Chapter 1

Hardware Overview

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1.1 Features

The Toshiba Satellite/Satellite Pro C850D/C855D/L850D/L855D 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.

Refer to the Parts List for the configuration of each model and the available options.

❑ Microprocessor

The Satellite/Satellite Pro C850D/C855D/L850D/L855D computer is equipped with an AMD$^{®}$ Comal mobile processor. The processor combines the central processing unit (CPU) with the graphics processing unit (GPU) in a single-chip Accelerated Processing Unit (APU) package and is designed for mobile platforms.

❑ Chipset

The Satellite/Satellite Pro C850D/C855D/L850D/L855D is equipped with AMD A60M/A70M Fusion Controller Hubs (FCHs).

❑ GPU (Graphics Processing Unit)

(1) Integrated graphic model: AMD integrated graphics (Mobile AMD Comal APUs)

(2) Discrete graphic model: AMD HD 7610M.

❑ Memory

The computer comes with two DDR3 SO-DIMM slots. Two memory modules of 1GB (1,024MB), 2GB (2,048MB), 4GB (4,096MB) or 8GB (8,192MB) can be installed, and it can incorporate up to 16GB of main memory.

❑ HDD

(1) HDD: The computer has a 2.5-inch SATA HDD. The following capacities are available:

- 250/320/500/640/750/1000 GB

❑ Optical Drive

The computer accommodates a fixed 12.7mm ODD with one of following types:

- Tray Type DVD Super Multi +-R Double Layer drive
- Tray Type DVD Super Multi +-R Double Layer with Label Flash™ drive
- Tray Type BD-combo with Label Flash™ drive
- Tray Type BD-Writer with Label Flash™ drive

❑ Display

The PC comes with 15" HD (1366 x 768), CSV or Non-CSV LED backlight.

❑ Keyboard

A4+10key size 101 keys (US) / 102 keys (UK) / 106 keys (JP) keyboard provides a numeric keypad overlay for fast numeric data entry or for cursor and page control. The keyboard also includes two keys that have special functions in Microsoft® Windows® 7.

❑ Pointing Device

The touch pad and control buttons enable control of the on-screen pointer and scrolling of windows.

❑ Batteries

The computer has two batteries: a rechargeable Lithium-Ion main battery pack and RTC battery (that backs up the Real Time Clock and CMOS memory). The capacity of the main battery pack can be 2200mAh, 2250mAh, 4400mAh, 4500mAh or 6000mAh depending on the model of computer.

❑ Universal Serial Bus (USB2.0)

Two USB ports are provided. The ports comply with the USB2.0 standard, which enables data transfer speeds 40 times faster than USB1.1 standard. USB1.1 is also supported.

❑ Universal Serial Bus (USB3.0 (BTO))

One USB3.0 ports are provided. USB3.0 has a 5 Gbps signaling rate offering 10x performance increase over USB2.0. The port comply with the USB2.0 standard, which enables data transfer speeds 40 times faster than USB1.1 standard. USB1.1 is also supported.

❑ External monitor (RGB) port

The port enables connection of an external monitor, which is recognized automatically by Video Electronics Standards Association (VESA) Display Data Channel (DDC) compatible functions.

❑ Media Card slot

The Media Card Slot can accommodate types of media (SD/Mini SD (card adapter is needed)/Micro SD (card adapter is needed)/SDHC memory card/SDXC memory card/MMC) with various capacities. Media cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, which use Media Card flash-memory.

❑ Sound system

The sound system is equipped with the following features:

- Azalia Link (AMD High Definition Audio I/F) built in the AMD A60M/A70M FCH + Realtek ALC269

- Amplifier: Realtek ALC269 built-in

- Speaker: 1.5W/4ohm speaker

❑ Internal LAN

The computer is equipped with LAN circuits that support Ethernet LAN (10/100 Mbps). It also supports Wakeup on LAN (WOL), Magic Packet.

❑ Wireless LAN /Bluetooth (BTO)

The computer is equipped with PCI-E MiniCard type wireless LAN board that supports 802.11 a/b/g/n in the PCI-E MiniCard slot or combo with Bluetooth through USB interface. This function can be switched on and off by a keyboard hot-key.

❑ Webcam Module

The computer is equipped with a webcam module which is embedded to transfer video data – to take still image and offer video stream for end user to preview/record motion image through USB 2.0 interface.

❑ HDMI port

A HDMI port is provided which complies with the HDMI 1.4a standard.

❑ Headphone Jack

The computer is equipped with a headphone jack.

❑ Microphone Jack

The computer is equipped with a microphone jack.
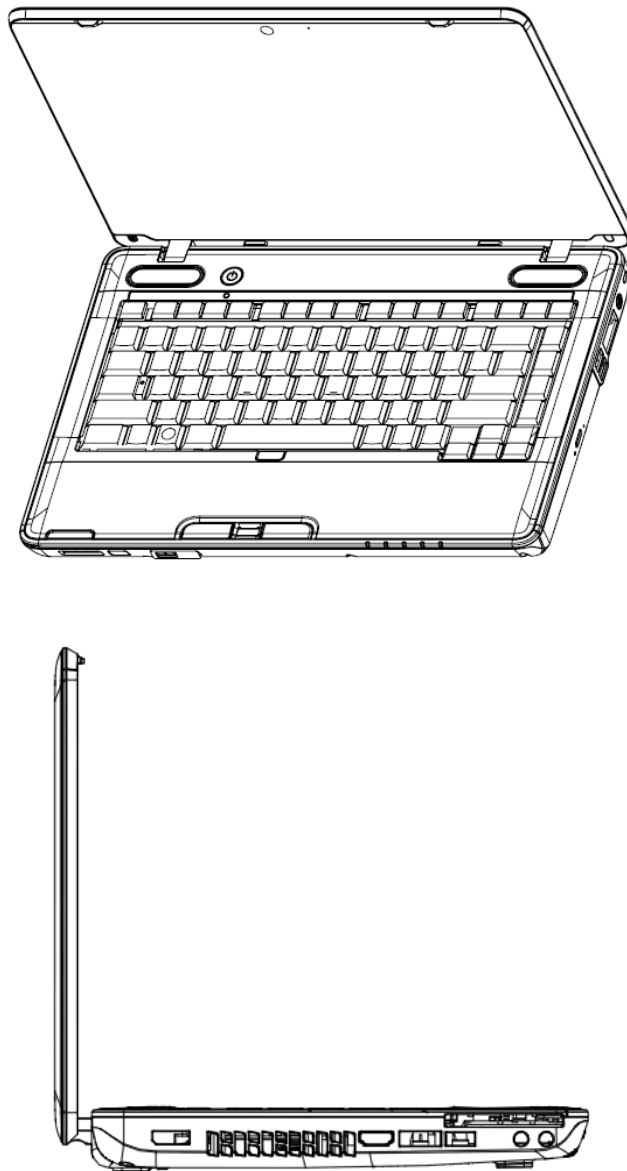
The front of the computer is shown in figure 1-1.

Figure 1-1 The front and left view of the computer

The system unit configuration is shown in figure 1-2.

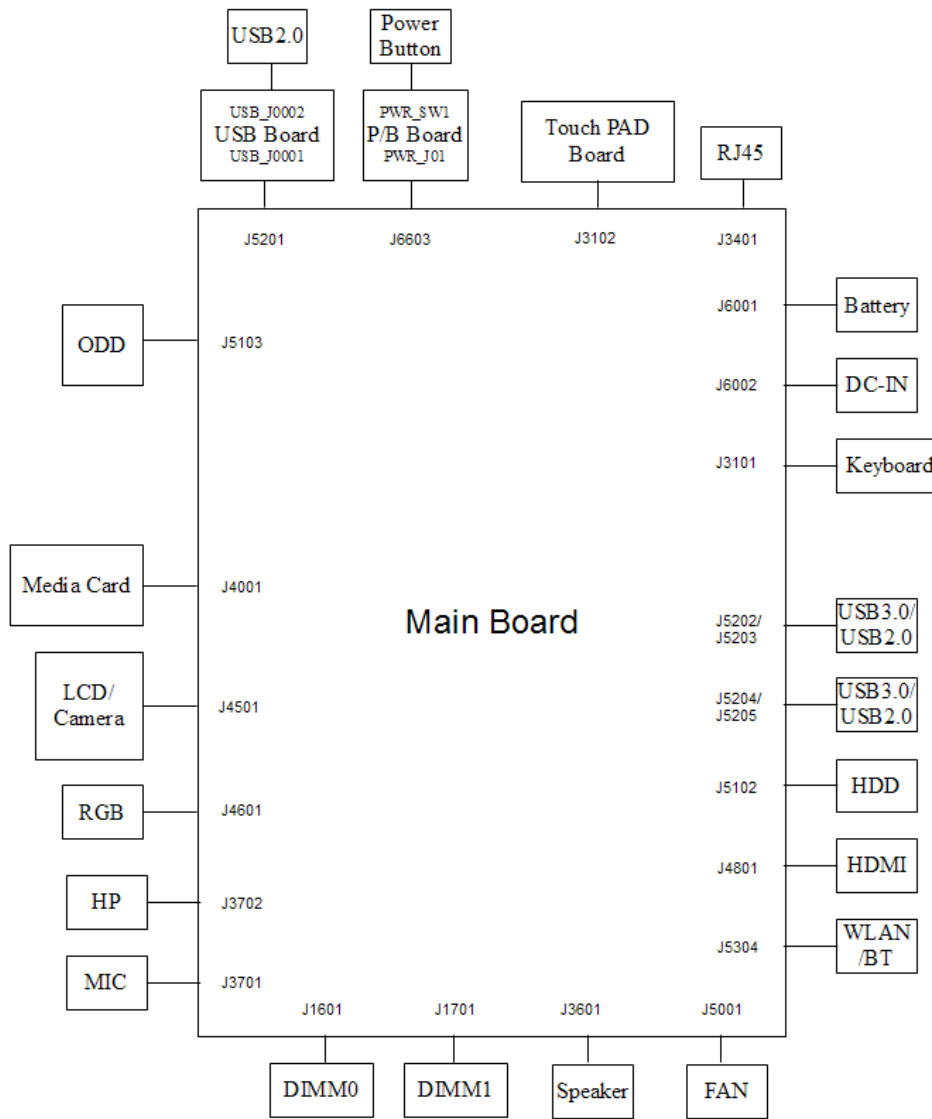*Figure 1-2   System unit configuration*

1.2 System Unit Block Diagram

Figure 1-3 is a block diagram of the system unit.
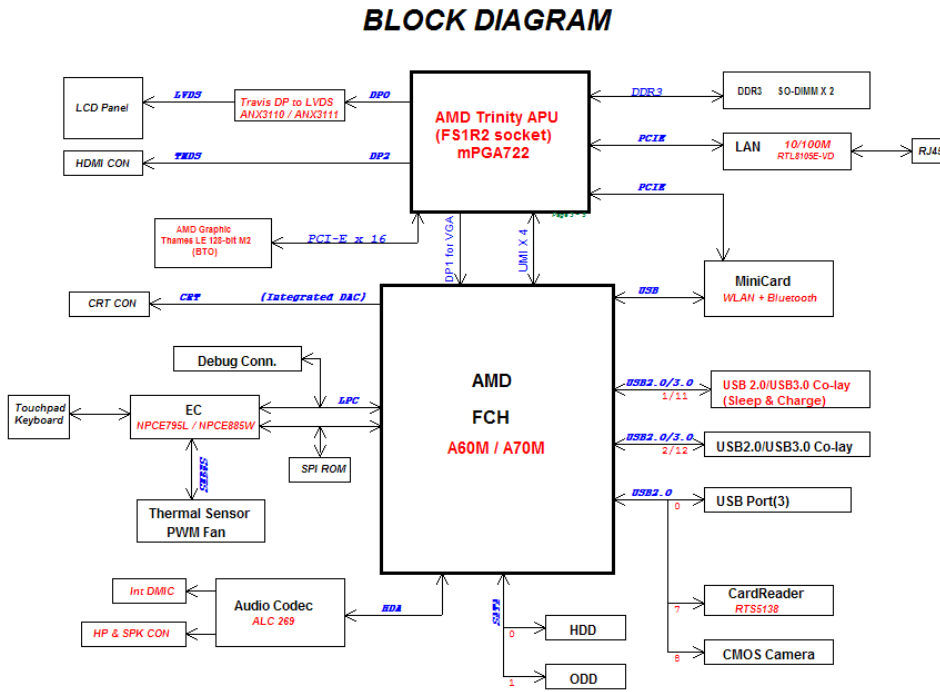
BLOCK DIAGRAM

Figure 1-3   System unit block diagram

The system unit is composed of the following major components:

❑ Processor

- AMD® Comal multi-chip package mobile processor

- Core speed:

    AMD® Comal A10 processors:

    A10-4600M (Max/Base:3.2GHz/2.3GHz)(L2 Cache 4M)

    AMD® Comal A8 processors:

    A8-4500M (Max/Base:3.0GHz/2.1GHz) (L2 Cache 4M)

    AMD® Comal A6 processors:

    A6-4400M (Max/Base:3.2GHz/2.7GHz) (L2 Cache 1M)

    AMD® Comal A4 processors:

    A4-4300M (Max/Base:TBD) (L2 Cache 1M)

- Features:
    - Up to quad core and 4MB L2
    - AMD Turbo Core 3.0 technology
    - AMD Power Express 5.0 with Dual Graphic support
    - Multiple GPU configurations
    - Supports up to DDR3-1600
    - 16GB maximum memory support
    - PCI Express: one 16-lane PCI Express port, Supports PCI Express 2.0
    - Internal Graphics Controller
    - Next generation DirectX® 11
    - AMD Unified Media Interface (AMD UMI)
    - 722-pin 35 mm x 35 mm mPGA package

❑ BIOS EEPROM

- 16/32Mbit SPI serial flash
- Supply voltage: 2.7~3.6V

- Low power consumption: active read: 10mA (typical); standby: 5uA (typical).

- 8-lead SOIC package

❑ Memory

Two memory slots are provided. Expansion up to 16GB is available.

- Memory

  − DDR3-SDRAM

  − 1066/1333/1600 MHz

  − 1.5 volt operation

  − FBGA

- Memory Module

  − 204 pin, SO Dual In-line Memory Module (SO-DIMM)

  − PC3-8500, PC3-10600, PC3-12800

  − 1GB (1,024MB), 2GB (2,048MB), 4GB (4,096MB), 8GB (8,192MB)

❑ AMD FCH

- One AMD® A60M/A70M Chipset is used.

- Features:

  − Supports AMD Fusion™ Accelerated Processor Units (APUs)

  − 1-, 2-, or 4-lane UMI connecting the FCH with the APU

  − Supports six third-generation SATA ports with transfer rates up to 6 Gbit/s

  − AMD High Definition Audio Interface: supports up to 4 codecs.

  − 4 OHCI and 3 EHCI Host Controllers support up to 14 USB® 2.0 ports (A60M)

  − 2 xHCI (v.0.96), 3 OHCI, and 2 EHCI host controllers to support 4 USB 3.0 ports and 10 USB 2.0 ports (A70M)

  − Two cascaded 8237 DMA controllers

  − Two SMBus controllers – one is multiplexed on three pairs of SMBus signals while the other controller is dedicated for ASF

  − 8254-compatible timer

  − ACPI specification 3.0 compliant power management schemes

  − Supports processor C states

  − Supports system S0, S3, S4, and S5 states

❑ Card Reader Controller

- Realtek RTS5138 is used
- Futures:
  - USB 2.0 I/F
  - Support High-speed (480Mbps) and Full-speed (12Mbps) Data Transfer
  - SD/MMC Card Controller
  - 24-pin(4x4) QFN package

❑ Sound Controller

- Realtek ALC269
- Mono Microphone-in and stereo headphone-out.
- Internal digital Microphone
- Volume control: Digital control
- Stereo w/ box, 4 ohm / 1.2W.

❑ EC/KBC (Embedded Controller/Keyboard Controller)

- One NUVOTON NPCE795LA0DX chip functions as both EC and KBC.

❑ LAN Controller

- This controller has the following functions:
- Realtek RTL8105E-VD-CG is used
- This controller has the following functions:
  - PCIE I/F
  - Supports 10/100 Mbps Ethernet
  - One RJ45 port
  - WOL support
  - Magic Packet support

❑ Wireless LAN / Bluetooth

- One PCI-E MiniCard is used

- Support 802.11 a/b/g/n or 802.11 b/g/n

1.3 HDD/SSD

1.3.1 2.5-inch Hard Disk Drive

The removable HDD is a random access non-volatile storage device. It has a non-removable
2.5-inch magnetic disk and mini-Winchester type magnetic heads.
The computer supports a 320GB, 500G, 640GB, 750GB and 1TB.
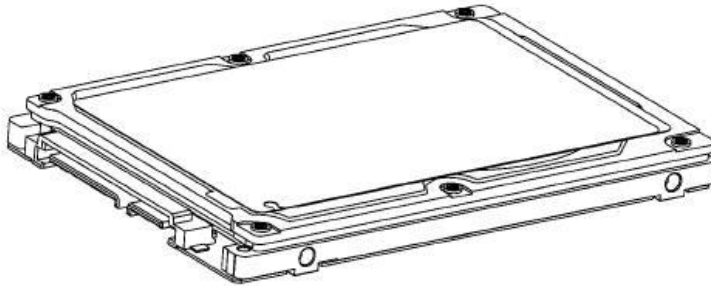The HDD is shown in figure 1-4. Specifications are listed in Table 1-1.

Figure 1-4   2.5-inch HDD

Table 1-1 2.5-inch HDD specifications (1/1)

Item	Specifications		
Capacity (GB)	320 GB	500 GB	640 GB
Rotational Speed (RPM)	5400 rpm	5400 rpm	5400 rpm
Height	7.0 mm/9.5 mm	9.5 mm	9.5 mm
User Data Sectors	625,142,448	976,773,168	1,250,263,728
Bytes / Sector	512	512	512

Item	Specifications	
Capacity (GB)	750 GB	1TB
Rotational Speed (RPM)	5400 rpm	5400 rpm
Height	9.5 mm	9.5 mm
User Data Sectors	1,465,149,168	1,953,525,168
Bytes / Sector	512	512

1.4 DVD Super Multi Drive

This drive is a combination of DVD-ROM, DVD±R/±RW/-RAM, BD-combo and BD-Writer Drive. It is full-size and runs either 12cm (4.72-inch) or 8cm (3.15-inch) DVD/CDs without an adaptor. It reads DVDs at maximum 8x speed and CDs at maximum 24x speed. It also writes CD-R at maximum 24x speed, CD-RW at maximum 4x speed, DVD±R at maximum 8x speed, DVD-RW at maximum 6x speed, DVD+RW at maximum 8x speed, DVD±R DL at maximum 3.3x~6x speed and DVD-RAM at maximum 3-5x speed.
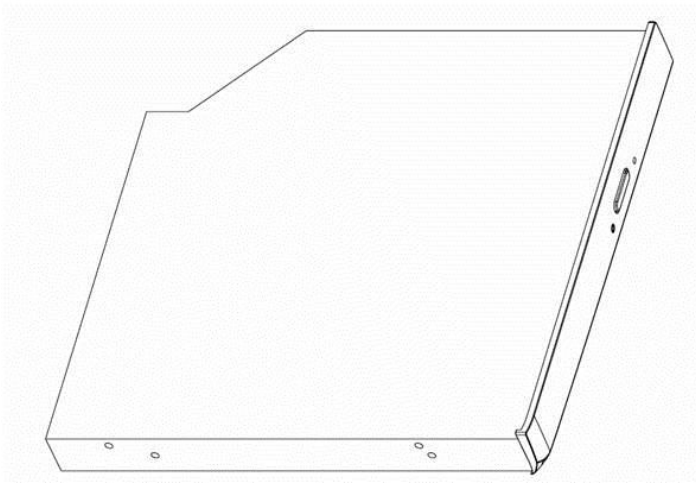
The DVD is shown in figure 1-5.

Figure 1-5   DVD Super Multi drive

The specifications are listed in Table 1-2.

Table 1-2 DVD Super Multi drive specifications (1/1)

Item	Specifications	
	DVD-ROM mode	**CD-ROM mode**
SATA Interface (Mbytes/s)	150 Mbyte/s	
Average access time (ms)	180ms Typ.	150ms Typ.
Data Buffer Capacity	1MB	
Support Formats	CD-R CD-RW High Speed CD-RW Ultra Speed CD-RW DVD-R DVD-R DL DVD-RW DVD+R DVD+R DL DVD+RW DVD-RAM	

1.5 Keyboard

The keyboard has 101(US)/102(UK)/106(JP) keys that consist of character keys and control keys, and is in conformity with JIS. The keyboard is connected to a membrane connector on the system board and is controlled by EC.

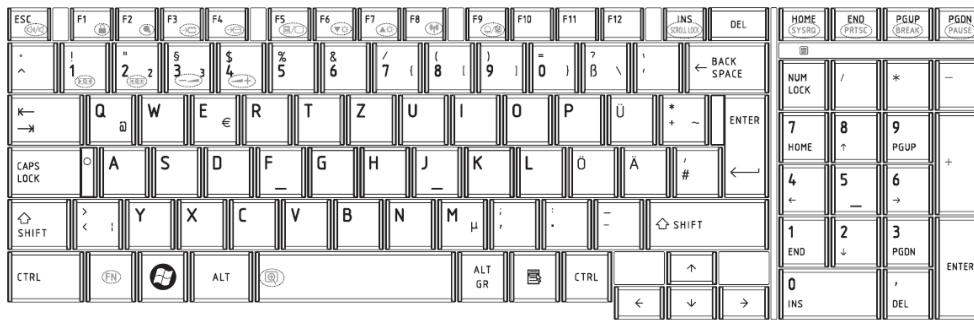Figure 1-6 is a view of the keyboard.

Figure 1-6   Keyboard

1.6 TFT Color Display

The TFT color display consists of 17.3-inch LCD module.

The LCD module used for the TFT color display uses a LED backlight as the light source and can display a maximum of 262,144 colors with 1600 x 900 resolution.

Table 1-3 lists the specifications.

Table 1-3   LCD module specifications (1/1)

Item	Specifications 15.6"W HD+(1366 x 768), CSV or Non-CSV type, LED backlight
Number of Dots	1,366 (W) * 768 (H)
Dot spacing (mm)	0.252 (H) x 0.252 (V) (TYP.)
Display range (mm)	344.232 (H) x 193.536 (V) (15.6 " diagonal)

1.7 Power Supply

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

1. Determines that the DC power supply (AC adapter) is connected to the computer.

2. Detects DC output and circuit malfunctions.

3. Controls the battery icon, and DC IN 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 1-4.

Table 1-4   Power supply output rating

Name	Voltage (V)	Use
+VCORE	VID (AMD spec)	APU
+CPU_VDDNB	VID(AMD spec)	Integrated graphic (UMA)
+VDDC_VGA	VID(AMD spec)	Discrete graphic (DSC)
+1.5VS	1.5	APU , Mini Card
+1.5V	1.5	DDR3-SDRAM
+1.2VS	1.2	APU, LVDS Travis IC
1.1Vsus	1.1	FCH
1.1VS	1.1	FCH
+0.75VS	0.75	DDR3-SDRAM
+3VSUS	3.3	FCH, LAN, SPI ROM
+3V	3.3	Camera, Card Reader
+3VS	3.3	FCH, DDR3-SDRAM, LCD, Codec, EC, HDD, Mini Card
+3VA	3.3V	FCH RTC, EC
+5VA	5	USB S&C
+5VSUS	5	FCH, USB

1.8 Batteries

The computer has two types of batteries as follows:

❑ Main battery pack

❑ RTC battery

The battery specifications are listed in Table 1-5.

Table 1-5 Battery specifications

Battery name	Material	Output voltage	Capacity
Main battery(3 cell)	Lithium-Ion	10.8V	2200 mAh
Main battery(6 cell)	Lithium-Ion	10.8V	4400 mAh 6000mAh
RTC battery(CR2032)	Lithium-Ion	3.0 V	210 mAh

1.8.1 Main Battery

The removable main 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 into resume mode.

1.8.2 Battery Charging Control

Battery charging is controlled by an embedded controller (EC). The EC 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 1-6 lists the charging time required for charges.

Table 1-6   Time required for charges

Battery type	Power on (hours)	Power off (hours)
1st battery pack (6cell,12cell)	4-10 hours	4 hours max

NOTE: 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.

❑ Detection of full charge

A full charge is detected only when the battery is charging at charge. A full charge is detected under any of the following conditions:

1. The current in the battery charging circuit drops under the predetermined limit.

2. The charging time exceeds the fixed limit.

1.8.3 RTC battery

The RTC battery provides power to keep the current date, time and other setup information in memory while the computer is turned off. Table 1-7 lists the data preservation period of the RTC battery.

Table 1-7   RTC battery charging/data preservation time

Status	Time
Data preservation period (full capacity)	3.5 years

1.9 AC Adaptor

The AC adaptor is also used to charge the battery.

Table 1-8 and 1-9 lists the AC adaptor specifications.

Table 1-8 AC adaptor specifications for integrated graphic model

Parameter	Specification	
	2-pin	3-pin
Power	65W	
Input voltage	100V-240V	
Input frequency	50Hz–60Hz	
Input current	1.6A or less (100V-240V)	
Output voltage	19V	
Output current	0A to 3.42A (At constant voltage mode)	

Table 1-9 AC adaptor specifications for discrete graphic model

Parameter	Specification	
	2-pin	3-pin
Power	75W	
Input voltage	100V-240V	
Input frequency	50Hz - 60Hz	
Input current	1.5A or less (100V-240V)	
Output voltage	19V	
Output current	0A to 3.95A (At constant voltage mode)	

Chapter 2
Troubleshooting Procedures

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Note:

In this document, mark ○,¹ *means this function is for Intel platform only.*

2.1 Troubleshooting

Chapter 2 describes how to determine if a Field Replaceable Unit (FRU) in the computer is causing the computer to malfunction. The FRUs covered are:

1 Power Supply	6 Optical Drive	11 Bluetooth (BTO) ○,ı
2 Main Board	7 LAN	12 Camera (BTO)
3 HDD	8 Wireless(WiDi WiFi) LAN	13 HDMI
4 Keyboard/Touch pad	9 Sound component	14 Touch Pad with gesture
5 Display	10 Card reader	15 Battery, RTC Battery

The Diagnostics optical disk or USB disk operations are described in Chapter 3. Detailed Replacement Procedures are given in Chapter 4, *Replacement Procedures*.
The following tools are necessary for implementing the troubleshooting procedures:

The following tools are necessary for implementing the Diagnostics procedures:
For tools required for executing the Test Program, refer to the Chapter 3. For tools required for disassembling/assembling, refer to Chapter 4.

1. A bootable USB key
2. An external CRT display (for Display troubleshooting)
3. An external HDMI display(for HDMI troubleshooting)
4. A Card reader (for Card reader slot troubleshooting)
5. An external microphone (for Sound troubleshooting)
6. Headphone (for Sound troubleshooting)

2.2   Troubleshooting Flowchart

Use the flowchart in Figure 2-1 as a guide for determining which FRU is malfunctioning.
Before going through the flowchart steps, check the following:

❑ Ask the user if a password is registered and, if it is, ask him or her to enter the
password.

❑ Make sure that Toshiba Windows 7(TM) is installed on the hard disk. Non-Toshiba
operating systems can cause the computer malfunction.

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

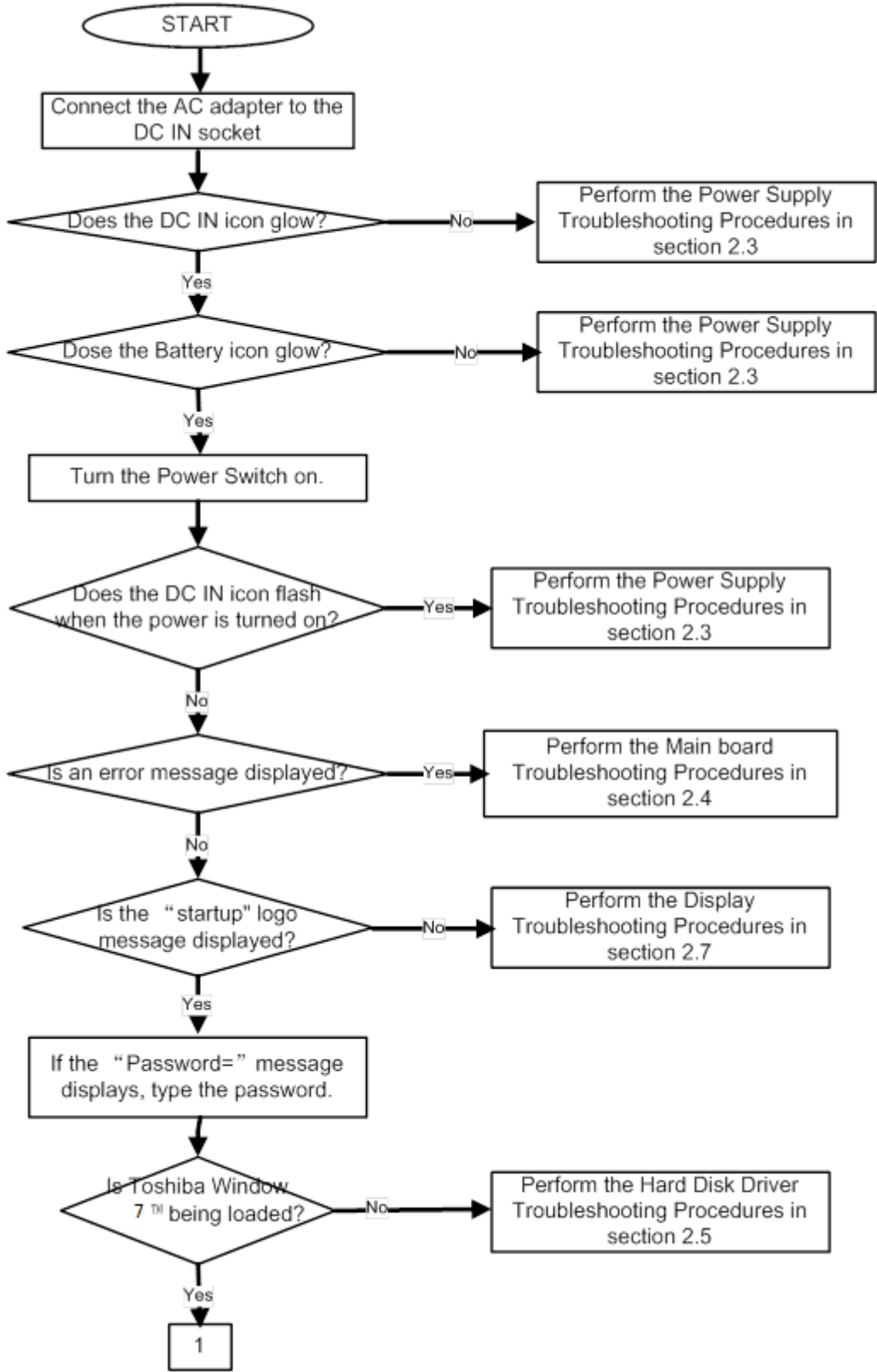❑ Make sure the HDD and optical drive bays are empty.

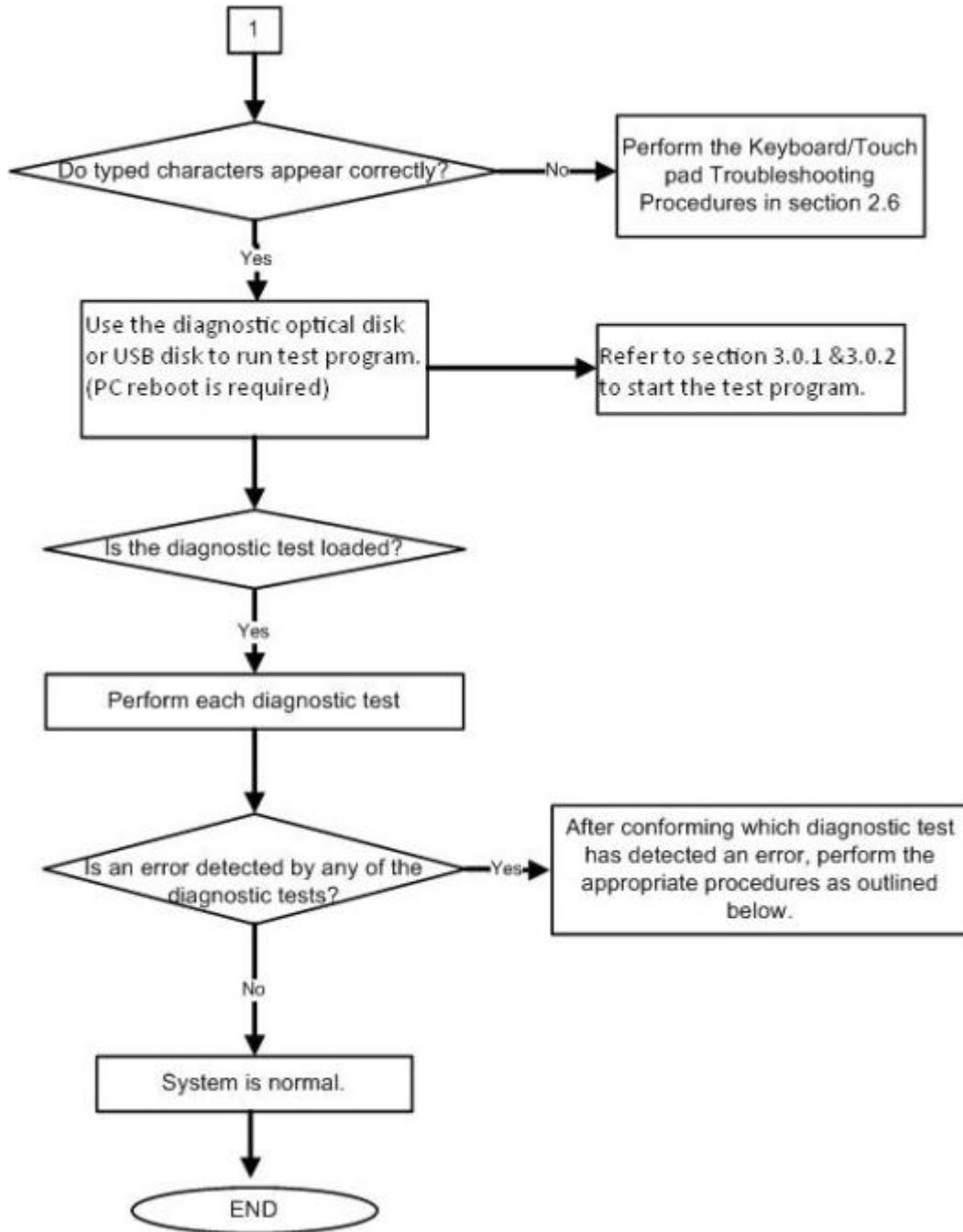*Figure 2-1 Troubleshooting flowchart (1/2)*

Figure 2-1 Troubleshooting flowchart (2/2)

If the diagnostics program cannot detect an error, the problem may be intermittent. The **Running Test program** should be executed several times to isolate the problem. Check the **Log Utilities function** to confirm which diagnostic test detected an error, then perform the appropriate troubleshooting procedures as follows:

1. If an error is detected on the system test, memory test, real timer test, perform the Main Board Troubleshooting Procedures in Section 2.4.

2. If an error is detected on the hard disk test, perform the HDD Troubleshooting Procedures in Section 2.5.

3. If an error is detected on the keyboard test, perform the Keyboard and Touch pad Troubleshooting Procedures in Section 2.6.

4. If an error is detected on the display test, perform the Display Troubleshooting Procedures in Section 2.7.

5. If an error is detected on the CD-ROM/DVD-ROM/BluRay test, perform the Optical Drive Troubleshooting Procedures in Section 2.8.

6. If an error is detected on the LAN test, perform the LAN Troubleshooting Procedures in Section 2.9.

7. If an error is detected on the Wireless(WiDi WiFi) LAN test, perform the Wireless(WiDi WiFi) LAN Troubleshooting Procedures in Section 2.10.

8. If an error is detected on the sound test, perform the Sound Troubleshooting Procedures in Section 2.11.

9. If an error is detected on card reader, perform the card reader Slot Troubleshooting Procedures in Section 2.12.

10. If an error is detected on Bluetooth, perform the Bluetooth Troubleshooting Procedures in Section 2.13. ○,I

11. If an error is detected on camera, perform the camera Troubleshooting Procedures in Section 2.14.

2.3   Power Supply Troubleshooting

The power supply 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:

> Procedure 1:   Icons in the LCD Check
>
> Procedure 2:   Connection Check
>
> Procedure 3:   Charge Check
>
> Procedure 4:   Replacement Check

Procedure 1   Icons in the LCD Check

The following Icons in the LCD indicate the power supply status:

❑ Battery icon

❑ DC IN icon

The power supply controller displays the power supply status through the Battery icon and the DC IN icon in the LCD as listed in the tables below. To check the power supply status, install a battery pack and connect an AC adaptor.

Table 2-1 Battery icon

Battery icon	Power supply status
Lights orange	Battery has been charging and AC adaptor is connected.
Lights white	Battery is fully charged and AC adaptor is connected.
Flashes orange	Battery charge is low. The AC adaptor must be connected to recharge the battery.
Doesn't light	Any condition other than those above.

Table 2-2 DC IN icon

DC IN icon	Power supply status
Lights white	DC power is being supplied from the AC adaptor.
Doesn't light	Any condition other than those above.

Procedure 2   Connection Check

The power supply wiring diagram is shown below:
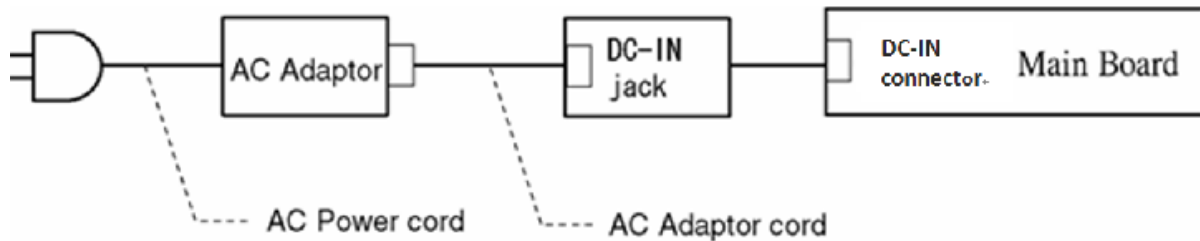
Any of the connectors may be disconnected. Perform Check 1.

Check 1   Disconnect the AC power cord from the wall outlet. Check the power cable for breaks. If the power cord is damaged, connect a new AC power cord. If there is no damage, go to Check 2.

Check 2   Make sure the AC adaptor cord and AC power cord are firmly plugged into the DC-IN jack socket and AC adaptor inlet/wall outlet, respectively. If these cables are connected correctly, go to Check 3.

Check 3   Make sure the DC IN jack is firmly connected to the DC-IN connector on the main board.
   • If the DC IN jack is not firmly connected, go to Procedure 5.
   • If it is connected, go to Check 4.

Check 4   Use a multimeter to make sure the AC adaptor output voltage is close to 19 V. If the output is several percent lower than 19 V, go to Check 5. If the output is close to 19 V, go to Check 6.

Check 5   Connect a new AC adaptor or AC power cord.
   • If the DC IN icon does not light, go to Procedure 5.
   • If the battery icon does not light, go to Check 6.

Check 6   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, go to Procedure 4.

Procedure 3   Charge Check

The power supply may not charge the battery pack. Perform the following procedures:

1. Reinstall the battery pack.

2. Attach the AC adaptor and turn on the power. If you cannot turn on the power, go to Procedure 5.

Check 1   Make sure the AC adaptor and AC power cord is firmly plugged into the DC IN socket and the wall outlet. If these cables are connected correctly, replace the AC adaptor (and/or AC power cord, if necessary).

Check 2   Make sure the battery is properly installed. If the battery is properly installed, go to Check 3.

Check 3   The battery pack may be completely discharged. Wait a few minutes to charge the battery pack. If the battery pack is still not charged, go to Check 4.

Check 4   The battery's temperature is too hot or cold. Return the temperature to a normal operating condition. If the battery pack still is not charged, go to Check 5.

Check 5   Replace the battery pack with a new one. If the battery pack still is not charged, go to Procedure 5.

Procedure 4   Replacement Check

The main board processor module may be disconnected or damaged. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*. Check the connection between the AC adaptor and main board and connection. After checking the connections, perform the following Check 1:

Check 1   Replace the AC adaptor with a new one. If the AC adaptor is still not functioning properly, perform Check 2.

Check 2   Replace the main board with a new one following the steps described in Chapter 4, *Replacement Procedures*.

2.4　Main Board Troubleshooting

This section describes how to determine if the main board and CPU are defective or not functioning properly. Start with Procedure 1 and continue with the other procedures as instructed.

The procedures described in this section are:

Procedure 1:　Message Check

Procedure 2:　Diagnostic Test Program Execution Check

Procedure 3:　Replacement Check

Procedure 1   Message Check

When the power is turned on, the system performs the Power On Self Test (POST) installed in the BIOS ROM. The POST tests each IC on the main board and initializes it.

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

❑ If Toshiba **FREE-DOS** or Windows 7(TM) is properly loaded, go to Procedure 2.

Check 1   If one of the following error messages appears on the screen, press **F1** as the message instructs. These errors occur when the system configuration preserved in the RTC memory (CMOS type memory) is not the same as the actual configuration or when the data is lost.

Press **F1** as the message instructs to return all system settings to their default values. Then the system reboots. Press F2 to run setup.

If an error message (a) appears often when the power is turned on, replace the RTC battery. If any other error message displays, perform Check 2.

```
(a)   CMOS Battery Low
      Press F2 to Run Setup, Press F1 to Load Default
Values and Continue.
(b)   RAM READ/WRITE Test Failed
      Press F2 to Run Setup, Press F1 to Load Default
Values and Continue.
(c)   CMOS DATE/TIME Not Set
      Press F2 to Run Setup, Press F1 to Load Default
Values and Continue.
(d)   CMOS Settings Wrong
      Press F2 to Run Setup, Press F1 to Load Default
Values and Continue.
(e)   Primary Master Hard Disk Error
      Press F2 to Run Setup, Press F1 to Load Default
Values and Continue.
```

Check 2   The POST checks the main board. When the POST detects an error, the system
           stops or an error message appears.

           If one of the following error messages (1) through (3), (5) or (11) appears, go to
           Procedure 3.

           If the error message (12), (13) appears, go to the Keyboard Troubleshooting
           Procedures in Section 2.6.

           If the error message (15) appears, go to the HDD Troubleshooting Procedures in
           Section 2.5.

```
(1).  Refresh timer test failed
(2).  KBC BAT Test failed
(3).  RAM R/W test failed
(4).  KBC BAT Test failed
(5).  CMOS Battery Low
(6).  CMOS Settings Wrong
(7).  CMOS Date/Time Not Set
(8).  DMA Controller Error
(9).  DMA-1 Error
(10). DMA-2 Error
(11). Timer Error
(12). Keyboard/Interface Error
(13). PS2 Keyboard not found
(14). PS2 Mouse not found
(15). Primary Master Hard Disk Error
```

Procedure 2   Diagnostic Test Program Execution Check

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

1. Model, BIOS and CPU Test	**A. LED Test**
2. Check MAC Test	**B. LID switch Test**
3. PAD Test	**C. SD CARD Test**
4. LCDRGB Test	**D. HDD Test**
5. Audio Test	**E. Wireless Test**
6. Keyboard Test	**F. Webcamera Test**
7. Memory Test	**G. Speaker Test**
8. Function Test	**H. R/W DMI**
9. STORE Test[CD/DVD-ROM TEST]	**I. FAN Test**

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

Procedure 3 Replacement Check

The main board connectors may be disconnected. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform Check 1.

Check 1   Visually check for the following:

       a) Cracked or broken connector housing

       b) Damaged connector pins

       If their connectors are in good condition, but there is still a problem, go to Check 2.

Check 2   The main board may be damaged. Replace the main board with a new one following the steps described in Chapter 4, *Replacement Procedures*.

2.5 HDD Troubleshooting

This section describes how to determine if the HDD is functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

Procedure 1:   Message Check

Procedure 2:   Partition Check

Procedure 3:   Format Check

Procedure 4:   Diagnostic Test Program Execution Check

Procedure 5:   Connector Check and Replacement Check

CAUTION: The contents of the hard disk will be erased when you execute the HDD troubleshooting procedures. Transfer the contents of the hard disk to other storage media.

Procedure 1   Message Check

When the computer's HDD does not function properly, some of the following error messages may appear on the display. Start with Check 1 below and perform the other checks as instructed.

Check 1   If either of the following messages appears, go to Procedure 2. If the following messages do not appear, perform Check 2.

```
Insert system disk in drive
Press any key when ready .....
          or
Non-System disk or disk error
Replace and press any key
```

Check 2   Make sure the Hard Disk option is set to not used. If it is set to not used, choose another setting and restart the computer. If the problem still exists, go to Procedure 2.

Procedure 2   Partition Check

Insert the bootable USB key, restart the computer with Esc key pressing down, and choose boot from USB device. Perform the following checks:

Check 1   Type `C:` and press **Enter**. If you cannot change to drive C, go to Check 2. If you can change to drive C, go to Check 3.

Check 2   Type `FDISK` and press **Enter**. Choose Display Partition Information from the FDISK menu. If drive C is listed, go to Check 3. If drive C is not listed, return to the FDISK menu and choose the option to create a DOS partition on drive C. Restart the computer from the Toshiba FREE-DOS system disk. If the problem still exists, go to Procedure 3.

Check 3   If drive C is listed as active in the FDISK menu, go to Check 4. If drive C is not listed as active, return to the FDISK menu and choose the option to set the active partition for drive C. Restart the computer and then go to Procedure 3.

Check 4   Remove the USB key and restart the computer. If the problem still exists, go to Procedure 3.

Check 5   Using the SYS command on the Toshiba FREE-DOS system disk, install system files on the HDD.

If the following message appears on the display, the system files have been transferred to the HDD. Restart the computer. If the problem still exists, go to Procedure 3.

```
System transferred
```

NOTE: *If the computer is running Windows 2000, OSR2 or higher and the hard disk has more than 512 MB capacity, the FDISK program will ask if you need support for a partition larger than 2GB. Select Y for large partition support; however, be sure to read the precaution regarding access by other operating systems.*

Procedure 3 Format Check

The computer's HDD is formatted using the low level format program and the FREE-DOS FORMAT program. To format the HDD, start with Check 1 below and perform the other steps as required.

Check 1   Format the HDD and transfer system files using **FORMAT C:/S/U**. If the following message appears on the display, the HDD is formatted.

        Format complete

    If an error message appears on the display, refer to the Toshiba FREE-DOS Manual for more information and perform Check 2.

Check 2   Using the Diagnostics Disk, format the HDD with a low level format option. Refer to Chapter 3, *Tests and Diagnostics* for more information about the diagnostic program.

    If the following message appears on the display, the HDD low level format is complete. Partition and format the HDD using the FREE-DOS FORMAT command.

        Format complete

    If you cannot format the HDD using the Tests and Diagnostic program, go to Procedure 4.

Procedure 4   Diagnostic Test Program Execution Check

The HDD test program is stored in the Diagnostics Disk. Perform all of the HDD tests in the Hard Disk Drive Test. Refer to Chapter 3, *Tests and Diagnostics,* for more information about the HDD test program.

If the problem still exists, go to Procedure 5.

Procedure 5   Connector Check and Replacement Check

The HDD may be disconnected, or the HDD or the main 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 HDD is firmly connected to HDD connector on the main board.
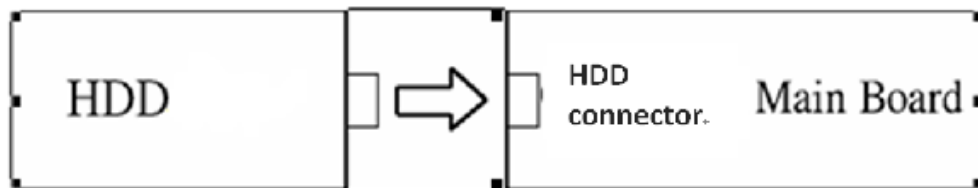
If any of the connections are loose, reconnect firmly and repeat Procedure 1. If there is still an error, go to Check 2.

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

Check 3   The Main board may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.6   Keyboard and Touch pad Troubleshooting

To determine if the computer's keyboard or touch pad is functioning properly, perform the following procedures. Start with Procedure 1 and continue with the other procedures as instructed.

> Procedure 1:   Diagnostic Test Program Execution Check
>
> Procedure 2:   Connector Check and Replacement Check

Procedure 1   Diagnostic Test Program Execution Check

Execute the Keyboard 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, the keyboard is functioning properly.

Procedure 2   Connector Check and Replacement Check

The keyboard, touch pad or sensor/switch board may be disconnected or damaged. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

1. If the keyboard or AccuPoint malfunctions, start with Check 1.

2. If the touch pad malfunctions, start with Check 3.

3. If the power switch, InTouch button or Presentation button malfunctions, start with Check 5.

Check 1   Make sure the keyboard cable is securely connected to keyboard connector on the main board.
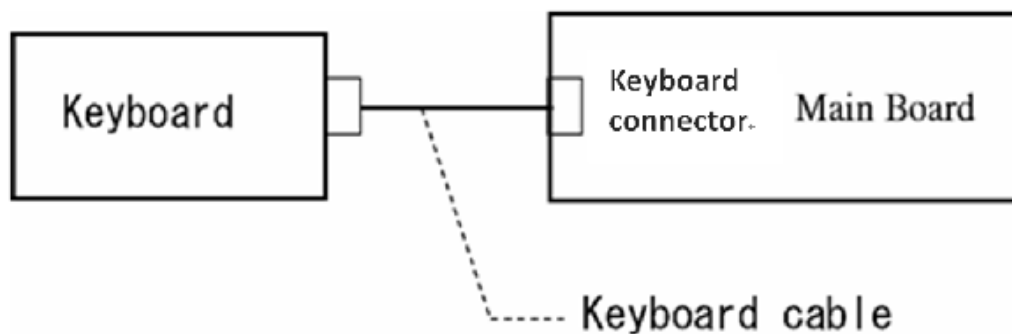
If the connection is loose, reconnect firmly. If there is still an error, go to Check 2.

Check 2   The keyboard or its cable may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still exists, perform Check 5.

Check 3   Make sure the touch pad cable is firmly connected to A1tp_Con1 on the touch pad board.
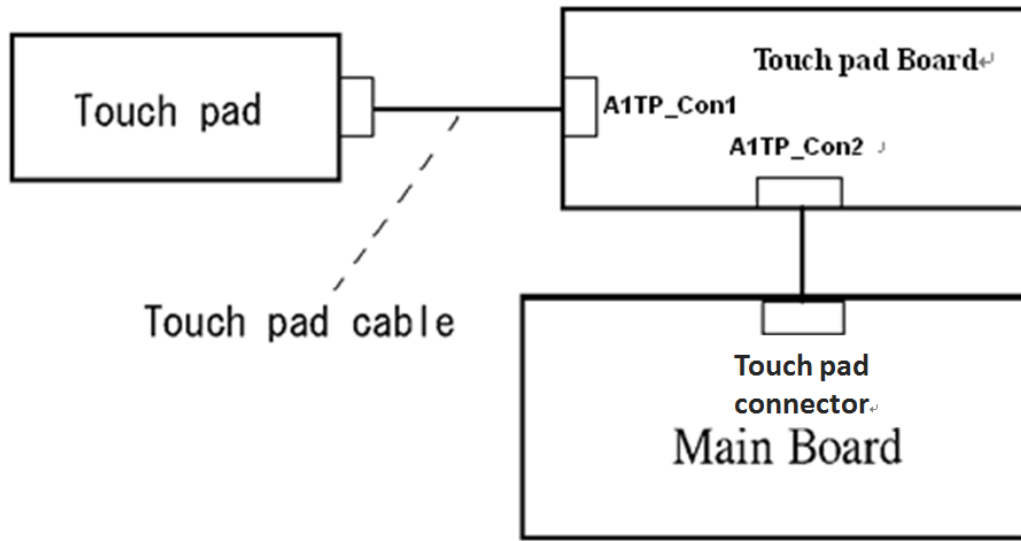
If the connection is loose, reconnect firmly. If there is still an error, go to Check 4.

Check 4   The touch pad or the touch pad cable may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still exists, perform Check 5.

Check 5   The main board may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.7   Display Troubleshooting

This section describes how to determine if the computer's display is functioning properly. Start with Procedure 1 and continue with the other procedures as instructed.

Procedure 1:   External Monitor Check

Procedure 2:   Diagnostic Test Program Execution Check

Procedure 3:   Connector Check and Cable Check

Procedure 4:   Replacement Check

Procedure 1   External Monitor Check

Connect an external monitor and turn on the computer. If there is no problem on it, the internal LCD may be defective. Go to Procedure 3. If there is any problem on the external monitor, the main board may be defective. Go to Procedure 2.

Procedure 2   Diagnostic Test Program Execution Check

The Display Test program is stored on the computer's Diagnostics disk. This program checks the display controller on the main board. Connect the Diagnostics disk, turn on the computer and run the test. Refer to Chapter 3, *Tests and Diagnostics* for details. If an error is detected, go to Procedure 3.

Procedure 3   Connector Check and Cable Check

Check 1   The LCD and Main board are connected by inverter cable, inverter board and LVDS cable. Make sure the LVDS cable is firmly connected to Main board. If the connection is loose, reconnect firmly and restart the computer. If there is still an error, go to Check 2.
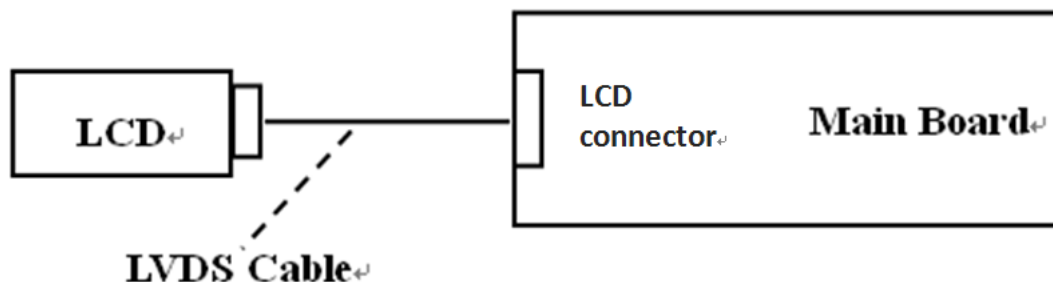
Procedure 4   Replacement Check

LCD module and main board are connected to display circuits through LVDS cable. Any of these components may be damaged. Refer to Chapter 4, *Replacement Procedures,* for instructions on how to disassemble the computer and then perform the following checks:

Check 1   The LVDS cable or inverter cable may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*. If the problem still exists, perform Check 2.

Check 3   The Main board or LCD panel may be damaged. Replace it with a new one following the instructions in Chapter 4, *Replacement Procedures*.

2.8   Optical Drive Troubleshooting

This section describes how to determine if the optical drive (DVD-ROM,DVD±R/±RW/-RAM and BluRay Drive) in the Slim Select Bay is functioning properly. Perform the steps below starting with Procedure 1 and continue with the other procedures as required.

Procedure 1:   Diagnostic Test Program Execution Check

Procedure 2:   Connector Check and Replacement Check

Procedure 1   Diagnostic Test Program Execution Check

The DVD-ROM, DVD±R/±RW/-RAM and BluRay Drive test program is stored on the Diagnostics Disk.

For the test, prepare test Media.

Then connect the Diagnostics HDD, turn on the computer and run the test. Refer to Chapter 3, *Tests and Diagnostics,* for more information about the diagnostics test procedures.

If any errors occur while executing the DVD-ROM, DVD±R/±RW/-RAM and BluRay Drive test, go to Procedure 2.

Procedure 2   Connector Check and Replacement Check

The optical drive (DVD-ROM, DVD±R/±RW/-RAM and BluRay Drive) is connected to the main board. The connectors may be disconnected from the main board or 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 drive to test is firmly connected to ODD connector on the main board.
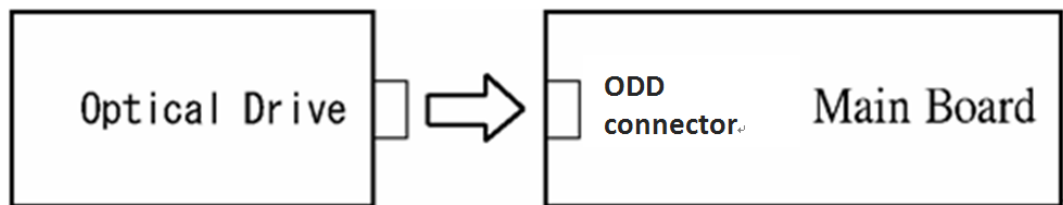
If the connection is loose, reconnect firmly and repeat Procedure 1. If there is still an error, go to Check 2.

Check 2   The drive may be defective or damaged. Replace the drive with a new one. If there is still an error, go to Check 3.

Check 3   Replace the main board with a new one following the steps in Chapter 4, *Replacement Procedures*.

2.9   LAN Troubleshooting

This section describes how to determine if the computer's LAN is functioning properly. Perform the steps below starting with Procedure 1 and continue with the other procedures as required.

Procedure 1:   Diagnostic Test Program Execution Check

Procedure 1   Diagnostic Test Program Execution Check

Execute the LAN test program available as part of the LAN test program. Refer to Chapter 3, *Tests and Diagnostics* for more information on how to perform the test program.

2.10 Wireless(WiDi WiFi) LAN Troubleshooting

This section describes how to determine if the computer's Wireless(WiDi WiFi) LAN is functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

> Procedure 1:   Transmitting-Receiving Check
>
> Procedure 2:   Antenna Connection Check
>
> Procedure 3:   Replacement Check

Procedure 1   Transmitting-Receiving Check

Make sure the Wireless(WiDi WiFi) switch of the computer is turned "On." If it is not, please turn it on.

Refer to Chapter 3, *Tests and Diagnostics* for more information on how to perform the test program.

Check 1   Execute test program for the Wireless(WiDi WiFi) LAN function to check the transmitting-receiving function of the Wireless(WiDi WiFi) LAN. You will need a second computer that can communicate by the Wireless(WiDi WiFi) LAN.

If the computer passes the test, the function is correctly working.

If the computer does not pass the test, perform Procedure 2.

Procedure 2   Antenna Connection Check

The Wireless(WiDi WiFi) LAN wiring diagram is shown below:
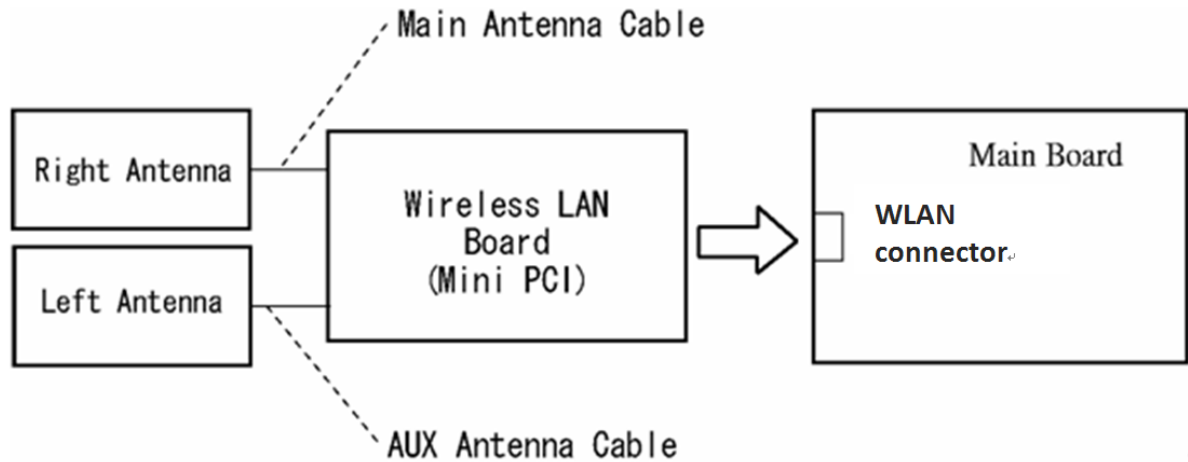
Any of the connections may be disconnected. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures*, and perform the following checks:

Check 1   Make sure the Wireless(WiDi WiFi) LAN board is firmly connected to WLAN connector on the main board.

If the connector is disconnected, connect it firmly. If the Wireless(WiDi WiFi) LAN board is still not functioning properly, perform Check 2.

Check 2   Make sure the Wireless(WiDi WiFi) LAN antenna cables are firmly connected to the Wireless(WiDi WiFi) LAN board.

If the Wireless(WiDi WiFi) LAN antenna cables are disconnected, connect them firmly. If the Wireless(WiDi WiFi) LAN board is still not functioning properly, go to Procedure 3.

Procedure 3   Replacement Check

The Wireless(WiDi WiFi) LAN antenna, Wireless(WiDi WiFi) LAN board and the main board are connected to the circuits. Any of these components may be damaged. Refer to Chapter 4, *Replacement Procedures,* for instructions on how to disassemble the computer and then perform the following checks:

Check 1   The Wireless(WiDi WiFi) LAN board may be defective or damaged. Replace the board with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still exists, perform Check 2.

Check 2   The Wireless(WiDi WiFi) LAN antenna may be defective or damaged. Replace the antenna with a new one following the steps in Chapter 4, *Replacement Procedures*. If the problem still exists, perform Check 3.

Check 3   The main board may be defective or damaged. Replace the board with a new one following the instructions in Chapter 4, *Replacement Procedures* and test the display again.

2.11 Sound Troubleshooting

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

> Procedure 1:   Diagnostic Test Program Execution Check
>
> Procedure 2:   Connector Check
>
> Procedure 3:   Replacement Check

Procedure 1   Diagnostic Test Program Execution Check

Insert the Sound test program in the USB key, turn on the computer and run the test. Refer to Chapter 3, *Tests and Diagnostics*, for details.

If an error is detected, go to Procedure 2.

Procedure 2   Connector Check

The sound function-wiring diagram is shown below:
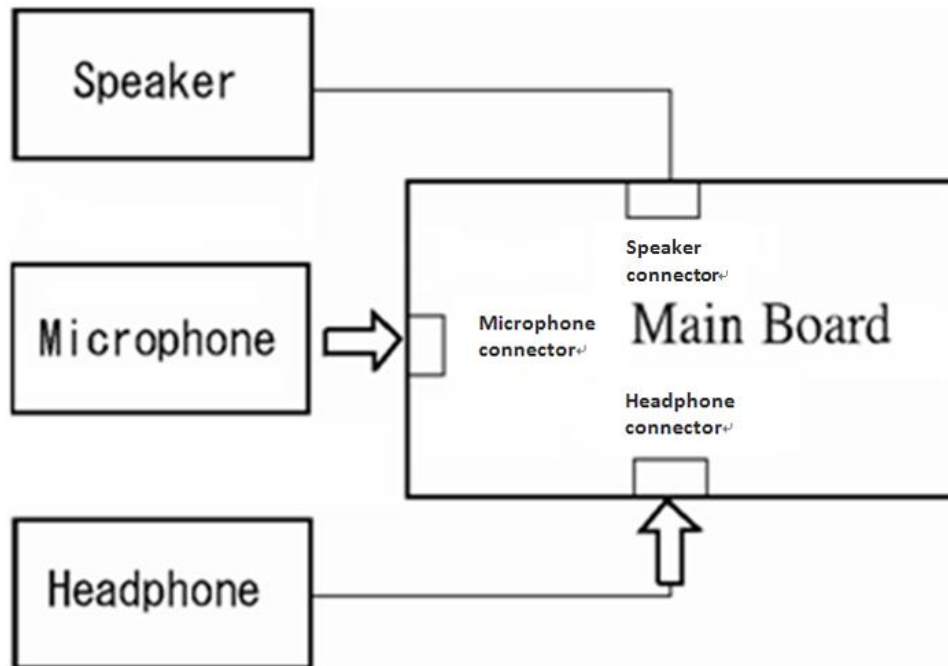
Any of the connections may be disconnected. Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks:

> If the stereo speakers do not work correctly, perform Check 1.
>
> If the headphone does not work correctly, perform Check 2.
>
> If the microphones do not work correctly, perform Check 3.

Check 1   If the stereo speakers do not work properly, the speaker cable may be disconnected. Make sure the speaker cable is firmly connected to speaker connector on the Main board. If the stereo speakers are still not functioning properly, go to procedure 3.

Check 2   If the headphone does not work properly, the headphone cable may be disconnected. Make sure the headphone cable is firmly connected to headphone connector on the Main board. If the sound function still does not work properly, go to procedure 3.

Check 3   If the microphones do not work properly, the external microphone cable may be disconnected. When using the external microphone, make sure the external microphone cable is firmly connected to microphone connector on the Main board. If the microphones are still not functioning properly, go to procedure 3.

Procedure 3   Replacement Check

Check 1   If the stereo speakers do not sound properly, the right or left speaker may be defective or damaged. Replace it with a new one. If the stereo speakers still do not work properly, go to Check 4.

Check 2   If the headphone does not sound properly, the headphone jack may be defective or damaged. Replace it with a new one. If the sound function still does not work properly, go to Check 4.

Check 3   If the microphones do not work properly, the microphone cable may be defective or damaged. Replace it with a new one. If the microphone still does not work properly, go to Check 4.

Check 4   The Main board may be defective or damaged. Replace it with a new one.

2.12 Card Reader Slot Troubleshooting

This section describes how to determine if the computer's card reader 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 7(TM)
>
> Procedure 2: Connector Check and Replacement Check

Procedure 1   Check on Windows 7(TM)

Insert an MMC/SD/MS/MS(PRO) card into the slot. Check if the installed Windows recognizes automatically the MMC/SD/MS/MS(PRO) card and the data in the MMC/SD/MS/MS(PRO) card can be read.

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

Procedure 2   Connector Check and Replacement Check

The MMC/SD/MS/MS(PRO) card is connected to media card connector on the Main board.
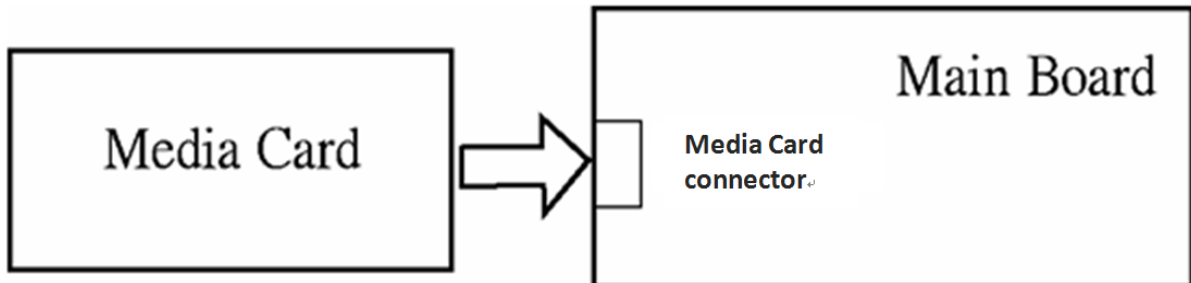
Check 1   The MMC/SD/MS/MS(PRO) card and the Main board may be disconnected. Make sure the MMC/SD/MS/MS(PRO) card is firmly inserted to CON3301 on the Main board. If not, insert it firmly. If the MMC/SD/MS/MS(PRO) card is still not functioning properly, perform Check 2.

Check 2   The MMC/SD/MS/MS(PRO) 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   The Main board may be faulty. Replace it with a new one following the step in Chapter 4 *Replacement Procedures*.

2.13 Bluetooth (BTO) Troubleshooting ○,ɪ

This section describes how to determine if the computer's Bluetooth is functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

> Procedure 1:   Diagnostic Test Program Execution Check
>
> Procedure 2:   Connector Check and Replacement Check

Procedure 1   Diagnostic Test Program Execution Check

Insert the Bluetooth test program in the USB key, turn on the computer and run the test. Refer to Chapter 3, *Tests and Diagnostics,* for more information about the diagnostics test procedures.

If any errors occur while executing the Bluetooth test, go to Procedure 2.

Procedure 2   Connector Check and Replacement Check

The Bluetooth is installed on the main board by Bluetooth cable. If the Bluetooth malfunctions, there may be a bad connection between the Bluetooth and the main board. Or the Bluetooth, main board or the Bluetooth cable might be damaged.

Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks:

Check 1   Make sure the Bluetooth is firmly connected to Bluetooth connector by Bluetooth cable on the main board and the connector of the Bluetooth.
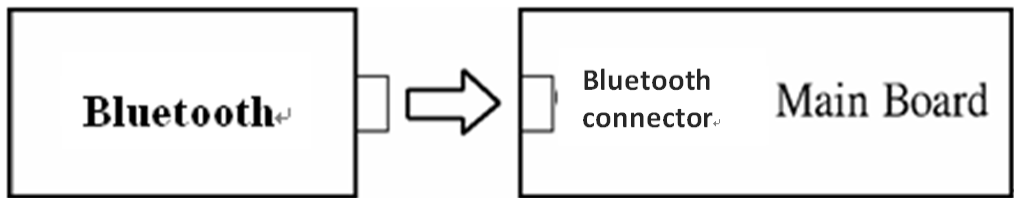
   If a connector is disconnected, connect it firmly and repeat Procedure 1. If the Bluetooth is still not functioning properly, perform Check 2.

Check 2   The Bluetooth may be defective or damaged. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the Bluetooth is still not functioning properly, perform Check 3.

Check 3   The Bluetooth cable may be defective or damaged. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the Bluetooth is still not functioning properly, perform Check 4.

Check 4   The main board may be defective or damaged. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*.

2.14 Camera (BTO) Troubleshooting

This section describes how to determine if the computer's camera is functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

Procedure 1:   Diagnostic Test Program Execution Check

Procedure 2:   Connector Check and Replacement Check

Procedure 1   Diagnostic Test Program Execution Check

Insert the camera test program in the USB key, turn on the computer and run the test. Refer to Chapter 3, *Tests and Diagnostics,* for more information about the diagnostics test procedures.

If any errors occur while executing the camera test, go to Procedure 2.

Procedure 2   Connector Check and Replacement Check

The camera is installed on the main board by camera cable. If the camera malfunctions, there may be a bad connection between the camera and the main board. Or the camera, main board or the camera cable might be damaged.

Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks:

Check 1   Make sure the camera is firmly connected to camera connector by camera cable on the main board.
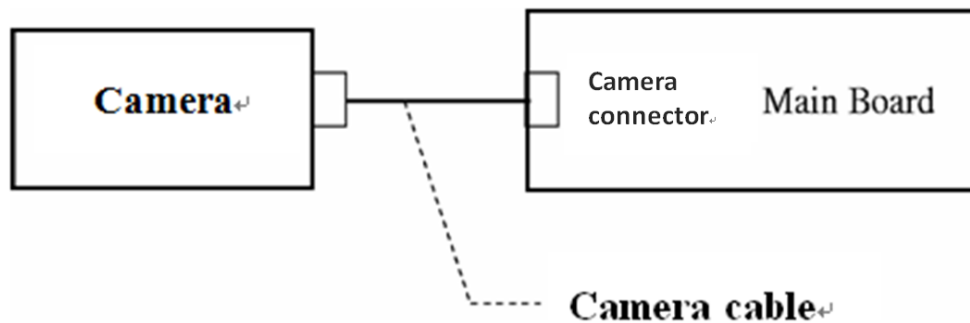
      If a connector is disconnected, connect it firmly and repeat Procedure 1. If the camera is still not functioning properly, perform Check 2.

Check 2   The camera may be defective or damaged. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*. If the camera is still not functioning properly, perform Check 3.

Check 3   The camera cable may be defective or damaged. Replace the LCD cover with a new one following the steps in Chapter 4, *Replacement Procedures*. If the camera is still not functioning properly, perform Check 4.

Check 4   The main board may be defective or damaged. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*.

2.15 HDMI Troubleshooting

This section describes if the computer HDMI functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

>   Procedure 1:   Check on Windows 7(TM)
>
>   Procedure 2:   Connector Check and Replacement Check

Procedure 1   Check on Windows 7(TM)

Switch play device to "high digital output" and if the HDMI output error then go to Procedure 2.

Procedure 2   Connector Check and Replacement Check

The HDMI function is work in main board. If the HDMI display malfunctions, there may be a bad connection between the HDMI displayer and the main board. Or the main board might be damaged.

Disassemble the computer following the steps described in Chapter 4, *Replacement Procedures* and perform the following checks:

Check 1   Make sure the HDMI displayer is firmly connected to HDMI connector on the main board by HDMI cable.
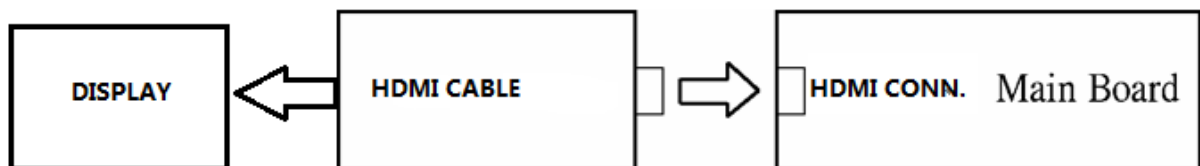
>   If a connector is disconnected, connect it firmly and repeat Procedure 1. If the output is still not functioning properly, perform Check 2.

Check 2   The main board may be defective or damaged. Replace it with a new one following the steps in Chapter 4, *Replacement Procedures*.

2.16 Touch Pad Troubleshooting

This section describes if the computer **Touch Pad with gesture** functioning properly. Perform the steps below starting with Procedure 1 and continuing with the other procedures as required.

Procedure 1:   Open a Photo

Procedure 2:   Test touchpad by Gesture

Procedure 1   Open a Photo

Procedure 2   Test touchpad by Gesture

Follow below can move photo.

Follow below can change photo dimension

2.17 Battery, RTC Battery Troubleshooting

This section describes if the computer **battery and RTC battery** functioning properly.
Perform the steps below starting with Procedure 1 and continuing with the other procedures
as required.

> Procedure 1:   AC in to charge the battery
>
> Procedure 2:   Log in BIOS

Procedure 1   AC in to charge the battery

Make sure AC in for a while, and then remove AC to see if battery has power and it can
support computer on.

Procedure 2   Log in BIOS

Log in BIOS to see if the system current time is the same with nature time.

If not, please correct and check it matched nature time again after a while.

Chapter 4

Disassembly and Assembly Procedures

Chapter 4   Contents

Part I   Disassembly Procedures

Part II Assembly Procedures

4.1 Remove Battery

1. Shift the battery knob to unlock the left latch.

2. Shift the spring knob and hold the position, then lift bottom edge of the battery from the groove.

3. Push the battery forward to separate it from the machine.

4.2 Remove Main Door

1. Loose 1 captive screw(M2*6L) on main door.

2. Lift the main door from the groove to remove it.

4.3 Remove Memory

1. Pull 2 latches outside until the memory bar springs up.

2.Pull the memory bar out from its socket.

4.4 Remove HDD

1. Pull the HDD mylar to disconnect HDD from motherboard.

2. Lift to remove HDD together with Al mylar.

3. Remove 4 screws(M3*3L) to separate Al mylar from HDD.

4.5 Remove ODD

1. Remove 1 screw(M2.5*4L) from bottom case.

2. Pull the ODD out from bottom case by handling ODD bezel.

3. Remove 2 screws(M2*3L) to separate ODD bracket from ODD.

4. Pull ODD bezel out from ODD carefully.

4.6 Remove Keyboard

1. Use a plastic stick to push the back of keyboard from the slot in ODD housing.

ODD opening

2. Push the keyboard until the corner raises upon top case surface.

3. Use a plastic pry slice to insert the gap between keyboard and top case, pry keyboard edges carefully until all latches are unlocked.
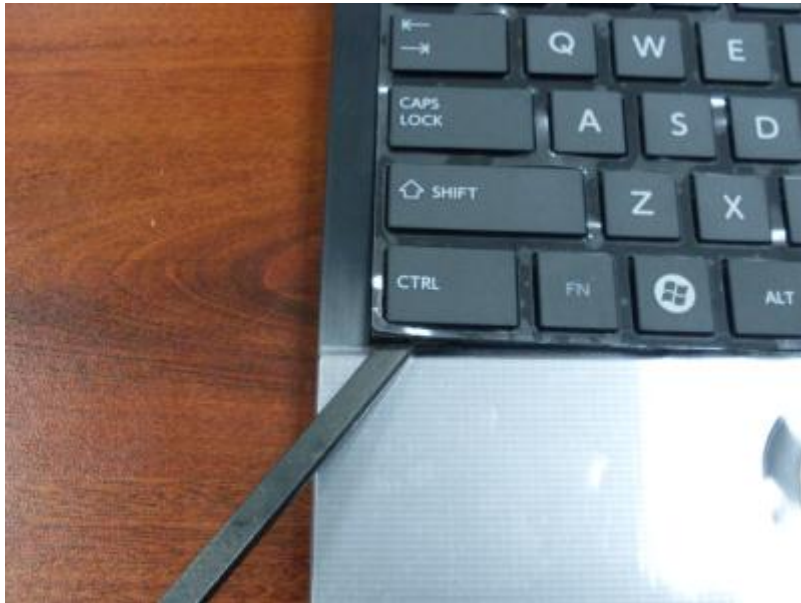
Tips: To avoid deforming the edges of keyboard or abrading the top case surface, a plastic pry slice of appropriate size is recommended. Please refer to the tool's wedge sketch below.
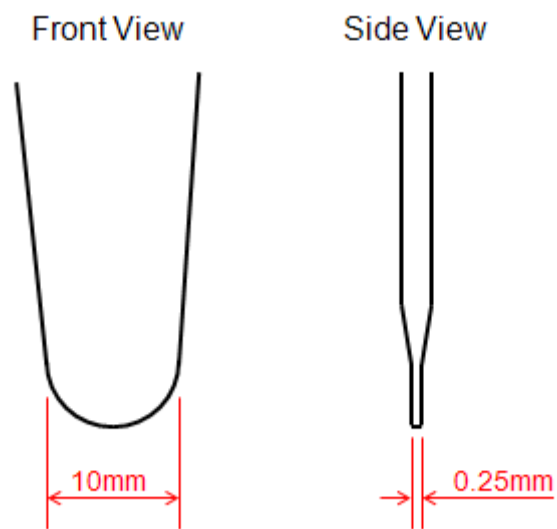
4. Lift top edge of keyboard to about a 90-degree angle. Disconnect keyboard cable from motherboard.

5. Remove keyboard from top case.

4.7 Remove Bottom Case

1. Disconnect touchpad board cable and power switch board cable from motherboard.
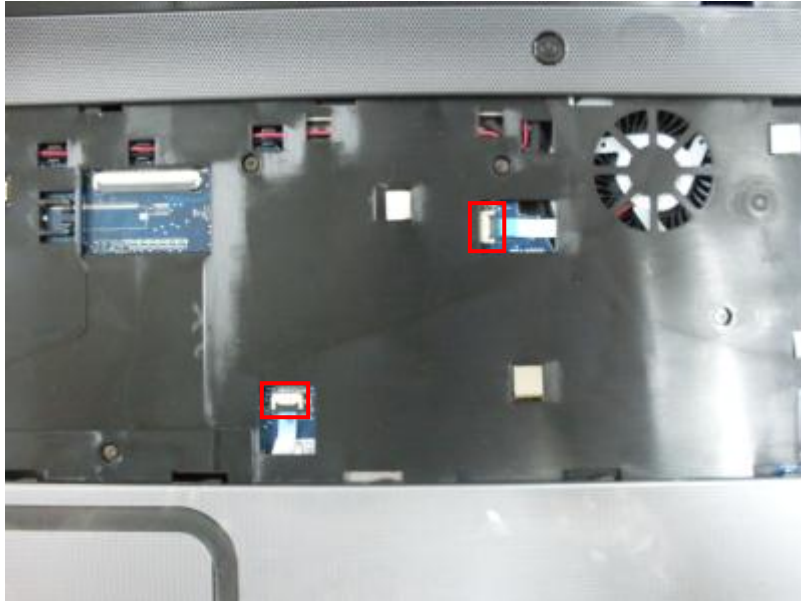
2. Remove 6 screws(M2*5L) from top case.

3. Close the LCD panel and turn over the machine. Remove 14 screws(M2*5L) from bottom case.

4. Use a plastic pry slice to insert the gap between top case and bottom case, pry bottom case edges until all latches are unlocked.

Warning: Do not pry some part of bottom case edges to aviod damaging motherboard.
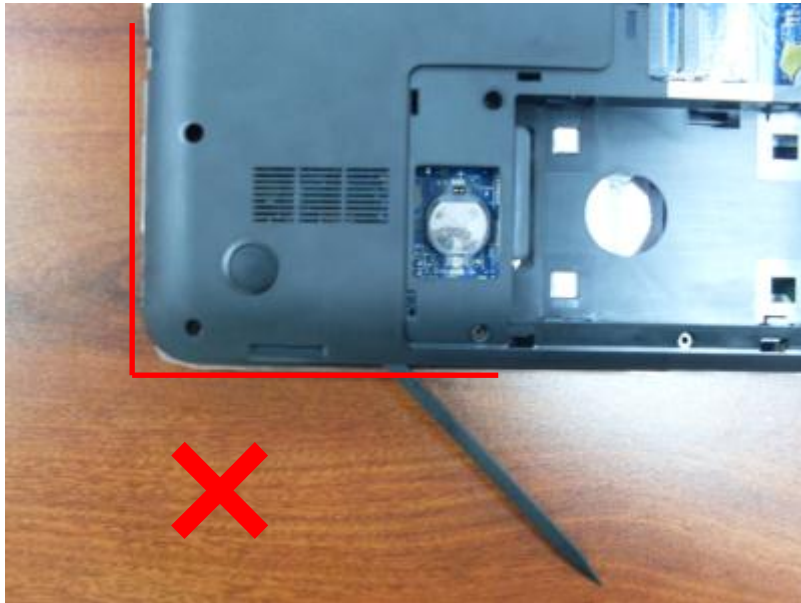
5. Separate bottom case from top case.

4.8 Remove USB Board

1. Disconnect USB board cable from USB board.

2. Remove 1 screw(M2*3L) from USB board.

3. Lift to remove USB board.
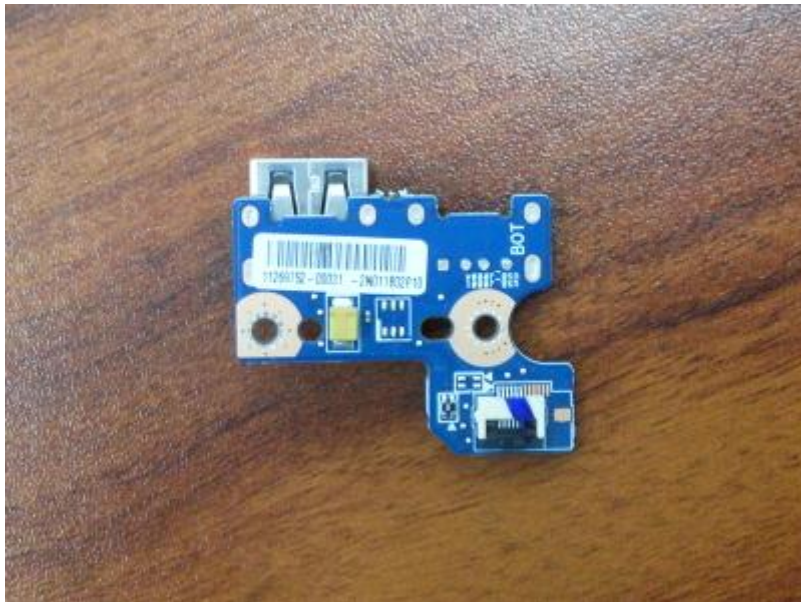
4.9 Remove WIFI Card

1. Disconnect antenna cables from WIFI card.

2. Remove 1 screw(M2*3L) to make the card spring up.

3. Pull WIFI card out from its slot.

4.10 Remove Power Switch Board

1. Disconnect power switch board cable.
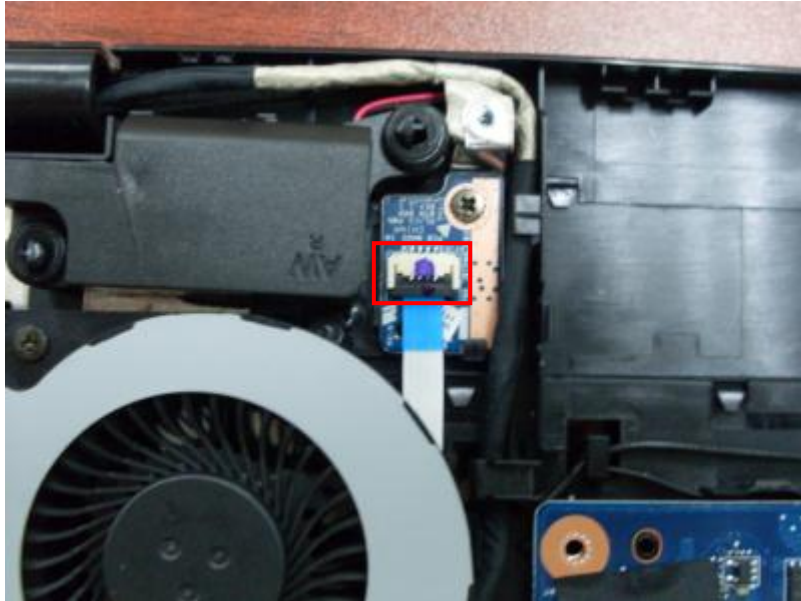
2. Remove 1 screw(M2*3L) from power switch board.
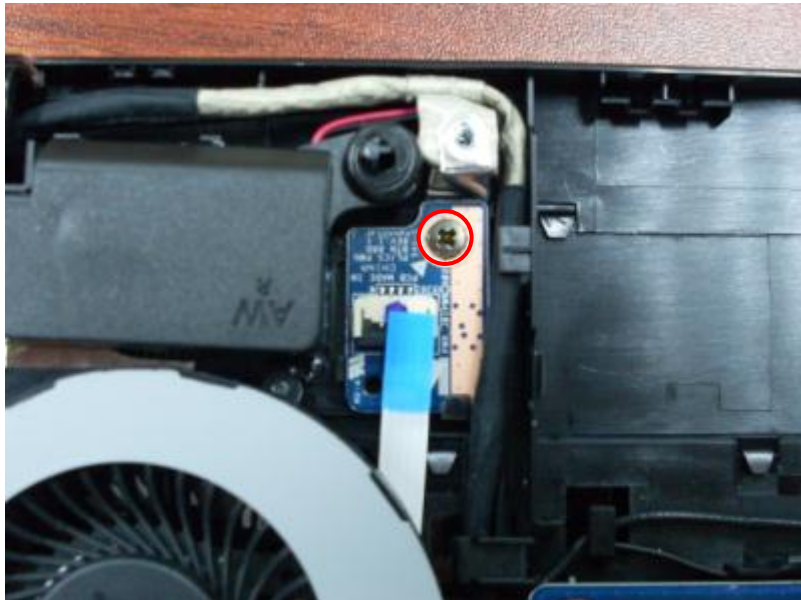
3. Lift to remove power switch board.
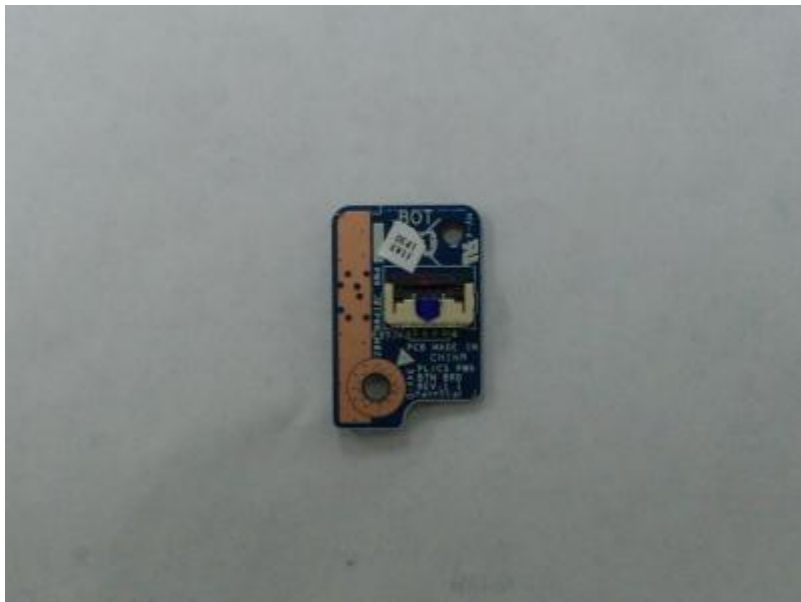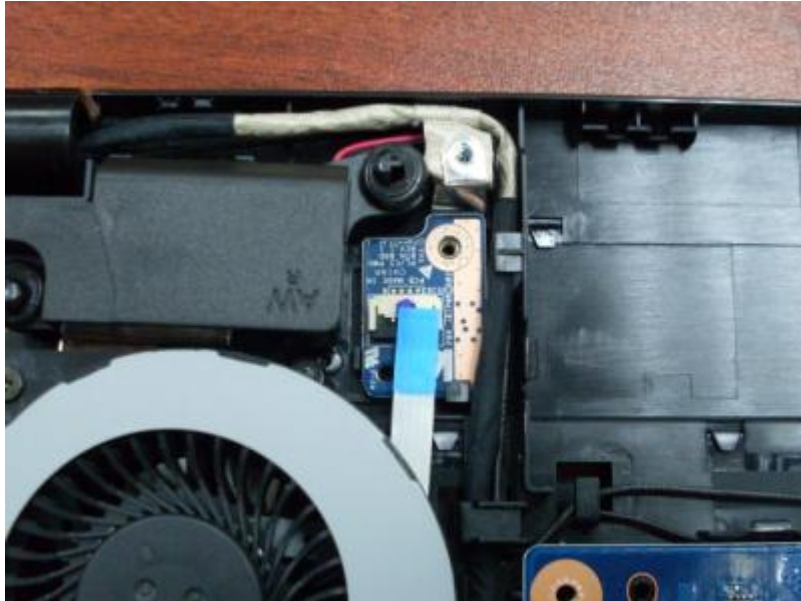
4.11 Remove Thermal Module

1. Disconnect fan cable from motherboard.

2. Remove 2 screws(M2*5L) from the fan.

3. Loose and remove 6 screws(M2*3L) on heatsink.

Warning: Please be sure to loose the screws slowly and alternately to avoid possible damage to the chips caused by unbalanced pressures.
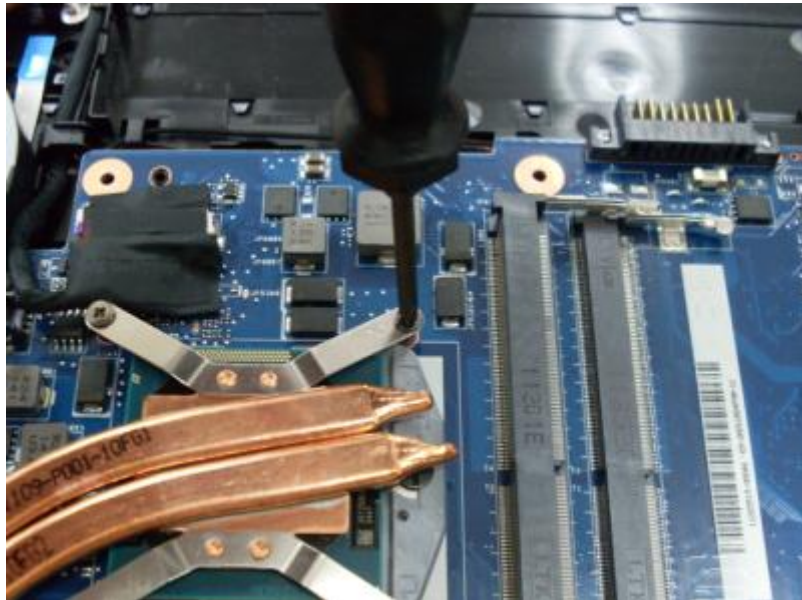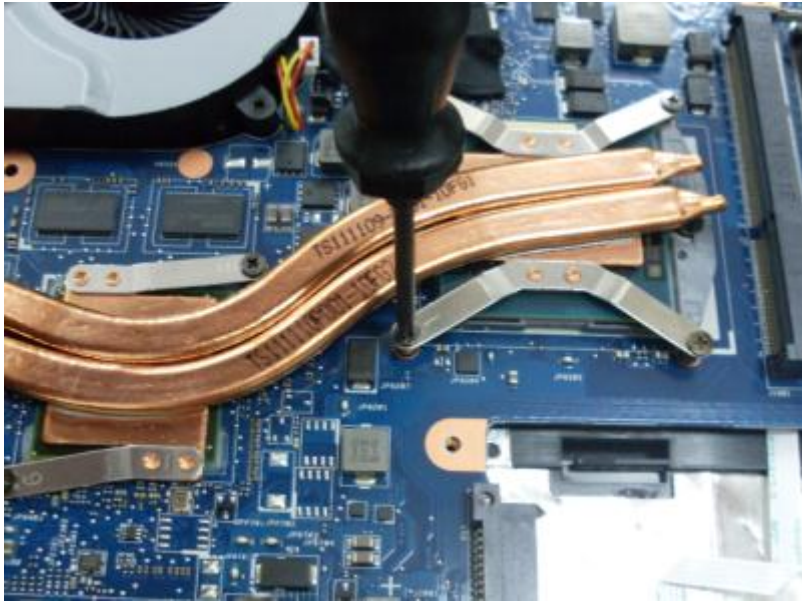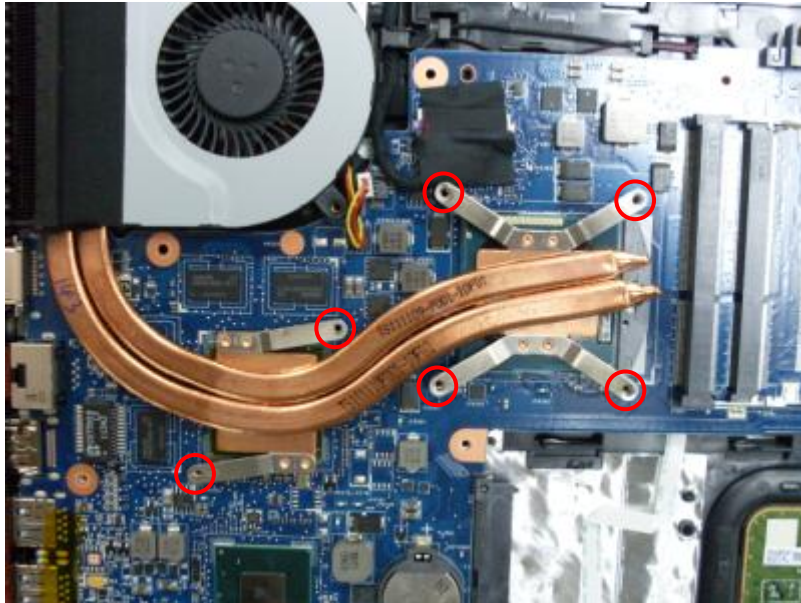
4. Lift copper pipes first to separate CPU block and GPU block from corresponding die carefully. Then remove thermal module from motherboard.

4.12 Remove CPU

1. Use an appropriate flat-head screwdriver to insert to the socket lock.

2. Rotate the lock screw on 180 degrees to unlocked position.

3. Use a vacuum pump to suck up CPU and remove it.
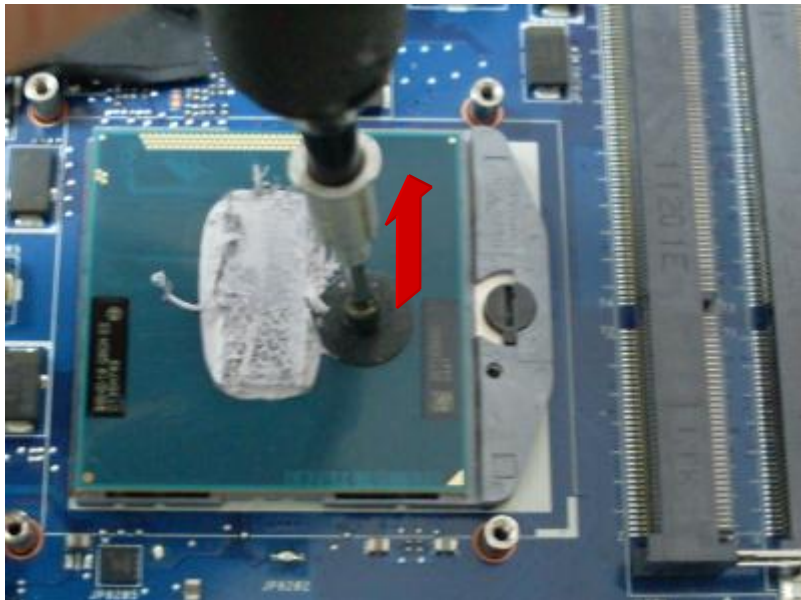
4.13 Remove Motherboard

1. Tear off LVDS cable fabric from motherboard and connector.
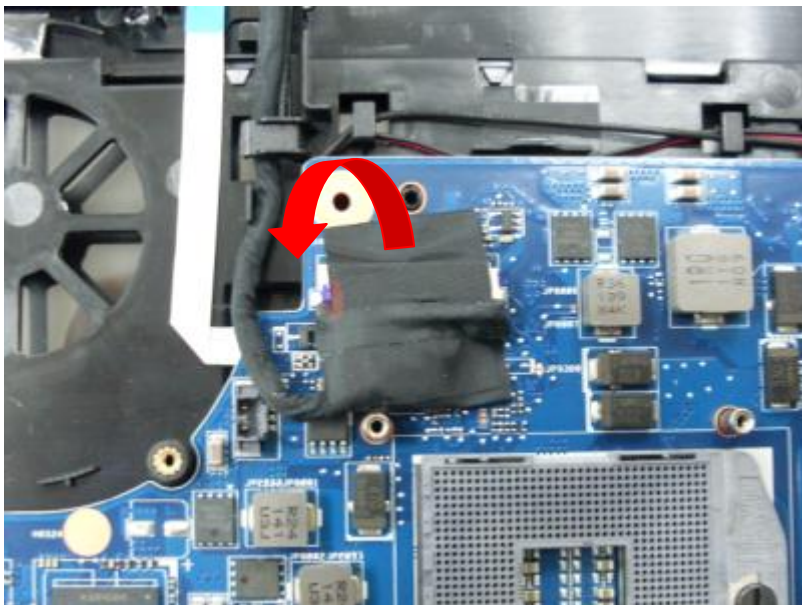
2. Disconnect LVDS cable from motherboard and pull out the cable from position groove.

3. Disconnect DC-in cable and speaker cable from motherboard.
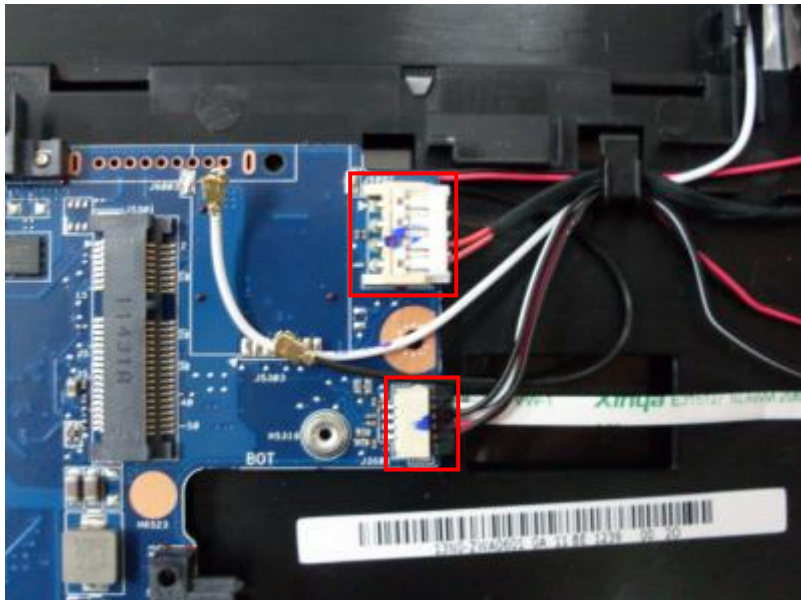
4. Clear the cables on motherboard, tear off USB board cable from top case.

5. Remove 1 screw(M2.5*4L) from motherboard.

6. Lift to remove motherboard from top case. Turn over motherboard, disconnect USB board cable to remove it.
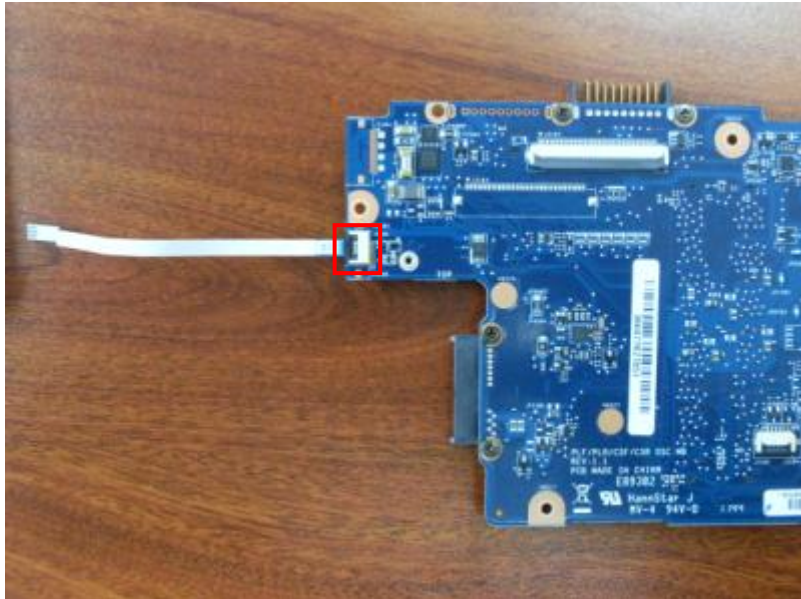
4.14 Remove Touchpad Board

1. Disconnect touchpad cable from touchpad board.

2. Remove 2 screws(M2*3L) from touchpad board.

3. Tear off touchpad board cable from top case Al mylar. Lift to remove touchpad board.
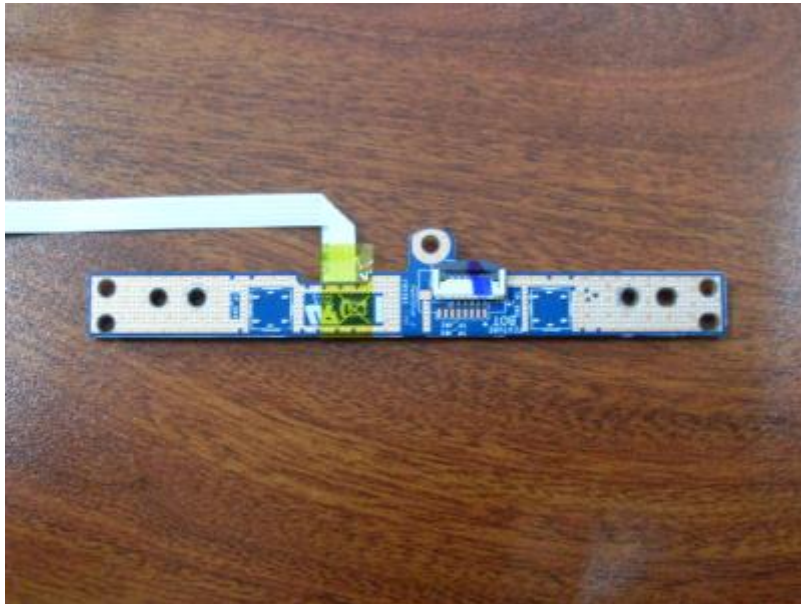
4.15 Remove Touchpad Cable

1. Tear off adhesive paper from touchpad.
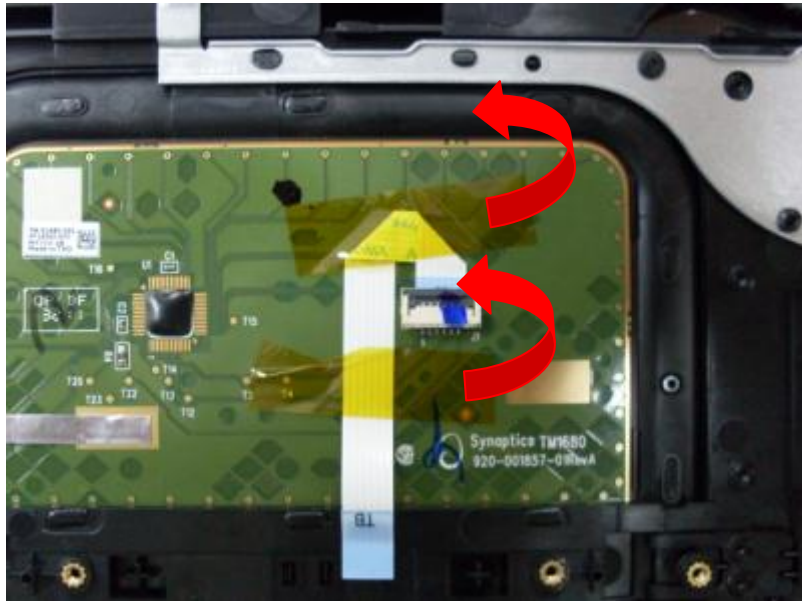
2. Disconnect touchpad cable from touchpad.
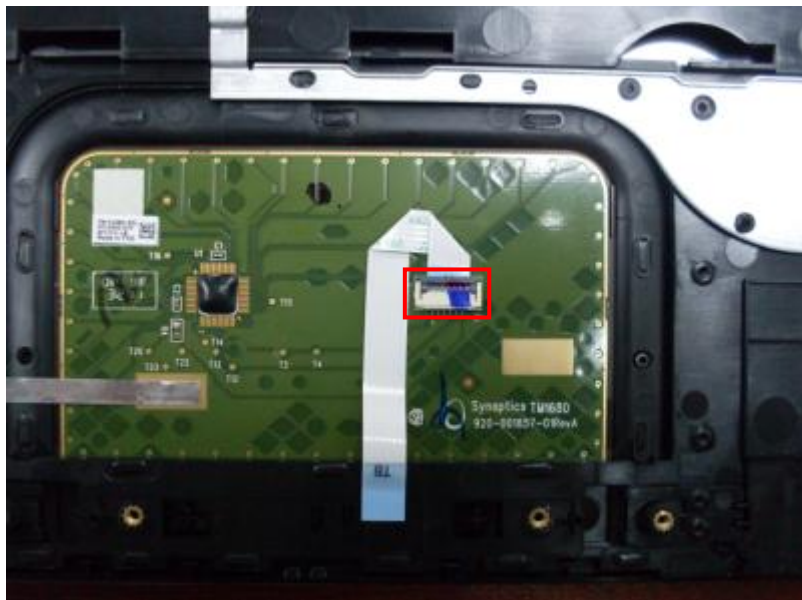
3. Remove touchpad cable.
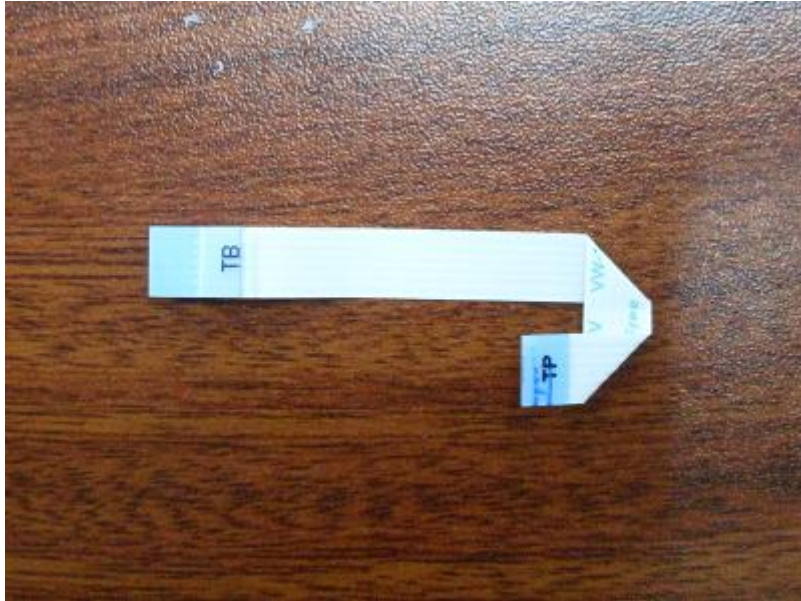
4.16 Remove Power Switch Board Cable

Tear off power switch board cable from top case.
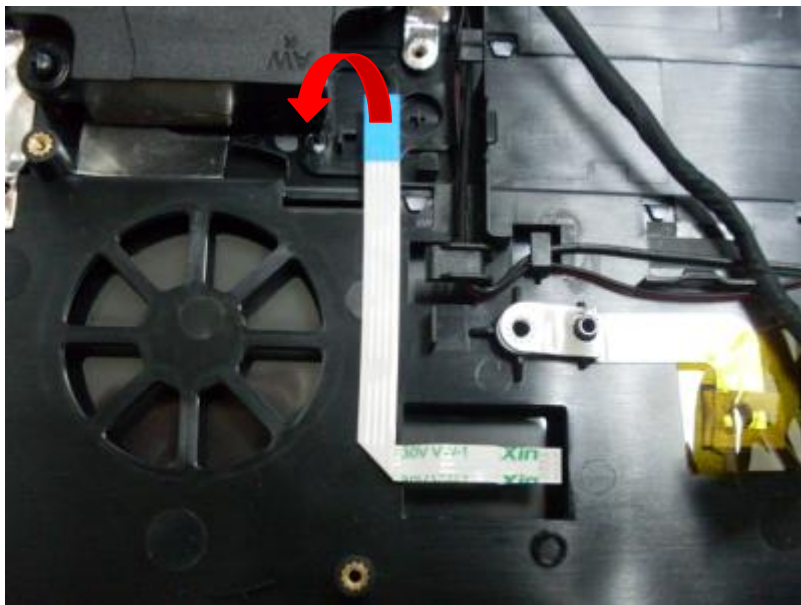
4.17 Remove DC-in Cable

Pull out DC-in cable from position groove and remove it.

4.18 Remove Speaker Module

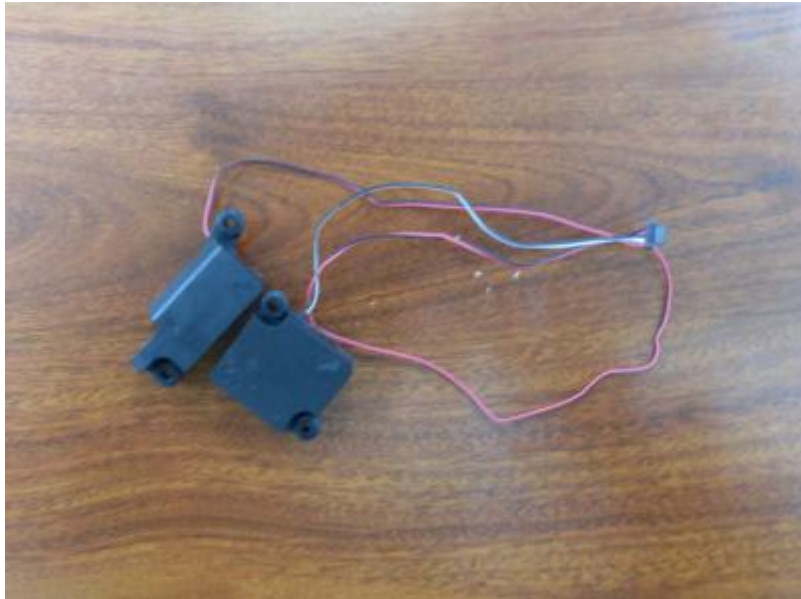1. Tear off conductive fabric of LVDS cable from screw pillar.

2. Pull out WLAN AUX antenna cable from position groove.
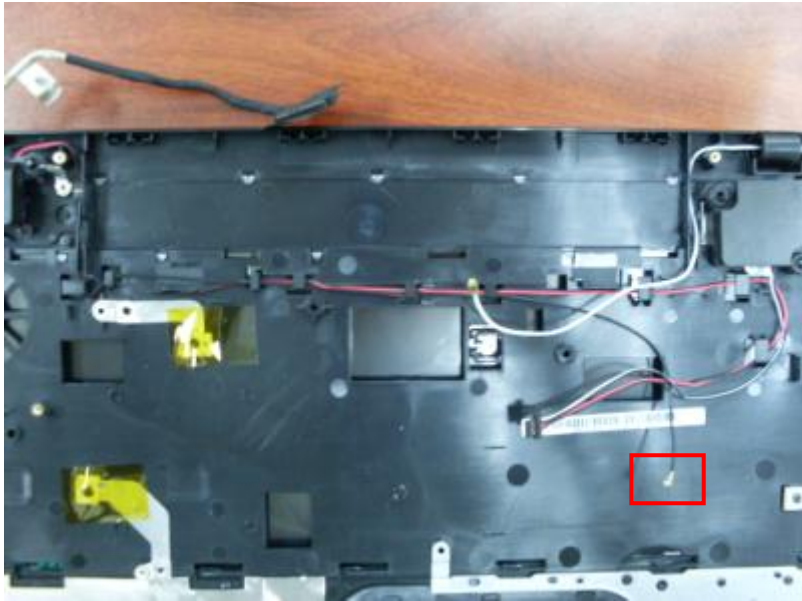
3. Pull speaker cable out from position groove, lift 2 speakers to remove speaker module.

4.19 Remove Top Case

1. Remove 4 screws(M2.5*4.5L) from the hinges.

2. Lift top case and hinges to about a 45-degree angle, separate top case from the hinges.

4.20 Remove LCD Bezel

1. Remove 4 screw(M2*3L) mylars and 4 screws from LCD bezel.

2. Use a plastic pry slice to insert the gap between LCD bezel and LCD cover, pry up bezel edges until all latches are unloceked.

Warning: Do not pry bezel part near camera lens.
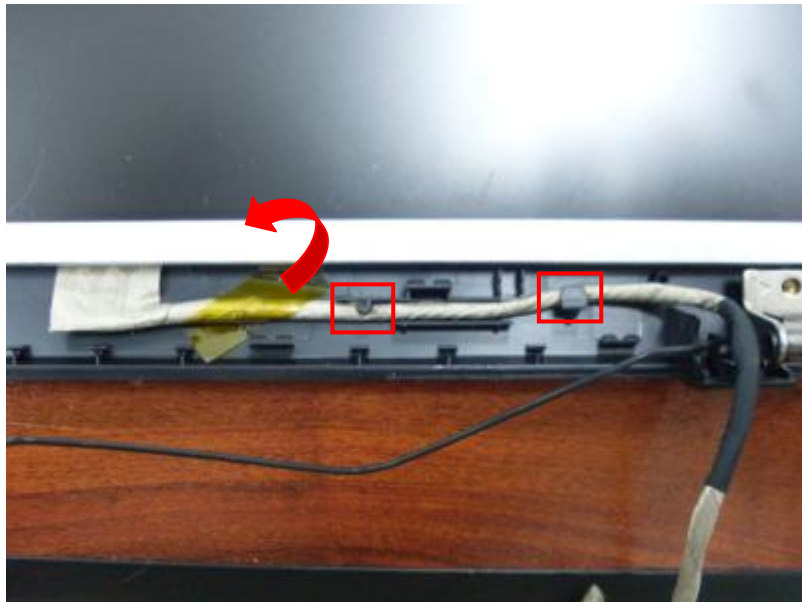

3. Separate LCD bezel from LCD cover.

4.21 Remove LCD Module

1. Disconnect camera cable from camera module.

2. Tear off the adhesive paper, pull LVDS cable out of position groove.

3. Remove 4 screws(M2.5*4L) from the hinges. Lift to remove LCD module.
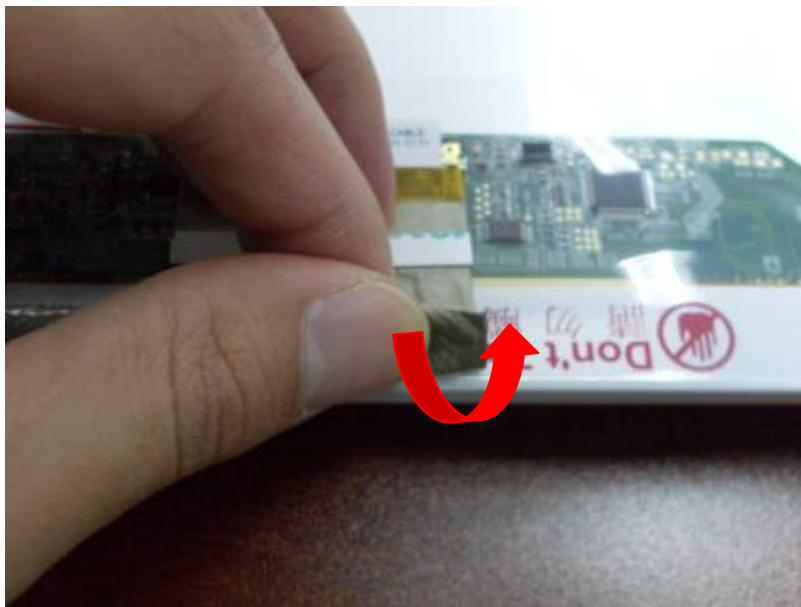
4.22 Remove Camera Module

Lift camera module from LCD cover carefully.

4.23 Remove LVDS CMOS Cable

1. Tear off LVDS CMOS cable from the back of LCD panel.

2. Tear off cable label from LVDS connector.

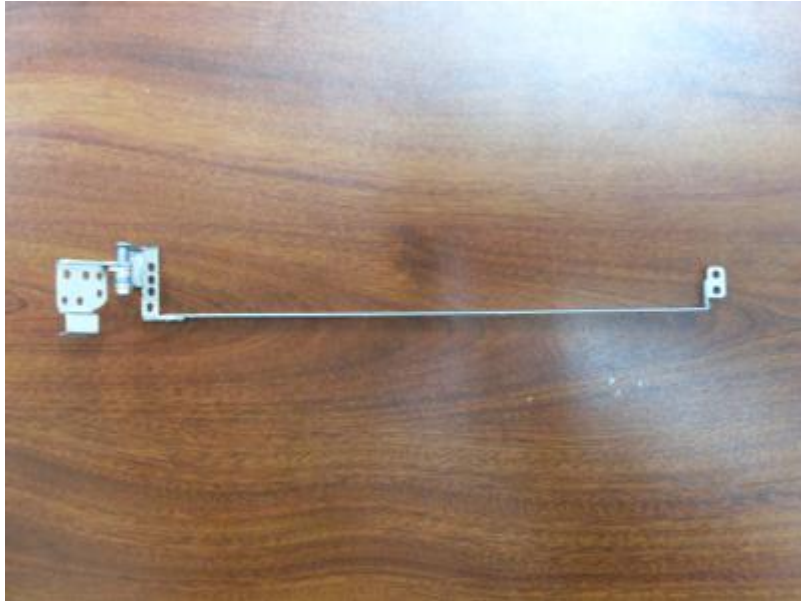3. Disconnect LVDS CMOS cable from LCD panel.

4.24 Remove Hinges

Remove 4 screws(M2*3L) from LCD module to separate the hinges.

4.25 Replace Hinges

1. Replace the left and right hinge to corresponding edge of LCD panel.

2. Consolidate the hinges with 4 screws(M2*3L).

4.26 Replace LVDS CMOS Cable

1. Connect LVDS connector of LVDS CMOS cable to LCD panel and adhere the label on the connector.

2. Adhere LVDS CMOS cable to the back of LCD panel.

4.27 Replace Camera Module

Adhere camera module to LCD cover by aiming the position hole of camera at the position pillar of LCD cover.

4.28 Replace LCD Module

1. Replace LCD module to LCD cover.

2. Consolidate the hinges to LCD cover with 4 screws(M2.5*4L).

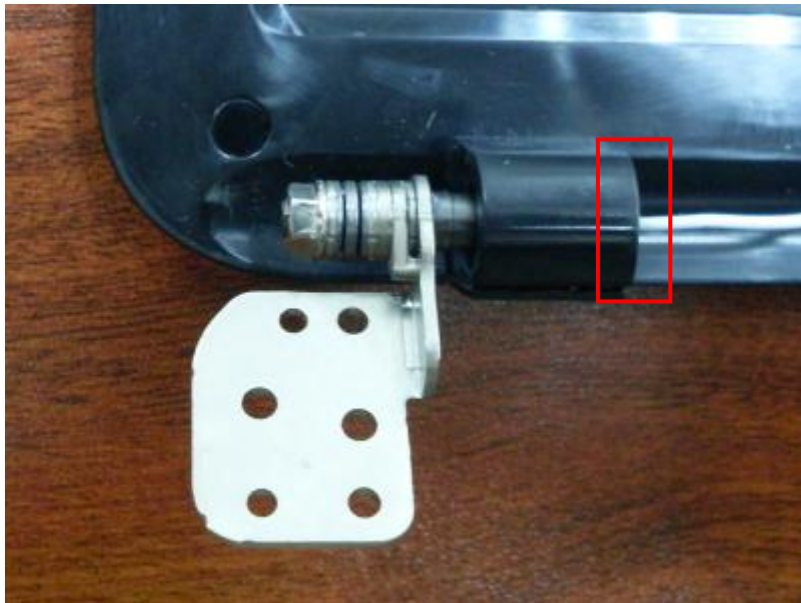3. Connect camera connector of LVDS CMOS cable to camera module.

4. Root LVDS cable to position groove of LCD cover. Adhere the mylar to fix LVDS cable.
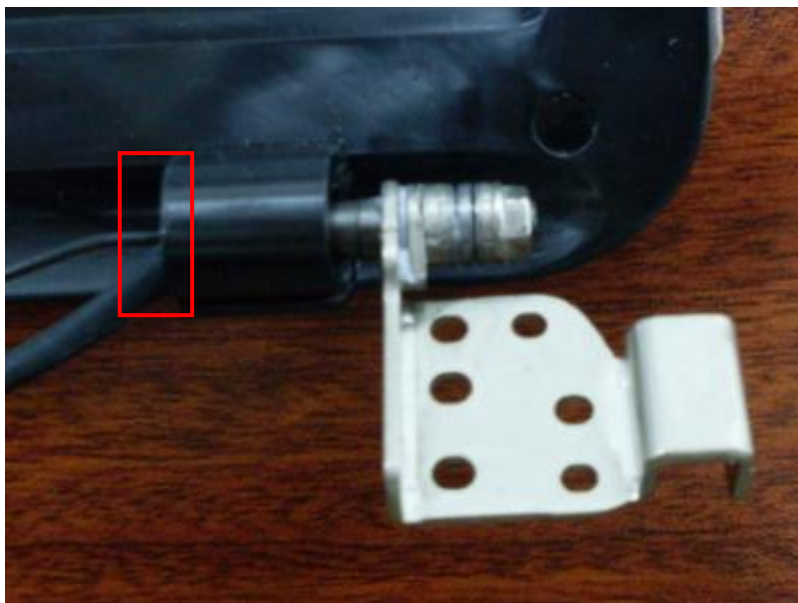
4.29 Replace LCD Bezel

1. Replace LCD bezel on LCD cover, press the edges to make all latches locked. Root antenna cables and LVDS cable in hinge cover.

2. Consolidate LCD bezel with 4 screws(M2*3L), then cover 4 screw caps on 4 screws.
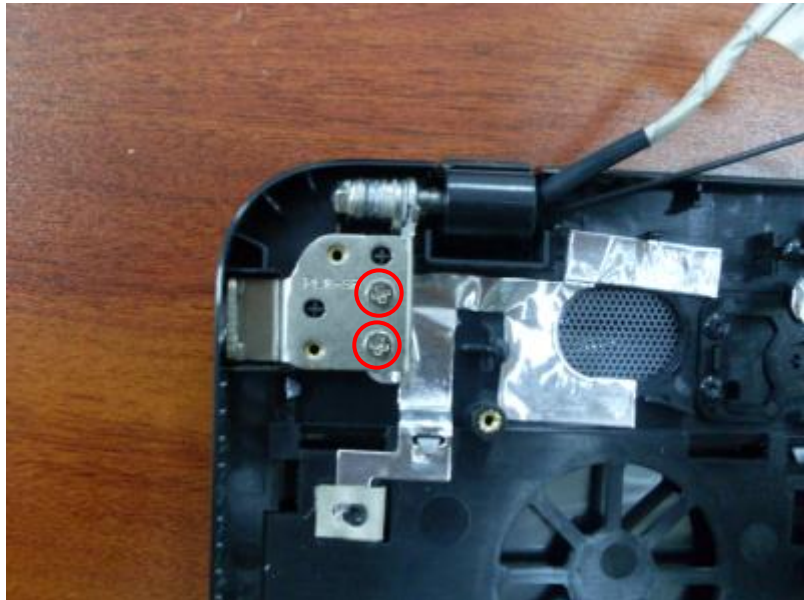

4.30 Replace Top Case

1. Replace the hinge edge of top case to LCD module first, aim the position holes of hinges at the position pillars of top case, then press down the hinges together with top case.
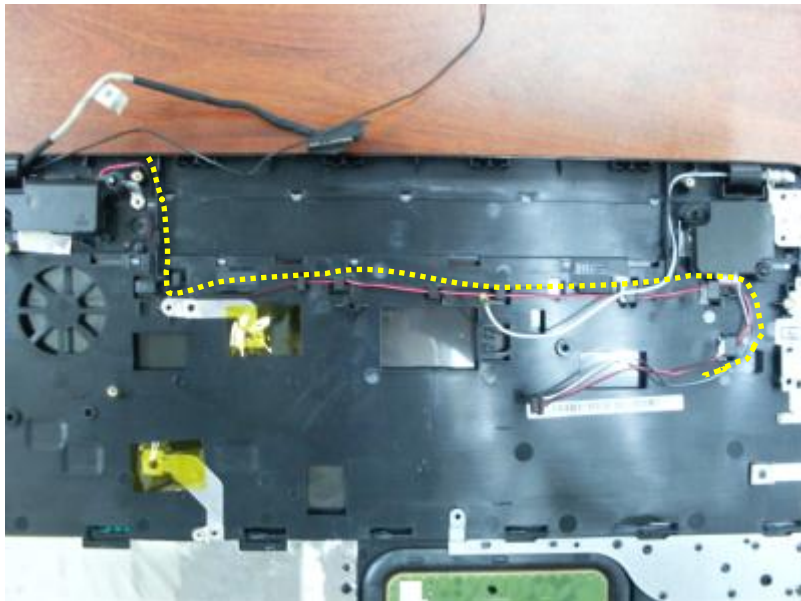
2. Consolidate the hinges with 4 screws(M2.5*4.5L).
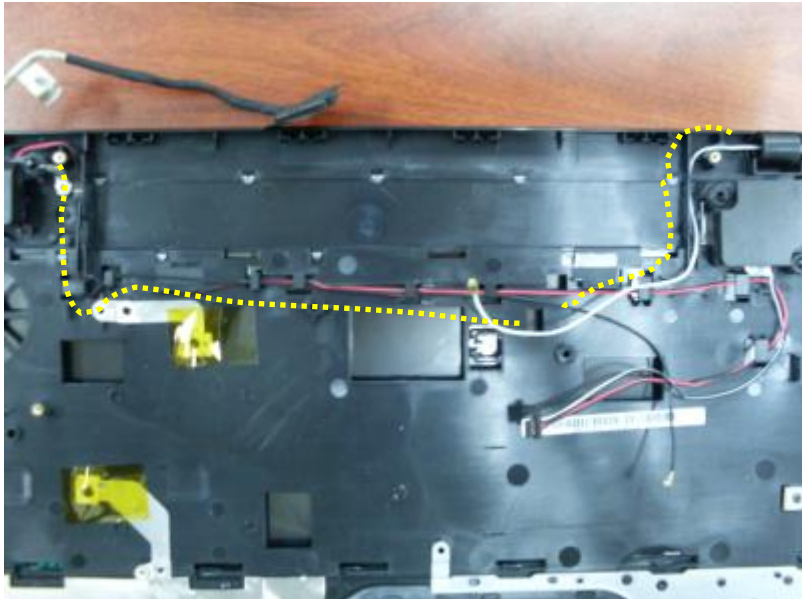
4.31 Replace Speaker Module

1. Replace 2 speakers to corresponding position of top case, root speaker cable in position groove.

2. Root antenna cables in position grooves.

3. Adhere conductive fabric of LVDS cable on screw pillar of top case.

4.32 Replace DC-in Cable

Press DC-in jack in position socket of top case, and root DC-in cable in position groove.
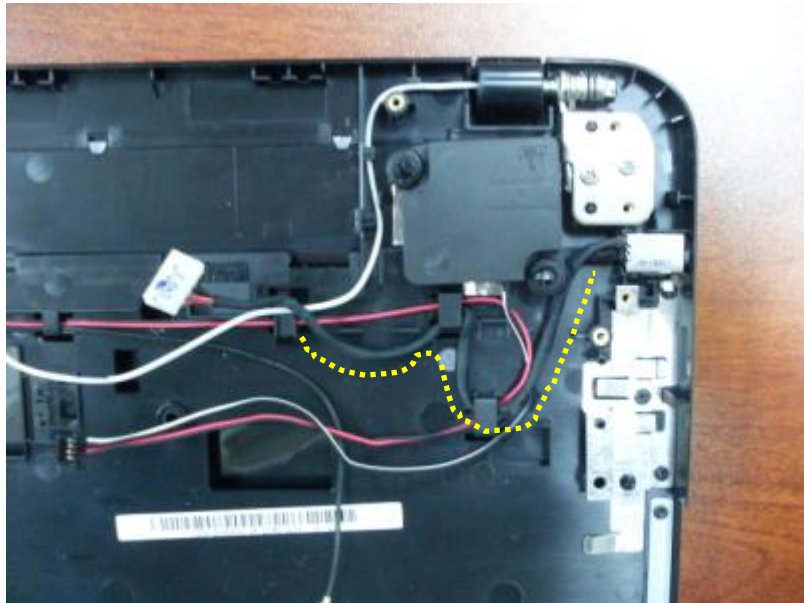
4.33 Replace Touchpad Cable

1. Connect TP side of touchpad cable to touchpad.
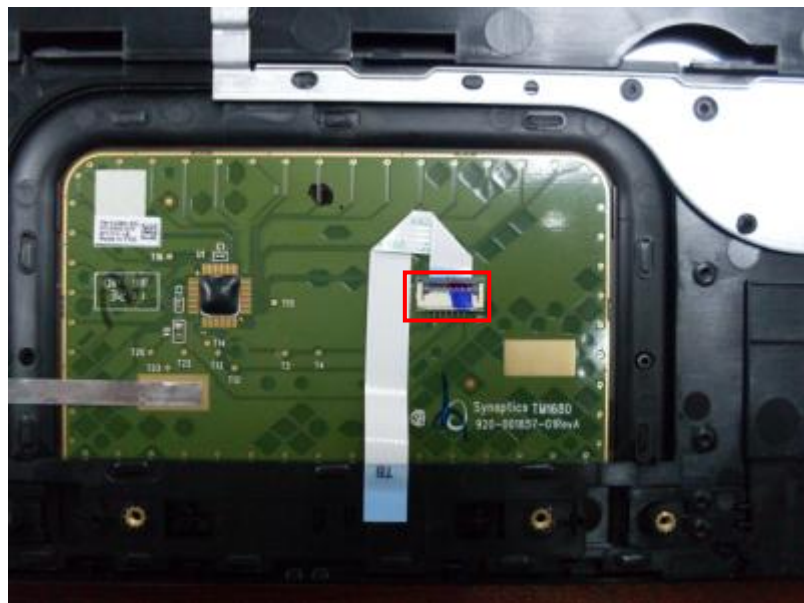
2. Adhere 2 mylars on touchpad to fix the cable.

4.34 Replace Touchpad Board

1. Replace touchpad board on top case.
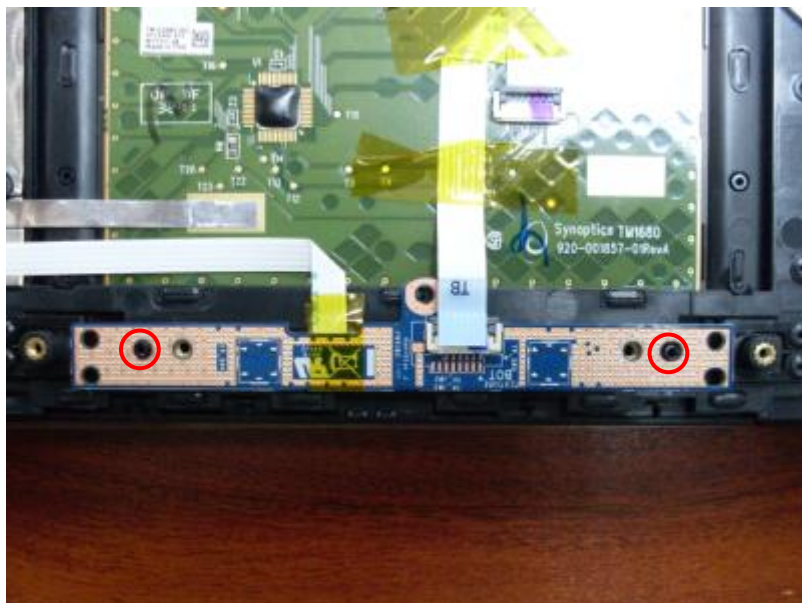
2. Consolidate touchpad board with 2 screws(M2*3L).

3. Connect TB side of touchpad cable to touchpad board.

4.35 Replace Motherboard

1. Connect USB board cable to motherboard.
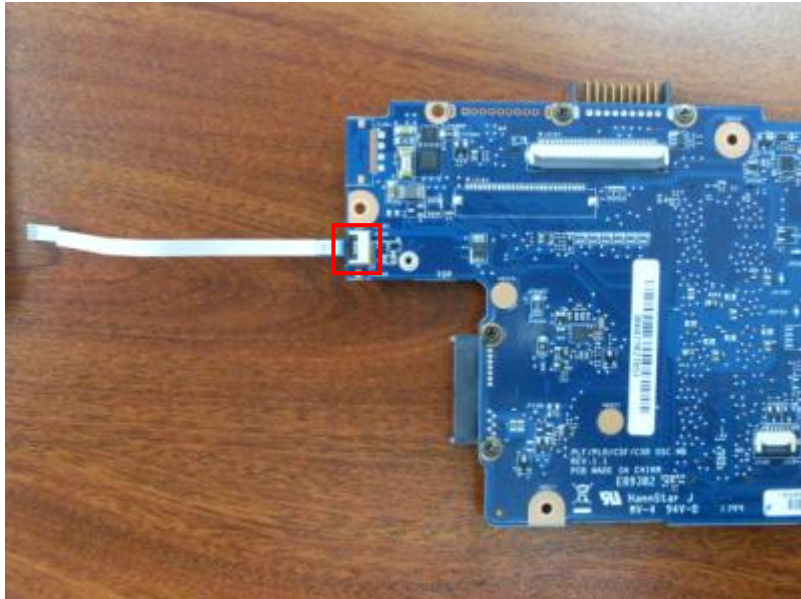
2. Connect power switch board cable to motherboard.
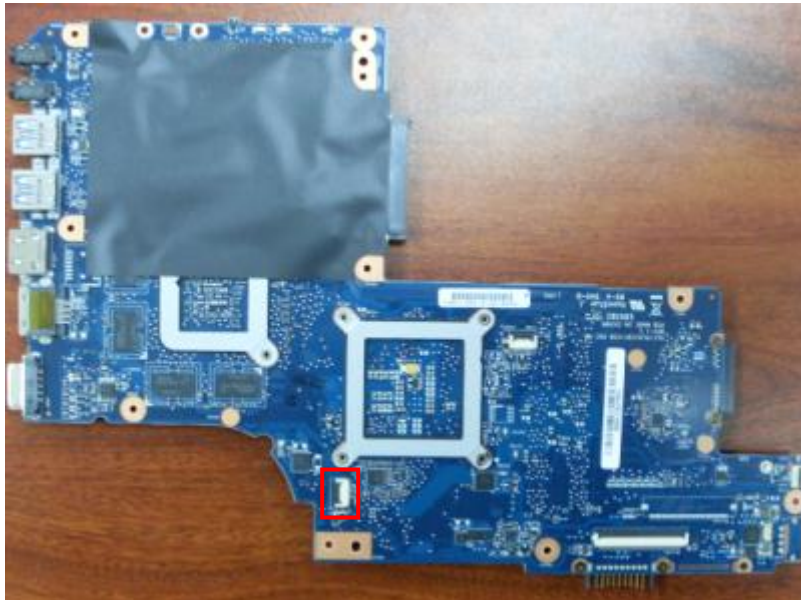
3. Replace motherboard on top case after inserting all I/O connectors to corresponding holes of top case. Consolidate motherboard with 1 screw(M2.5*4L).

4. Connect DC-in cable and speaker cable to motherboard.
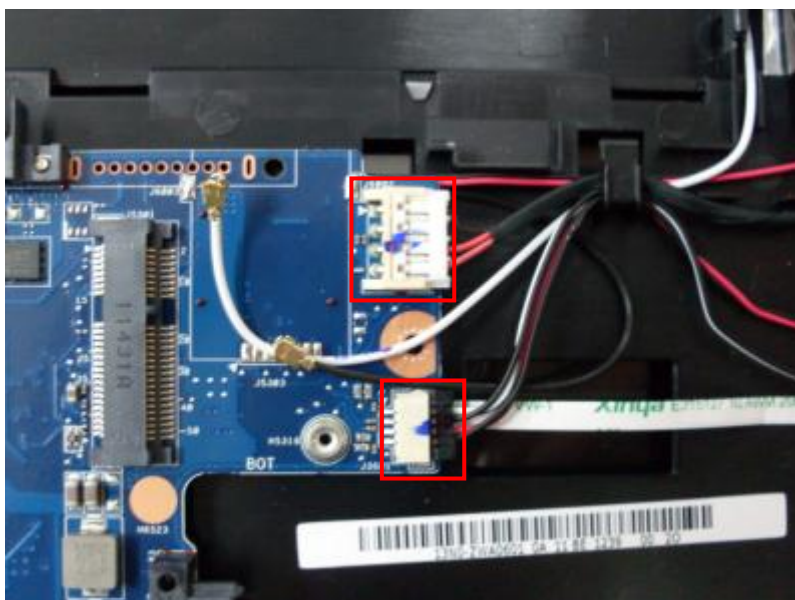
5. Root LVDS cable in position groove, connect the cable to motherboard and cover adhesive fabric on connector.
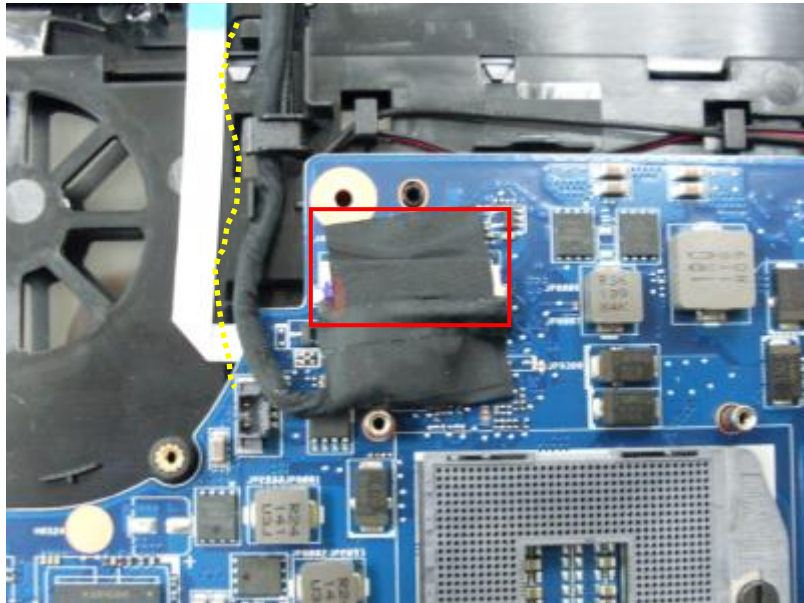
4.36 Replace CPU

1. Use a vacuum pump to suck up CPU. Put CPU onto the socket with all CPU pins downward and 2 small triangle marks (respectively at one corner of the CPU and socket) coincided.
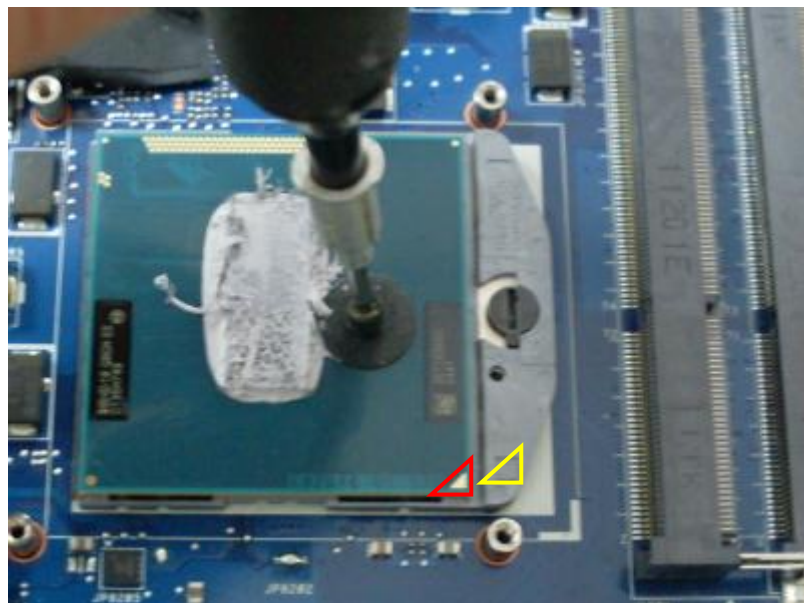
2. Use an appropriate flat-head screwdriver to insert to the socket lock slot.

3. Rotate the lock screw on 180 degrees to locked position.

4.37 Replace Thermal Module

1. Replace CPU block and GPU block of thermal module on corresponding chip dies.

2. Tighten 2 diagonal screws(M2*3L) on CPU block spring first.

Warning: Do not strengthen these 2 screws directly.

3. Tighten the other 2 diagonal screws(M2*3L) on CPU block spring. Then tighten 2 screws on GPU block spring. Strengthen 6 screws(M2*3L) slowly and alternately to avoid possible damage to the chips caused by unbalanced pressures.
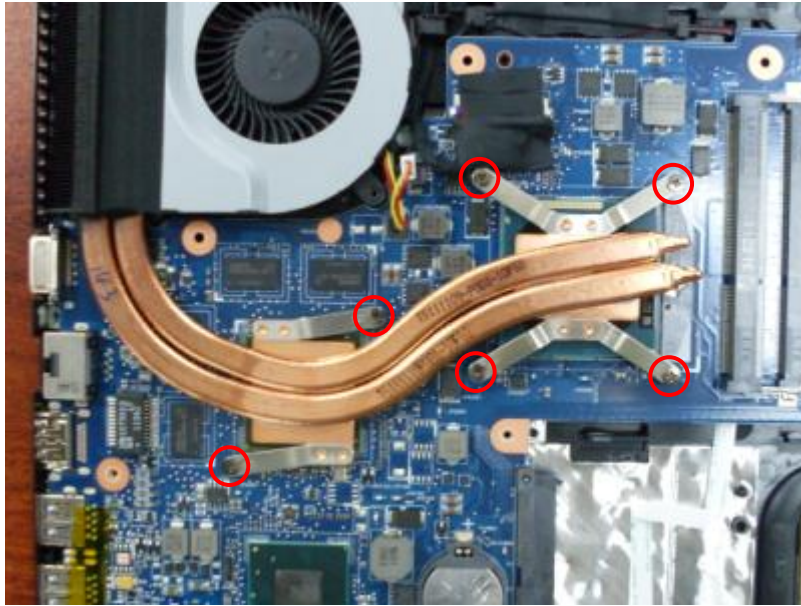
4. Consolidate thermal fan with 2 screws(M2*5L).

5. Connect fan cable to motherboard.

4.38 Replace Power Switch Board

1. Position power switch board on top case.
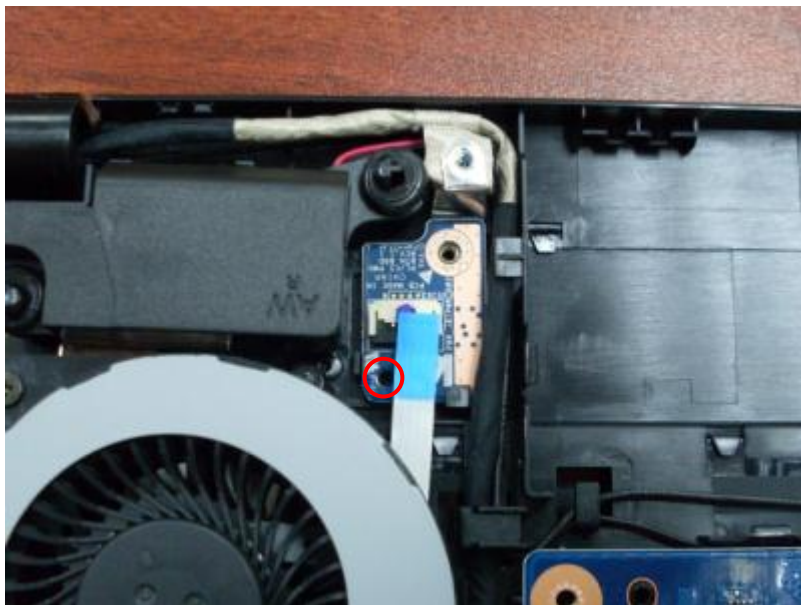
2. Consolidate power switch board with 1 screw(M2*3L).
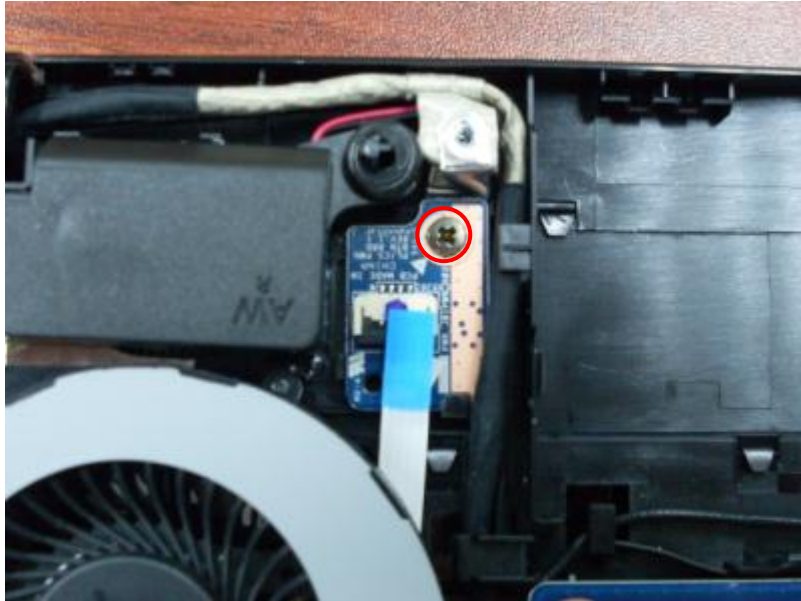
3. Connect power switch board cable to the board.
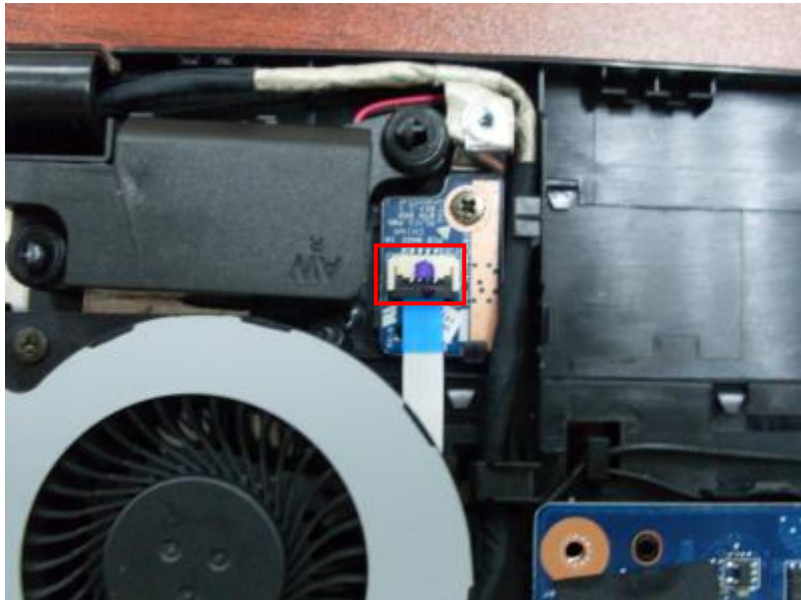
4.39 Replace WIFI Card

1. Insert WIFI card to its slot at about a 20-degree angle.

2. Consolidate WIFI card with 1 screw(M2*3L).

3. Connect WIFI main antenna cable and AUX antenna cable to corresponding connectors.

4.40 Replace USB Board

1. Position USB board on top case.

2. Consolidate USB board with 1 screw(M2*3L).

3. Connect USB board cable to USB board. Adhere the cable on top case.

4.41 Replace Bottom Case

Position bottom case on top case, press down the edges of bottom case to make all latches locked. Then consolidate bottom case with 14 screws(M2*5L).
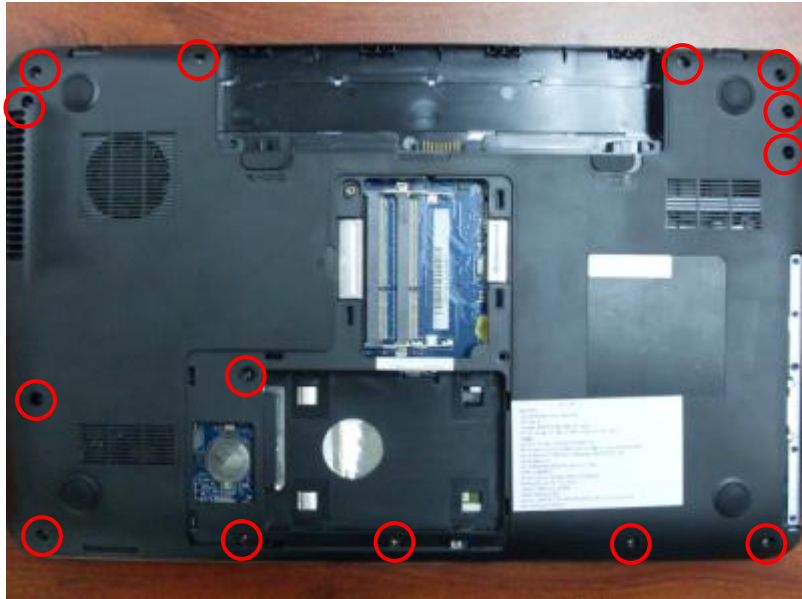
4.42 Replace Keyboard

1. Turn over the machine and open LCD panel. Consolidate top case with 6 screws(M2*5L).

2. Connect touchpad board cable and power switch board cable to motherboard.
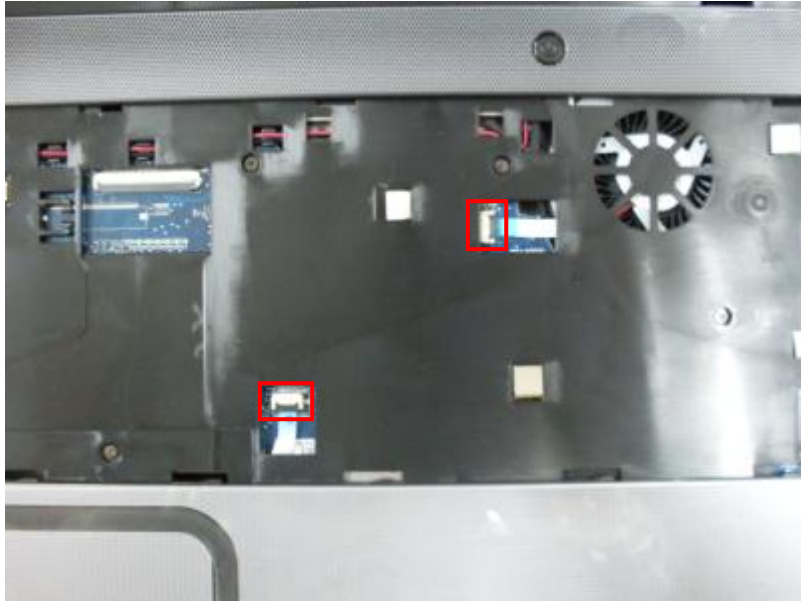
3. Connect keyboard cable to motherboard.
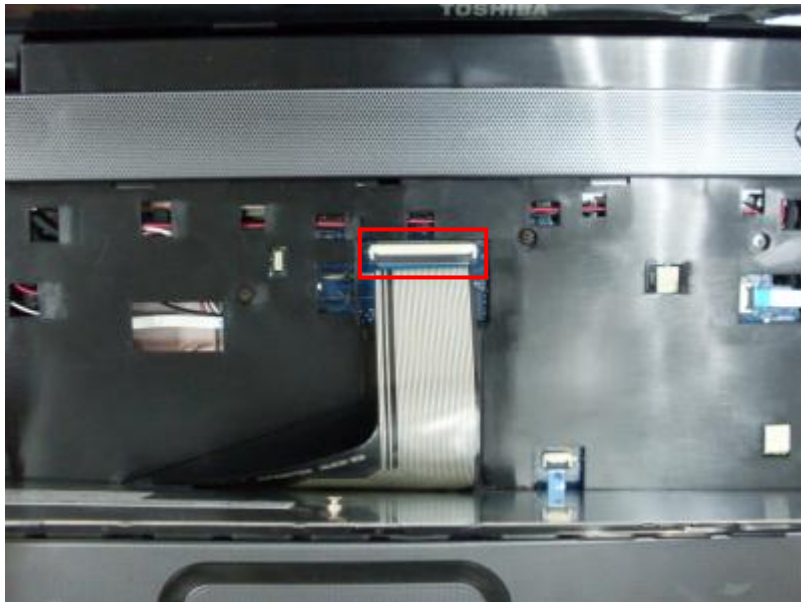
4. Insert bottom edge of keyboard to top case.

5. Press down top edge of keyboard until all latches are locked.

4.43 Replace ODD

1. Consolidate ODD bracket to ODD with 2 screws(M2*3L).

2. Insert ODD bezel to ODD.

3. Push ODD module into ODD housing of bottom case.

4. Consolidate ODD bracket with 1 screw(M2.5*4L).

4.44 Replace HDD

1. Assemble HDD Al mylar and HDD with 4 screws(M3*3L).

2. Position HDD module into HDD housing of bottom case.

3. Pull the mylar handle to connect HDD to motherboard.

4.45 Replace Memory

1. Insert memory bar to the lower socket at about a 30-degree angle.
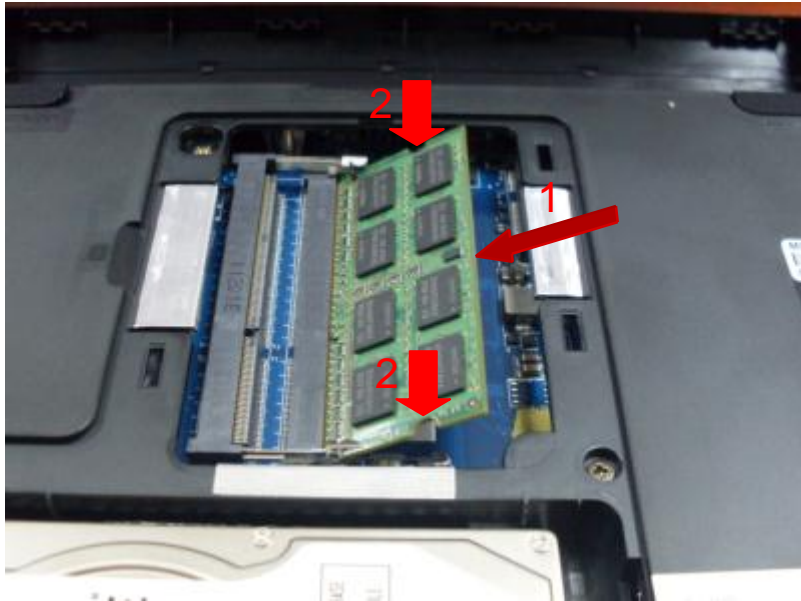
2. Press down memory bar until it clicks into the latches.

4.46 Replace Main Door

Position main door on bottom case and consolidate it with 1 captive screw(M2*6L).

4.47 Replace Battery

1. Position top edge of battery into battery housing.

2. Press down bottom edge of battery.

3. Shift battery knob to locked position.

Chapter 3

Tests and Diagnostics

Chapter 3   Contents

Tests and Diagnostics

3.1   Preparation

This chapter explains how to use the Diagnostic Test programs to test the functions of the computer's hardware modules. The test program should be stored on an optical media disk or a USB boot memory.

The test program menu will also consist of some programs which test the hardware function or display the current information of the computer.

To execute the auto run will automatically run all the test programs.

NOTE: Before starting the diagnostics, be sure to follow these steps:

> *1. Check all cables are connected with Audio jack (Microphone& Headphone) firmly.*
>
> *2. Exit any application and close Windows and power off.*
>
> *3. Set SATA Controller Mode to "Compatibility" in BIOS. (Setup Utility)*
>
> *4. When test web camera/SD Card/ODD device, please use ISO image test program with CD-ROM Media.*

To set SATA Controller Mode to "Compatibility", please follow below steps:

1. Turn on the power, under Toshiba Logo screen press F2 to enter "Setup Utility".

2. Press left and move cursor to "Advanced".

3. Press down and move cursor to "System Configuration", then press enter.
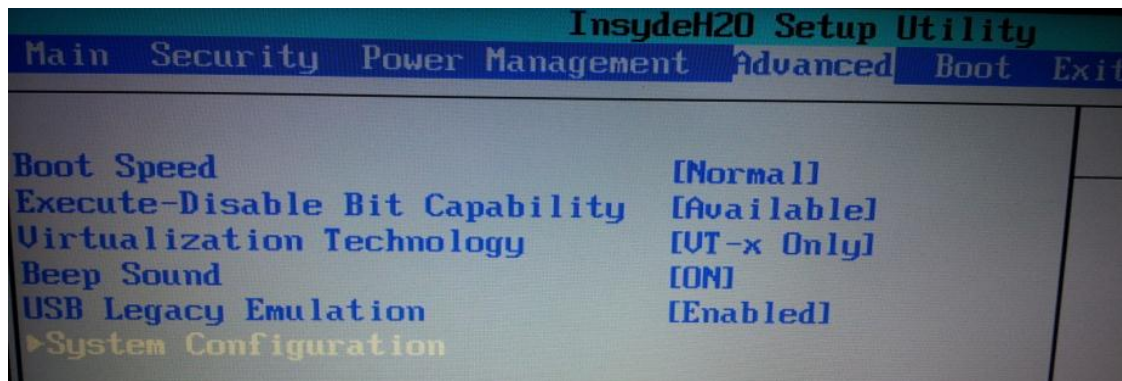
4. Press down and move cursor to "SATA Controller Mode", then press enter.

5. Press down and move cursor to "Compatibility", then press enter.

6. Press F10 and enter to restart the PC
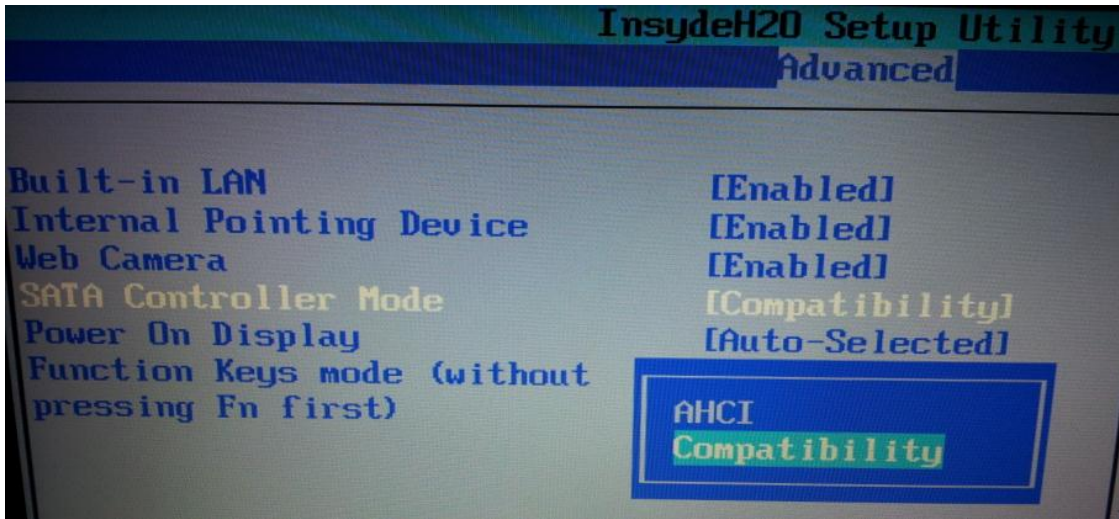
The Test MENU consists of the following functions.

USB T&D test menu
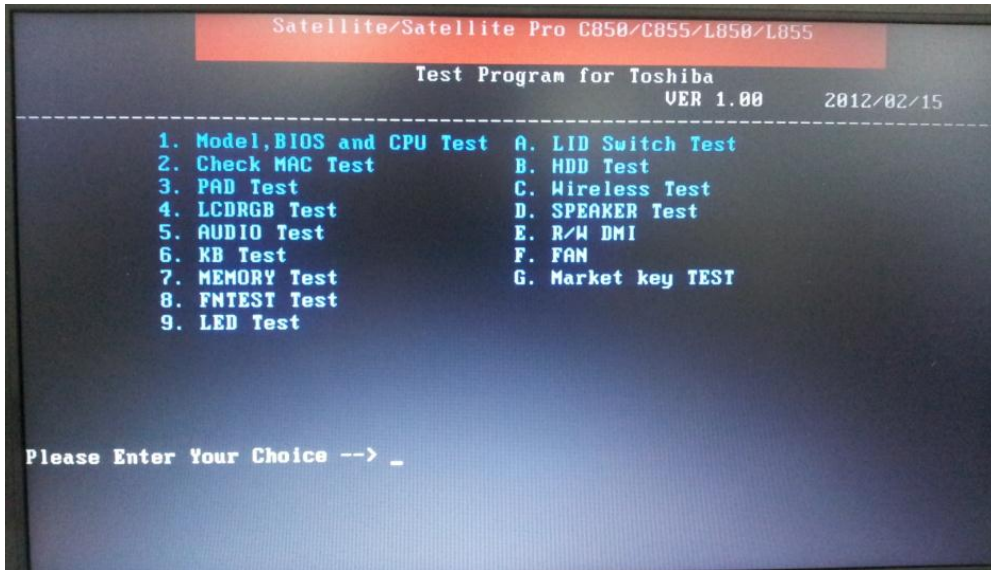
ISO image T&D test menu
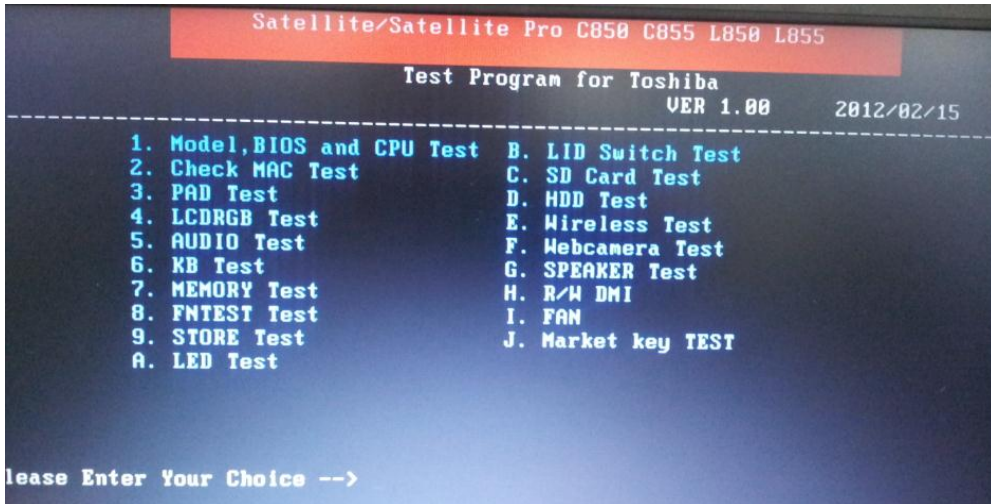
When execute the test item, please key number of testing item.

3.1.1 Executing from ISO image

To start the ISO Image Test PROGRAM from CD-ROM, please follow these steps:

1. Burn ISO image test program into optical media disk.

To burn ISO image, please double click the ISO image in Windows 7, then click burn.
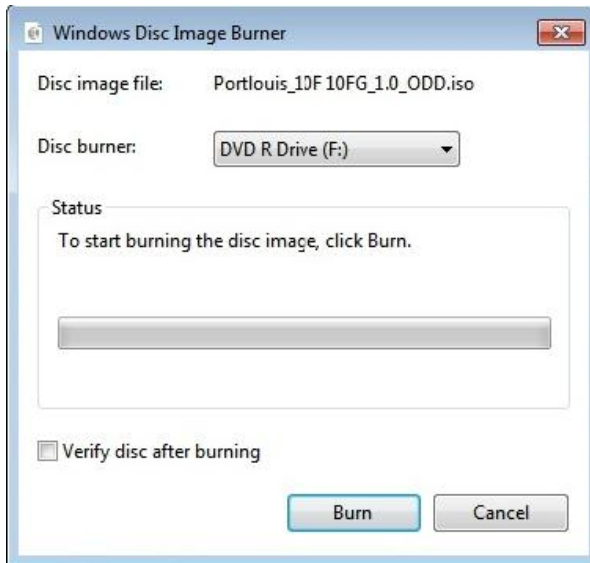
2. Insert the optical media disk (ISO Image test program) into optical device.
3. Turn on the power, under Toshiba Logo screen and press F12.
4. Choose ODD from boot menu.
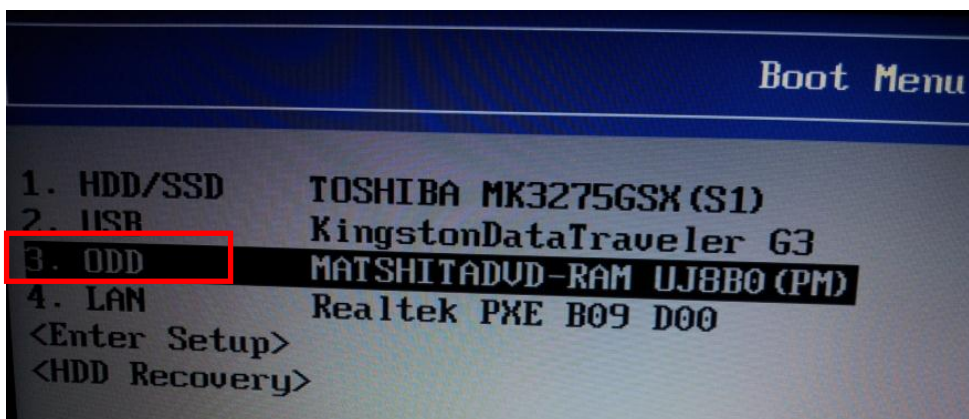
5. System will automatically run the test program and display the test menu.

6. When the test menu displays, please enter the item number to choose and execute the test item.
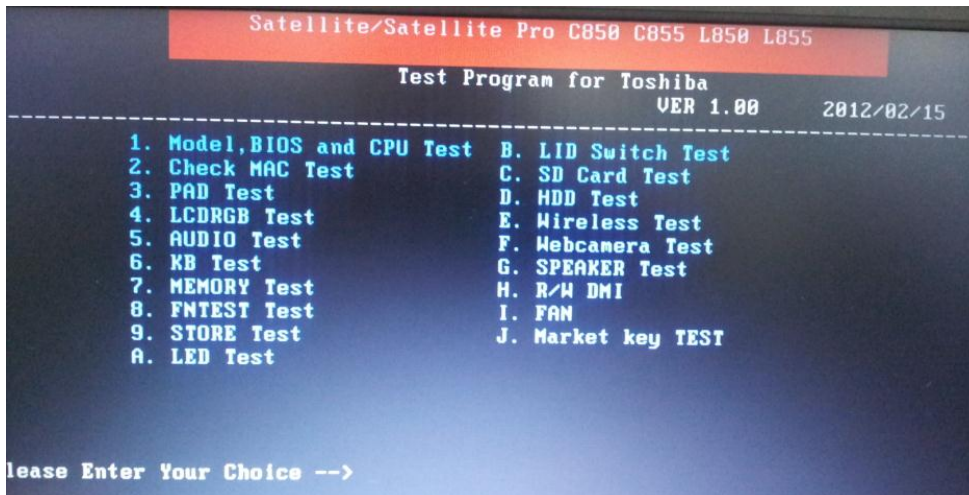
Note:

Before start test, please make sure to set test SATA Controller Mode to "Compatibility" in BIOS

After test, please make sure to set SATA Controller Mode to "ACHI" (default).

If it fails when testing a item, press "Ctrl+C" and "Y" then press "Enter" back to the main menu

Press any key to back to main menu after each test

Please check DMI information correct before.test

3.1.2   Executing from USB device

To start the USB Test PROGRAM from USB device, please follow these steps:

1. Please prepare Toshiba PC of Windows 7 OS.

2. Please copy the file for creating a USB-Bootable memory to Windows 7 PC.

    The filename of five files and one folder to copy is shown as below.

    a) COMMAND.COM
    b) Freedos.bss
    c) FreeDOSMake.exe
    d) KERNEL.SYS
    e) Autoexec.bat
    f) Folder (USBMakingFolder)
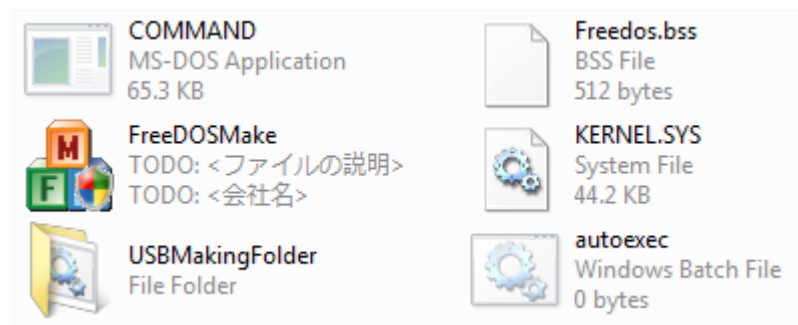
    Make sure to format the USB disk in FAT mode before creating USB-Bootable memory.

    (When you create USB-Bootable disk, please use only one USB-disk.)

3. Run "FreeDOSMake.exe" on the windows 7 PC and there appears the following picture.
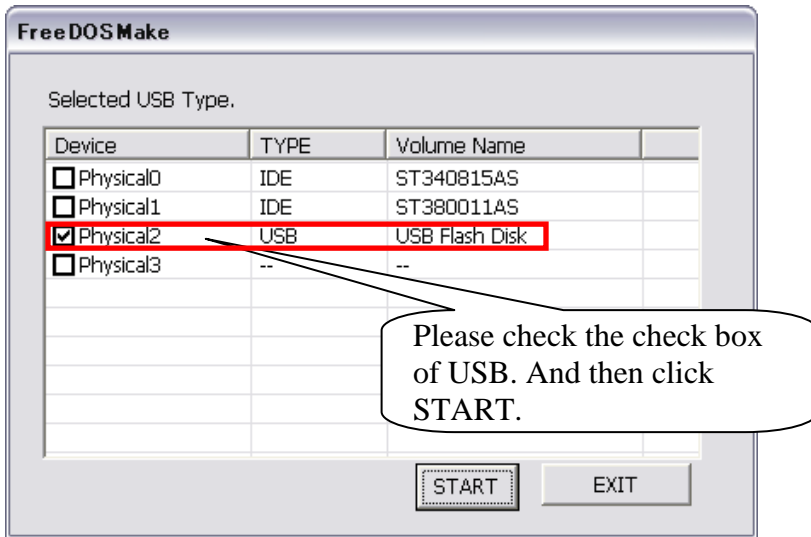
4. Download the compressed file (test program) from the FTP.

5. Unzip it and then copy whole file to USB-disk, overwrite all files.

6. Turn on the power, press F12 when Toshiba Logo appears in the screen.

7. Choose item2 USB from boot menu.
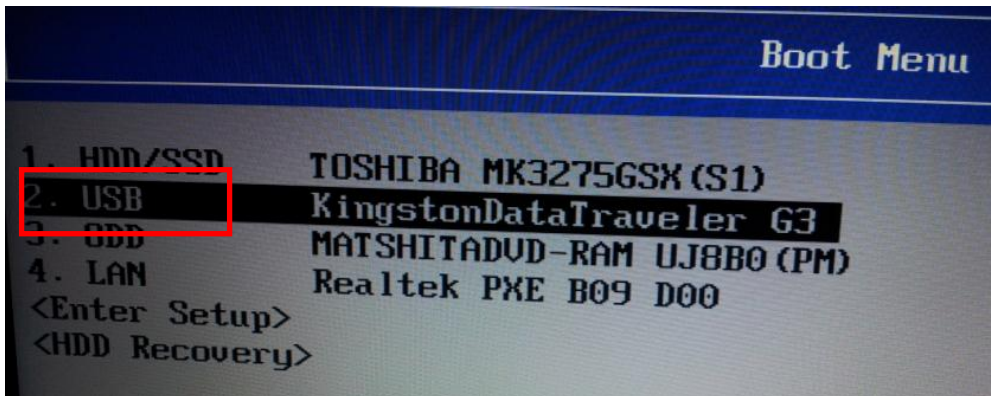
8. System will automatically run the test program and show the test menu.

9. Enter the item number (1~G) to choose and execute the function test.
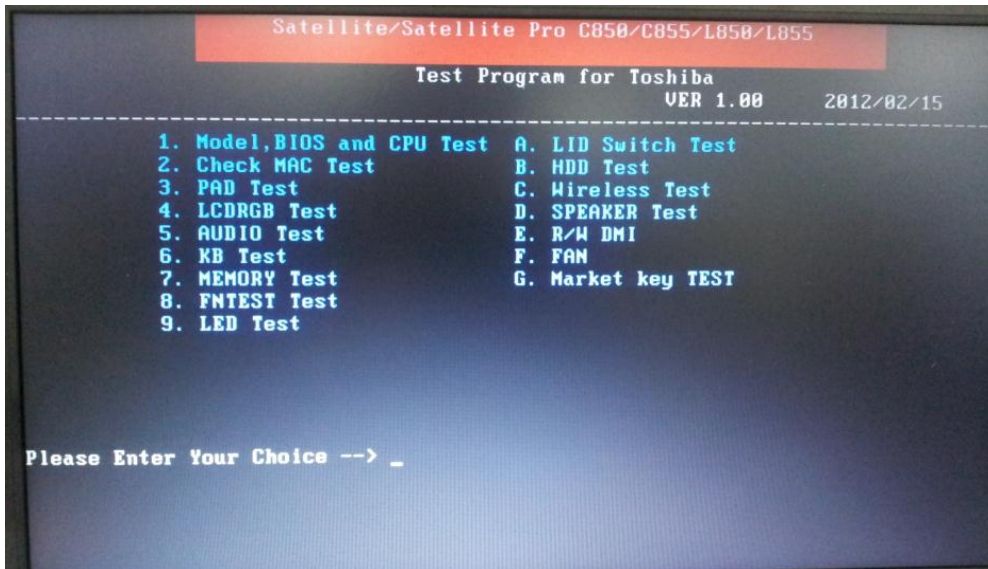
NOTE:

Before starting test, please make sure to set test SATA Controller Mode to "Compatibility" in BIOS

After test, please make sure to set SATA Controller Mode to default "ACHI".

If it fails in a test item, press "Ctrl+C" and "Y" then press "Enter" back to main menu.

Press any key to back to main menu after each test

Please check DMI information correct before.test

3.2   Model,BIOS and CPU Test

1. This test displays the two following information.

   One is a Model and BIOS information display.

   The other one is the information display of CPU and CPU test.

   [Model and BIOS information]

```
                        DMI Utility Rev 1.26          Built Date:06/06/2003
--------------------------------------------------------------------------------
SMBIOS Structure Table Address:F000:E120
Entry Point:E000:6E50
DMI Revision:2.7
Structure Numbers:60

M/B Manufacturer   : Type2 - Board Vendor Name1
M/B Product        : Type2 - Board Product Name1
M/B Version        : Type2 - Board Version
BIOS Vendor        : Insyde Corp.
BIOS Version       : 0.22                         <-- BIOS information
BIOS Release Date  : 02/08/2012
System Manufact.   : TOSHIBA
System Product     : Satellite C850 <--  Model information
System Version     : PSKC8A-01P00S
UUID               : A2BFE5C8-DD22-D9D5-5D03-386077F80FD9


                                              ? Please check the Produce,    ?
                                              ? UUID and BIOS Version.        ?
                                                                         T.C.
                            Return Code = 1
Press any key to continue . . .
```

Press the any key after above "Model and BIOS information" screen display.

Check CPU information of the T&D is the same with your pc configuration.

[CPU information]

```
SMBIOS Structure Table Address:F000:E120
Entry Point:E000:6E50
DMI Revision:2.7
Structure Numbers:62

Socket Type         : U3E1
Manufacturer        : Intel(R) Corporation
Version             : Intel(R) Core(TM) i3-3110M CPU @ 2.40GHz
Max./Cur./Ext.(MHz) : 4000/2400/100

Current date is Sat 02-18-2012
Current time is  6:10:33.23 pm




                              Please confirm the CPU Spec.   ?
                              and current date/time.          ?
                                                    T.C.
```

3.3   Check MAC Test

This item is check the LAN controller functions and indicates a LAN controller MAC address of ROM. Please check MAC (LAN ID) address with the label on motherboard.

3.4   PAD Test

Press both the Left and Right Buttons three times then move cursor to 4 corners.
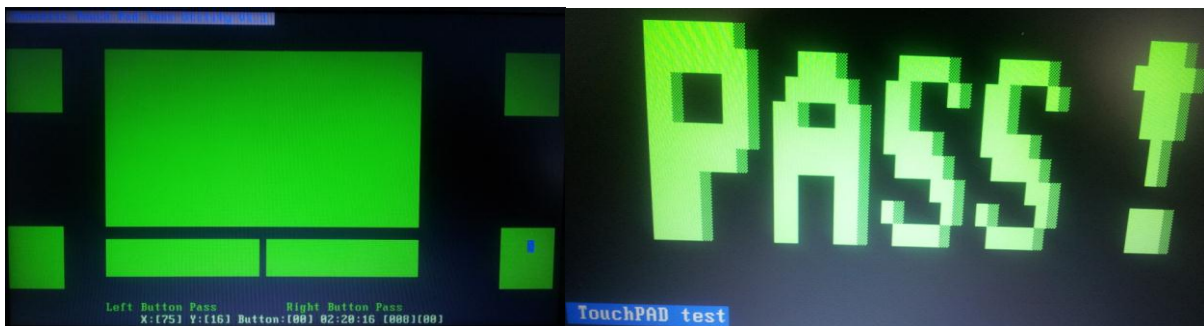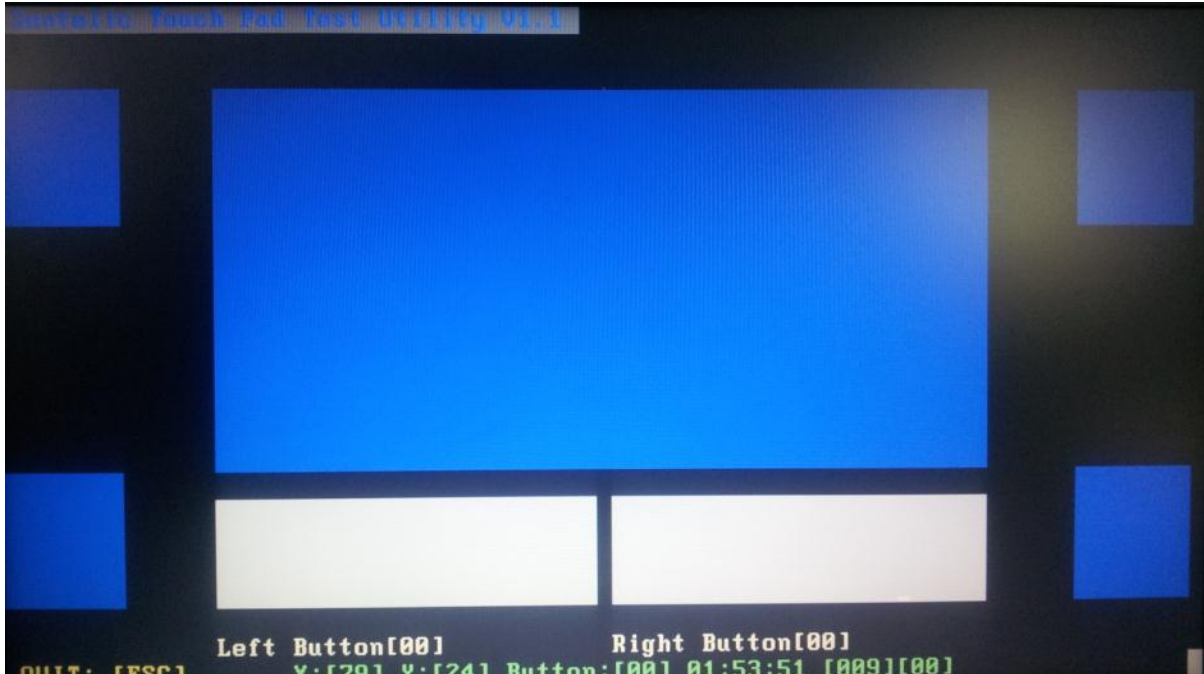
3.5   **LCDRGB Test**

This subtest displays gradations for following modes. To change the mode, press *Enter*.

[Mode VESA 101 - 640*480/256 colors]
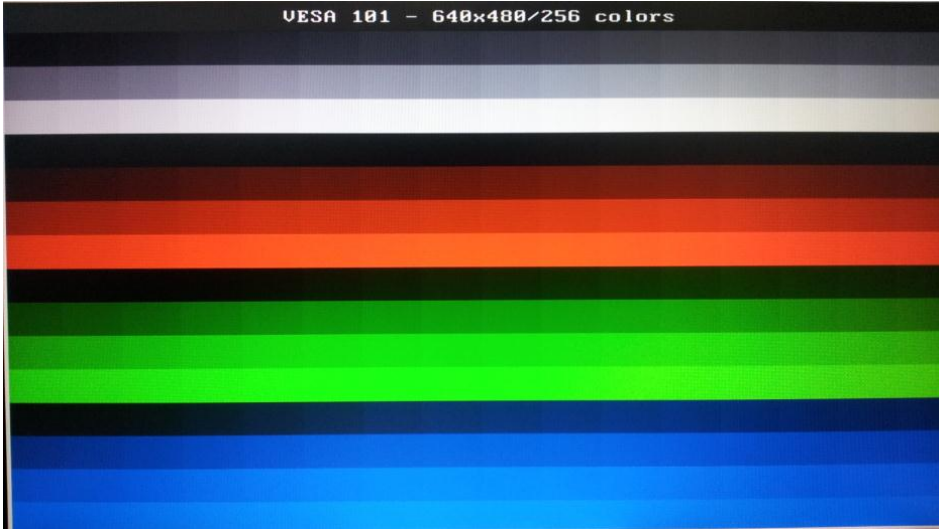
[Mode VESA 103 800*600/256 colors]
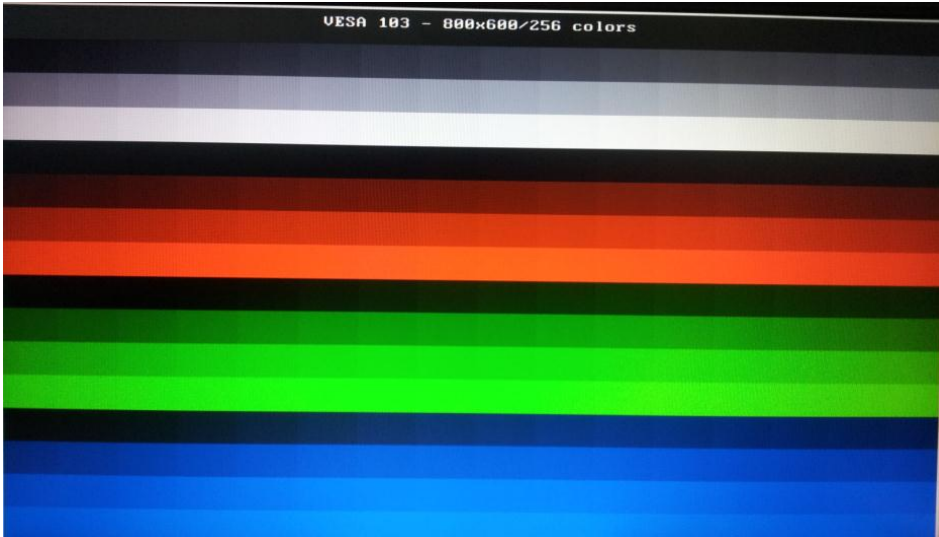
[Mode VESA 105 1024*768/256 colors]
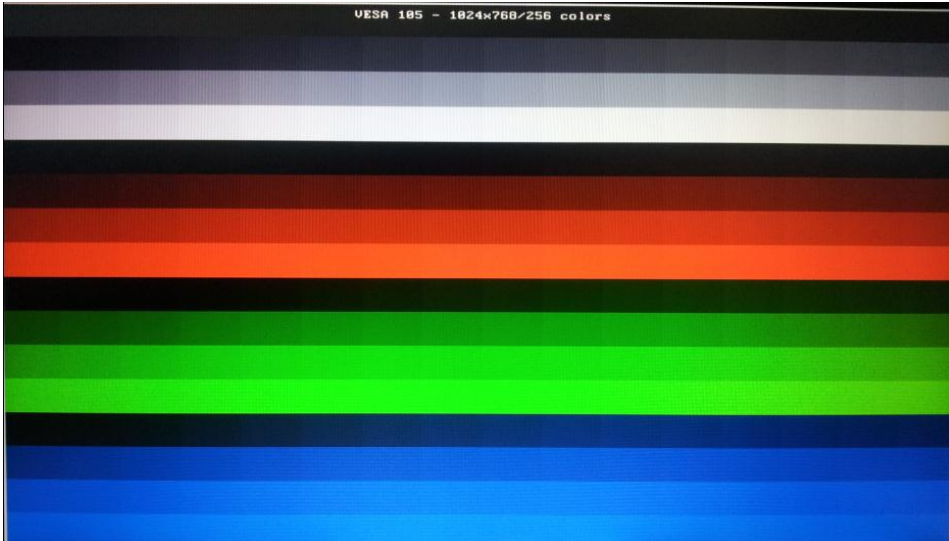
3.6   Audio Test

Note: To test the audio device function, you need to plug in the loopback cable.

If test result is fail, the following screen will be display.

After test complete, press any key to continue.

3.7   Keyboard Test

Please choose the corresponding KB type to test.

```
        1. US type
        2. UK type
        3. Return




Please Enter Your Choice -->
```

For US Keyboard

```
                        Build Date:2011-02-25
Pegatron        KB Utility for Toshiba, Copyright by Pegatron        Diags
================================================================================
                        Detect Key Scan Code...

 Esc    F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12    INS  DEL  HOME END PGUP PGDN

 ~ `  ! 1 @ 2 # 3 $ 4 % 5 ^ 6 & 7 * 8 ( 9 ) 0 _ - + = Back NUM  /   *    -

 Tab  Q   W   E   R   T   Y   U   I   O   P  { [ } ] ¦ \   7   8   9
                                                                        +
 Caps  A   S   D   F   G   H   J   K   L   : ; " '  Ente   4   5   6

 Shift  Z   X   C   V   B   N   M  < , > . ? /  shift   1   2   3
                                                                       ENT
 Ctrl  Fn  LWin  Alt    Space    Alt Men  Ctr      ↑      0        .

                                              <-   ↓   ->
         ↑
         └───── Press Fn + INS Key to Test...
Key_Code -> 46 C6
C:\KB>
                        Return_Code=0
```

For UK Keyboard

```
                          Build Date:2011-02-25
Pegatron            KB Utility for Toshiba, Copyright by Pegatron          Diags
================================================================================
                         Detect Key Scan Code...

 Esc    F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12    INS  DEL   HOME END PGUP PGDN

 ¬ |   ! 1 " 2   3 $ 4 % 5 ^ 6 & 7 * 8 ( 9 ) 0 _ - + =  Back NUM  /   *      -

 Tab   Q  W  E  R  T  Y  U  I  O  P  { [ } ]  ENT    7   8   9

 Caps   A  S  D  F  G  H  J  K  L  : ; @ ' ~ # ←     4   5   6       +

 SIF ! \  Z  X  C  V  B  N  M  < , > . ? /  Shift    1   2   3
                                                                  ENT
 Ctrl  Fn  LWin Alt   Space    Alt Men Ctr     ↑      0       .


                                          <-   ↓   ->
       ↑
       └──── Press Fn + INS Key to Test...
Key_Code -> 46 C6
C:\KB>

                            Return_Code=0
```

Press Fn +INS to end the test

NOTE:

Press the Fn + INS to end the test can only work after pressing all keys on the keyboard.

3.8 Memory Test

This program will test the memory and shows you the total memory size.

```
        1. Memory Size Check
        2. Memory Test
        3. Return




Please Enter Your Choice -->
```
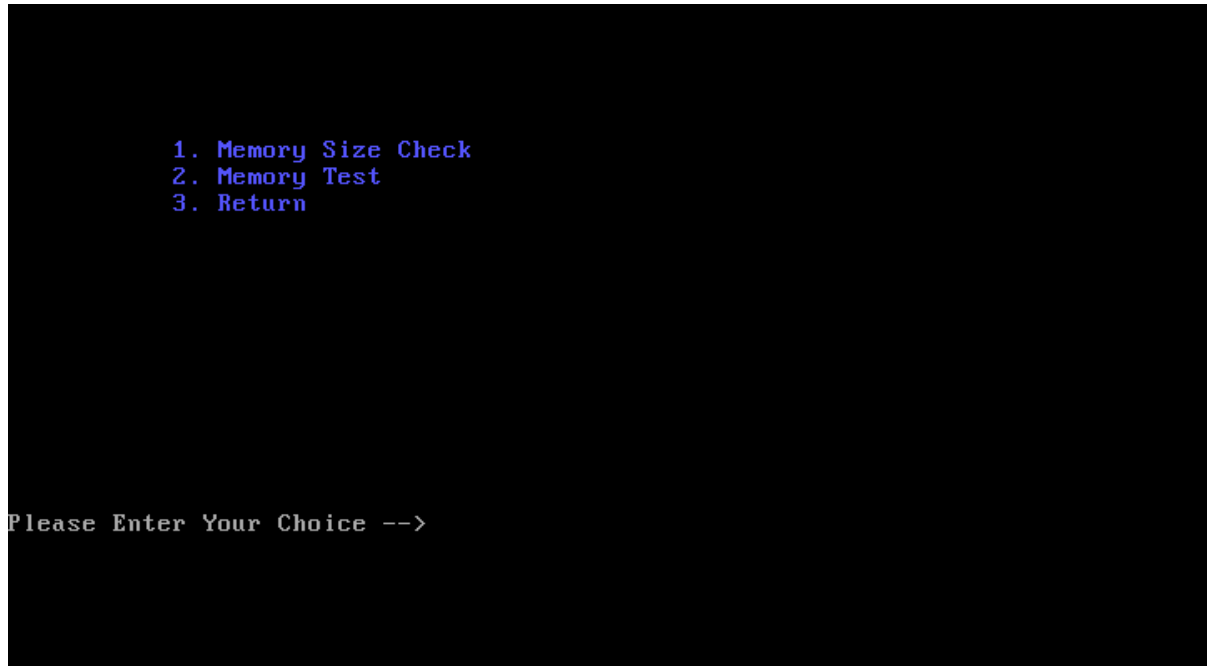
Choose "1" to check a total memory size.

```
                        Build DATE:2007-01-10
ASUS            Memory Utility, Copyright by ASUS Rev1.12              Diags
===============================================================================
Memory Module Information:
        DIMM0 = 2048 MB,
        DIMM1 = 2048 MB,
        Total Memory Size = 4096 MB, Memory working speed = 0 MHz



                  4096 MB


                              ?Please confirm the memsize.  ?
                              ?                             ?
                                                          T.C.
                  Return_Code=-1
```
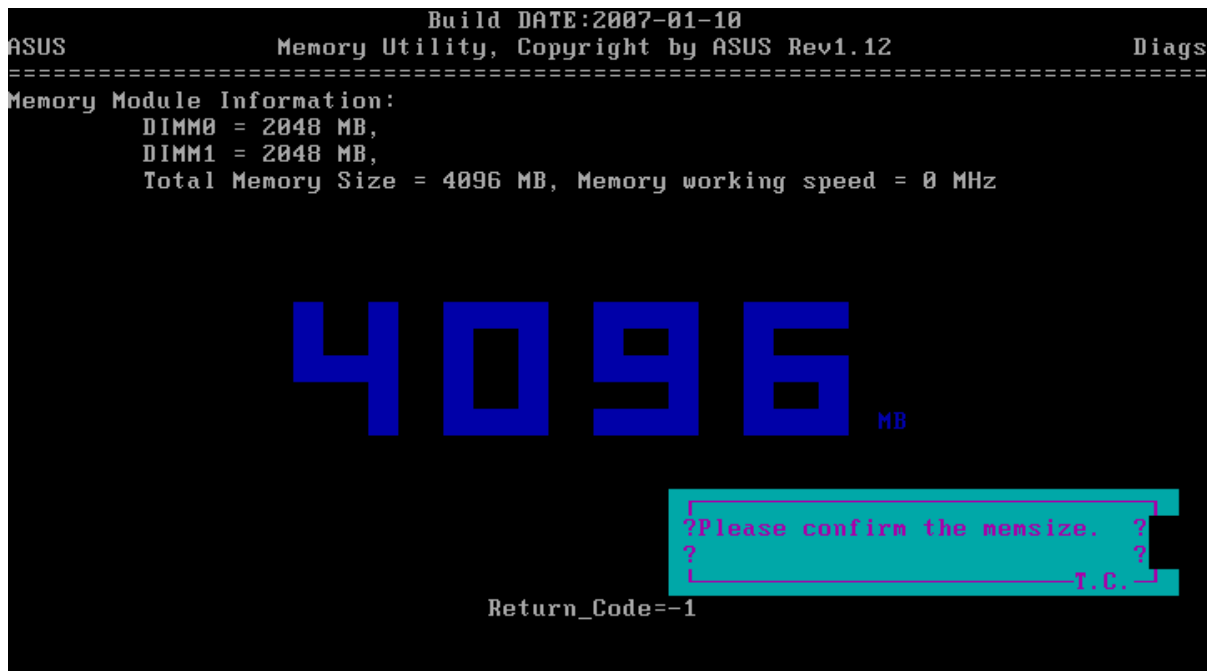
Press any key to back to the memory test interface, choose "2" to test memory.

```
                        Build DATE:2010-10-01
Pegatron      Memory Test Utility, Copyright by Pegatron Rev3.47        Diags
===============================================================================

 E820h No.03 Size:    1GB, 601MB, 932KB  All mem.size:    3GB, 915MB, 196KB

 Field    00000000:40005000h - 00000000:A59EDFFFh    Size ratio    40.78 %
                                                                             5
 Pattern No: 500      5 &  6 Pattern->22222222:22222222 & DDDDDDDD:DDDDDDDD

                       Target Page Field          St.Time   End Time
                           (2MB)
                   00000000:4AE00000h-00000000:4AFFFFFFh 18:17:18   :  :     0


 Moving   :         0    10   20   30   40   50   60   70   80   90   100 %
 Comparing :                                                               5
 Success  :
 Failure  :
```

If test result is fail, the following screen will be display.

And press any key to continue.

MEMORY TEST FAIL!

3.9   Function Test

Select the function test. Test program will test several functions and show the test result one by one.

```
                       Build DATE:2008-04-23
Pegatron     IRQ8 Tester using CMOS, Copywrite by Pegatron Rev1.10        Diags
================================================================================
IRQ8 Periodic Interrupt 2 times within 2 ms --> OK
  Now Time: 19:04:04
Alarm Time: 19:04:05
Alarm Interrupt Test OK(0) ...
Start&Update Interrupt Test OK ...992




                                                ?      IRQ8 Test Passed!!      ?
                                                ?      Please check time       ?
                                                                        T.C.
Press any key to continue . . .Return_Code = 0
```

```
                       Build DATE:2008-12-22
Pegatron          FuncTest.exe, Copyright by Pegatron Rev1.06            Diags
================================================================================
  Setting Clock... OK!
  Testing DMA Controller: P8237A-5 #1, P8237A-5 #2, Page Registor OK!
  Testing Interrupt Controller ... OK!
  Testing Protect Mode... OK!
  Testing Coprocessor... OK!
  Testing Clock... OK!
  Testing Calendar... OK!




                                               ? Function Test Passed!!       ?
                                               ?                              ?
                                                                        T.C.
C:\>                             Return_Code=0
```

3.10   STORE Test [CD/DVD-ROM TEST]

Note: When test ODD device, please use ISO image test program with CD-ROM Media.

This Program will test if the CD/DVD-ROM works properly in the ODD mode , Please insert ISO image test program CD before test.

When test passed, the following screen will be displayed.

If test fail, the following screen display.
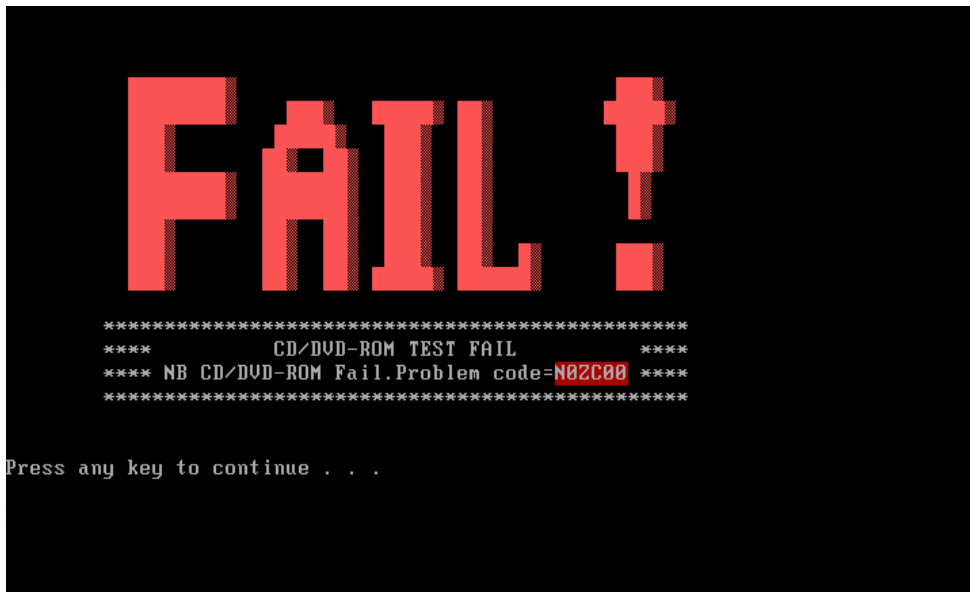
3.11   LED Test

Choose a number of test items as following test items.

```
            1. Caps LED Test
            2. Num Test
            3. BATT LED Test
            4. Power LED Test
            5. DC IN LED Test
            6. WLAN LED Test
            7. Return




Please Enter Your Choice -->
```
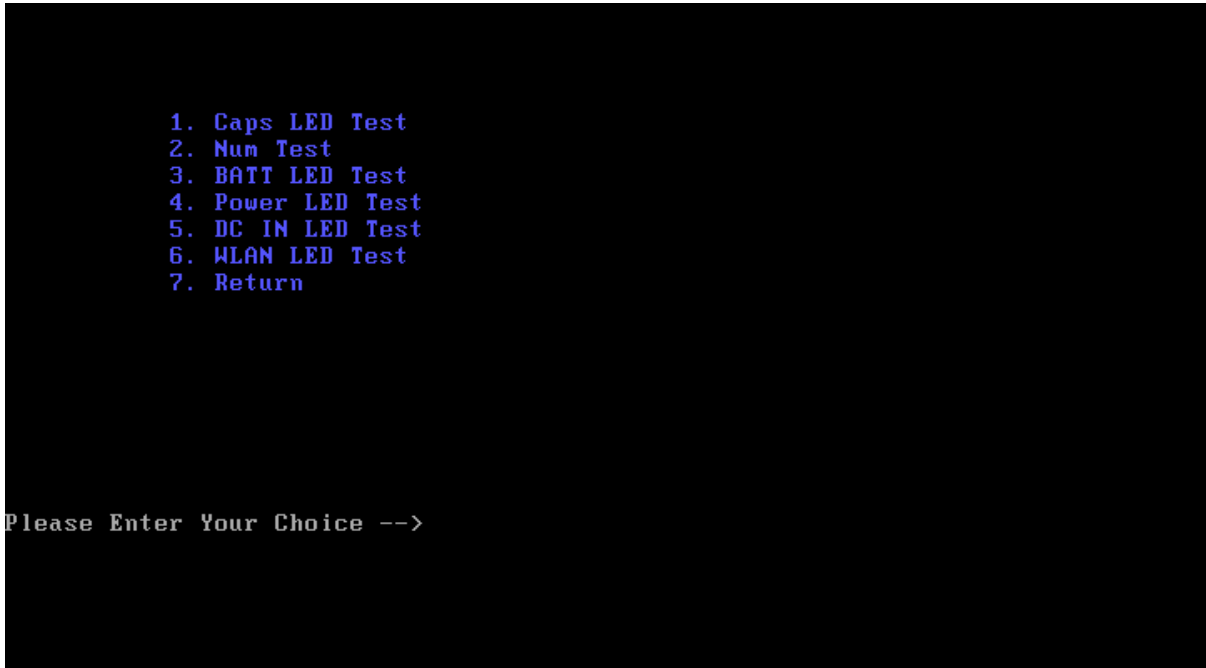
When testing, please check the statues of led marked in below picture is right.

CAPS LOCK

ON: Green

NUM LOCK

ON: Green

WLAN

ON: Red

BATT

ON: Red

DC IN

ON: White

POWER

ON: White

3.12   LID Switch Test

Run the LID Switch test, refer to the instructions as below.

This part shows how to use the Diagnostics to test the LID functions.

After active LID function (close the upper cover to less than 10 degree) please use your finger, then check LCD bright or not.

3.13   SDCARD Test

Note:

When test SD Card device, please use ISO image test program with CD-ROM Media.

And insert the SD card with unlock condition to SD card slot.

UNLOCK

3.14 HDD TEST

There are three items you can choose to test:

```
        1. HDD Detect
        2. HDD Read Test
        3. HDD R/W Test
        4. Return




Please Enter Your Choice -->
```
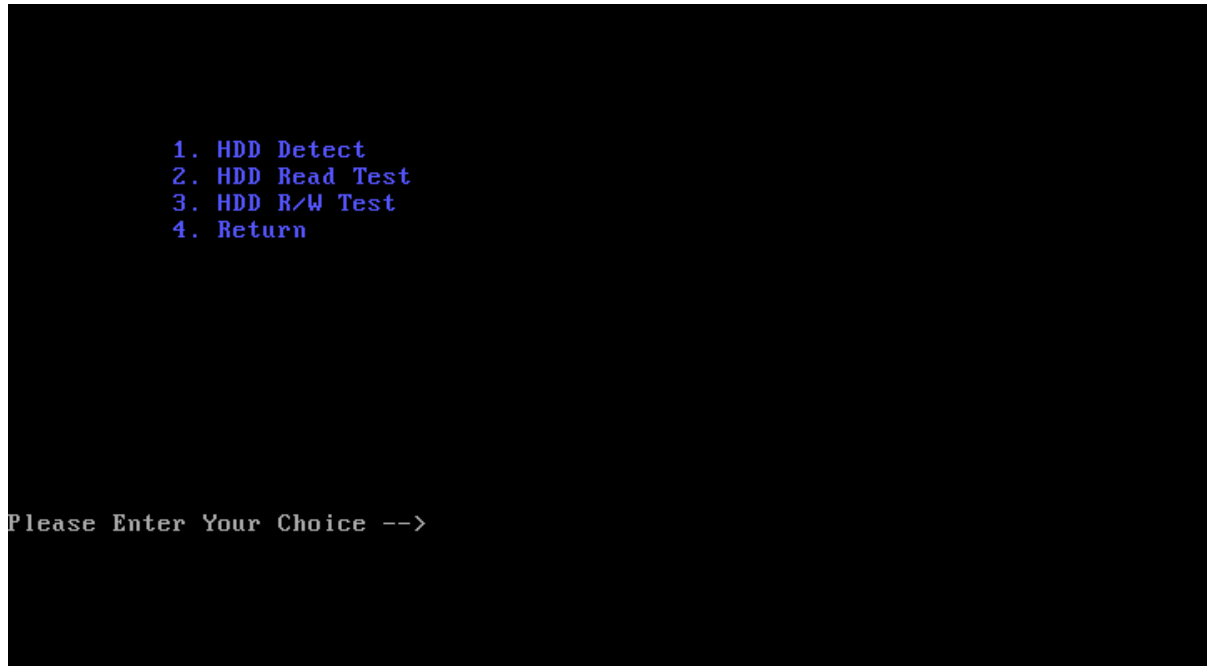
1. HDD Detect:

```
                    PATA&SATA Utility
        Copyright by Pegatron, Build Date:2008-12-01 Rev1.34
================================================================
                ... Device Information List ...
----------------------------------------------------------------
Num Dev   Device   Model      Serial Number   F/W Rev  LBA Size   HDD Size
1         TOSHIBA MK3275GSX   Y1B2C4MTT        GT001M   2542EAB0   320.07GB
3         MATSHITADVD-RAM UJ8B YM50  393185    1.00
          0
```

If it fails to detect HDD, the location of information marked in picture will be empty

2. Read HDD:

1. R/W HDD:

Note:
When test the read and write HDD, the password is: hard disk
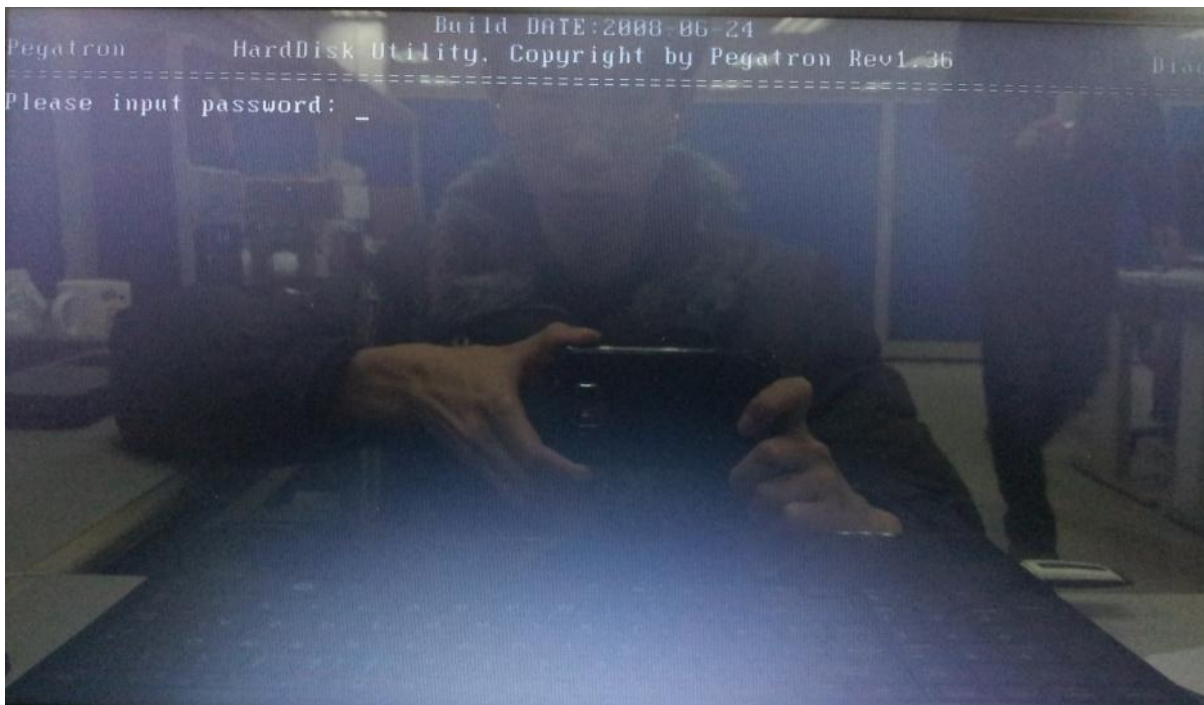
3.15 Wireless Test (Wireless device detective check)

This program is to detective Wireless device.

```
                          Build DATE:2008-10-30
Pegatron             COMMON Tool, Copyright by Pegatron Rev2.26             Diags
================================================================================

Search Data = NETWORK CONTROLLER

The Result Is :
Line 17 =     03     00     00    8086 0885  5F  8086 1305   NETWORK CONTROLLER




                                           ┌────────────────────────────┐
                                           │WWIRLESS device check PASS!!  ?│
                                           │?                            ?│
                                           └──────────────────────T.C.──┘

Press any key to continue . . .

                          Return_Code=0
```

Note:

 This test program tests the WIRELESS device ID pass or fail.

3.16 Web camera Test

This program is to check webcamera ID.

Due to web camera is a USB device for this model, so it can not be test by USB file, please test it by using ISO file.

> *Note:*
>
> *When test the Web camera, the program will check the device ID, all of the USB ports will be closed, so you cannot test this one within the USB mode. Please test it in the ODD mode.*

3.17 Speaker Test

This program will test left channel, right channel and two wave files to test speaker function.
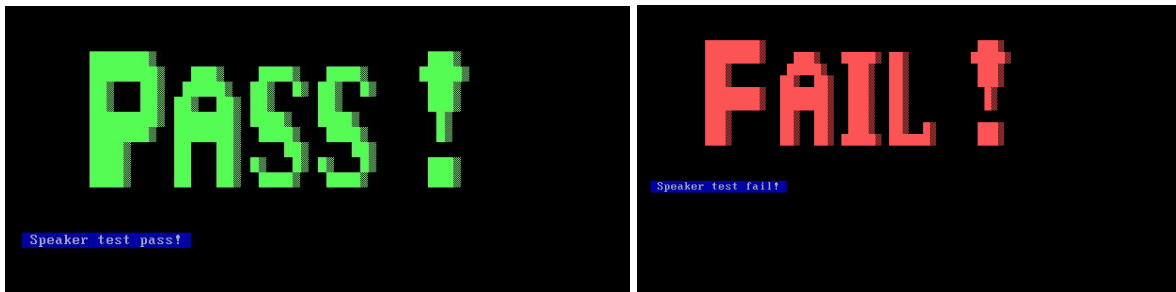
Note:

When you test the speaker, you can hear two piece of music, press "Y" to continue;

If you can't hear music, press "N"

3.18 Read and write DMI Test

This program could read and write below strings from/to DMI block.

1. Manufacture
2. Product Name
3. Pa-Number
4. Serial Number
5. Type 11
6. UUID

```
        1. Read DMI
        2. Write Manufacture
        3. Write Product Name (32 byte)
        4. Write Pa-Number  (32 byte)
        5. Write Serial Number  (32 byte)
        6. Read Type11    (64 byte)
        7. Write Type11   (64 byte)
        8. Write UUID
        9. Return




Please Enter Your Choice -->
```

DMI information: (1. Reader DMI)

```
                         Build DATE:2010-02-22
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.30.01          Diags
================================================================================
 — System Information(Type 1) ——————————————————————————————————————————————
 00: Type = 01 , Length = 1B , Handle = 0001
 04: Manufacturer = TOSHIBA
 05: Product Name = PLCSF
 06: Version = 123456-654321
 07: Serial Number = 987654321
 08: UUID = A2BFE5C8DD22D9D55D03386077F80FD9
 18: Wake-up Type = 06
 19: SKU Number = 123456-654321
 1A: Family = Type1Family




                         Return_Code=-1
```

Write Manufacture: (2. Write Manufacture)

```
                         Build DATE:2010-02-22
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.30.01          Diags
================================================================================
 ——System Information(Type 1) ———————————————————————————————————————————————
 00: Type = 01 , Length = 1B , Handle = 0001
 04: Manufacturer = TOSHIBA
```

Write Produce Name: (3. Write Produce Name)

```
                         Build DATE:2010-02-22
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.30.01          Diags
================================================================================
 ——System Information(Type 1) ———————————————————————————————————————————————
 00: Type = 01 , Length = 1B , Handle = 0001
 05: Product Name = PLCSF
```

Write Pa-Number: (4. Write Pa-Number)

```
                       Build DATE:2010-02-22
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.30.01      Diags
==============================================================================
 ┌─System Information(Type 1) ─────────────────────────────────────────────┐
 │00: Type = 01 , Length = 1B , Handle = 0001                               │
 │06: Version = pskc8a-01p00s AA BB                                         │
 │                                                                          │
 └──────────────────────────────────────────────────────────────────────────┘

 Please Input a String:^C
```

Write Serial Number: (5.Write Serial Number)

```
                       Build DATE:2010-02-22
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.30.01      Diags
==============================================================================
 ┌─System Information(Type 1) ─────────────────────────────────────────────┐
 │00: Type = 01 , Length = 1B , Handle = 0001                               │
 │07: Serial Number = 987654321                                             │
 │                                                                          │
 └──────────────────────────────────────────────────────────────────────────┘

 Please Input a String:^C
```

Read Type 11: (6. Read Type11 64 byte)

```
                       Build DATE:2008-09-03
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.26         Diags
==============================================================================
 ┌─ OEM Strings(Type 11) ──────────────────────────────────────────────────┐
 │00: Type = 0B , Length = 05 , Handle = 000D                               │
 │04: Count = 05                                                            │
 │01: String: T                                                             │
 │02: String: 6AAtpdr54-EkQ                                                 │
 │03: String: k890VSws+Oa7e                                                 │
 │04: String: ZHO3OYiC9yj2F                                                 │
 │05: String: To Be Filled By O.E.M.                                        │
 └──────────────────────────────────────────────────────────────────────────┘
```

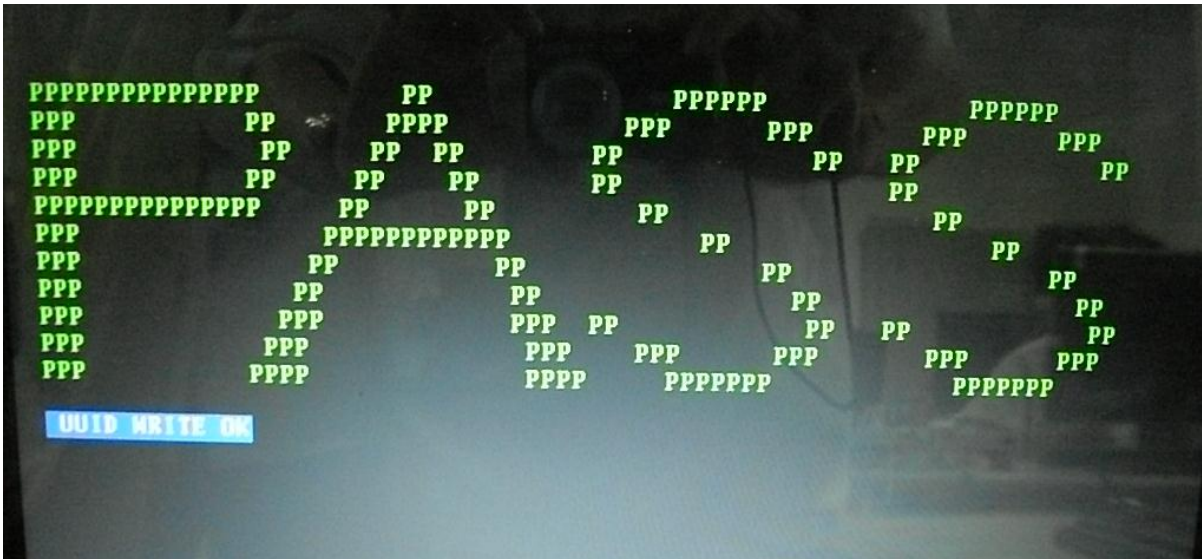**Write Type 11: (7. Write Type11 64 bytes)**

```
                       Build DATE:2008-09-03
Pegatron        SMBIOS Utility, Copyright by Pegatron Rev1.26         Diags
==============================================================================
 ┌─OEM Strings(Type 11) ───────────────────────────────────────────────────┐
 │00: Type = 0B , Length = 05 , Handle = 000D                               │
 │01: String: T                                                             │
 │                                                                          │
 └──────────────────────────────────────────────────────────────────────────┘

 Please Input a String:^C
```
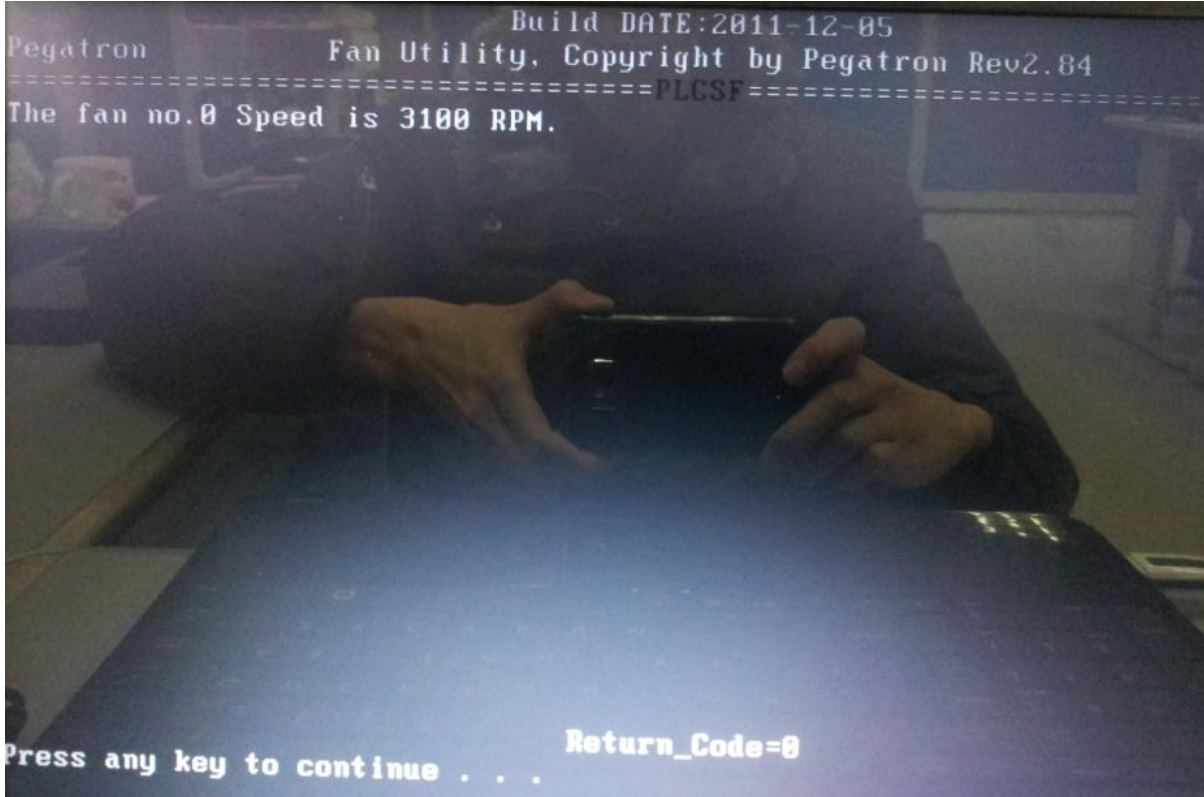
Write UUID: (8. Write UUID)

UUID is built by 20 bytes random code and 12 bytes MAC address.

3.19 FAN Test

This program is to test FAN function, change fan speed to see if it is in correct range.
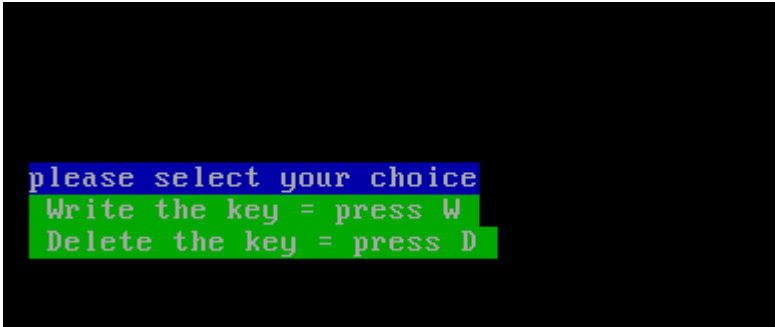

Note:

The items will test the fan function, if it's not among the range of 2500-5500 RPM, it will show fail.
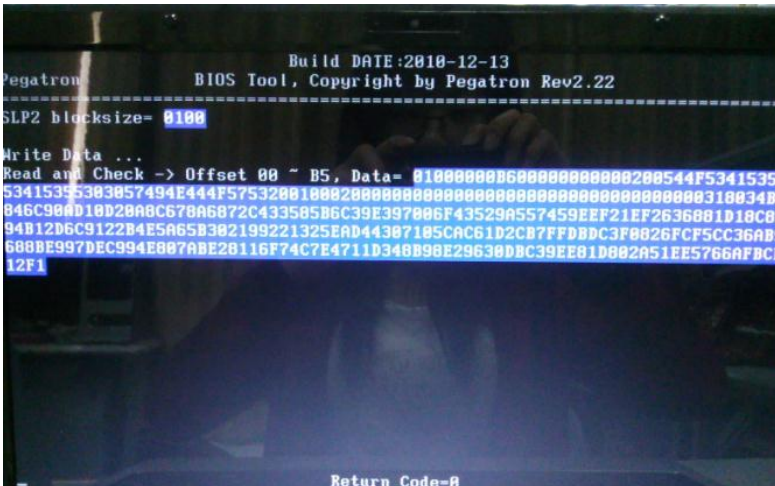
3.20 Write the Market Key

When MB is replaced at a repair station, the data of the market key must be written in EEPROM so that the OS of the system can be active to use normally.

The program will show like below so that the key can be written or delete from the ROM.

Press **W** to write the market key.

Press *D* to delete the market key please.

3.21 Appendix:

NO#	Equipment Description	Quantity	Remarks
1	**Test CD**	**1**	
2	**Audio loopback jig**	**1**	
3	**SD Card**	**1**	
4	**USB Disk**	**1**	