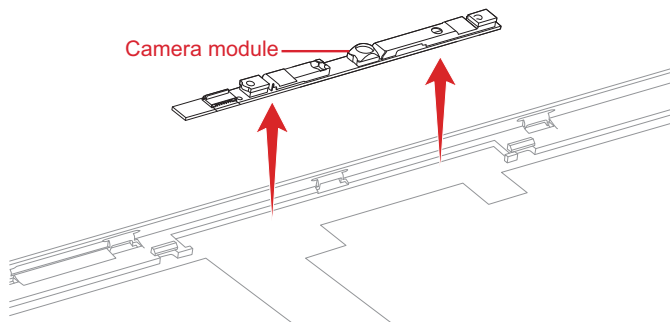
Camera module

Do not reuse the removed camera module. Be sure to use new camera module.

4.24.2 Removing the Wireless LAN antennas

To remove the Wireless LAN antennas, follow the steps below.

1. Release the Wireless LAN antenna cables from the guides on the LCD cover.
2. Peel off the Wireless LAN antennas from the LCD cover.

Do not reuse the removed wireless antennas. Be sure to use new wireless antenna.

4.24.3 Installing the Wireless LAN antennas

To install the Wireless LAN antennas, follow the steps below.

1. Stick new **Wireless LAN antennas (AUX/Main)** in place.

Figure 4-50 Stick Wireless LAN antennas
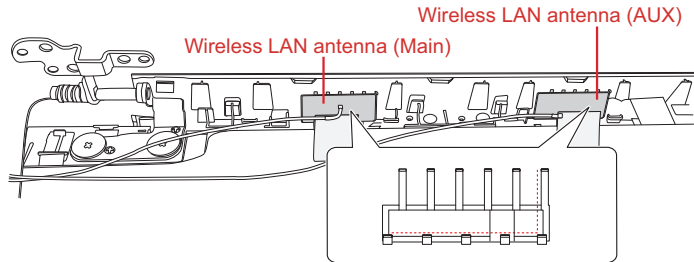
2. Arrange the **Wireless LAN antenna cables** in place as shown in below figure.

Figure 4-51 Arrange Wireless LAN antenna cables
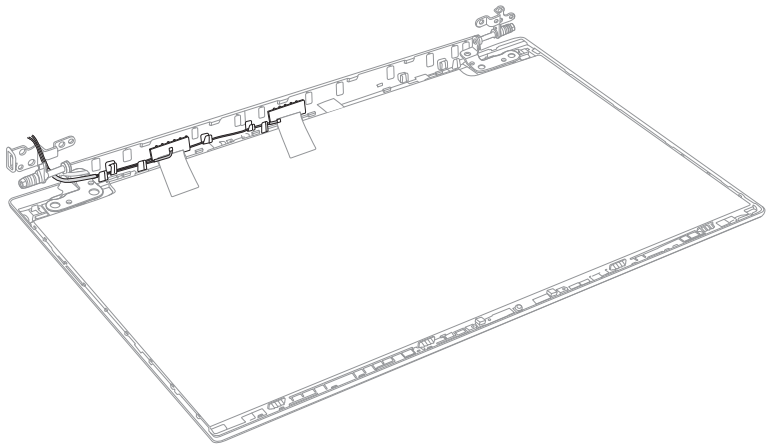
4.24.4 Installing the Camera module

To install the camera module, follow the steps below and refer to .

1. Peel off the protection sheet from a new camera module and stick the **new camera module** to the LCD cover.

2. Stick two pieces of **AL TAPE** on the new camera module.

3. Stick two pieces of **GASKET** on the AL TAPE.

4. Connect the camera FPC to the connector on the camera module.

5. Peel off the separators on the camera FPC and stick the FPC to the LCD cover in place.

6. Arrange the camera harness to the guides on the LCD cover.
Figure 4-52 Installing the Camera module
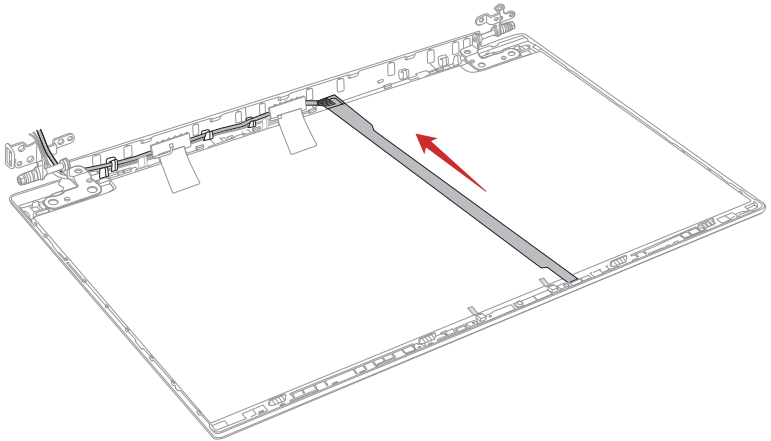
4.25 Display hinges

4.25.1 Removing the display hinges

To remove the display hinges, follow the steps below and refer to Figure 4-53.

1. Release the following screws and remove the left & right hinges.

   - F2.5x3.5BT   x2   (Described as "1" in the figure)
   - SH2.5x2.5BT   x4   (Described as "2" in the figure)

Figure 4-53 Removing the display hinges
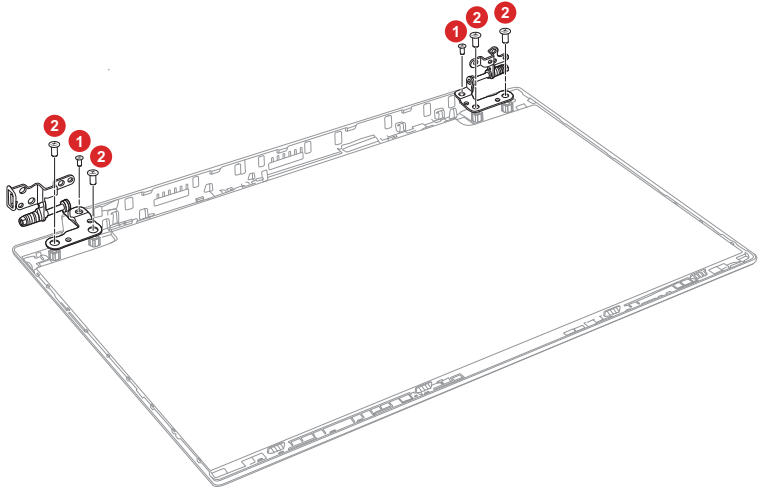
4.25.2 Installing the display hinges

To install the display hinges, follow the steps below and refer to Figure 4-53.

1. Set the left & right hinges and secure them with the screws.

Appendix A

Handling the LCD Module

A.1 Precautions for handling the LCD module

The LCD module can be easily damaged during assembly or disassembly. Observe the following precautions when handling the LCD module:

1. When installing the LCD module in the LCD cover, be sure to seat it so that it is properly aligned and maximum visibility of the display is maintained.
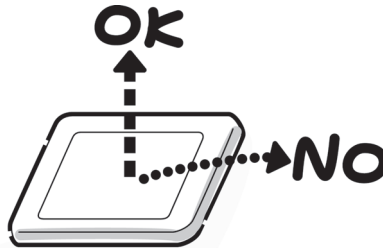
2. Be careful to align the holes at the four corners of the LCD module with the corresponding holes in the LCD cover before securing the module with screws.
Do not force the module into place, because stress can affect its performance.
Also, the panel's polarized surface is easily scarred, so be careful when handling it.

3. If the panel's surface gets dirty, wipe it with cotton or a soft cloth. If it is still dirty, try breathing on the surface to create a light condensate and wipe it again.
If the surface is very dirty, we recommend a CRT cleaning agent. Apply the agent to a cloth and then wipe the panel's surface. Do not apply cleanser directly to the panel.

4. If water or other liquid is left on the panel's surface for a long period, it can change the screen's tint or stain it. Be sure to quickly wipe off any liquid.

5. Glass is used in the panel, so be careful not to drop it or let it strike a hard object, which could cause breakage or cracks.
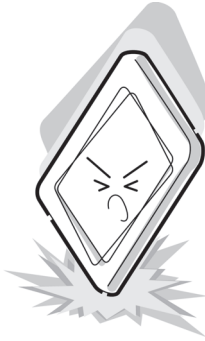
6. CMOS-LSI circuits are used in the module, so guard against damage from electrostatic discharge. Be sure to wear a wrist or ankle ground when handling the module.
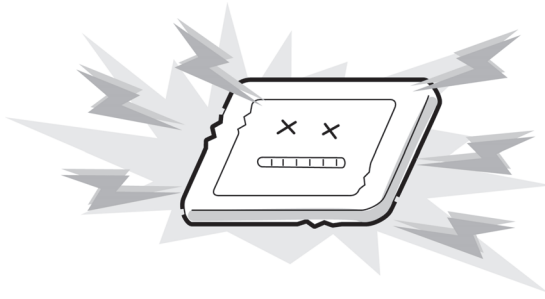
7. Do not expose the module to direct sunlight or strong ultraviolet rays for long periods.

8. Do not store the module at temperatures below specifications. Cold can cause the liquid crystals to freeze, lose their elasticity or otherwise suffer damage.
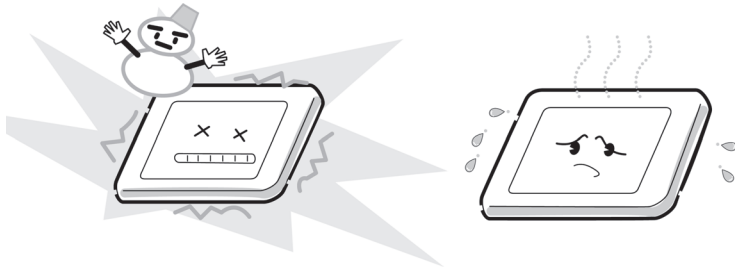
9. Do not disassemble the LCD module. Disassembly can cause malfunctions.
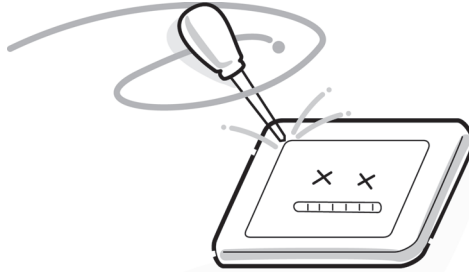
10. If you transport the module, do not use packing material that contains epoxy resin (amine) or silicon glue (alcohol or oxide). These materials can release gas that can damage the panel's polarization.

![dynabook logo]
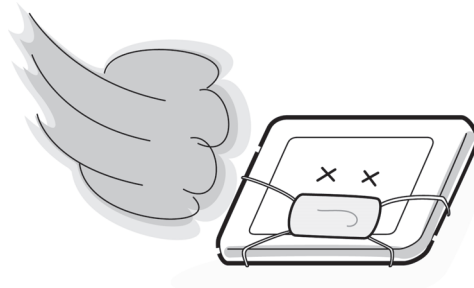
Appendix B

Board Layout

B.1 System Board (FSAPSY*) Front View

Figure B-1 System Board (FSAPSY) layout (front)*
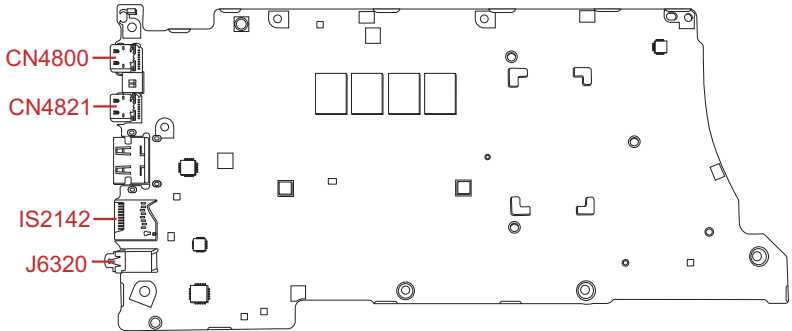
Table B-1 System Board (FSAPSY) connectors (front)*

Number	Name
CN4800	USB Type-C I/F connector
CN4821	USB Type-C I/F connector
IS2142	Micro SD I/F connector
J6350	HeadPhone/Mic jack

B.2 System Board (FSAPSY*) Back View

Figure B-2 System Board (FSAPSY) layout (back)*
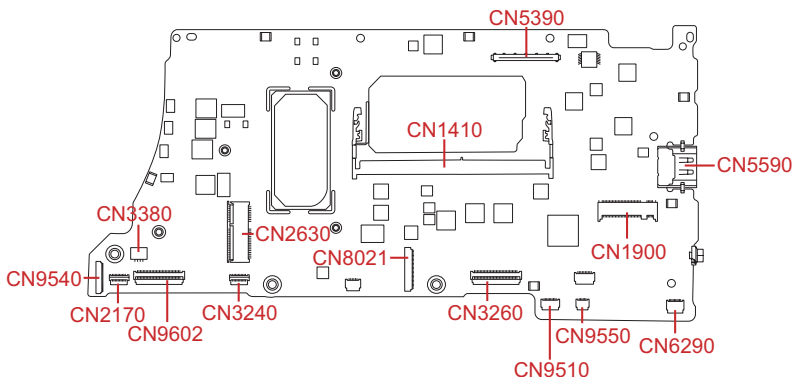
Table B-2 System Board (FSAPSY) connectors (back)*

Number	Name
CN1900	M.2 SSD I/F connector (PCIe)
CN5590	HDMI I/F connector
CN8021	Battery I/F connector
CN2170	SmartCard I/F connector
CN3240	Keyboard backlight I/F connector
CN3260	Keyboard I/F connector
CN9510	Click pad (touch pad) I/F connector
CN9550	Fingerprint sensor I/F connector
CN6290	Speaker I/F connector
CN9602	FSAPCN* board I/F connector
CN9540	Web camera I/F connector
CN5390	LCD I/F connector
CN3380	FAN I/F connector
CN2630	M.2 W-LAN I/F connector
CN1410	DDR4 Memory Slot

B.3 USB board (FSAPCN*) Front View

Figure B-3 USB board (FSAPCN) layout (front)*
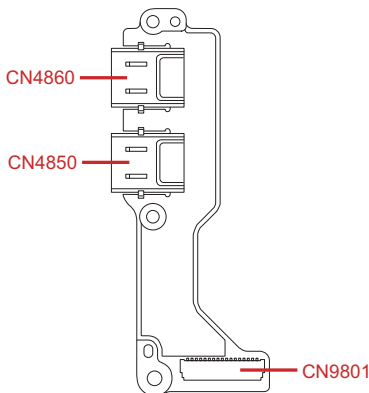
Table B-3 USB board (FSAPCN) connectors (front)*

Number	Name
CN4860	USB Type-A I/F connector
CN4850	USB Type-A I/F connector
CN9801	System Board (FSAPSY*) interface connector

B.4 USB board (FSAPCN*) Back View

Figure B-4 USB board (FSAPCN) layout (back)*

![dynabook logo]
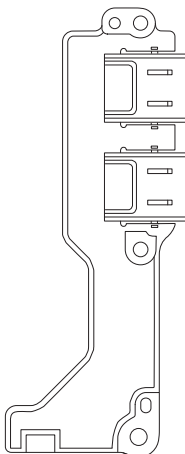
Appendix C

Pin Assignments

C.1   SYSTEM board (FSAPSY*)

C.1.1   CN1410 Memory connector (260-pin)

Table C-1 CN1410 Memory connector (260-pin)

Pin No.	Signal Name	Pin No.	Signal Name
108	MSMRST-B1N	12	1R2-B1V
139	XACK0-B1N	33	1R2-B1V
137	XACK0-B1P	54	1R2-B1V
140	XACK1-B1N	75	1R2-B1V
138	XACK1-B1P	178	1R2-B1V
109	ACKE0-B1P	199	1R2-B1V
110	ACKE1-B1P	220	1R2-B1V
155	AODT0-B1P	241	1R2-B1V
161	AODT1-B1P	96	1R2-B1V
149	ACS0-B1N	11	ADQS6-B1N
157	ACS1-B1N	13	ADQS6-B1P
162	NC	32	ADQS7-B1N
165	NC	34	ADQS7-B1P
114	AACT-B1N	53	ADQS3-B1N
115	ABG0-B1P	55	ADQS3-B1P
113	ABG1-B1P	74	ADQS1-B1N
144	AMA00-B1P	76	ADQS1-B1P
133	AMA01-B1P	177	ADQS2-B1N
132	AMA02-B1P	179	ADQS2-B1P
131	AMA03-B1P	198	ADQS0-B1N
128	AMA04-B1P	200	ADQS0-B1P
126	AMA05-B1P	219	ADQS4-B1N
127	AMA06-B1P	221	ADQS4-B1P
122	AMA07-B1P	240	ADQS5-B1N
125	AMA08-B1P	242	ADQS5-B1P
121	AMA09-B1P	95	SIG2625
146	AMA10-B1P	97	SIG2624
120	AMA11-B1P	143	APAR-B1P
119	AMA12-B1P	8	ADQ64-B1P
158	AMA13-B1P	7	ADQ67-B1P
151	AMA14-B1P	20	ADQ60-B1P
156	AMA15-B1P	21	ADQ61-B1P
152	AMA16-B1P	4	ADQ65-B1P
150	ABA0-B1P	3	ADQ66-B1P
145	ABA1-B1P	16	ADQ63-B1P

Pin No.	Signal Name	Pin No.	Signal Name
17	ADQ62-B1P	207	ADQ02-B1P
28	ADQ77-B1P	208	ADQ01-B1P
29	ADQ71-B1P	191	ADQ05-B1P
41	ADQ72-B1P	190	ADQ06-B1P
42	ADQ74-B1P	203	ADQ03-B1P
24	ADQ75-B1P	204	ADQ00-B1P
25	ADQ70-B1P	216	ADQ40-B1P
38	ADQ76-B1P	215	ADQ42-B1P
37	ADQ73-B1P	228	ADQ45-B1P
50	ADQ33-B1P	229	ADQ47-B1P
49	ADQ37-B1P	211	ADQ41-B1P
62	ADQ31-B1P	212	ADQ43-B1P
63	ADQ34-B1P	224	ADQ44-B1P
46	ADQ30-B1P	225	ADQ46-B1P
45	ADQ35-B1P	237	ADQ51-B1P
58	ADQ32-B1P	236	ADQ50-B1P
59	ADQ36-B1P	249	ADQ54-B1P
70	ADQ15-B1P	250	ADQ56-B1P
71	ADQ10-B1P	232	ADQ52-B1P
83	ADQ17-B1P	233	ADQ53-B1P
84	ADQ11-B1P	245	ADQ55-B1P
66	ADQ14-B1P	246	ADQ57-B1P
67	ADQ16-B1P	116	AALERT-B1N
79	ADQ13-B1P	92	NC
80	ADQ12-B1P	91	NC
174	ADQ23-B1P	101	NC
173	ADQ27-B1P	105	NC
187	ADQ26-B1P	88	NC
186	ADQ20-B1P	87	NC
170	ADQ21-B1P	100	NC
169	ADQ25-B1P	104	NC
183	ADQ24-B1P	1	GND
182	ADQ22-B1P	2	GND
195	ADQ04-B1P	5	GND
194	ADQ07-B1P	6	GND

Pin No.	Signal Name	Pin No.	Signal Name
9	GND	89	GND
10	GND	90	GND
14	GND	93	GND
15	GND	94	GND
18	GND	98	GND
19	GND	99	GND
22	GND	102	GND
23	GND	103	GND
26	GND	106	GND
27	GND	107	GND
30	GND	167	GND
31	GND	168	GND
35	GND	171	GND
36	GND	172	GND
39	GND	175	GND
40	GND	176	GND
43	GND	180	GND
44	GND	181	GND
47	GND	184	GND
48	GND	185	GND
51	GND	188	GND
52	GND	189	GND
56	GND	192	GND
57	GND	193	GND
60	GND	196	GND
61	GND	197	GND
64	GND	201	GND
65	GND	202	GND
68	GND	205	GND
69	GND	206	GND
72	GND	209	GND
73	GND	210	GND
77	GND	213	GND
78	GND	214	GND
81	GND	217	GND
82	GND	218	GND
85	GND	222	GND
86	GND	223	GND

Pin No.	Signal Name	Pin No.	Signal Name
226	GND	117	1R2-B1V
227	GND	123	1R2-B1V
230	GND	129	1R2-B1V
231	GND	136	1R2-B1V
234	GND	142	1R2-B1V
235	GND	148	1R2-B1V
238	GND	154	1R2-B1V
239	GND	160	1R2-B1V
243	GND	112	1R2-B1V
244	GND	118	1R2-B1V
247	GND	124	1R2-B1V
248	GND	130	1R2-B1V
251	GND	164	AVREFCA-B0V
252	GND	257	2R5-B2V
1T	GND	259	2R5-B2V
2T	GND	255	P3V
135	1R2-B1V	256	GND
141	1R2-B1V	260	ASA1-P3P
147	1R2-B1V	166	GND
153	1R2-B1V	253	SMBCLK-P3P
159	1R2-B1V	254	SMBDAT-P3P
163	1R2-B1V	258	0R6-P0V
111	1R2-B1V	134	SIG2714

C.1.2 CN1900 M.2 SSD interface connector

Table C-2 CN1900 M.2 SSD interface connector

Pin No.	Signal Name	Pin No.	Signal Name
1	GND	10	NC
3	GND	20	NC
5	ZERSS3-E1N	22	NC
7	ZERSS3-E1P	24	NC
9	GND	26	NC
11	ZETSS3-E1N	28	NC
21	GND	30	NC
23	ZETSS2-E1N	32	NC
25	ZETSS2-E1P	34	NC
27	GND	36	NC
29	ZERSS1-E1N	38	DVSLP1-E1P
31	ZERSS1-E1P	40	NC
33	GND	42	NC
35	ZETSS1-E1N	44	NC
37	ZETSS1-E1P	46	NC
39	GND	48	NC
41	ZERSS0-E1P	50	BBPRST-E3N
43	ZERSS0-E1N	52	SSDXRQ-P3N
45	GND	54	NC
47	ZETSS0-E1N	56	NC
49	ZETSS0-E1P	58	NC
51	GND	68	NC
53	XSDPCI-E0N	70	P3V
55	XSDPCI-E0P	72	P3V
57	GND	74	P3V
67	NC	19	ZERSS2-E1P
69	PEDET-P3P	17	ZERSS2-E1N
71	GND	15	GND
73	GND	13	ZETSS3-E1P
75	GND	12	P3V
2	P3V	14	P3V
4	P3V	16	P3V
6	NC	18	P3V
8	NC		
1T	GND	2T	GND

C.1.3 CN2630 WLAN interface connector

Table C-3 CN2630 WLAN interface connector

Pin No.	Signal Name	Pin No.	Signal Name
1	GND	2	WLAN-E3V
3	ZUSBBT-E3P	4	WLAN-E3V
5	ZUSBBT-E3N	6	NC
7	GND	8	NC
9	ZCNVR1-E1N	10	CRFRST-E1N
11	ZCNVR1-E1P	12	NC
13	GND	14	PCMXRQ-E1N
15	ZCNVR0-E1N	16	NC
17	ZCNVR0-E1P	18	GND
19	GND	20	NC
21	XCNVRC-E1N	22	BRIRSP-E1P
23	XCNVRC-E1P	32	RGIDBT-E1P
33	GND	34	RGIRSP-E1P
35	ZETWL-E1P	36	BRIDBT-E1P
37	ZETWL-E1N	38	CLRST1-E3N
39	GND	40	CLDAT1-E1P
41	ZERWL-E1P	42	XCLCK1-E1P
43	ZERWL-E1N	44	NC
45	GND	46	NC
47	XPEWL-E0P	48	NC
49	XPEWL-E0N	50	XSUSCK-E3P
51	GND	52	BBPRST-E3N
53	WLXRQ-P3N	54	BTRFON-E3P
55	SIG1876	56	WLRFON-E3P
57	GND	58	NC
59	ZCNVT1-E1N	60	NC
61	ZCNVT1-E1P	62	NC
63	GND	64	NC
65	ZCNVT0-E1N	66	NC
67	ZCNVT0-E1P	68	NC
69	GND	70	NC
71	XCNVTC-E1N	72	WLAN-E3V
73	XCNVTC-E1P	74	WLAN-E3V
75	GND		
1T	GND	2T	GND

C.1.4 CN3260 KB interface connector (30-pin)

Table C-4 CN3260 KB interface connector (30-pin)

Pin No.	Signal Name	Pin No.	Signal Name
15	KBSC00-S3N	30	KBSC14-S3N
14	NC	29	KBSC13-S3N
13	KBRT00-S3N	28	KBSC12-S3N
12	KBRT07-S3N	27	KBSC15-S3N
11	KBRT04-S3N	26	KBSC07-S3N
10	KBRT01-S3N	25	KBSC11-S3N
9	KBRT05-S3N	24	KBSC01-S3N
8	KBRT03-S3N	23	KBSC10-S3N
7	KBRT02-S3N	22	KBSC08-S3N
6	KBRT06-S3N	21	KBSC06-S3N
4	SIG77902	20	KBSC04-S3N
3	CAPLED-C	19	KBSC05-S3N
2	KBSEL-E1N	18	KBSC02-S3N
1	GND	17	KBSC03-S3N
5	NC	16	KBSC09-S3N
1T	GND	2T	GND

C.1.5 CN3240 KB Backlight interface connector (4-pin)

Table C-5 CN3240 KB Backlight interface connector (4-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	KBBKLT-P5V	2	SIG433
3	KBBLDT-P3N	4	GND
1T	GND	2T	GND

C.1.6   CN3380 FAN interface connector (4-pin)

Table C-6 CN3380 FAN interface connector (4-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	P5V	2	FANG0-P3P
3	GND	4	FPWM0-P5P
1T	GND	2T	GND

C.1.7   CN4800 USB Type-C interface connector (24-pin)

Table C-7 CN4800 USB Type-C interface connector (24-pin)

Pin No.	Signal Name	Pin No.	Signal Name
A11	ZSS0R0-E0P	B1	GND
A10	ZSS0R0-E0N	B2	ZSS0T0-E0P
A9	SIG4443	B3	ZSS0T0-E0N
A8	ZP1SB2-EXP	B4	SIG4443
A7	ZUSBB1-E3N	B5	SIG4446
A6	ZUSBB1-E3P	B6	ZUSBT1-E3P
A5	PA1CC2-SXP	B7	ZUSBT1-E3N
A4	SIG4443	B8	ZP1SB1-EXP
A3	ZSS0T1-E0N	B9	SIG4443
A2	ZSS0T1-E0P	B10	ZSS0R1-E0N
A1	GND	B11	ZSS0R1-E0P
A12	GND	B12	GND
1T	GND	3T	GND
2T	GND	4T	GND

C.1.8 CN4821 USB Type-C interface connector (24-pin)

Table C-8 CN4821 USB Type-C interface connector (24-pin)

Pin No.	Signal Name	Pin No.	Signal Name
A11	ZSS1R0-E0P	B1	GND
A10	ZSS1R0-E0N	B2	ZSS1T0-E0P
A9	SIG4481	B3	ZSS1T0-E0N
A8	ZP2SB2-EXP	B4	SIG4481
A7	ZUSBB2-E3N	B5	SIG4483
A6	ZUSBB2-E3P	B6	ZUSBT2-E3P
A5	PA2CC2-SXP	B7	ZUSBT2-E3N
A4	SIG4481	B8	ZP2SB1-EXP
A3	ZSS1T1-E0N	B9	SIG4481
A2	ZSS1T1-E0P	B10	ZSS1R1-E0N
A1	GND	B11	ZSS1R1-E0P
A12	GND	B12	GND
1T	GND	3T	GND
2T	GND	4T	GND

C.1.9 CN5590 HDMI port (19-pin)

Table C-9 CN5590 HDMI port (19-pin)

Pin No.	Signal Name	Pin No.	Signal Name
19	SIG8622	9	ZHD1T0-P3N
18	HDMI1-P5V	8	GND
17	GND	7	ZHD1T0-P3P
16	DDBSDA-P3P	6	ZHD1T1-P3N
15	DDBSCL-P3P	5	GND
14	NC	4	ZHD1T1-P3P
13	NC	3	ZHD1T2-P3N
12	XHD1CK-P3N	2	GND
11	GND	1	ZHD1T2-P3P
10	XHD1CK-P3P		
1T	GND	2T	GND
3T	GND	4T	GND

C.1.10 CN9540 Web camera interface connector

Table C-10 CN9540 Web camera interface connector

Pin No.	Signal Name	Pin No.	Signal Name
12	GND	6	CAMDET-P3N
11	SIG9711	5	XDMCL2-P3P
10	SIG9710	4	CRFRST-E1N
9	GND	3	P3V
8	GND	2	P3V
7	GND	1	P3V
1T	GND	2T	GND

C.1.11 CN5390 LCD interface connector

Table C-11 CN5390 LCD interface connector

Pin No.	Signal Name	Pin No.	Signal Name
40	GND	20	PVCEN-P3P
39	P5V	19	PNL-P3V
38	P5V	18	PNL-P3V
37	TP-P3V	17	PNL-P3V
36	TP-P3V	16	PNL-P3V
35	GND	15	ZEDPAU-P1N
34	TPNLDT-P3N	14	ZEDPAU-P1P
33	SIG8191	13	GND
32	GND	12	ZEDPA0-P1P
31	SIG8184	11	ZEDPA0-P1N
30	SIG8185	10	GND
29	SIG9778	9	ZEDPA1-P1P
28	SIG9778	8	ZEDPA1-P1N
27	BKLPWM-P3P	7	GND
26	BLEN-E3P	6	ZEDPA2-P1P
25	GND	5	ZEDPA2-P1N
24	GND	4	GND
23	EDPHPD-P3P	3	ZEDPA3-P1P
22	GND	2	ZEDPA3-P1N
21	GND	1	GND
1T	GND	2T	GND
3T	GND	4T	GND
5T	GND	6T	GND
7T	GND	8T	GND
9T	GND	10T	GND
11T	GND		

C.1.12 CN8021 Battery connector (17-pin)

Table C-12 CN8021 Battery connector (17-pin)

Pin No.	Signal Name	Pin No.	Signal Name
17	AVBAT1	8	ESDA-S3P
16	AVBAT1	7	ESCL-S3P
15	AVBAT1	6	GND
14	AVBAT1	5	GND
13	AVBAT1	4	GND
12	AVBAT1	3	GND
11	SIG10082	2	GND
10	SIG9262	1	GND
9	BDET-S3N		
1T	GND	2T	GND

C.1.13 CN9510 Click pad interface connector (10-pin)

Table C-13 CN9510 Click pad interface connector (10-pin)

Pin No.	Signal Name	Pin No.	Signal Name
10	I2CCK0-P3P	5	GND
9	GND	4	IPDCLK-P3P
8	I2CDT0-P3P	3	GND
7	CPDDIS-S3N	2	PDTINT-P3N
6	IPDDAT-P3P	1	P3V
1T	GND	2T	GND

C.1.14 CN9550 Fingerprint Sensor interface connector (6-pin)

Table C-14 CN9550 Fingerprint Sensor interface connector (6-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	GND	2	GND
3	ZUSBFS-E3P	4	ZUSBFS-E3N
5	FSDET-E3P	6	FS-E3V
1T	GND	2T	GND

C.1.15 CN2170 SmartCard slot (10-pin)

Table C-15 CN2170 SmartCard slot (10-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	SMCD-P5V	2	NC
3	SIG8781	4	BBPRST-E3NN
5	GND	6	SIG6191
7	SIG6190	8	GND
9	SCRMDL-P3N	10	GND
1T	GND	2T	GND

C.1.16 CN6290 L/F Speaker connector

Table C-16 CN6290 L/F Speaker connector

Pin No.	Signal Name	Pin No.	Signal Name
1	SPOTL-PXN	2	SPOTL-PXP
3	SPOTR-PXP	4	SPOTR-PXN
1T	GND	2T	GND

C.1.17 CN9602 FSAPCN* interface connector

Table C-17 CN9602 FSAPCN* interface connector

Pin No.	Signal Name	Pin No.	Signal Name
40	E5V	20	ZU3D2R-E1P
39	E5V	19	ZU3D2R-E1N
38	E5V	18	GND
37	E5V	17	ZUSBP4-E3P
36	E5V	16	ZUSBP4-E3N
35	E5V	15	GND
34	E5V	14	USBON2-S3P
33	E5V	13	USBOC2-E3N
32	E5V	12	GND
31	E5V	11	ZUSBE3-E3P
30	E5V	10	ZUSBE3-E3N
29	E5V	9	GND
28	NC	8	ZU3D1R-E1P
27	GND	7	ZU3D1R-E1N
26	GND	6	GND
25	GND	5	ZU3D1T-E1P
24	GND	4	ZU3D1T-E1N
23	ZU3D2T-E1P	3	GND
22	ZU3D2T-E1N	2	USCON1-S3N
21	GND	1	USBOC1-E3N
1T	GND	2T	GND

C.1.18 IS2142 Micro SD Card interface connector (13-pin)

Table C-18 IS2142 Micro SD Card interface connector (13-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	SDAT2-P3P	2	SDAT3-P3P
3	SDCMD-P3P	4	FMC-P3V
5	SDCLK-P3P	6	GND
7	SDAT0-P3P	8	SDAT1-P3P
9	SDCD-P3N	10	GND
11	GND	12	GND
13	GND		

C.1.19 J6320 Headphone/Microphone jack (6-pin)

Table C-19 J6320 Headphone/Microphone jack (6-pin)

Pin No.	Signal Name	Pin No.	Signal Name
1	HEADL-PXP	2	HEADR-PXP
3	RING2-PXP	4	SLEEVE-PXP
5	A-GND	6	DETECT-P3N
1T	A-GND		

C.2 USB board (FSAPCN*)

C.2.1 CN4850 USB Type-A interface connector

Table C-20 CN4850 USB Type-A interface connector

Pin No.	Signal Name	Pin No.	Signal Name
1	US3PS1-E5V	2	SIG359
3	SIG358	4	GND
5	ZU3D1R-E1N	6	ZU3D1R-E1P
7	GND	8	SIG1238
9	SIG1236		
1T	GND	2T	GND
3T	GND	4T	GND

C.2.2 CN4860 USB Type-A interface connector

Table C-21 CN4860 USB Type-A interface connector

Pin No.	Signal Name	Pin No.	Signal Name
1	US3PS2-E5V	2	SIG363
3	SIG360	4	GND
5	ZU3D2R-E1N	6	ZU3D2R-E1P
7	GND	8	SIG1248
9	SIG1246		
1T	GND	2T	GND
3T	GND	4T	GND

C.2.3 CN9801 FSAPSY* interface connector

Table C-22 CN9801 FSAPSY interface connector*

Pin No.	Signal Name	Pin No.	Signal Name
40	USBOC1-E3N	20	GND
39	USCON1-S3N	19	ZU3D2T-E1N
38	GND	18	ZU3D2T-E1P
37	ZU3D1T-E1N	17	GND
36	ZU3D1T-E1P	16	GND
35	GND	15	GND
34	ZU3D1R-E1N	14	GND
33	ZU3D1R-E1P	13	NC
32	GND	12	E5V
31	ZUSBE3-E3N	11	E5V
30	ZUSBE3-E3P	10	E5V
29	GND	9	E5V
28	USBOC2-E3N	8	E5V
27	USBON2-S3P	7	E5V
26	GND	6	E5V
25	ZUSBP4-E3N	5	E5V
24	ZUSBP4-E3P	4	E5V
23	GND	3	E5V
22	ZU3D2R-E1N	2	E5V
21	ZU3D2R-E1P	1	E5V
1T	GND	2T	GND

Appendix D

Keyboard Scan/Character Codes

D.1 Scan Codes

Table D-1 Scan codes (set 1 and set 2)

Cap No.	Keytop	Code set 1		Code set 2			Note
		Make	**Break**	**Make**	**Break**		
01	' ~	29	A9	0E	F0	0E	
02	1 !	02	82	16	F0	16	
03	2 @	03	83	1E	F0	1E	
04	3 #	04	84	26	F0	26	
05	4 $	05	85	25	F0	25	
06	5 %	06	86	2E	F0	2E	
07	6 ^	07	87	36	F0	36	
08	7 &	08	88	3D	F0	3D	*2
09	8 *	09	89	3E	F0	3E	*2
10	9 (	0A	8A	46	F0	46	*2
11	0)	0B	8B	45	F0	45	
12	- _	0C	8C	4E	F0	4E	
13	= +	0D	8D	55	F0	55	

Cap No.	Keytop	Code set 1		Code set 2			Note
		Make	**Break**	**Make**	**Break**		
15	BkSp	0E	8E	66	F0	66	
16	Tab	0F	8F	0D	F0	0D	
17	Q	10	90	15	F0	15	
18	W	11	91	1D	F0	1D	
19	E	12	92	24	F0	24	
20	R	13	93	2D	F0	2D	
21	T	14	94	2C	F0	2C	
22	Y	15	95	35	F0	35	
23	U	16	96	3C	F0	3C	*2
24	I	17	97	43	F0	43	*2
25	O	13	98	44	F0	44	*2
26	P	19	99	4D	F0	4D	*2
27	[{	1A	9A	54	F0	54	
28	] }	1B	9B	5B	F0	5B	
29	\		2B	AB	5D	F0	5D	*5
30	Caps Lock	3A	BA	58	F0	58	
31	A	1E	9E	1C	F0	1C	
32	S	1F	9F	1B	F0	1B	
33	D	20	A0	23	F0	23	
34	F	21	A1	2B	F0	2B	
35	G	22	A2	34	F0	34	
36	H	23	A3	33	F0	33	
37	J	24	A4	3B	F0	3B	*2
38	K	25	A5	42	F0	42	*2
39	L	26	A6	4B	F0	4B	*2
40	; :	27	A7	4C	F0	4C	*2
41	' "	28	A8	52	F0	52	
43	Enter	1C	9C	5A	F0	5A	*3
44	Shift (L)	2A	AA	12	F0	12	
45	No.102 key	56	D6	61	F0	61	

Cap No.	Keytop	Code set 1		Code set 2		Note
		Make	**Break**	**Make**	**Break**	
46	Z	2C	AC	1A	F0 1A	
47	X	2D	AD	22	F0 22	
48	C	2E	AE	21	F0 21	
49	V	2F	AF	2A	F0 2A	
50	B	30	B0	32	F0 32	
51	N	31	B1	31	F0 31	
52	M	32	B2	3A	F0 3A	*2
53	, <	33	B3	41	F0 41	*2
54	. >	34	B4	49	F0 49	*2
55	/ ?	35	B5	4A	F0 4A	*2
57	Shift (R)	36	B6	59	F0 59	
58	Ctrl	1D	9D	14	F0 14	*3
60	Alt (L)	38	B8	11	F0 11	*3
61	Space	39	B9	29	F0 29	
62	ALT (R)	E0 38	E0 B8	E0 11	E0 F0 11	
75	Ins	E0 52	E0 D2	E0 70	E0 F0 70	*1
76	Del	E0 53	E0 D3	E0 71	E0 F0 71	*1
79	←	E0 4B	E0 CB	E0 6B	E0 F0 6B	*1
80	Home	E0 47	E0 C7	E0 6C	E0 F0 6C	*1
81	End	E0 4F	E0 CF	E0 69	E0 F0 69	*1
83	↑	E0 48	E0 C8	E0 75	E0 F0 75	*1
84	↓	E0 50	E0 D0	E0 72	E0 F0 72	*1
85	PgUp	E0 49	E0 C9	E0 7D	E0 F0 7D	*1
86	PgDn	E0 51	E0 D1	E0 7A	E0 F0 7A	*1
89	→	E0 4D	E0 CD	E0 74	E0 F0 74	*1

Cap No.	Keytop	Code set 1		Code set 2		Note
		Make	Break	Make	Break	
110	Esc	01	81	76	F0 76	
112	F1	3B	BB	05	F0 05	
113	F2	3C	BC	06	F0 06	
114	F3	3D	BD	04	F0 04	
115	F4	3E	BE	0C	F0 0C	
116	F5	3F	BF	03	F0 03	
117	F6	40	C0	0B	F0 0B	
118	F7	41	C1	83	F0 83	
119	F8	42	C2	0A	F0 0A	
120	F9	43	C3	01	F0 01	
121	F10	44	C4	09	F0 09	*3
122	F11	57	D7	78	F0 78	*3
123	F12	58	D8	07	F0 07	*3
124	PrintSc	*6	*6	*6	*6	*6
126	Pause	*7	*7	*7	*7	*7
202	Fn	—	—	—	—	*4
203	Win	E0 5B	E0 DB	E0 1F	E0 F0 1F	
204	App	E0 5D	E0 DD	E0 2F	E0 F0 2F	

Notes:
1. Scan codes differ by mode.
2. Scan codes differ by overlay function.
3. Combined with the Fn key makes different codes.
4. Fn key does not generate a code by itself.
5. This key corresponds to key No. 42 in a 102-key model.
6. Refer to Table D-6, No. 124 key scan code.
7. Refer to Table D-7, No. 126 key scan code.

Table D-2 Scan codes with left Shift key

Cap No.	Keytop	Code set 1		Code set 2	
		Make	**Break**	**Make**	**Break**
55	/	E0 AA E0 35	E0 B5 E0 2A	E0 F0 12 E0 4A	E0 F0 4A E0 12
75	INS	E0 AA E0 52	E0 D2 E0 2A	E0 F0 12 E0 70	E0 F0 70 E0 12
76	DEL	E0 AA E0 53	E0 D3 E0 2A	E0 F0 12 E0 71	E0 F0 71 E0 12
79	←	E0 AA E0 4B	E0 CB E0 2A	E0 F0 12 E0 6B	E0 F0 6B E0 12
80	Home	E0 AA E0 47	E0 C7 E0 2A	E0 F0 12 E0 6C	E0 F0 6C E0 12
81	End	E0 AA E0 4F	E0 CF E0 2A	E0 F0 12 E0 69	E0 F0 69 E0 12
83	↑	E0 AA E0 48	E0 C8 E0 2A	E0 F0 12 E0 75	E0 F0 75 E0 12
84	↓	E0 AA E0 50	E0 D0 E0 2A	E0 F0 12 E0 72	E0 F0 72 E0 12
85	PgUp	E0 AA E0 49	E0 C9 E0 2A	E0 F0 12 E0 7D	E0 F0 7D E0 12
86	PgDn	E0 AA E0 51	E0 D1 E0 2A	E0 F0 12 E0 7A	E0 F0 7A E0 12
89	→	E0 AA E0 4D	E0 CD E0 2A	E0 F0 12 E0 74	E0 F0 74 E0 12
203	Win	E0 AA E0 5B	E0 DB E0 2A	E0 F0 12 E0 1F	E0 F0 1F E0 12
204	App	E0 AA E0 5D	E0 DD E0 2A	E0 F0 12 E0 2F	E0 F0 2F E0 12

Note : The table above shows scan codes with the left **SHIFT** key. In combination with the right **SHIFT** key, scan codes are changed as listed below:

	With left Shift	With right Shift
Set 1	E0 AA	E0 B6
	E0 2A	E0 36
Set 2	E0 F0 12	E0 F0 59
	E0 12	E0 59

Table D-3 Scan codes in Numlock mode

Cap No.	Keytop	Code set 1		Code set 2	
		Make	**Break**	**Make**	**Break**
75	INS	E0 2A E0 52	E0 D2 E0 AA	E0 12 E0 70	E0 F0 70 E0 F0 12
76	DEL	E0 2A E0 53	E0 D3 E0 AA	E0 12 E0 71	E0 F0 71 E0 F0 12
79	←	E0 2A E0 4B	E0 CB E0 AA	E0 12 E0 6B	E0 F0 6B E0 F0 12
80	Home	E0 2A E0 47	E0 C7 E0 AA	E0 12 E0 6C	E0 F0 6C E0 F0 12
81	End	E0 2A E0 4F	E0 CF E0 AA	E0 12 E0 69	E0 F0 69 E0 F0 12
83	↑	E0 2A E0 48	E0 C8 E0 AA	E0 12 E0 75	E0 F0 75 E0 F0 12
84	↓	E0 2A E0 50	E0 D0 E0 AA	E0 12 E0 72	E0 F0 72 E0 F0 12
85	PgUp	E0 2A E0 49	E0 C9 E0 AA	E0 12 E0 7D	E0 F0 7D E0 F0 12
86	PgDn	E0 2A E0 51	E0 D1 E0 AA	E0 12 E0 7A	E0 F0 7A E0 F0 12
89	→	E0 2A E0 4D	E0 CD E0 AA	E0 12 E0 74	E0 F0 74 E0 F0 12
203	Win	E0 2A E0 5B	E0 DB E0 AA	E0 12 E0 1F	E0 F0 1F E0 F0 12
204	App	E0 2A E0 5D	E0 DD E0 AA	E0 12 E0 2F	E0 F0 2F E0 F0 12

Table D-4 Scan codes with Fn key

Cap No.	Keytop	Code set 1		Code set 2	
		Make	**Break**	**Make**	**Break**
43	ENT	E0 1C	E0 9C	E0 5A	E0 F0 5A
58	CTRL	E0 1D	E0 9D	E0 14	E0 F0 14
60	LALT	E0 38	E0 B8	E0 11	E0 F0 11
121	ARROW	45	C5	77	F0 77
122	NUMERIC	45	C5	77	F0 77
123	Scrl	46	C5	7E	F0 7E

Table D-5 Scan codes in overlay mode

Cap No.	Keytop	Code set 1		Code set 2	
		Make	**Break**	**Make**	**Break**
09	8 (8)	48	C8	75	F0 75
10	9 (9)	49	C9	7D	F0 7D
11	0 (*)	37	B7	7C	F0 7C
23	U (4)	4B	CB	6B	F0 6B
24	I (5)	4C	CC	73	F0 73
25	O (6)	4D	CD	74	F0 74
26	P (−)	4A	CA	7B	F0 7B
37	J (1)	4F	CF	69	F0 69
38	K (2)	50	D0	72	F0 72
39	L (3)	51	D1	7A	F0 7A
40	; (+)	4E	CE	79	F0 79
52	M (0)	52	D2	70	F0 70
54	. (.)	53	D3	71	F0 71
55	/ (/)	E0 35	E0 B5	40 4A	E0 F0 4A

Table D-6 No.124 key scan code

Key top	Shift	Code set 1		Code set 2	
		Make	**Break**	**Make**	**Break**
Prt Sc	Common Ctrl + Shift + Alt +	E0 2A E0 37 E0 37 E0 37 54	E0 B7 E0 AA E0 B7 E0 B7 D4	E0 12 E0 7C E0 7C E0 7C 84	E0 F0 7C E0 F0 12 E0 F0 7C E0 F0 7C F0 B4

Table D-7 No.126 key scan code

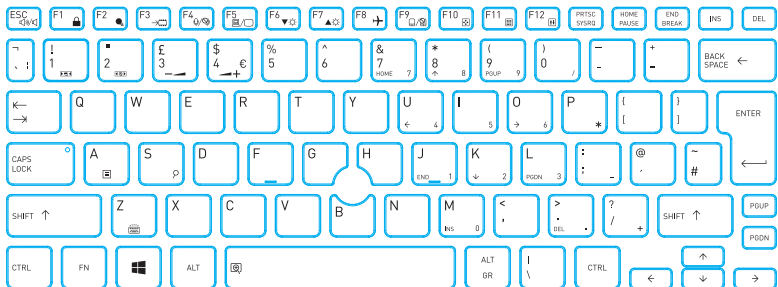| Keytop	Shift	Code set 1	Code set 2
		Make	**Make**
Pause	Common* Ctrl*	E1 1D 45 E1 9D C5 E0 46 E0 C6	E1 14 77 E1 F0 14 F0 77 E0 7E E0 F0 7E

*: This key generates only make codes.

Appendix E

Key Layout

E.1 United Kingdom (UK) Keyboard

Figure E-1 UK keyboard
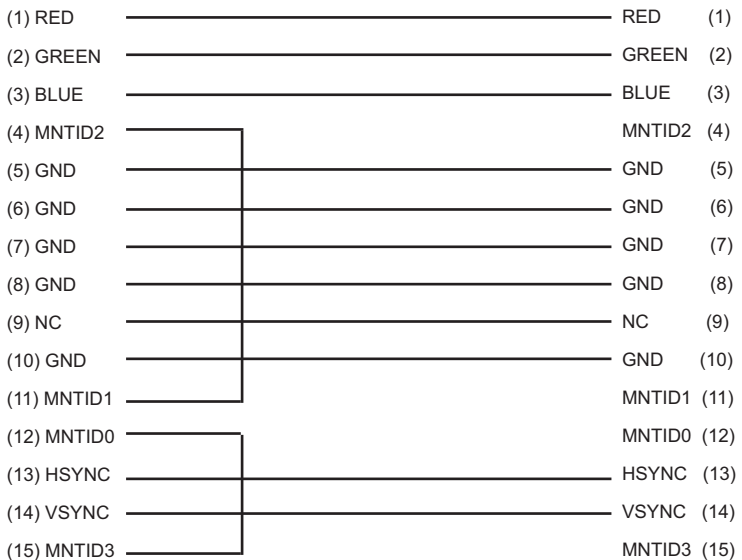

E.2 United States (US) Keyboard

Figure E-2 US keyboard

Appendix F

Wiring diagrams

F.1 RGB Monitor Loopback Connector

Figure F-1 RGB Monitor Loopback Connector

(1) RED	RED (1)
(2) GREEN	GREEN (2)
(3) BLUE	BLUE (3)
(4) MNTID2	MNTID2 (4)
(5) GND	GND (5)
(6) GND	GND (6)
(7) GND	GND (7)
(8) GND	GND (8)
(9) NC	NC (9)
(10) GND	GND (10)
(11) MNTID1	MNTID1 (11)
(12) MNTID0	MNTID0 (12)
(13) HSYNC	HSYNC (13)
(14) VSYNC	VSYNC (14)
(15) MNTID3	MNTID3 (15)

F.2 LAN Loopback Connector

Figure F-2 LAN Loopback Connector

```
(1) TX+      ─────────────┐
(2) TX-      ──────────┐  │
(3) RX+      ─────────┐│  │
(4) (Not used)        ││  │
(5) (Not used)        ││  │
(6) RX-      ─────────┘│  │
(7) (Not used)         │  │
(8) (Not used)         └──┘
```

dynabook
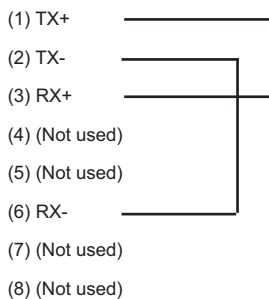
Appendix G

BIOS Rewrite Procedures

This Appendix explains how to rewrite the system BIOS program when you update the system BIOS.

G.1 Tools

To rewrite the BIOS, you need the following tool:
- BIOS/EC/KBC rewriting disk

G.2 Rewriting the BIOS

1. Turn off the power to the computer.
2. Remove the external cables and cards.
3. Set the USB Flash Memory containing BIOS rewriting data.
4. Turn on the power while holding down the tilde character key or 半 / 全 key Until LED blinks

 For example

(US Keyboard)

 (UK Keyboard)

(JP Keyboard)

半/全
漢字

(Keep holding down the key.)

5. The BIOS rewriting starts.
6. When the process is completed, the system automatically reboots.

1. Connect the AC adaptor and the charged battery to the computer when you rewrite the BIOS.
2. Do not turn off the power while you are rewriting the BIOS.
3. If the rewrite fails, it might be impossible to start up the computer.
4. If you fail to rewrite BIOS, then when you next turn on the power, a message may be displayed that the contents of the BIOS have been erased. In this case, insert the BIOS rewriting disk and the BIOS will be rewritten.

dynabook

Appendix H

EC/KBC Rewrite Procedures

It is necessary to rewrite the EC/KBC system program when the following changes are made.

1. Replacing of system board
2. Replacing of LCD

The EC/KBC can't be updated solely. It will be updated simultaneously during the BIOS update.

As for the BIOS update, refer to Appendix G.

Appendix I

Reliability

The following table shows MTBF (Mean Time Between Failures) in maximum configuration.

Table I-1 MTBF

Time (hours)
9146