ACER ASPIRE V5-571 SERVICE MANUAL

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Aspire MS2361

SERVICEGUIDE

Revision History

Refer to the table below for the updates made to this Aspire MS2361 Service Guide.

Date	Chapter	Updates

Service guide files and updates are available on the ACER/CSD website. For more information, go to http://csd.acer.com.tw.The information in this guide is subject to change without notice.

Disclaimer

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Conventions

The following conventions are used in this manual:

⚠ WARNING:
Indicates a potential for personal injury.

⚠ CAUTION:
Indicates a potential loss of data or damage to equipment.

+ IMPORTANT:
Indicates information that is important to know for the proper completion of a procedure, choice of an option, or completing a task.

The following typographical conventions are used in this document:

- Book titles, directory names, file names, path names, and program/process names are shown in *italics*.

  Example:

  the *DRS5 User's Guide*

  /usr/local/bin/fd

  the */TPH15spool_M* program

- Computer output (text that represents information displayed on a computer screen, such as menus, prompts, responses to input, and error messages) are shown in constant width.

  Example:

  ```
  [01] The server has been stopped
  ```

- User input (text that represents information entered by a computer user, such as command names, option letters, and words) are shown in constant width bold.

  Variables contained within user input are shown in angle brackets (< >).

  Example:

  At the prompt, type run **`<file name> -m`**

- Keyboard keys are shown in ***bold italics***.

  Example:

  After entering data, press ***Enter***.

General information

Before using this information and the product it supports, read the following general information.

This service guide provides you with all technical information relating to the basic configuration for Acer's global product offering. To better fit local market requirements and enhance product competitiveness, your regional office may have decided to extend the functionality of a machine (such as add-on cards, modems, or extra memory capabilities). These localized features are not covered in this generic service guide. In such cases, contact your regional office or the responsible personnel/channel to provide you with further technical details.

When ordering FRU parts: Check the most up-to-date information available on your regional Web or channel. If, for whatever reason, a part number change is made, it may not be noted in this printed service guide.

Acer-authorized Service Providers: Your Acer office may have a different part number code than those given in the FRU list in this service guide. You must use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

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Hardware Specifications and Configurations

Features

The following is a summary of the computer's many features.

Operating System

- Windows® 7 Home Premium 64-bit
- Windows® 7 Home Basic 64-bit

Platform

- Huron River/Chief River
  - Supports the Second Generation Intel® Core™ Mobile Processor Family (Sandy Bridge)
- Chipset: Mobile Intel® HM70/HM77 Express Chipset

System Memory

- Two DDR3 1333 MHz DIMM slots
- 8 GB maximum memory capacity (using two 4 GB modules)
- Supports dual channel

Display

- 15.6-inch High Definition WXGA LED LCD
- 1366×768 resolution, 16:9 aspect ratio
- 16.7 million colors, 200-nit brightness

Graphics

- Graphics controller:
  - UMA: Integrated in the Mobile Intel® HM70/HM77 Express Chipset
  - Discrete: NVIDIA N13M-GS 1G
- Supports dual display

- Internal resolutions and refresh rate supported (applies to both UMA and Discrete models):
  - 800×600, 60 Hz
  - 1024×768, 60 Hz
  - 1280×600, 60 Hz
  - 1280×720, 60 Hz
  - 1280×768, 60 Hz
  - 1360×768, 60 Hz
  - 1366×768, 60 Hz
  - Maximum Resolution HDMI: 1900x1200
  - Maximum Resolution D-Sub: 2560x1600

Storage Subsystem

Hard disk drive

- 2.5-inch, 7.0 mm, 5400 rpm SATA hard disk drive (HDD)

Optical disc drive

- Slim-type SATA optical disc drive (ODD)
- Detailed read/write specifications on page 1-29.

Card reader

- Multi-in-1 card reader slot
- Supports MultiMediaCard™ (MMC), MultiMediaCard Plus (MMCplus™) and Secure Digital™ (SD) cards

Audio Subsystem

- Built-in microphone
- Two 2W, 2 cc chamber built-in speakers
- Headphone/speaker/line-out jack
- Realtek 271-VB6

Communication

Webcam

- 1.3M DV slim camera module
- Acer Video Conference software, featuring:
  - Acer Crystal Eye webcam with 1280×1024 resolution
  - Acer Video Conference Manager featuring Video Quality Enhancement (VQE) technology
  - Supports 640×480 resolution online video calls

Wireless and networking

- WLAN:
  - IEEE 802.11b/g/n
  - Supports Acer SignalUp technology
- LAN on Feature Port (thru bundled Y Cable):
  - Gigabit Ethernet, Wake-on-LAN ready
  - Realtek RTL8411 EN controller

Privacy Control

- BIOS supervisor, user, and HDD passwords
- Kensington lock slot

Power Adapter and Battery

- 19 V 3-pin 65 W AC adapter
- 4-Cell 2.8 Ah Li-ion battery pack
- Battery life: 4 hours
- Charging period:
  - 1.5 to 2 hours for 0–80% capacity
  - 3 to 3.5 hours for 0–99% capacity
  - 3.5 to 4 hours for 0–100% (charge-in-use)
- ACPI 3.0-compliant power management system
- ENERGY STAR compliant

Keyboard and Pointing Device

Keyboard

- AS7F Chiclet keyboard
- Inverted “T” cursor keys

- Hotkeys for volume and brightness level, media playback, wireless and sleep functions, and display and touchpad toggle
- Windows® and Application keys
- Multilanguage support

Touchpad

- Multi-gesture touchpad pointing device
- Touchpad lock hotkey
- Adjustable touchpad sensitivity function

I/O Ports

- Multi-in-1 card reader (SD/MMC)
- USB ports (2 x 2.0, 1 x 3.0)
- HDMI™ port with HDCP support
- Headphones/speaker/line-out jack without S/PDIF support
- Internal microphone
- Feature port (bundled Y cable with LAN/VGA combo port)
- DC-in jack for AC adapter
- Kensington lock slot

Software and Tools

Productivity

- Acer Backup Manager
- Acer ePower Management
- Acer eRecovery Management
- Adobe® Flash® Player 11.x
- Adobe® Reader® 10.x
- AUPEO! (United States only)
- Bing™ Bar
- Evernote (except Japan)
- Internet Explorer 9
- Kobo™ (Australia, Canada, New Zealand, United Kingdom only)
- Microsoft® Office Starter 2010
- Microsoft® Office Personal 2010 (Japan only, subject to customer request)
- newsXpresso
- NOOK for PC (US only)
- Norton™ Online Backup

- Windows Live™ Essentials

Security

- McAfee® Internet Security Suite (trial only)
- MyWinLocker® (except China, Hong Kong)

Multimedia

- Acer clear.fi
- NTI Media Maker™
- Cyberlink® MediaEspresso

Gaming

- Acer Games powered by WildTangentÆ1 (except China, Hong Kong, Japan, Korea)
- Fooz Kids (except Japan)

Communication and ISP

- Acer Crystal Eye
- Microsoft® Silverlight™
- Skype™

Web links and utilities

- Acer Accessory Store (Belgium, France, Germany, Italy, Netherlands, Spain, Sweden, UK only)
- Acer Identity Card
- Acer Registration
- Acer Updater
- eBay® shortcut (Australia, Austria, Canada, France, Germany, Italy, India, Ireland, Mexico, Netherlands, Philippines, Poland, Russia, Singapore, Spain, Switzerland, United States, United Kingdom only)
- Netflix shortcut (Canada, Latin America, United States only)

Warranty

One-year International Travelers Warranty (ITW)

Dimensions and Weight

Dimensions

- Width × Depth × Height: 381.6 x 253 x 20.6mm (15.02 × 9.96 × 0.81 in)

Weight

  - 2.23 kg (4.92 lb) (including battery) for UMA models
  - 2.28 kg (5.03 lb) (including battery) for Discrete models

Environment

- Temperature:
  - Operating: 0 to 40 °C
  - Non-operating: -20 to 60 °C
- Humidity (non-condensing):
  - Operating: 20% to 80%
  - Non-operating: 20% to 80%

Notebook Tour

This section provides an overview of the features and functions of the notebook.

Open Front View

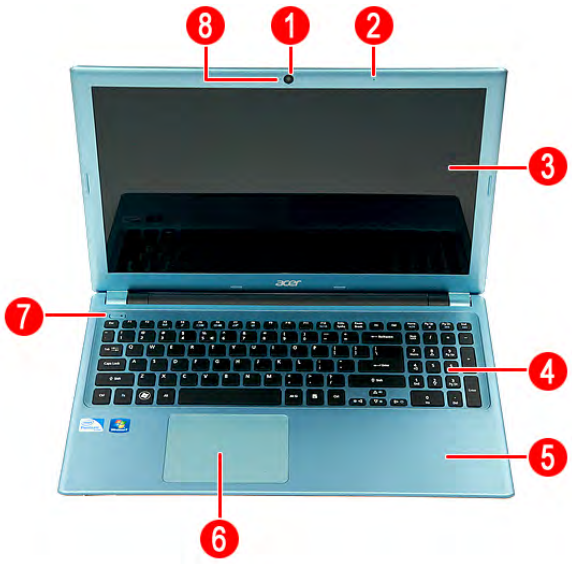


Figure 1-1. Open Front View

Table 1-1. Open Front View

No.	Icon	Item	Description
1		Integrated webcam	Web camera for video communication.
2		Integrated microphone	Internal microphone for sound recording and video communication.
3		Display screen	Also called liquid crystal display (LCD), displays computer output.
4		Keyboard	For entering data into your computer.
5		Palmrest	Comfortable support area for your hands when you use the computer.
6		Touchpad	Touch-sensitive pointing device which functions like a computer mouse.
7	⏻	Power button	Turns the computer on and off.
8		Integrated LED light	Light for Webcam device

Close Front View

Figure 1-2. Close Front View

Table 1-2. Close Front View

No.	Icon	Item	Description
1		Multi-in-1 card reader	Supports MMC, MMCplus and SD cards. **Note:** Only one card can operate at any given time.
2		Power indicator	Indicates the computer's power status. • Blue: The computer is turned on. • Blinking amber: The computer is in power-saving mode.
3		Battery indicator	Indicates the computer's battery status. • Blue: The computer is in AC mode. • Blinking amber: The battery is charging.

Left View

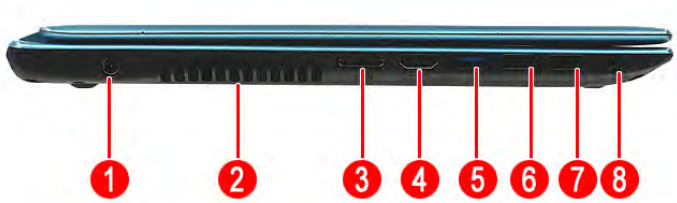


Figure 1-3. Left View

Table 1-3. Left View

No.	Icon	Item	Description
1		DC-in jack	Connects to the AC adapter.
2		Ventilation slots	Enable the computer to stay cool, even after prolonged use.
3		Feature port	Connects to a Y cable with VGA & RJ45 port
4	HDMI	HDMI port	Supports high definition digital video connections.
5		USB 3.0 ports	Connects to USB devices (e.g., USB mouse, USB camera).
6		USB 2.0 ports	Connects to USB devices (e.g., USB mouse, USB camera).
7		USB 2.0 ports	Connects to USB devices (e.g., USB mouse, USB camera).
8		Headphones/ speaker/line-out jack	Connects to audio line-out devices (e.g., speakers, headphone).

Right View

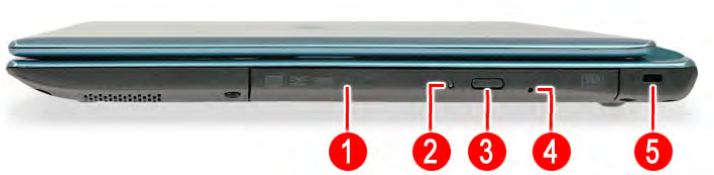
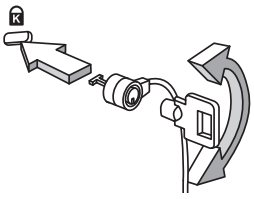


Figure 1-4. Right View

Table 1-4. Right View

No.	Icon	Item	Description
1		Optical disc drive (ODD)	Internal optical disc drive; accepts CDs or DVDs.
2		ODD access indicator	Lights up when the optical drive is active.
3		ODD eject button	Ejects the optical disc from the drive.
4		ODD emergency eject hole	Insert a paper clip to the emergency eject hole to eject the optical drive tray when the computer is off.
5		Kensington lock slot 	Connects to a Kensington-compatible computer security lock. **Note:** Wrap the computer security lock cable around an immovable object such as a table or the handle of a locked drawer. Insert the lock into the notch and turn the key to secure the lock. Some keyless models are also available.

Base View

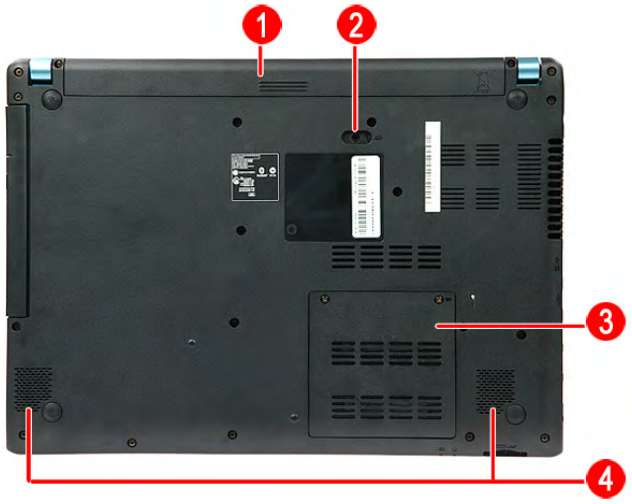


Figure 1-5. Base View

Table 1-5. Base View

No.	Icon	Item	Description
1		Battery pack	Provides power to the computer when the power cord is unplugged.
2		Battery release latch	Releases the battery for removal.
3		DIMM compartment	Houses the computer's memory modules.
4		Speaker	Outputs sounds.

Touchpad Basics

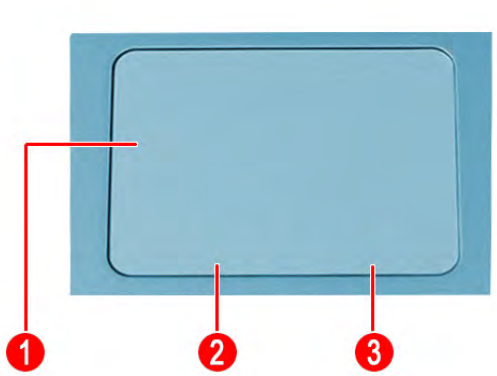


Figure 1-6. Touchpad

- Move finger across the touchpad (1) to move the cursor. Tapping on the touchpad is the same as clicking the left button of a mouse.
- Press the left (2) and right (3) buttons located beneath the touchpad to perform selection and execution functions. These two buttons are the equivalent of the left and right buttons on a mouse.

Table 1-6. Touchpad

Function	Touchpad (1)	Left Button (2)	Right Button (3)
Execute	Rapidly tap twice.	Quickly click twice.	
Select	Tap once.	Click once.	
Access context menu			Click once.

Keyboard

The keyboard contains an overlay numeric keys, inverted “T” cursor key, Windows® key, Application key, function lock keys, and hotkeys controlling various computer features.

Figure 1-7. Keyboard

Lock Keys

The keyboard has three lock keys which the user can toggle on and off.

Figure 1-8. Keyboard Lock Keys

Table 1-8. Keyboard Lock Keys

Lock Key	Description
Caps Lock	When On, all typed alphabetic characters appears in uppercase.
Num Lock	Off by default. When On, the overlay numeric keys acts as a numeric keypad. If an external keyboard or keypad is present, the Num Lock will have the following definitions: • When On, the system boots with external keyboard/keypad Num Lock status On. Internal keyboard overlay numeric keys are disabled.

Table 1-8. Keyboard Lock Keys

Lock Key	Description
Num Lock	• The key can be turned on/off via the internal keyboard (***Fn***+***F11***) or the external keyboard/keypad. Num Lock affects the external keyboard/keypad only. • Shift state is NOT required for the cursor movement by the numeric keys. • The state of the Num Lock is not changed by the attachment/removal (hot plug) of the external keyboard/keypad.
Scroll Lock ***Fn***+***F12***	When On, the screen moves one line up or down when pressing the up or down cursor keys. Scroll Lock is not applicable for all applications.

Windows Keys

The keyboard has two keys that perform Windows-specific functions.

Figure 1-9. Windows-specific Keys

Table 1-9. Windows-specific Keys

Key	Description
Windows Logo key	Pressed alone, this key has the same effect as clicking on the *Windows Start* button; it launches the *Start* menu. It can also be used with other keys to provide a variety of functions. Functions supported by Windows XP, Windows Vista, and Windows 7: • ⊞: Open or close the *Start* menu • ⊞+***R***: Open the *Run* dialog box • ⊞+***M***: Minimizes all windows • ***Shift***+⊞+***M***: Restore minimized windows to the desktop • ⊞+***F1***: Show the *Help* window • ⊞+ ***E***: Open *Windows Explorer* • ⊞+***F***: Search for a file or folder • ⊞+ ***D***: Display the desktop • ***Ctrl***+⊞+***F***: Search for computers (if you are on a network)

Table 1-9. Windows-specific Keys

Key	Description
Windows Logo key	• ***Ctrl***+⊞+***L***: Lock your computer (if you are connected to a network domain), or switch users (if you're not connected to a network domain) • ***Ctrl***+⊞+***Tab***: Moves focus from *Start* menu, to the *Quick Launch* toolbar, to the system tray (use ◁ or ▷ to move focus to items on the *Quick Launch* toolbar and the system tray) • ⊞+***Tab***: Cycle through programs on the taskbar • ⊞+***Break***: Display the *System Properties* dialog box Functions supported by Windows XP: • ⊞+***Break***: Display the *System Properties* dialog box • ⊞+***U***: Open the *Ease of Access Center* window
Application key	This key has the same effect as clicking the right mouse button; it opens the application's context menu.

Hotkeys

The computer uses hotkeys or key combinations to access most computer controls. To activate hotkeys, press and hold the ***Fn*** key before pressing the key in the combination.

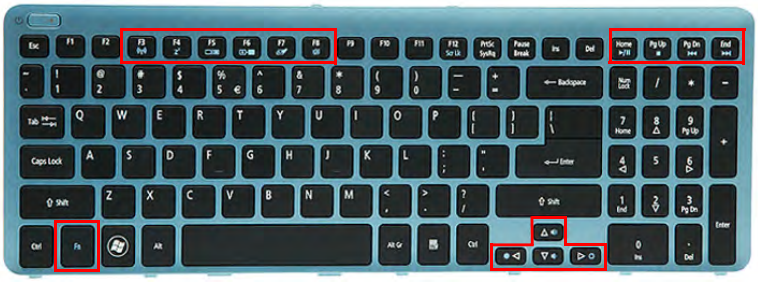


Figure 1-10. Hotkeys

Table 1-10. Hotkeys

Hotkey	Icon	Function	Description
Fn+F3		Communication device toggle	Toggles the WiFi function On and Off using a pop-up window.
Fn+F4		Sleep	Puts the computer in Sleep mode.
Fn+F5		Display off	Turns off the LCD back light
Fn+F6		Display toggle	Switches the display output between the display screen, external monitor (if connected) or both.
Fn+F7		Touchpad toggle	Turns the touchpad On or Off.
Fn+F8		Speaker toggle	Turns the speakers On or Off.

Table 1-10. Hotkeys

Hotkey	Icon	Function	Description
Fn*+*Home	▶/⏸	Play/Pause	Play or pause a selected media file.
Fn*+*Pg Up	■	Stop	Stop playback of the selected media file.
Fn*+*Pg Dn	⏮	Previous	Return to the previous media file.
Fn*+*End	⏭	Next	Jump to the next media file.
***Fn*+△**	🔊	Volume Up	Increases the sound volume.
***Fn*+▽**	🔉	Volume Down	Dereases the sound volume.
***Fn*+◁**	☀	Brightness Down	Decreases the screen brightness.
***Fn*+▷**	☼	Brightness Up	Increases the screen brightness.

D2D Recovery

The Acer Disk to Disk (D2D) recovery function allows you to use the recovery partition to troubleshoot your computer.

1. Restart the computer.
2. During POST, press ***F1*** to access the *BIOS Setup* screen.
3. Press ▷ to select the *Main* menu.
4. Press ▽ to select the *D2D Recovery* field and make sure it is set to **Enabled**.
5. Press ***F10*** to save settings and close the *BIOS Setup* screen.
6. During POST, press ***Alt***+***F10*** to enter the system recovery partition. This will display the *eRecovery Management* window.
7. Follow the onscreen instructions to return your computer to factory condition.

System Block Diagram

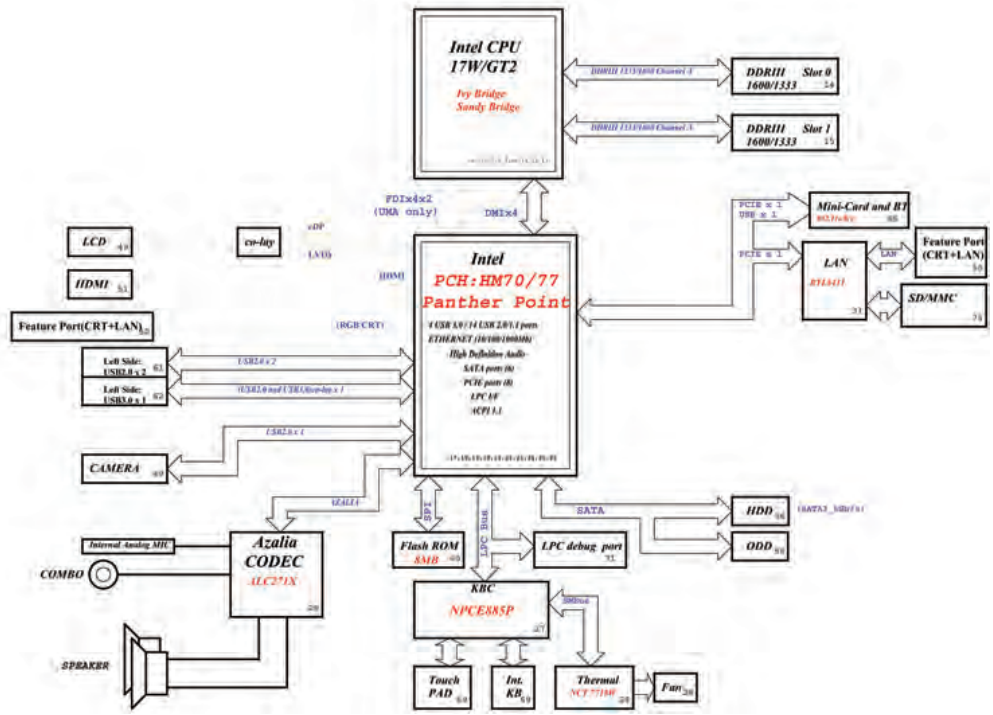


Figure 1-11. System Block Diagram - UMA

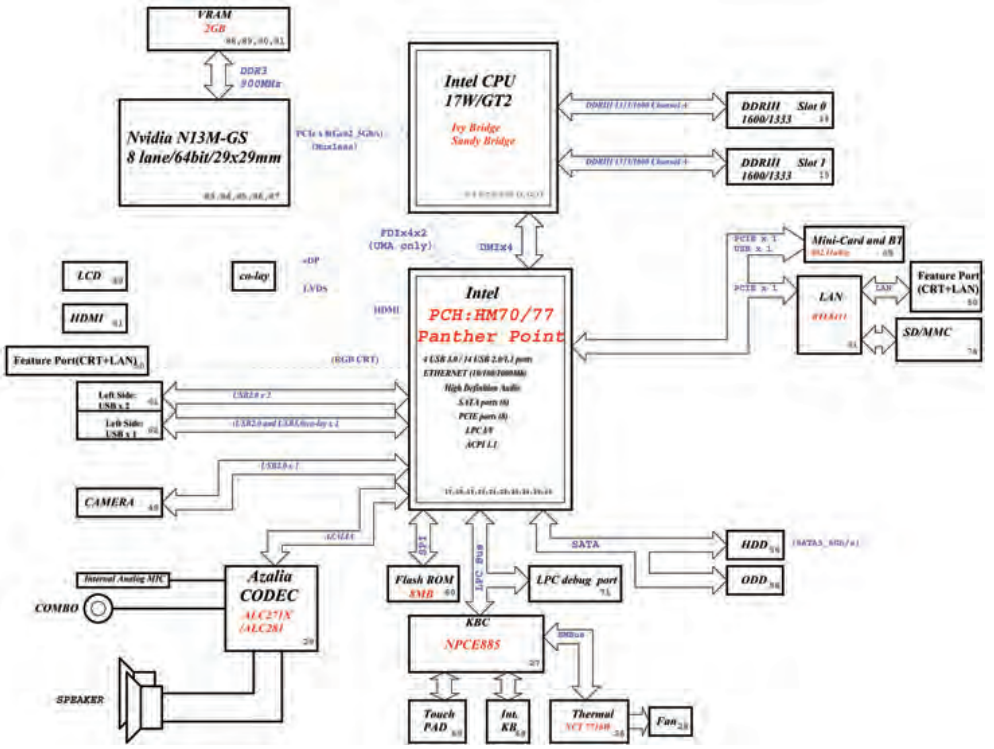


Figure 1-12. System Block Diagram - DISCRETE

Specification Tables

Computer Specifications

Item	Metric	Imperial
Dimensions		
Width	38.2 cm	15.02 in
Depth	25.3 cm	9.96 in
Height	2.06 cm	0.81 in
Weight (equipped with 4-cell battery pack, HDD, and ODD)	2.23 kg for UMA 2.28 kg for Discrete	4.92 lb for UMA 5.03 lb for Discrete
Input power		
Operating voltage	19 V, 65 W	
Operating current (max)	3.42 A	
Temperature		
Operating (not writing to optical disc)	0 to 35 °C	32 to 95 °F
Operating (writing to optical disc)	5 to 35 °C	41 to 95 °F
Nonoperating	-20 to 60 °C	-4 to 140 °F
Relative humidity		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 to 3,048 m	-50 to 10,000 ft
Nonoperating	-15 to 12,192 m	-50 to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	TBD
Nonoperating	200 g, 2 ms, half-sine	TBD
Random vibration		
Operating	0.75 g zero-to-peak, 10 to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.50 g zero-to-peak, 10 to 500 Hz, 0.25 oct/min sweep rate	

NOTE:
Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

System Board

Item	Specification
Core logic	Mobile Intel® HM70/HM77 Express Chipset
Graphics	• UMA: Integrated in the Intel® Core™ Mobile Processor • Discrete: NVIDIA N13M-GS 1G
LAN on Feature Port (thru bundled Y Cable)	Realtek RTL8411 EN
USB 2.0/ USB 3.0	Integrated in the Mobile Intel® HM70/HM77 Express Chipset
Wireless LAN	• Foxconn BCM 43228+20702 • Foxconn Atheros WB222 • Lite-On Atheros WB222
Audio codec	Realtek ALC271X_VB6 QFN-48
Card reader	Built-in

Processor

Item	Specification
CPU type	Second Generation Intel® Core™ Mobile Processor Family
Core logic	Four execution cores· • L1 cache size: Two 32 KB instruction caches and two 32 KB data caches • L2 cache size: Two 256 KB • L3 cache size: 3 to 8 MB
Chipset	Mobile Intel® HM70/HM77 Express Chipset

Processor Specifications

Item	CPU Speed	Cores/ Threads	Max Turbo Freq	Mfg Tech	L3 Cache	Max TDP	Core Voltage
C 867	1.30 GHz	2C/2T	1.30 GHz	32 nm	2 MB	17 W	1.1 V
C 877	1.40 GHz	2C/2T	1.40 GHz	32 nm	2 MB	17 W	1.1 V
i3-2367M	1.4 GHz	2C/4T	1.4 GHz	32 nm	3 MB	17 W	1.1 V
i3-3217U	1.8 GHz	2C/4T	1.8 GHz	32 nm	3 MB	17 W	1.1 V
i5-2467M	1.6 GHz	2C/4T	2.3 GHz	32 nm	3 MB	17 W	1.1 V
i5-3317U	1.7 GHz	2C/4T	2.3 GHz	32 nm	3 MB	17 W	1.1 V
i7-3517U	1.9 GHz	2C/4T	2.8 GHz	32 nm	4 MB	17 W	1.1 V
D 977	1.4 GHz	2C/2T	1.4 GHz	32 nm	2 MB	17 W	1.1 V
D 987	1.5 GHz	2C/2T	1.5 GHz	32 nm	2 MB	17 W	1.1 V

Heat Sink Fan True Value Table

CPU Temperature	Fan Speed (RPM)	SPL Spec (dBA)
45	3200	28
49	3600	31
57	4000	34
72	4500	37
79	5100	40
Throttling 50%: On = 96 °C; Off = 88 °C		
OS shuts down at 98 °C; Hardware shuts down at 85 °C		

System Memory

Item	Specification
Memory controller	Integrated in the Intel® Core™ Mobile Processor
Memory size	1-, 2-, or 4 GB
Number of DIMM socket	2
Maximum memory size per socket	4 GB
Maximum system memory size	8 GB
DIMM type	DDR3 SDRAM
DIMM speed	1333 MHz
DIMM voltage	1.5 V
DIMM package	204-pin SO-DIMM

Memory Combinations

Slot 1 (MB)	Slot 2 (MB)	Total Memory (MB)
1024	1024	2048
1024	2048	3072
1024	4096	5120
2048	1024	3072
2048	2048	4096
2048	4096	6144
4096	1024	5120
4096	2048	6144
4096	4096	8192

NOTE:
The preceding table lists possible system memory configurations.

Graphics Controller

Item	Specification
Chipset	• UMA: Intel® HD Graphics integrated in the Intel® Core™ Mobile Processor • Discrete: NVIDIA N13M-GS 1G

VRAM (Discrete models only)

Item	Specification
Models	• HYNIX Graphic DDRIII 900 1Gb H5TQ1G63DFR-11C LF • HYNIX Graphic DDRIII 900 2Gb H5TQ2G63DFR-11C LF+HF
VRAM type	• 512 MB 900 MHz DDR3 • 1 GB 900 MHz DDR3 • 2 GB 900 MHz DDR3

System BIOS

Item	Specification
BIOS vendor	Phoenix
BIOS version	v1.06
BIOS ROM type	Hardware
BIOS ROM size	4 MB
Protocols supported	• Legacy BIOS and EFI architectures • ACPI 3.0b compliance • PXE specification v2.1 • SMBIOS reference specification v2.5 or later • USB specification revision 1.1, 2.0. and 3.0 • ASF specification v2.0 or later • PCI Express base specification revision 2.1 • PCI BIOS specification revision 2.1 • BIOS Boot specification v1.01 • Simple boot flag specification v2.1 • System management bus specification v2.0 • AHCI support • Microsoft XP/Vista/Windows 7 logo program • Microsoft SLP 1.0 support • Microsoft OA 2.0 and 2.1 support

Keyboard

Item	Specification
Type	AS7F Chiclet keyboard
Total number of keys	88/89/93 keys
Windows logo key	Yes
Internal and external USB keyboard work simultaneously?	Yes
Features	• Inverted “T” cursor keys • Hotkeys for volume and brightness level, media playback, wireless and sleep functions, and display and touchpad toggle • Windows and Application keys • Multilanguage support configurable by OEM customer

Hard Disk Drive

Item	Specification			
Vendor and models	HGST HTS545032A7E384, SEAGATE ST320LT020/ 9YG142-188, WD WD3200LPVT-22G33T0		HGST HTS545050A7E380, SEAGATE 9WS142-188 ST500LT012, WD WD5000LPVT-22G33T0,	
Product series	• Hitachi Eagle/Jaguar • Seagate Yarra • Western Digital Scorpio Blue			
Configuration				
Interface	SATA, Third Generation			
Capacity (GB)	250	320	500	750
Bytes per sector	512	512	512	512, 4096, n/a, n/a
Data heads	2	3, 2, 2, 2, n/a	4, n/a, 4, n/a	n/a, n/a, 4, n/a
Disks	1	1, 2/1, 1, 1, n/a	2, n/a, 2, n/a	n/a, n/a, 2, n/a
Performance				
Data buffer	8	8	8	8, 16, 8, 8
Spindle speed (RPM)	5400			
Media data transfer rate (Mbits/sec, max)	875, n/a, n/a, n/a	875, 875/994, 1175, n/a	875, n/a, n/a, n/a	996, n/a, n/a, n/a
Interface transfer rate (MB/sec, max)	300			
Power				
Requirement	5 VDC			

Super-Multi Drive

Item	Specification	
Vendor and models	HLDS Super-Multi DRIVE 9.0mm Tray 8X GU61N LF+HF W/O bezel SATA	
Interface	Slim-type SATA	
Transfer rates	Read	Write
DVD-RAM	5x	5x
DVD-R	8x	8x
DVD-R DL	6x	8x
DVD-RW	6x	8x
DVD+R	8x	8x
DVD+R DL	6x	8x
DVD+RW	8x	8x
DVD-ROM Single Layer	–	8x
DVD-ROM Dual Layer	–	8x
CD-R	24x	24x
CD-RW	16x	24x
CD-ROM	–	24x
Buffer memory	2 MB	
Loading mechanism	Tray loading	
Release mechanism	• Electrical release (by eject button) • Release by ATAPI command • Emergency release (by emergency eject hole)	
Power requirement	5 VDC ±0.25%	

Card Reader

Item	Specification
Controller	RTL8411
Cards supported	• MultiMediaCard™ (MMC) • MultiMediaCard Plus (MMCplus™) • Secure Digital™ (SD)
Manufacturing technology	65 nm

LCD Panel

Item	Specification
Vendor and models	• AUO B140XW03 V0 3A LF • CMI N140BGE-L42 LF / CMI BT140GW03 V2 LF • LP140WH2-TLE3 LF
Screen size (diagonal)	355.6 mm (14 in)
Active area	309.4×173.95 mm
Display resolution (pixels)	HD (1366×68)
Pixel pitch	0.226 mm
Viewing angle (H/V)	90/50
Brightness	200 nit
Contrast ratio	400:1
Response time Typical Maximum	 8 ms 16 ms
Typical power consumption (watt)	3.8- or 4.4 W
Electrical interface	1-channel LVDS
Backlight	White LED (WLED)
Weight	350 g
Physical size	323/324 × 192.5 × 5.2 mm

Supported Display Resolutions

Specification	UMA	Discrete
800×600, 60 Hz, 16:9	Yes	Yes
1024×768, 60 Hz, 16:9	Yes	Yes
1280×600, 60 Hz, 16:9	Yes	Yes
1280×720, 60 Hz, 16:9	Yes	Yes
1280×768, 60 Hz, 16:9	Yes	Yes
1360×768, 60 Hz, 16:9	Yes	Yes
1366×768, 60 Hz, 16:9	Yes	Yes

Audio Codec

Item	Specification
Controller	Realtek ALC271X_VB6 QFN-48
Features	• 98 dB Signal-to-Noise Ratio (A-weighting) for DAC output • 90 dB Signal-to-Noise Ratio (A-weighting) for ADC input • Internal Digital Power support: 3.3 V digital core power; 1.5–3.3 V digital IO power for HDA link; 3.0–5.0 V analog power; 3.0–5.0 V power stage voltage • Acoustic Echo Cancellation (AEC), Noise Suppression (NS), and Beam Forming (BF) technologies for voice application • 48-pin green QFN package

Audio Interface

Item	Specification
Controller	Realtek ALC271X_VB6 QFN-48
Audio onboard	Yes
Audio channel	Stereo
Resolution	18 bit stereo full duplex
Compatibility	High Definition Audio Specification
Sampling rate	1 Hz resolution VSR (Variable Sampling Rate)
Internal microphone	Yes
Internal speaker/quantity	Yes, two speakers

Webcam

Item	Specification
Vendor and models	• Chicony HD CH_OV9726_AU • Liteon HD LT_OV9726_SP • Suyin HD SY_OV9726_AU
Resolution	1.3 MP HD

LAN

Item	Specification
LAN on Feature Port (thru bundled Y Cable)	Realtek RTL8411 EN
LAN connector type	RJ-45
LAN connector location	Left
Features	• 10/100/1000BASE-T triple-speed MAC • Compliant with IEEE standards • Compliant with IEEE 802.3az draft standard for Energy Efficient Ethernet™ (EEE) • ACPI-compliant Wake on LAN support

Wireless LAN

Item	Specification
Module	• Foxconn BCM 43228 • Foxconn Atheros WB222 • Lite-On Atheros WB222
Frequency band	2.4 GHz
Protocols and data rates supported	• 802.11b – 1-11 Mbps • 802.11g – 6-54 Mbps • 802.11n – 6.5-300 Mbps
Interface	PCI Express
Form factor	Compact Half-Mini Card
Antennae	Yes, two routed in the display assembly

USB Interface

Item	Specification
Controller	• USB 2.0 / USB 3.0 – Integrated in the Mobile Intel® HM70/HM77 Express Chipset
Number and location of USB port	• USB 2.0 – Two (left side) • USB 3.0 – One (left side)
EHCI	2
Output current	1.0A for each connector

HDMI Port

Item	Specification
Compliance level	HDMI 1.4a
Data throughput	Up to 16.7 million colors
Number of HDMI port	1
Location	Left side

Expansion Card

Item	Specification
Form factor	PCI Express Mini Card
Number of slot	1
Supported card	WLAN or WiMAX module

System LED Indicators

Item	Specification
Power status	• Solid blue: The computer is turned on. • Blinking amber: The computer is in power-saving mode. • Indicator off: The computer is turned off.
Battery status	AC adapter connected: • Solid blue: The battery charge is at full capacity. • Solid amber: Battery charging. • Blinking amber: Battery is in abnormal stop charge or battery is in low power state. AC adapter disconnected: • Blinking amber: Battery charge is in critically low state • Indicator off: Discharging state.
HDD activity	Flashes blue when there is hard drive activity.
Wireless connectivity	Flashes amber when there is an active wireless connection.

Battery Pack

Item	Specification
Vendor and models	SANYO AL12A32 Li-Ion 4S1P
Battery type	Lithium-ion
Pack capacity	2600 mAh
Number of battery cell	4
Package configuration	3S2P

AC Adapter

Item	Specification
Input rating	65 W
Input AC current (max)	100-240 V, 1.6 A, 50-60 Hz
Output	19 V, 3.42 A

System Power Management

Item	Specification
Power management system	ACPI 3.0-compliant
Power global states	• G3 Mechanical Off - This off state is entered through a mechanical means; no electrical current is running through the circuitry and it can be worked on without damaging the hardware or endangering service personnel. Except for the real-time clock, power consumption is zero. • G2/S5 Soft Off - OS initiated shutdown. The computer consumes a minimal amount of power. No user mode or system mode code is run. It is not safe to disassemble the machine in this state. • G1 Sleeping - The computer consumes a small amount of power, user mode threads are not being executed, and the system “appears” to be off. It is not safe to disassemble the machine in this state • G0 Working - The computer dispatches user mode (application) threads and they execute. It is not safe to disassemble the machine in this state. • S4 Non-Volatile Sleep - Also known as hibernation state. A special global system state that allows system context to be saved and restored (relatively slowly) when power is lost to the mainboard. It is not safe to disassemble the machine in this state.

System DMA Specification

Legacy Mode	Power Management
DMA0	Free
DMA1	Free
DMA2	Free
DMA3	Free
DMA4	Direct memory access controller
DMA5	Free
DMA6	Free
DMA7	Free

System Interrupt Specification (UMA)

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Standard PS/2 keyboard
IRQ2	Not in use
IRQ3	Not in use
IRQ5	Not in use
IRQ6	Not in use
IRQ7	Not in use
IRQ8	System CMOS/real time clock
IRQ9	Broadcom xD Picture Card Host Controller
IRQ10	Not in use
IRQ11	Not in use
IRQ12	PS/2 port Touchpad
IRQ13	Numeric data processor
IRQ14	Not in use
IRQ15	Not in use
IRQ 4294967294	Intel(R) HD Graphics 3000
IRQ 16	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
IRQ 16	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
IRQ 16	Intel(R) Management Engine Interface
IRQ 12	Synaptics PS/2 Port TouchPad
IRQ 19	Intel(R) 7 Series Chipset Family SATA AHCI Controller
IRQ 19	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 4 - 1E16
IRQ 19	Broadcom 802.11n Network Adapter
IRQ 4294967293	Intel(R) USB 3.0 eXtensible Host Controller
IRQ 81	Microsoft ACPI-Compliant System
IRQ 82	Microsoft ACPI-Compliant System
IRQ 83	Microsoft ACPI-Compliant System
IRQ 84	Microsoft ACPI-Compliant System
IRQ 85	Microsoft ACPI-Compliant System
IRQ 86	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 87	Microsoft ACPI-Compliant System
IRQ 88	Microsoft ACPI-Compliant System
IRQ 89	Microsoft ACPI-Compliant System
IRQ 90	Microsoft ACPI-Compliant System
IRQ 91	Microsoft ACPI-Compliant System
IRQ 92	Microsoft ACPI-Compliant System
IRQ 93	Microsoft ACPI-Compliant System
IRQ 94	Microsoft ACPI-Compliant System
IRQ 95	Microsoft ACPI-Compliant System
IRQ 96	Microsoft ACPI-Compliant System
IRQ 97	Microsoft ACPI-Compliant System
IRQ 98	Microsoft ACPI-Compliant System
IRQ 99	Microsoft ACPI-Compliant System
IRQ 100	Microsoft ACPI-Compliant System
IRQ 101	Microsoft ACPI-Compliant System
IRQ 102	Microsoft ACPI-Compliant System
IRQ 103	Microsoft ACPI-Compliant System
IRQ 104	Microsoft ACPI-Compliant System
IRQ 105	Microsoft ACPI-Compliant System
IRQ 106	Microsoft ACPI-Compliant System
IRQ 107	Microsoft ACPI-Compliant System
IRQ 108	Microsoft ACPI-Compliant System
IRQ 109	Microsoft ACPI-Compliant System
IRQ 110	Microsoft ACPI-Compliant System
IRQ 111	Microsoft ACPI-Compliant System
IRQ 112	Microsoft ACPI-Compliant System
IRQ 113	Microsoft ACPI-Compliant System
IRQ 114	Microsoft ACPI-Compliant System
IRQ 115	Microsoft ACPI-Compliant System
IRQ 116	Microsoft ACPI-Compliant System
IRQ 117	Microsoft ACPI-Compliant System
IRQ 118	Microsoft ACPI-Compliant System
IRQ 119	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 120	Microsoft ACPI-Compliant System
IRQ 121	Microsoft ACPI-Compliant System
IRQ 122	Microsoft ACPI-Compliant System
IRQ 123	Microsoft ACPI-Compliant System
IRQ 124	Microsoft ACPI-Compliant System
IRQ 125	Microsoft ACPI-Compliant System
IRQ 126	Microsoft ACPI-Compliant System
IRQ 127	Microsoft ACPI-Compliant System
IRQ 128	Microsoft ACPI-Compliant System
IRQ 129	Microsoft ACPI-Compliant System
IRQ 130	Microsoft ACPI-Compliant System
IRQ 131	Microsoft ACPI-Compliant System
IRQ 132	Microsoft ACPI-Compliant System
IRQ 133	Microsoft ACPI-Compliant System
IRQ 134	Microsoft ACPI-Compliant System
IRQ 135	Microsoft ACPI-Compliant System
IRQ 136	Microsoft ACPI-Compliant System
IRQ 137	Microsoft ACPI-Compliant System
IRQ 138	Microsoft ACPI-Compliant System
IRQ 139	Microsoft ACPI-Compliant System
IRQ 140	Microsoft ACPI-Compliant System
IRQ 141	Microsoft ACPI-Compliant System
IRQ 142	Microsoft ACPI-Compliant System
IRQ 143	Microsoft ACPI-Compliant System
IRQ 144	Microsoft ACPI-Compliant System
IRQ 145	Microsoft ACPI-Compliant System
IRQ 146	Microsoft ACPI-Compliant System
IRQ 147	Microsoft ACPI-Compliant System
IRQ 148	Microsoft ACPI-Compliant System
IRQ 149	Microsoft ACPI-Compliant System
IRQ 150	Microsoft ACPI-Compliant System
IRQ 151	Microsoft ACPI-Compliant System
IRQ 152	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 153	Microsoft ACPI-Compliant System
IRQ 154	Microsoft ACPI-Compliant System
IRQ 155	Microsoft ACPI-Compliant System
IRQ 156	Microsoft ACPI-Compliant System
IRQ 157	Microsoft ACPI-Compliant System
IRQ 158	Microsoft ACPI-Compliant System
IRQ 159	Microsoft ACPI-Compliant System
IRQ 160	Microsoft ACPI-Compliant System
IRQ 161	Microsoft ACPI-Compliant System
IRQ 162	Microsoft ACPI-Compliant System
IRQ 163	Microsoft ACPI-Compliant System
IRQ 164	Microsoft ACPI-Compliant System
IRQ 165	Microsoft ACPI-Compliant System
IRQ 166	Microsoft ACPI-Compliant System
IRQ 167	Microsoft ACPI-Compliant System
IRQ 168	Microsoft ACPI-Compliant System
IRQ 169	Microsoft ACPI-Compliant System
IRQ 170	Microsoft ACPI-Compliant System
IRQ 171	Microsoft ACPI-Compliant System
IRQ 172	Microsoft ACPI-Compliant System
IRQ 173	Microsoft ACPI-Compliant System
IRQ 174	Microsoft ACPI-Compliant System
IRQ 175	Microsoft ACPI-Compliant System
IRQ 176	Microsoft ACPI-Compliant System
IRQ 177	Microsoft ACPI-Compliant System
IRQ 178	Microsoft ACPI-Compliant System
IRQ 179	Microsoft ACPI-Compliant System
IRQ 180	Microsoft ACPI-Compliant System
IRQ 181	Microsoft ACPI-Compliant System
IRQ 182	Microsoft ACPI-Compliant System
IRQ 183	Microsoft ACPI-Compliant System
IRQ 184	Microsoft ACPI-Compliant System
IRQ 185	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 186	Microsoft ACPI-Compliant System
IRQ 187	Microsoft ACPI-Compliant System
IRQ 188	Microsoft ACPI-Compliant System
IRQ 189	Microsoft ACPI-Compliant System
IRQ 190	Microsoft ACPI-Compliant System
IRQ 0	System timer
IRQ 18	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
IRQ 18	Synaptics SMBus Driver
IRQ 1	Standard PS/2 Keyboard
IRQ 4294967292	Realtek PCIE CardReader
IRQ 8	System CMOS/real time clock
IRQ 4294967291	Realtek PCIe GBE Family Controller
IRQ 22	High Definition Audio Controller
IRQ 13	Numeric data processor
IRQ 23	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26

System Interrupt Specification (Discrete)

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Standard PS/2 keyboard
IRQ2	Not in use
IRQ3	Not in use
IRQ5	Not in use
IRQ6	Not in use
IRQ7	Not in use
IRQ8	System CMOS/real time clock
IRQ9	Broadcom xD Picture Card Host Controller
IRQ10	Not in use
IRQ11	Not in use
IRQ12	PS/2 port Touchpad
IRQ13	Numeric data processor
IRQ14	Not in use
IRQ15	Not in use
IRQ 16	NVIDIA GeForce GT 620M
IRQ 16	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
IRQ 16	Intel(R) Management Engine Interface
IRQ 16	Xeon E3-1200/2nd Generation Intel(R) Core(TM) Processor Family PCI Express Root Port - 0101
IRQ 16	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
IRQ 0	System timer
IRQ 4294967291	Realtek PCIE CardReader
IRQ 18	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
IRQ 1	Standard PS/2 Keyboard
IRQ 4294967294	Realtek PCIe GBE Family Controller
IRQ 19	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 4 - 1E16
IRQ 19	Qualcomm Atheros AR5BWB222 Wireless Network Adapter
IRQ 19	Intel(R) 7 Series Chipset Family SATA AHCI Controller
IRQ 8	System CMOS/real time clock

Hardware IRQ	System Function
IRQ 12	ELAN PS/2 Port Smart-Pad
IRQ 22	High Definition Audio Controller
IRQ 13	Numeric data processor
IRQ 10	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
IRQ 23	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
IRQ 4294967293	Intel(R) HD Graphics
IRQ 81	Microsoft ACPI-Compliant System
IRQ 82	Microsoft ACPI-Compliant System
IRQ 83	Microsoft ACPI-Compliant System
IRQ 84	Microsoft ACPI-Compliant System
IRQ 85	Microsoft ACPI-Compliant System
IRQ 86	Microsoft ACPI-Compliant System
IRQ 87	Microsoft ACPI-Compliant System
IRQ 88	Microsoft ACPI-Compliant System
IRQ 89	Microsoft ACPI-Compliant System
IRQ 90	Microsoft ACPI-Compliant System
IRQ 91	Microsoft ACPI-Compliant System
IRQ 92	Microsoft ACPI-Compliant System
IRQ 93	Microsoft ACPI-Compliant System
IRQ 94	Microsoft ACPI-Compliant System
IRQ 95	Microsoft ACPI-Compliant System
IRQ 96	Microsoft ACPI-Compliant System
IRQ 97	Microsoft ACPI-Compliant System
IRQ 98	Microsoft ACPI-Compliant System
IRQ 99	Microsoft ACPI-Compliant System
IRQ 100	Microsoft ACPI-Compliant System
IRQ 101	Microsoft ACPI-Compliant System
IRQ 102	Microsoft ACPI-Compliant System
IRQ 103	Microsoft ACPI-Compliant System
IRQ 104	Microsoft ACPI-Compliant System
IRQ 105	Microsoft ACPI-Compliant System
IRQ 106	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 107	Microsoft ACPI-Compliant System
IRQ 108	Microsoft ACPI-Compliant System
IRQ 109	Microsoft ACPI-Compliant System
IRQ 110	Microsoft ACPI-Compliant System
IRQ 111	Microsoft ACPI-Compliant System
IRQ 112	Microsoft ACPI-Compliant System
IRQ 113	Microsoft ACPI-Compliant System
IRQ 114	Microsoft ACPI-Compliant System
IRQ 115	Microsoft ACPI-Compliant System
IRQ 116	Microsoft ACPI-Compliant System
IRQ 117	Microsoft ACPI-Compliant System
IRQ 118	Microsoft ACPI-Compliant System
IRQ 119	Microsoft ACPI-Compliant System
IRQ 120	Microsoft ACPI-Compliant System
IRQ 121	Microsoft ACPI-Compliant System
IRQ 122	Microsoft ACPI-Compliant System
IRQ 123	Microsoft ACPI-Compliant System
IRQ 124	Microsoft ACPI-Compliant System
IRQ 125	Microsoft ACPI-Compliant System
IRQ 126	Microsoft ACPI-Compliant System
IRQ 127	Microsoft ACPI-Compliant System
IRQ 128	Microsoft ACPI-Compliant System
IRQ 129	Microsoft ACPI-Compliant System
IRQ 130	Microsoft ACPI-Compliant System
IRQ 131	Microsoft ACPI-Compliant System
IRQ 132	Microsoft ACPI-Compliant System
IRQ 133	Microsoft ACPI-Compliant System
IRQ 134	Microsoft ACPI-Compliant System
IRQ 135	Microsoft ACPI-Compliant System
IRQ 136	Microsoft ACPI-Compliant System
IRQ 137	Microsoft ACPI-Compliant System
IRQ 138	Microsoft ACPI-Compliant System
IRQ 139	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 140	Microsoft ACPI-Compliant System
IRQ 141	Microsoft ACPI-Compliant System
IRQ 142	Microsoft ACPI-Compliant System
IRQ 143	Microsoft ACPI-Compliant System
IRQ 144	Microsoft ACPI-Compliant System
IRQ 145	Microsoft ACPI-Compliant System
IRQ 146	Microsoft ACPI-Compliant System
IRQ 147	Microsoft ACPI-Compliant System
IRQ 148	Microsoft ACPI-Compliant System
IRQ 149	Microsoft ACPI-Compliant System
IRQ 150	Microsoft ACPI-Compliant System
IRQ 151	Microsoft ACPI-Compliant System
IRQ 152	Microsoft ACPI-Compliant System
IRQ 153	Microsoft ACPI-Compliant System
IRQ 154	Microsoft ACPI-Compliant System
IRQ 155	Microsoft ACPI-Compliant System
IRQ 156	Microsoft ACPI-Compliant System
IRQ 157	Microsoft ACPI-Compliant System
IRQ 158	Microsoft ACPI-Compliant System
IRQ 159	Microsoft ACPI-Compliant System
IRQ 160	Microsoft ACPI-Compliant System
IRQ 161	Microsoft ACPI-Compliant System
IRQ 162	Microsoft ACPI-Compliant System
IRQ 163	Microsoft ACPI-Compliant System
IRQ 164	Microsoft ACPI-Compliant System
IRQ 165	Microsoft ACPI-Compliant System
IRQ 166	Microsoft ACPI-Compliant System
IRQ 167	Microsoft ACPI-Compliant System
IRQ 168	Microsoft ACPI-Compliant System
IRQ 169	Microsoft ACPI-Compliant System
IRQ 170	Microsoft ACPI-Compliant System
IRQ 171	Microsoft ACPI-Compliant System
IRQ 172	Microsoft ACPI-Compliant System

Hardware IRQ	System Function
IRQ 173	Microsoft ACPI-Compliant System
IRQ 174	Microsoft ACPI-Compliant System
IRQ 175	Microsoft ACPI-Compliant System
IRQ 176	Microsoft ACPI-Compliant System
IRQ 177	Microsoft ACPI-Compliant System
IRQ 178	Microsoft ACPI-Compliant System
IRQ 179	Microsoft ACPI-Compliant System
IRQ 180	Microsoft ACPI-Compliant System
IRQ 181	Microsoft ACPI-Compliant System
IRQ 182	Microsoft ACPI-Compliant System
IRQ 183	Microsoft ACPI-Compliant System
IRQ 184	Microsoft ACPI-Compliant System
IRQ 185	Microsoft ACPI-Compliant System
IRQ 186	Microsoft ACPI-Compliant System
IRQ 187	Microsoft ACPI-Compliant System
IRQ 188	Microsoft ACPI-Compliant System
IRQ 189	Microsoft ACPI-Compliant System
IRQ 190	Microsoft ACPI-Compliant System
IRQ 4294967292	Intel(R) USB 3.0 eXtensible Host Controller

System IO Address Map (UMA)

I/O address (hex)	System Function (shipping configuration)
3000-303F	Intel(R) HD Graphics 3000
03B0-03BB	Intel(R) HD Graphics 3000
03C0-03DF	Intel(R) HD Graphics 3000
3088-308F	Intel(R) 7 Series Chipset Family SATA AHCI Controller
309C-309F	Intel(R) 7 Series Chipset Family SATA AHCI Controller
3080-3087	Intel(R) 7 Series Chipset Family SATA AHCI Controller
3098-309B	Intel(R) 7 Series Chipset Family SATA AHCI Controller
3060-307F	Intel(R) 7 Series Chipset Family SATA AHCI Controller
0454-0457	Motherboard resources
0020-0021	Programmable interrupt controller
0024-0025	Programmable interrupt controller
0028-0029	Programmable interrupt controller
002C-002D	Programmable interrupt controller
0030-0031	Programmable interrupt controller
0034-0035	Programmable interrupt controller
0038-0039	Programmable interrupt controller
003C-003D	Programmable interrupt controller
00A0-00A1	Programmable interrupt controller
00A4-00A5	Programmable interrupt controller
00A8-00A9	Programmable interrupt controller
00AC-00AD	Programmable interrupt controller
00B0-00B1	Programmable interrupt controller
00B4-00B5	Programmable interrupt controller
00B8-00B9	Programmable interrupt controller
00BC-00BD	Programmable interrupt controller
04D0-04D1	Programmable interrupt controller
0040-0043	System timer
0050-0053	System timer
2000-2FFF	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
0000-001F	PCI bus
0081-0091	Direct memory access controller
0093-009F	Direct memory access controller

I/O address (hex)	System Function (shipping configuration)
00C0-00DF	Direct memory access controller
0060-0060	Standard PS/2 Keyboard
0064-0064	Standard PS/2 Keyboard
0D00-FFFF	PCI bus
0070-0077	System CMOS/real time clock
002E-002F	Motherboard resources
004E-004F	Motherboard resources
0061-0061	Motherboard resources
0063-0063	Motherboard resources
0065-0065	Motherboard resources
0067-0067	Motherboard resources
0080-0080	Motherboard resources
0092-0092	Motherboard resources
00B2-00B3	Motherboard resources
1000-100F	Motherboard resources
FFFF-FFFF	Motherboard resources
0400-0453	Motherboard resources
0458-047F	Motherboard resources
0500-057F	Motherboard resources
0068-006F	Motherboard resources
00F0-00F0	Numeric data processor
EFA0-EFBF	Synaptics SMBus Driver
0062-00062	Microsoft ACPI-Compliant Embedded Controller
0066-0066	Microsoft ACPI-Compliant Embedded Controller

System IO Address Map (Discrete)

I/O address (hex)	System Function (shipping configuration)
3F80-3FFF	NVIDIA GeForce GT 620M
0040-0043	System timer
0050-0053	System timer
0000-001F	Direct memory access controller
0000-001F	PCI bus
0081-0091	Direct memory access controller
0093-009F	Direct memory access controller
00C0-00DF	Direct memory access controller
2000-2FFF	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
0060-0060	Standard PS/2 Keyboard
0064-0064	Standard PS/2 Keyboard
0D00-0FFFF	PCI bus
0070-0077	System CMOS/real time clock
0070-0077	Motherboard resources
002E-002F	Motherboard resources
004E-004F	Motherboard resources
0061-0061	Motherboard resources
0063-0063	Motherboard resources
0065-0065	Motherboard resources
0067-0067	Motherboard resources
0080-0080	Motherboard resources
0092-0092	Motherboard resources
00B2-00B3	Motherboard resources
1000-100F	Motherboard resources
FFFF-FFFF	Motherboard resources
0400-0453	Motherboard resources
0458-047F	Motherboard resources
0500-057F	Motherboard resources
0068-006F	Motherboard resources
00F0-00F0	Numeric data processor
0062-0062	Microsoft ACPI-Compliant Embedded Controller
0066-0066	Microsoft ACPI-Compliant Embedded Controller

I/O address (hex)	System Function (shipping configuration)
3000-3FFF	Xeon E3-1200/2nd Generation Intel(R) Core(TM) Processor Family PCI Express Root Port - 0101
EFA0-EFBF	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
4000-403F	Intel(R) HD Graphics
03B0-03BB	Intel(R) HD Graphics
03C0-03DF	Intel(R) HD Graphics
4098-409F	Intel(R) 7 Series Chipset Family SATA AHCI Controller
40BC-40BF	Intel(R) 7 Series Chipset Family SATA AHCI Controller
4090-04097	Intel(R) 7 Series Chipset Family SATA AHCI Controller
40B8-40BB	Intel(R) 7 Series Chipset Family SATA AHCI Controller
4060-407F	Intel(R) 7 Series Chipset Family SATA AHCI Controller
0454-0457	Motherboard resources
0020-0021	Programmable interrupt controller
0024-0025	Programmable interrupt controller
0028-00029	Programmable interrupt controller
002C-002D	Programmable interrupt controller
0030-0031	Programmable interrupt controller
0034-00035	Programmable interrupt controller
0038-0039	Programmable interrupt controller
003C-003D	Programmable interrupt controller
00A0-00A1	Programmable interrupt controller
00A4-00A5	Programmable interrupt controller
00A8-00A9	Programmable interrupt controller
00AC-00AD	Programmable interrupt controller
00B0-00B1	Programmable interrupt controller
00B4-00B5	Programmable interrupt controller
00B8-00B9	Programmable interrupt controller
00BC-00BD	Programmable interrupt controller
04D0-04D1	Programmable interrupt controller

CHAPTER 2

System Utilities

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System Utilities

BIOS Setup Utility

This utility is a hardware configuration program built into a computer's BIOS (Basic Input/Output System).

The utility is pre-configured and optimized so most users do not need to run it. If configuration problems occur, the setup utility may need to be run. Refer to *Chapter 4, Troubleshooting* when a problem arises.

To enter this utility, during POST (power-on self-test), press ***F2*** when the prompt appears on the bottom of screen.

The default setting of the `F12 Boot Menu` is `Disabled`. To change the boot device without entering the *BIOS Setup Utility*, set the parameter to `Enabled`. During the next POST, press ***F12*** to enter the `multi-boot` menu.

Navigating the BIOS Utility

The *BIOS Setup Utility* has five menu options, namely:

- Information
- Main
- Security
- Boot
- Exit

Perform the following actions to navigate through the *BIOS Setup Utility*:

- Press ◁ ▷ to select items in the menu bar.
- Press △ ▽ to select an item in the menu screen or in an option box.
- Press ***F5*** or ***F6*** to change the parameter value.
- Press ***Esc*** to exit from the *Setup Utility*.
- Press ***F9*** to load the default settings.
- Press ***F10*** to save changes and exit from the *Setup Utility*.

NOTE:

Parameter values enclosed in square brackets [ ] can be change. Navigation keys appear on the bottom of the screen. Read the item specific help on the right area of the screen before making changes to the parameter values.

NOTE:

System information can vary depending on the computer model.

BIOS Menus

This section describes the *Phoenix SecureCore Tiano BIOS Setup Utility* menu tabs.

NOTE:

The screenshots used in this chapter are for reference only. Actual values can vary depending on the computer model.

Information

This tab shows a summary of the computer's hardware information.

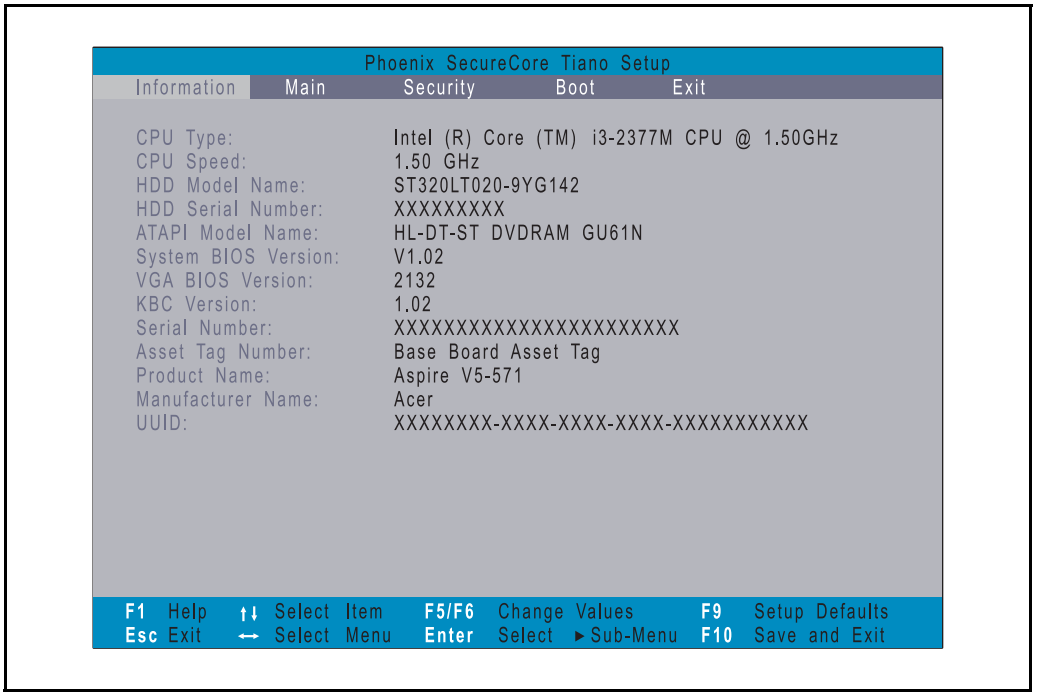

Figure 2-1. Hardware Information

Table 2-1. Hardware Information

Parameter	Description
CPU Type	Model name and core frequency of the installed processor
CPU Speed	Core frequency of the installed processor
HDD Model Name	Model name of the installed hard drive
HDD Serial Number	Serial number of the installed hard drive
ATAPI Model Name	Model name of the installed optical device
System BIOS Version	Current system BIOS version
VGA BIOS Version	Current firmware version of the system VGA
KBC Version	Current keyboard controller version
Serial Number	Serial number of the computer

Table 2-1. Hardware Information (Continued)

Parameter	Description
Asset Tag Number	Asset tag number of the computer
Product Name	Model name of the computer
Manufacturer Name	Computer manufacturer
UUID	The universally unique identifier tag assigned to the computer

Main

Use this tab to set the system time and date, enable or disable boot options, and enable or disable the D2D recovery feature.

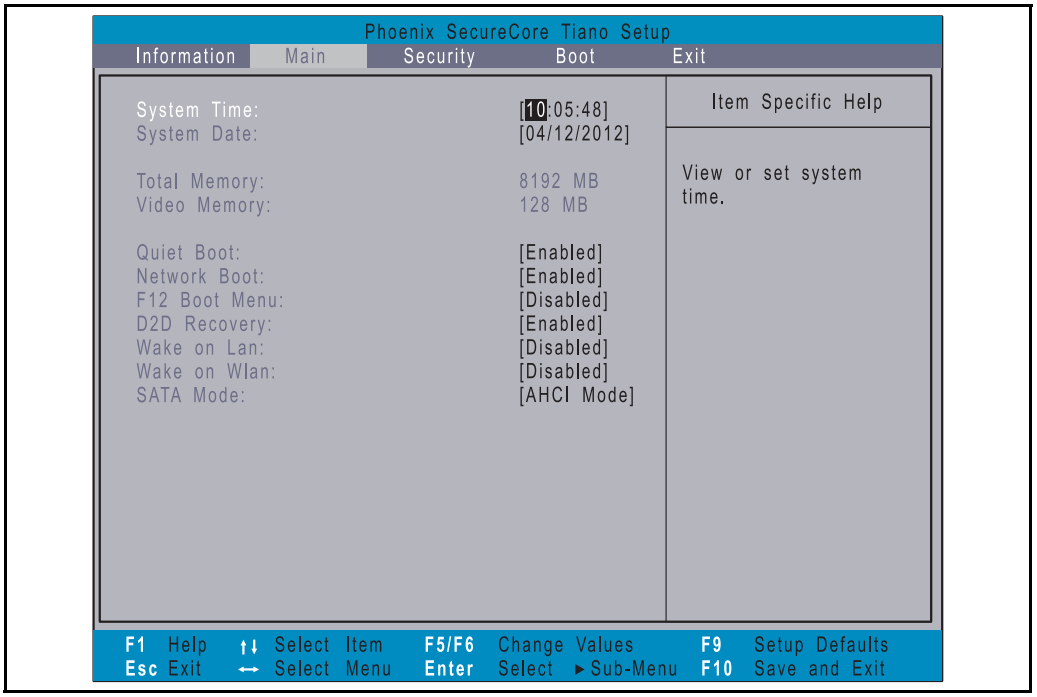

Figure 2-2. BIOS Main

Table 2-2. BIOS Main

Parameter	Description	Format/Option
System Time	System time expressed in 24-hour format	Format: HH:MM:SS (hour:minute:second)
System Date	System date	Format MM/DD/YYYY (month/day/year)
Total Memory	Total system memory available	–
Video Memory	System memory allocated for graphics processing	–
Quiet Boot	Show the original equipment manufacturer (OEM) screen during system boot instead of the typical POST screen	Option: Enabled or Disabled
Network Boot	Option to boot system from LAN	Option: Enabled or Disabled
F12 Boot Menu	Option to enter the *Boot* menu during POST	Option: Enabled or Disabled
D2D Recovery	Option to use the *D2D Recovery* function	Option: Enabled or Disabled

Table 2-2. BIOS Main (Continued)

Parameter	Description	Format/Option
Wake on Lan	Option to wake up the system from a power saving mode using LAN.	Option: Enabled or Disabled
Wake on WLan	Option to wake up the system from a power saving mode using WLAN.	Option: Enabled or Disabled
SATA Mode	Option to set the SATA controller mode	Option: AHCI or IDE

Security

Use this tab to safeguard and protect the computer from unauthorized use.

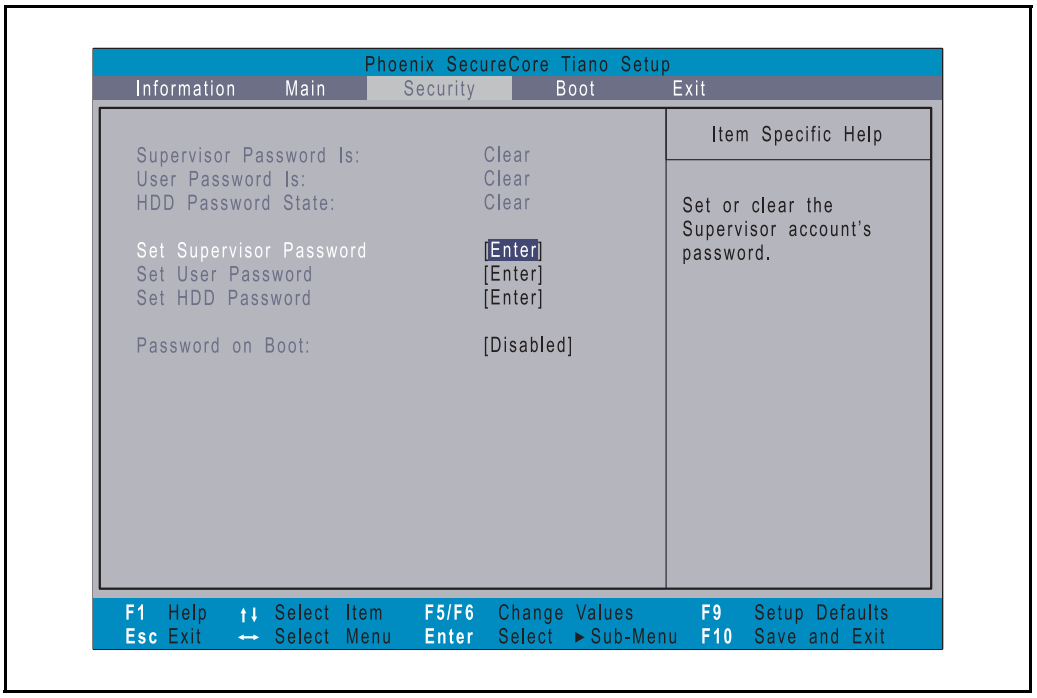

Figure 2-3. BIOS Security

Table 2-3. BIOS Security

Parameter	Description	Option
Supervisor Password Is	Supervisor password setting	Clear or Set
User Password Is	User password setting	Clear or Set
HDD Password State	Hard drive password setting	Clear or Set
Set Supervisor Password	Option to set the supervisor password	–
Set User Password	Option to set a user password	–
Set HDD Password	Option to set the hard drive password	–
Password on Boot	Option to enable password requirement during system boot	Enabled or Disabled

NOTE:

When prompted to enter the password, three attempts are allowed before system halts. Resetting the BIOS password may require the user to return the computer to its dealer.

Setting a Password

Follow the succeeding instructions to set the user or supervisor passwords.

1. Press △▽ to highlight a `Set _____ Password` parameter and press ***Enter***. The `Set _____ Password` dialog box appears.

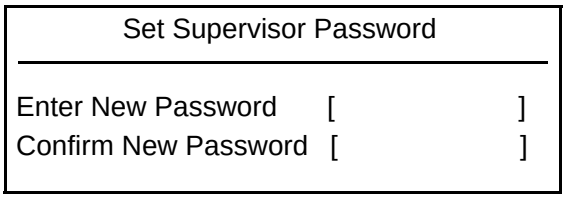

Figure 2-4. Set Supervisor Password

2. Type a new password in the `Enter New Password` field and press ***Enter***. Passwords are not case sensitive and the length must not exceed eight alphanumeric characters (A-Z, a-z, 0-9).
3. Retype the password in the `Confirm New Password` field and press ***Enter***.

+ **IMPORTANT:**
  Use care when typing a password. Characters do not appear on the screen.

4. Press ***Enter***.

⇛ **NOTE:**
  Users can choose to enable the `Password on Boot` parameter.

5. Press ***F10*** to save changes and exit from the *BIOS Setup Utility*.

Removing a Password

Perform the following:

1. Press △▽ to highlight a `Set _____ Password` parameter and press ***Enter***. The `Set _____ Password` dialog box appears.

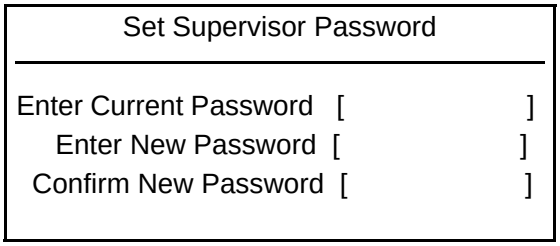

Figure 2-5. Set Supervisor Password

2. Type the current password in the `Enter Current Password` field and press ***Enter***.
3. Press ***Enter*** twice without typing anything in the `Enter New Password` and `Confirm New Password` fields.
4. Press ***F10*** to save changes and exit from the *BIOS Setup Utility*.

Changing a Password

1. Press △▽ to highlight a `Set _____ Password` parameter and press ***Enter***. The `Set _____ Password` dialog box appears.

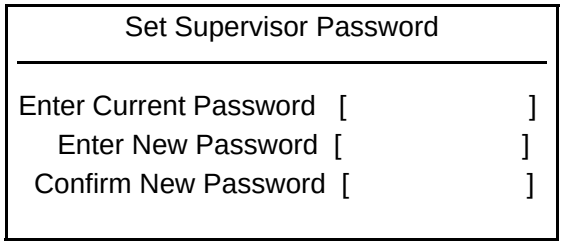

Figure 2-6. Set Supervisor Password

2. Type the current password in the `Enter Current Password` field and press ***Enter***.
3. Type the new password in the `Enter New Password` field.
4. Retype the password in the `Confirm New Password` field.

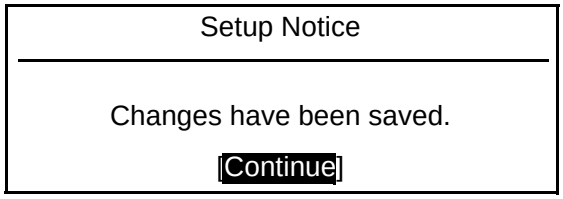

Figure 2-7. Setup Notice

5. Press ***Enter***. Computer sets `Supervisor Password` parameter to `Set`.

NOTE:

Users can choose to enable the `Password on Boot` parameter.

6. Press ***F10*** to save changes and exit from the *BIOS Setup Utility*.

Boot

Use this tab to set the preferred drive sequence in which the *Setup Utility* attempts to boot the operating system. By default, the computer searches for boot devices in the following order:

1. Hard disk drive
2. Optical disc drive
3. Network boot
4. External USB hard drive
5. External USB optical drive
6. External USB bootable device

Press △▽ to select a device and press ***F5*** or ***F6*** to move it up or down the list.

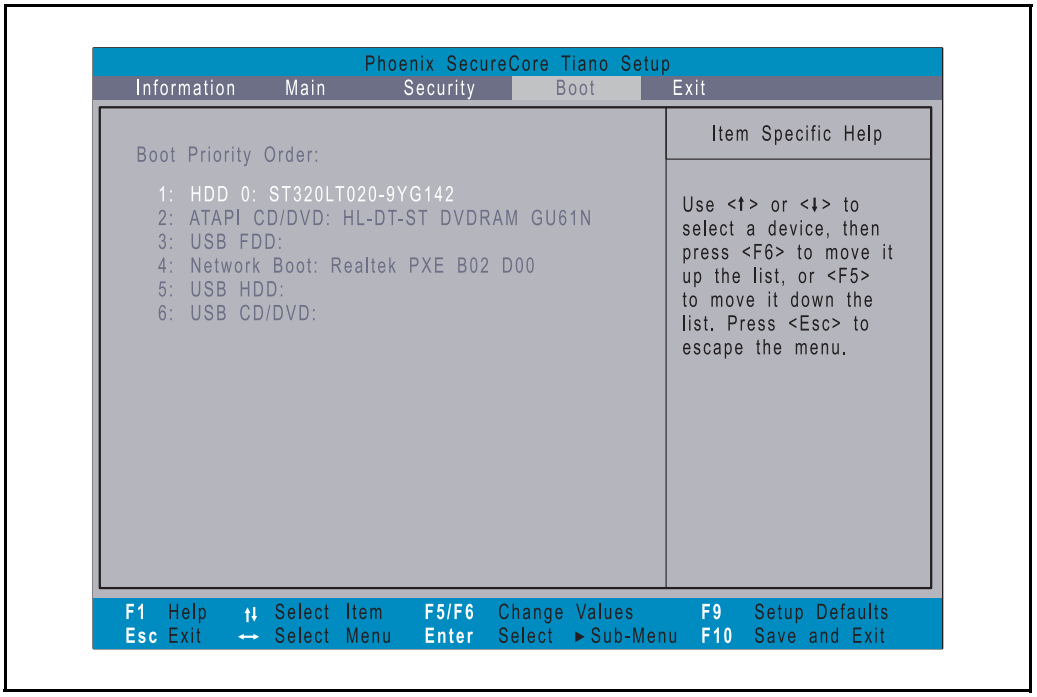

Figure 2-8. BIOS Boot

Exit

Use the Exit tab to save or discard changes and close the *BIOS Setup Utility*.

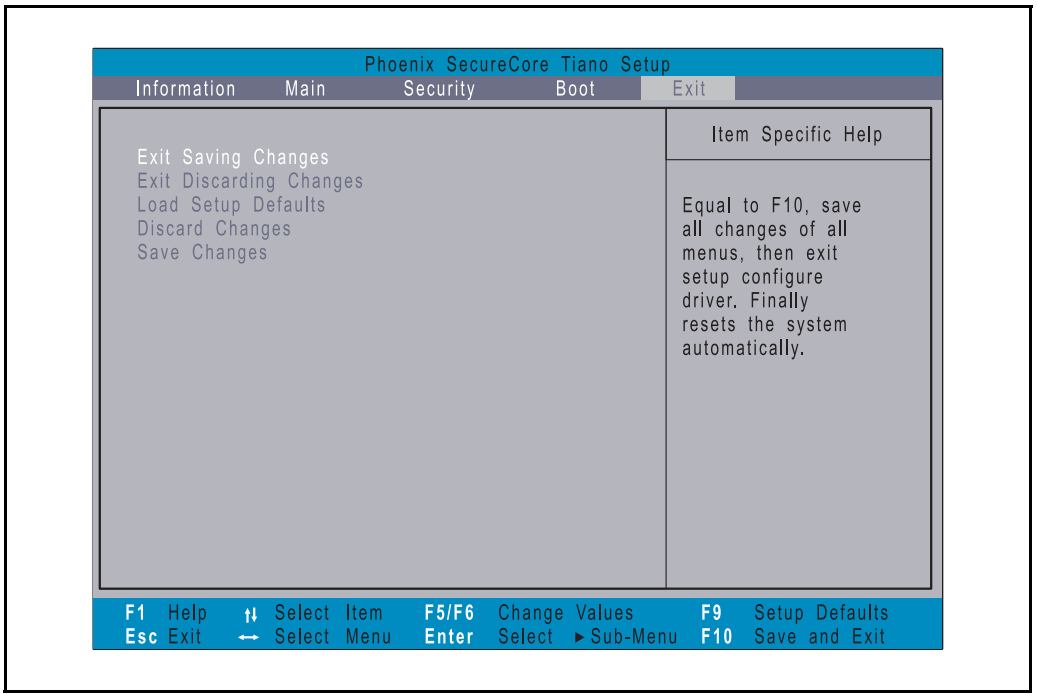

Figure 2-9. BIOS Exit

Table 2-4. Exit Parameters

Parameter	Description
Exit Saving Changes	Close the *BIOS Setup Utility* and save the setup changes.
Exit Discarding Changes	Close the *BIOS Setup Utility* without saving the setup changes.
Load Setup Default	Load the default values for all setup items.
Discard Changes	Load the previous values for all setup items.
Save Changes	Save the setup changes.

BIOS Flash Utilities

BIOS Flash memory updates are required for the following conditions:

- New versions of system programs
- New features or options
- Restore a BIOS when it becomes corrupted.

Use the Flash utility to update the system BIOS Flash ROM.

NOTE:
If a Crisis Recovery Disc is not available, create one before Flash utility is used.

NOTE:
Do not install memory related drivers (XMS, EMS, DPMI) when Flash is used.

NOTE:
Use AC adaptor power supply when running Flash utility. If battery pack does not contain power to finish loading BIOS Flash, do not boot system.

Perform the following to run Flash.

1. Rename the BIOS file as “XXXXXXX.FD”.
2. Copy the “XXXXXXX.FD” file to a bootable USB device containing the Crisis Recovery disk files.
3. Turn off the computer.
4. Insert the USB device containing the renamed BIOS file and the Crisis Recovery disk files to any USB port.
5. Press and hold the ***Fn*** + ***Esc*** keys (this is the BIOS recovery hotkey), then press the power button.
6. Release the ***Fn*** + ***Esc*** keys after POST.

NOTE:
Flash utility has auto execution function.

DOS Flash Utility

Perform the following to use the *DOS Flash Utility*:

1. Press ***F2*** during boot to enter `Setup Menu`.
2. Select `Boot Menu` to modify boot priority order.

   Example: If using USB HDD to Update BIOS, move USB HDD to position 1.

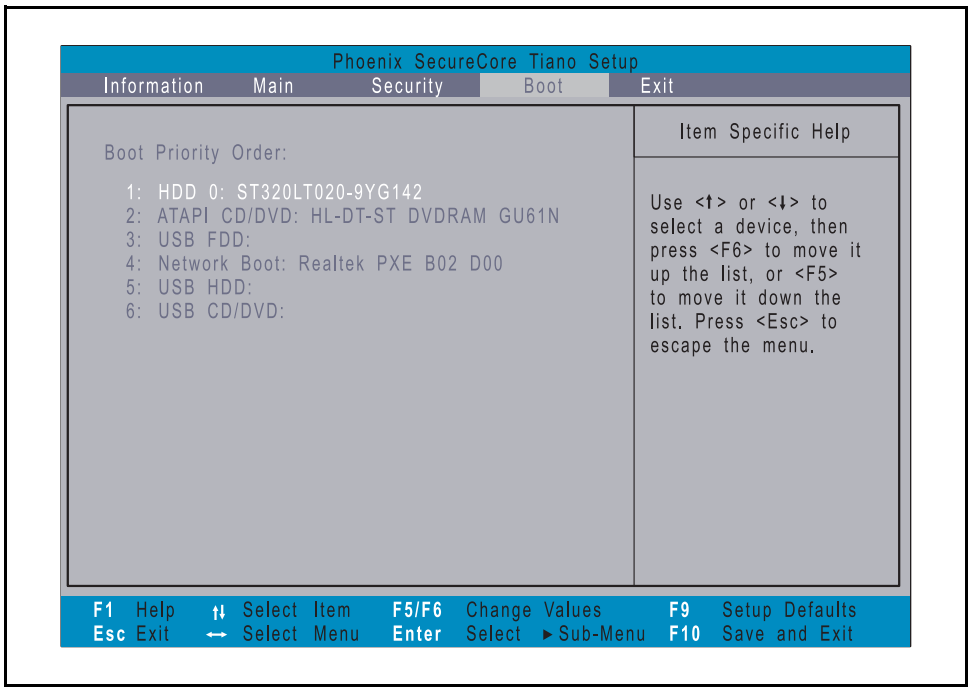

Figure 2-10. BIOS Boot

3. Insert the USB HDD and reboot computer.
4. Execute <**BIOS.BAT**> to update BIOS.

WinFlash Utility

Perform the following to use the WinFlash Utility:

1. Double click the WinFlash executable file.
2. Click ***OK*** to begin the update.

Remove HDD/BIOS Password Utilities

This section explains how to remove the HDD and BIOS passwords.

Removing the HDD Password

NOTE:

If the incorrect HDD password is entered three times in succession, an error is generated. (Figure 2-11)

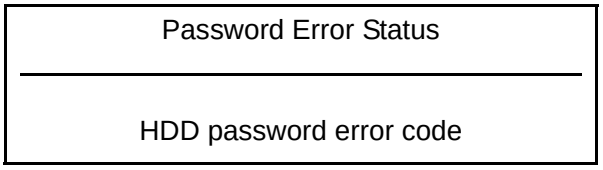

Figure 2-11. Password Error Status

To reset the HDD password:

1. Open the computer in a DOS environment.
2. Type the following command:

```
A\> unlock6 XXXXX 00
```

Figure 2-12. Unlock Key Code

3. Press ***Enter*** to display the command options.

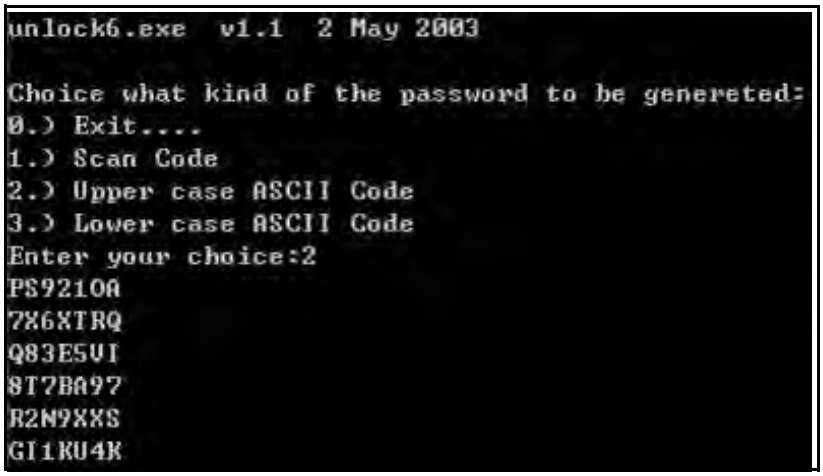

Figure 2-13. Password Encoding

4. Select option 2 (upper case ASCII code) and press ***Enter***.
5. Write down the generated master password.
6. Reboot the computer.
7. In the HDD password prompt, type the master password generated in step 5, then press ***Enter***.

Removing the BIOS Passwords

To clear a lost BIOS password (user or supervisor password), you need to short the clear password hardware gap (G2201) located on the mainboard.

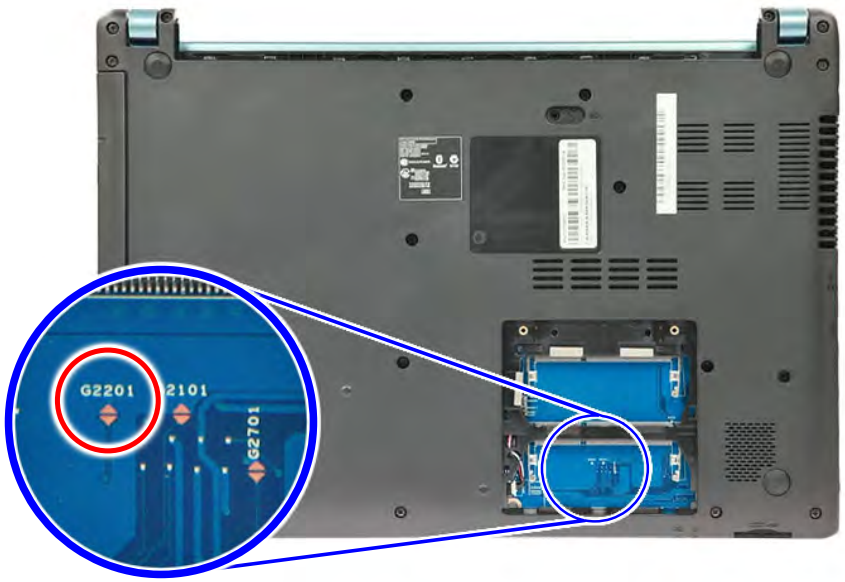

Figure 2-14. G2201 Hardware Gap

Clearing the BIOS Passwords

1. Shut down the computer and disconnect the AC adapter and all other peripherals from the computer.
2. Remove the battery pack and DIMM cover.
3. If the DIMM2 slot is occupied, remove the installed DIMM module and locate the G2201 gap.
4. Use an electrical conductivity tool to short the two contacts on the hardware gap together.
5. While resting the tool on the two contacts, plug one end of the AC adapter into the DC-in jack and plug one end to an electrical outlet.
6. Press the ⏻ button to turn on the computer.
7. After the BIOS POST, remove the tool from the hardware gap.
8. Reinstall the DIMM module, DIMM cover and battery pack.
9. Turn on the computer and press ***F2*** during bootup to access the *Setup Utility*. If no password prompt appears, the BIOS passwords have been cleared. If the prompt appears, repeat steps 4-9 until the BIOS passwords have been cleared.
10. Press ***F9*** to load the system defaults.
11. Press ***F10*** to save the changes you made and close the Setup Utility.

Using DMI Tools

The *DMI* (Desktop Management Interface) *Tool* copies BIOS information to EEPROM (Electrically Erasable Programmable Read-Only Memory). Used in the DMI pool for hardware management.

LAN EEPROM Utility

LAN EEPROM Utility enables to change the MAC address.

Perform the following steps to use the LAN EEPROM Utility:

1. Create a DOS bootable USB HDD.
2. Copy the contents of the MAC folder to the HDD and remove the HDD form the computer.
3. Reboot the computer and press ***F2*** during the boot sequence to enter the setup menu.
4. Select the Boot menu item and move the entry “USB HDD” to the first position.

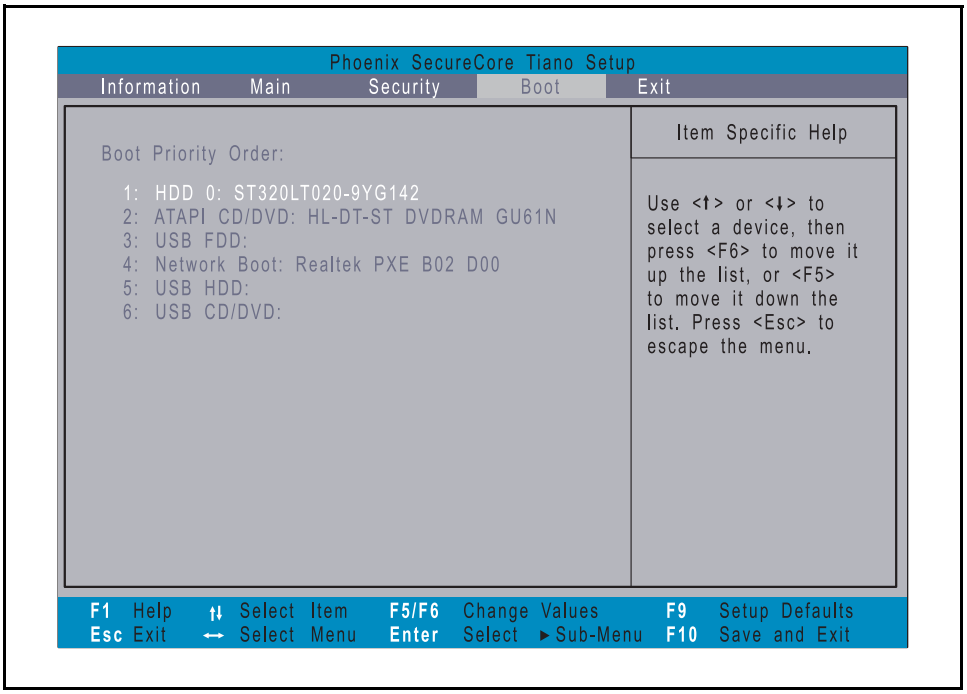

Figure 2-15. BIOS Boot

5. Connect the USB HDD and reboot the computer.
6. At the command prompt, navigate to the MAC folder.
7. Execute the < **MAC.BAT**> file.
8. At prompt type in MAC address.
9. Press ***Enter***.
10. Reboot when the process has completed.

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Machine Maintenance

Machine Disassembly and Replacement

This chapter contains step-by-step procedures on how to disassemble the notebook computer for maintenance and troubleshooting.

Cable paths and positioning may not represent the actual model. During the removal and installation of the components, ensure all available cable channels and clips are used and that the cables are replaced in the same position.

The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatch when putting back the components.

The product previews seen in the disassembly procedures may not represent the final product color or configuration.

Recommended Equipment

To disassemble the computer, the following tools are suggested:

- Wrist grounding strap and conductive mat for preventing electrostatic discharge
- Non-marring scribe
- Phillips screwdriver
- Flat-blade screwdriver
- Plastic flat screwdriver
- Plastic tweezers
- Cyanoacrylate glue

Replacement Requirements

NOTE:

Cabling and components require adhesive to be applied during the replacement and reassembly process.

Pre-disassembly Instructions

Before proceeding with the disassembly procedure, make sure that you do the following:

1. Turn off the power to the system and all peripherals.
2. Unplug the AC adapter and all power and signal cables from the system.

Figure 3-1. AC Adapter

3. Remove any dummy cards that are present.
4. Place the system on a flat, stable surface.

Disassembly Process

The disassembly process is divided into the following stages:

- External Module Disassembly
- Main Unit Disassembly
- LCD Module Disassembly

The flowcharts provided in the succeeding disassembly sections illustrate the entire disassembly sequence. Observe the order of the sequence to avoid damage to any of the hardware components. For example, if you want to remove the main board, you must first remove the keyboard, then disassemble the inside assembly frame in that order.

Table 3-1. Main Screw List

Screw	Quantity	Acer Part Number
M2 x L3	10	86.9A552.3R0
M2 x L3 (black)	10	86.00J40.323
M2.5 x L5	27	86.00J51.535
M2 x 3	1	-
Thermal Screw	5	N/A

External Module Disassembly Process

External Modules Disassembly Flowchart

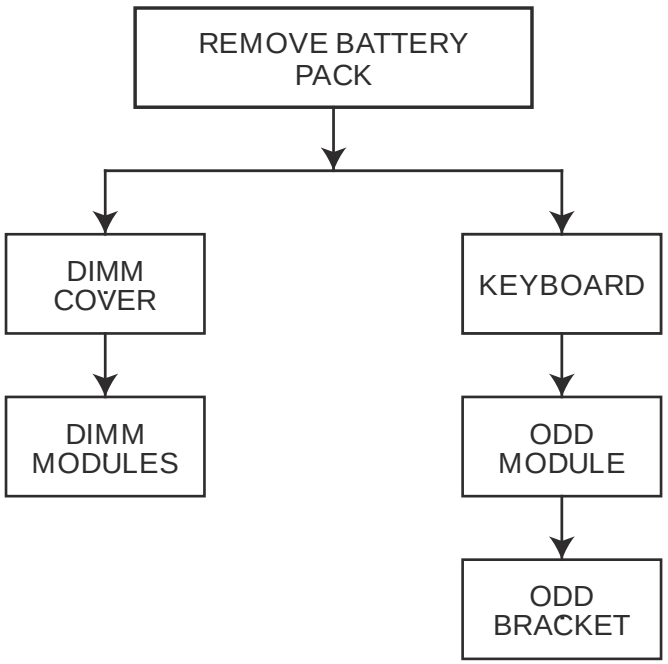

Figure 3-2. External Modules Disassembly Flowchart

Table 3-2. Screw List

Step	Screw	Quantity	Acer Part Number
DIMM Cover Disassembly	M2.5 x L5	2	86.00J51.535
ODD Disassembly	M2.5 × L5	1	86.00J51.535
ODD Bracket Disassembly	M2 × L3	2	86.9A552.3R0
Keyboard Disassembly	M2.5 × L5	2	86.00J51.535

Removing the Battery Pack

1. Turn the computer over so that the base is facing up.
2. Slide and hold the battery release latch to release the battery pack.
3. Lift the battery pack from its bay.

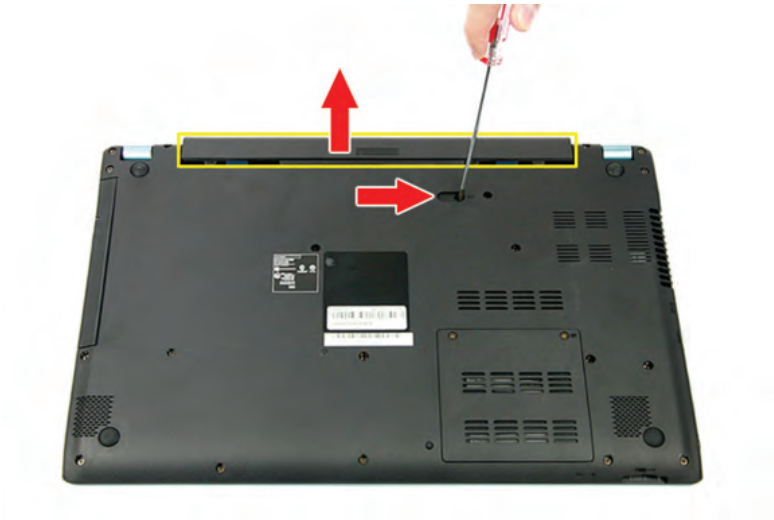

Figure 3-3. Battery Pack

NOTE:

The battery has been highlighted with the yellow rectangle in Figure 3-3. Detach the battery and follow local regulations for disposal.

Removing the DIMM Cover

1. Perform the “Removing the Battery Pack” procedure described on page 3-9.
2. Remove the two screws securing the DIMM cover to the lower case assembly.

Figure 3-4. DIMM Cover Screws

Table 3-4. Screws

Step	Screw	Quantity	Screw Type
DIMM Cover Disassembly	M2.5 × L5	2	

3. Insert a non-marring plastic scribe on the base door’s notch to release the DIMM cover, and then detach the cover from the computer.

Figure 3-5. DIMM Cover

Removing the DIMM Modules

1. Perform the "Removing the DIMM Cover" procedure described on page 3-10.
2. Push out the latches on both sides of the DIMM slot (**1**) until the module tilts upward, then detach the DIMM module from the slot (**2**).

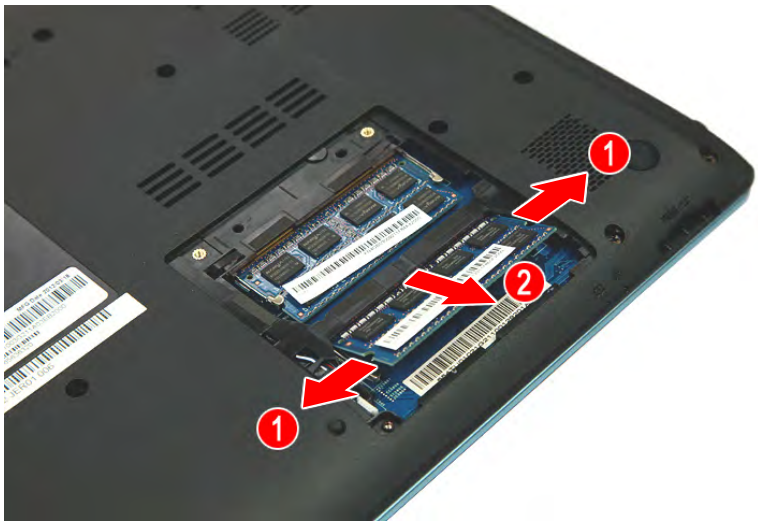

Figure 3-6. DIMM Modules

NOTE:

A circuit board that is > 10cm^2 has been highlighted with a yellow rectangle in Figure 3-6. Follow the local regulations for disposing this type of circuit board.

3. Repeat Step 2 to remove the remaining DIMM module.

Removing the Keyboard

+ **IMPORTANT:**

  The keyboard is easily warped or damaged during the removal process. Take care not to use excessive force when removing.

1. Perform the “Removing the Battery Pack” procedure described on page 3-9.
2. Remove the two screws securing the keyboard to the lower case.

Figure 3-7. Upper Case Screws – Base Side

Table 3-7. Screws

Step	Screw	Quantity	Screw Type
Keyboard Disassembly	M2.5 × L5	2	

3. Turn the computer over and open the LCD panel.

4. Use a non-marring plastic flat-blade screwdriver to push the latches on the top side of the keyboard.

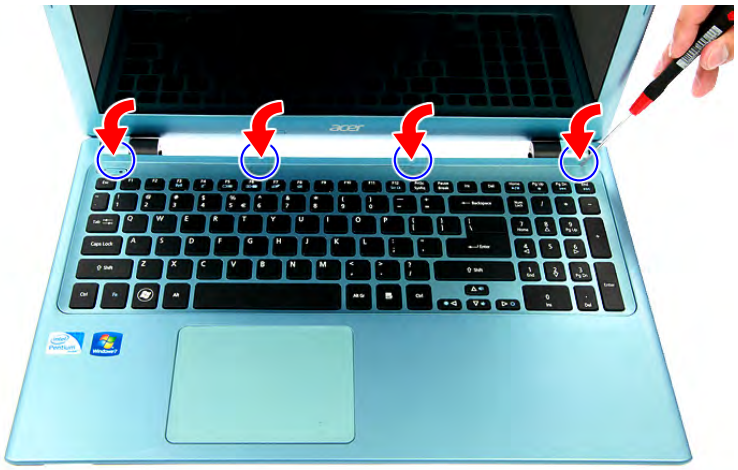

Figure 3-8. Keyboard Latches

5. Gently lift the keyboard out of its socket and slide it toward the LCD panel. Release the connector latch (**1**), disconnect the cable from the mainboard (**2**), then detach the keyboard from the computer.

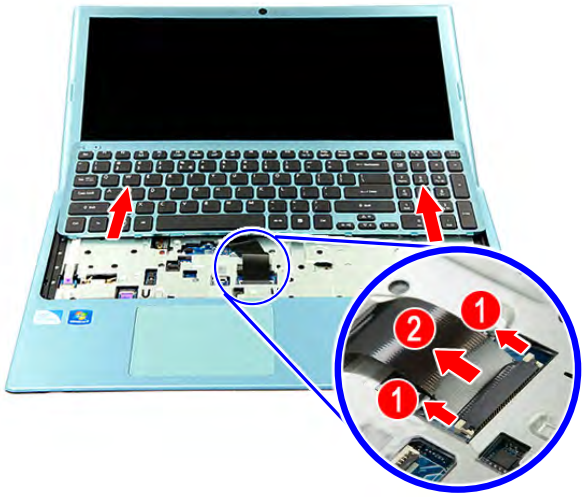

Figure 3-9. Keyboard

Removing the ODD Module

1. Perform the “Removing the Keyboard” procedure described on page 3-12.
2. Remove the screw securing the ODD module to the upper case assembly.

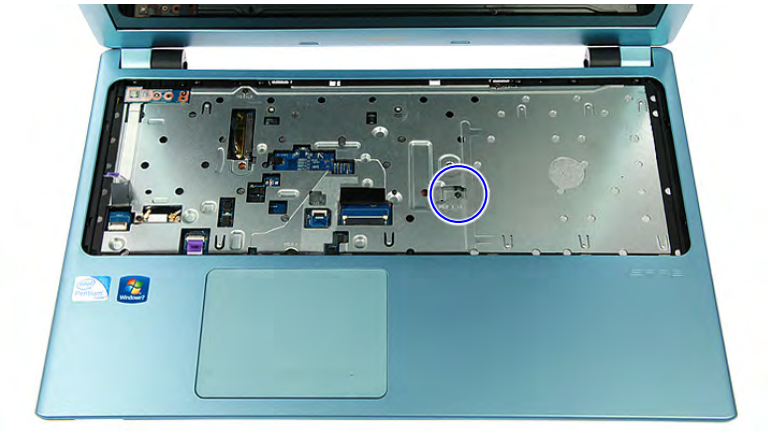

Figure 3-10. ODD Module Screw

Table 3-10. Screw

Step	Screw	Quantity	Screw Type
ODD Module Disassembly	M2.5 × L5	1	

3. Turn the computer over to acces the base side of the lower case assembly.
4. Gently pull out the ODD module from the ODD drive bay.

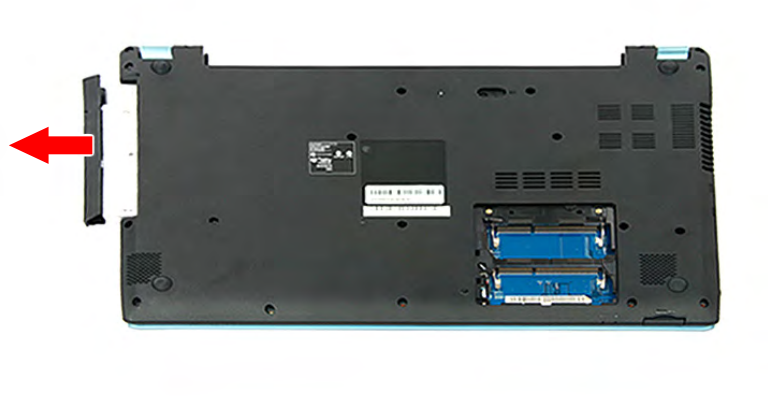

Figure 3-11. ODD Module

5. Remove the two screws securing the ODD module to the bracket.

Figure 3-12. ODD Bracket Screws

Table 3-12. Screws

Step	Screw	Quantity	Screw Type
ODD Bracket Disassembly	M2 × L3	2	

6. Detach the bracket from the module.

Figure 3-13. ODD Bracket

7. Pry the ODD bezel off the module.

Figure 3-14. ODD Bezel

Main Unit Disassembly Process

Main Unit Disassembly Flowchart

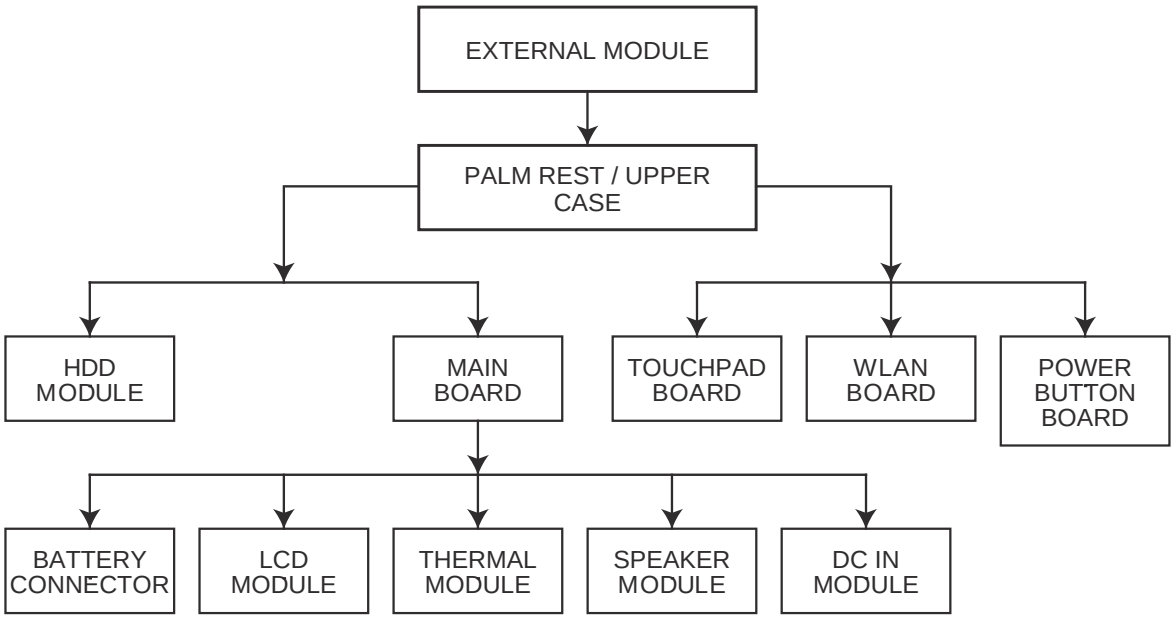

Figure 3-15. Main Unit Disassembly Flowchart

Table 3-15. Screw List

Step	Screw	Quantity	Acer Part Number
Palmrest Module/Upper Case Disassembly	M2.5 × L5	17	86.00J51.535
Upper Case Disassembly	M2.5 × L5	3	86.00J51.535
Touchpad Board Disassembly	M2 × L3	3	86.9A552.3R0
Power Button Board Disassembly	M2 × L3	1	86.9A552.3R0
WLAN Module Disassembly	M2 × L3	1	86.9A552.3R0
Speaker Module Disassembly	M2 × L3	4	86.9A552.3R0
Mainboard Disassembly	M2 × L3	1	86.9A552.3R0
Thermal Module Disassembly	–	5	–
Battery Connector Disassembly	M2 × L3	2	86.9A552.3R0
LCD Module Disassembly	M2.5 × L5 M2 × 3	1 1	86.00J51.535 –

Removing the Palmrest Module/Upper Case

1. Perform the “External Module Disassembly Process” procedures described on pages 3-8 to 3-12.
2. Remove the seventeen base side screws securing the upper case to the lower case.

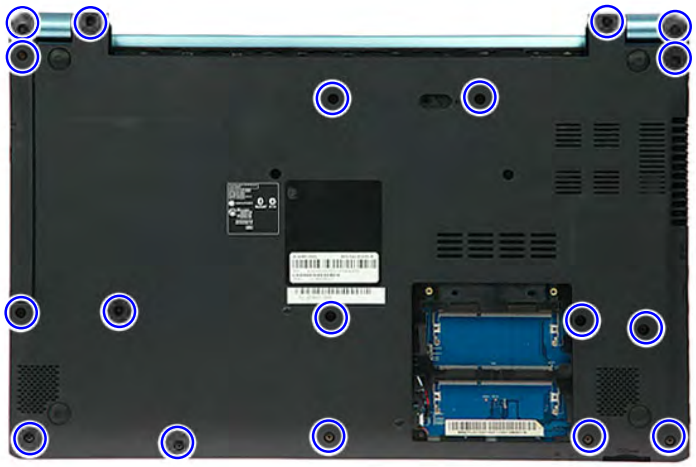

Figure 3-16. Upper Case Screws – Base Side

Table 3-16. Screws

Step	Screw	Quantity	Screw Type
Upper Case Disassembly	M2.5 × L5	17	

3. Turn the computer over and open the LCD panel.

4. Release the connector latches from the mainboard (**1**), then disconnect the power button and touchpad cables (**2**).

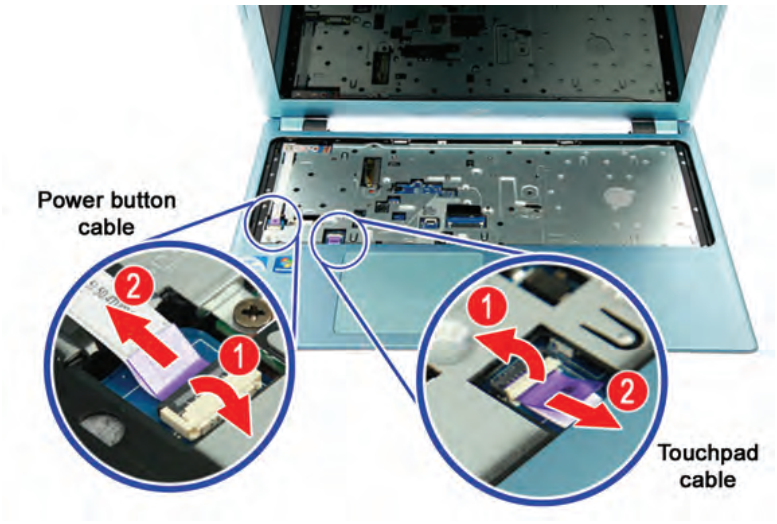

Figure 3-17. Power Button and Touchpad Cables

5. Remove the four screws securing the upper case to the lower case assembly.

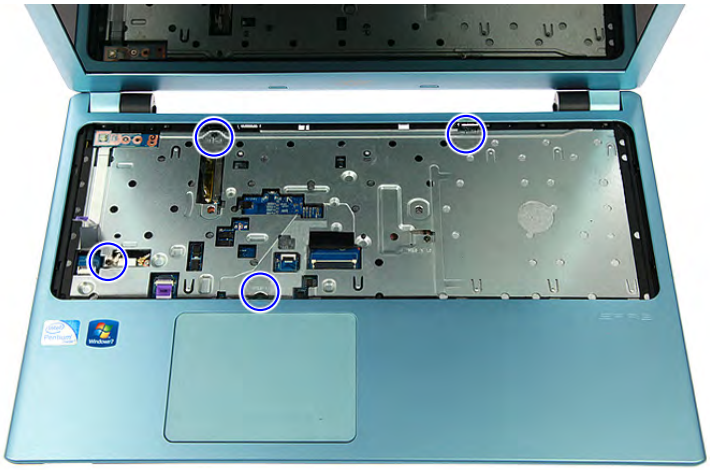

Figure 3-18. Upper Case Screws – Top Side

Table 3-18. Screws

Step	Screw	Quantity	Screw Type
Upper Case Disassembly	M2.5 × L5	4	

6. Gently lift the upper case from the lower case.

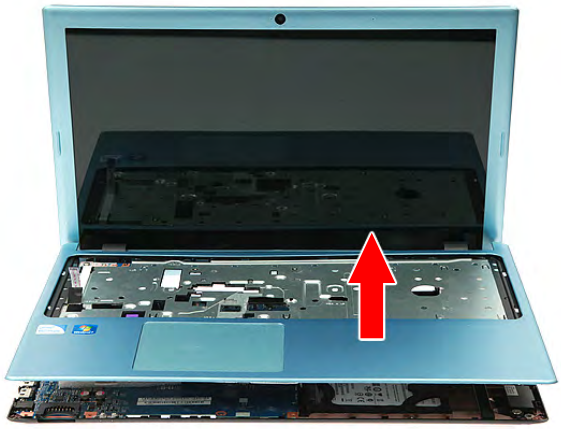

Figure 3-19. Upper Case

Removing the Touchpad Board

1. Perform the “Removing the Palmrest Module/Upper Case” procedure described on page 3-18.
2. Release the connector latch from the touchpad board (**1**), then disconnect the touchpad cable (**2**).

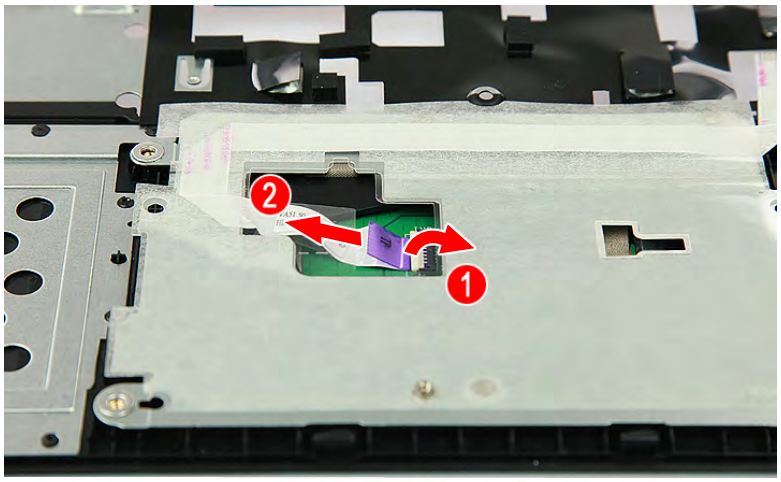

Figure 3-20. Touchpad Cable

3. Release the touchpad cable from the adhesive tape securing it, then detach the touchpad cable from the touchpad board.

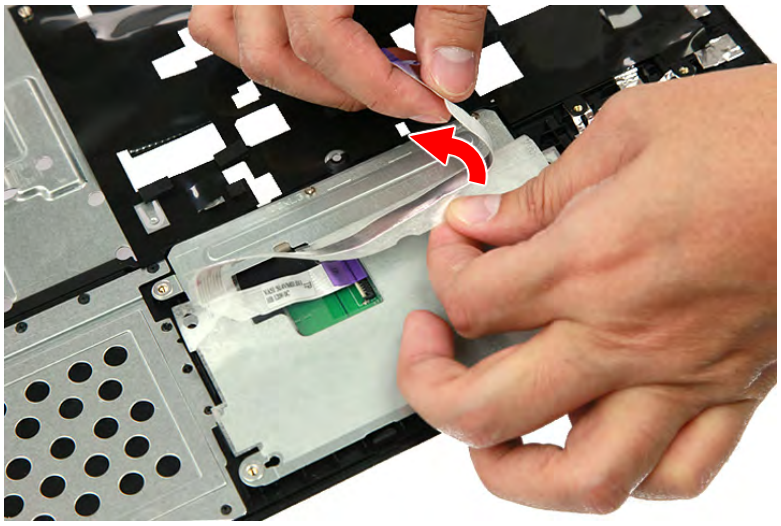

Figure 3-21. Touchpad Adhesive Tape

4. Remove the three screws securing the touchpad board to the upper case assembly.

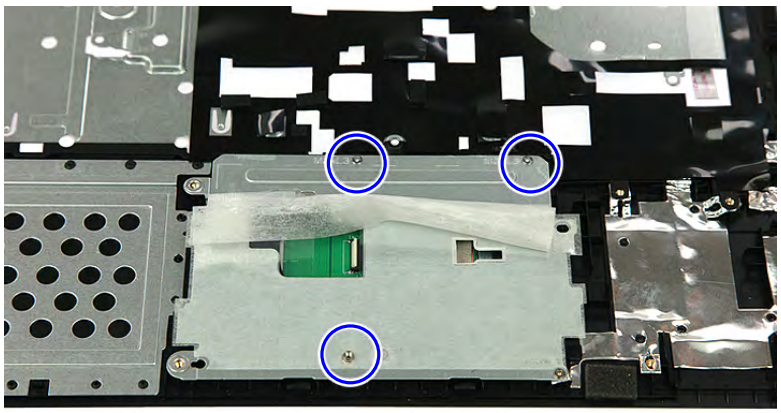

Figure 3-22. Touchpad Screws

Table 3-22. Screws

Step	Screw	Quantity	Screw Type
Touchpad Module Disassembly	M2 × L3	3	

5. Detach the touchpad board from the upper case assembly.

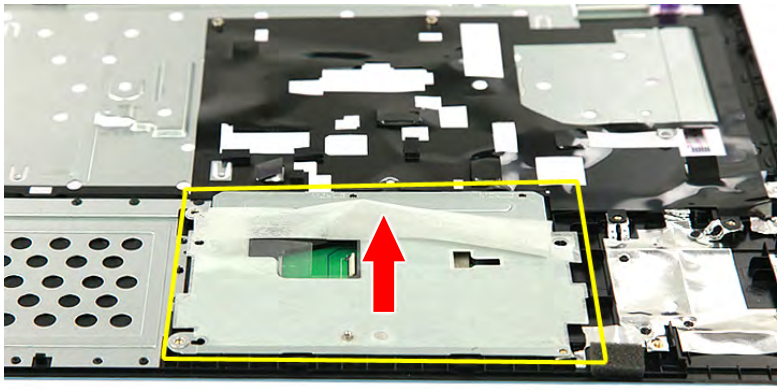

Figure 3-23. Touchpad Board

NOTE:

A circuit board that is > 10cm^2 has been highlighted with a yellow rectangle in Figure 3-23. Follow the local regulations for disposing this type of circuit board.

Removing the Power Button Board

1. Perform the “Removing the Palmrest Module/Upper Case” procedure described on page 3-18.
2. Release the connector latch from the power button board (**1**), then disconnect the power button cable (**2**).

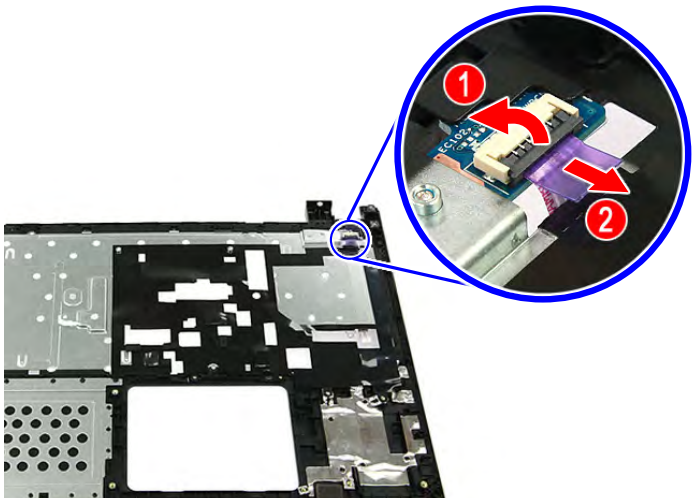

Figure 3-24. Power Button Cable

3. Turn the upper case over.
4. Remove the screw securing the power button board to the upper case.

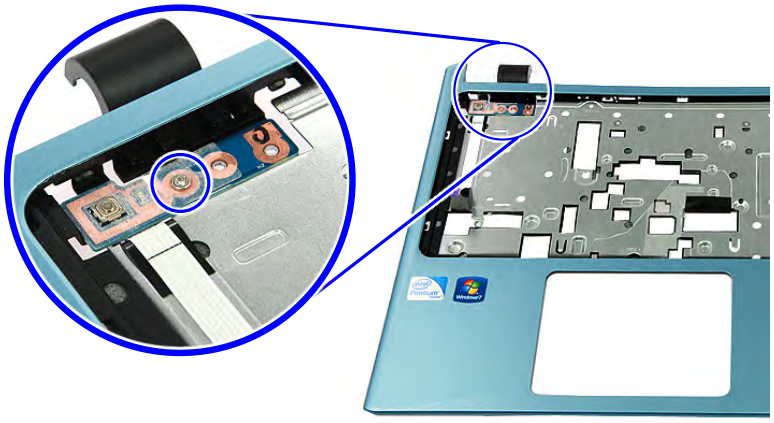

Figure 3-25. Power Button Board Screw

Table 3-25. Screw

Step	Screw	Quantity	Screw Type
Power Button Board Disassembly	M2 × L3	1	

5. Detach the power button board and cable from the upper case.

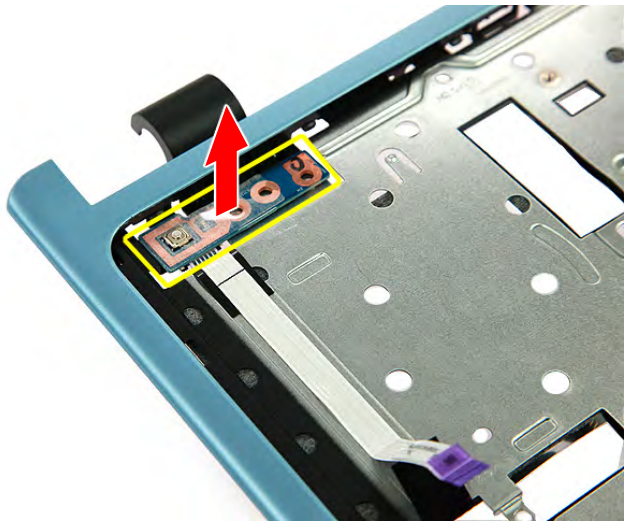

Figure 3-26. Power Button Board

NOTE:

A circuit board that is > 10cm^2 has been highlighted with a yellow rectangle in Figure 3-26. Follow the local regulations for disposing this type of circuit board.

Removing the SATA Board

1. Perform the “Removing the Palmrest Module/Upper Case” procedure described on page 3-18.
2. Remove the screw securing the SATA board to the mainboard.

Figure 3-27. SATA Board Screw

Table 3-27. Screw

Step	Screw	Quantity	Screw Type
SATA Board Disassembly	M2 × L3	1	

3. Detach the SATA board from the mainboard.

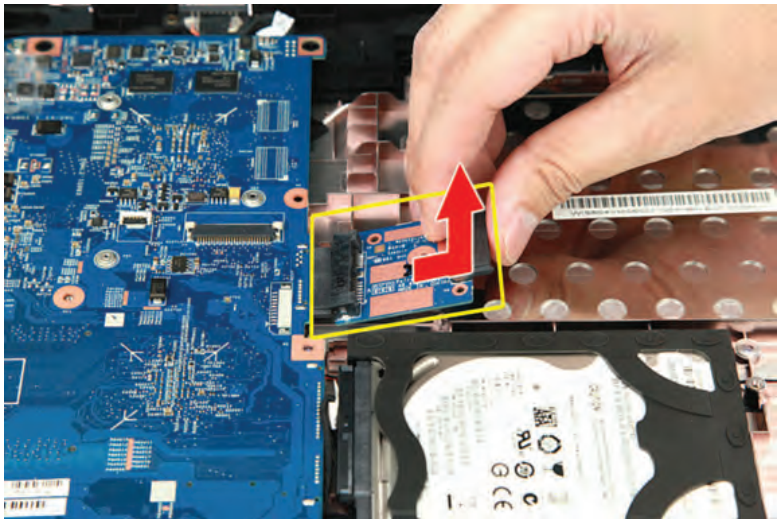

Figure 3-28. SATA Board

NOTE:

A circuit board that is > 10cm^2 has been highlighted with a yellow rectangle in Figure 3-28. Follow the local regulations for disposing this type of circuit board.

Removing the HDD Module

1. Perform the “Removing the Palmrest Module/Upper Case” procedure described on page 3-18.
2. Gently lift the HDD assembly from its socket.

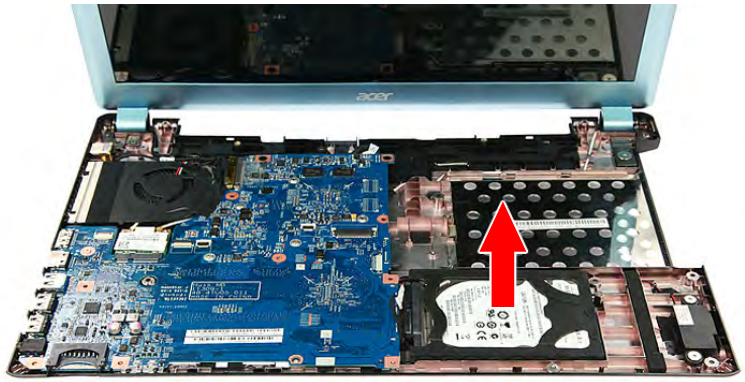

Figure 3-29. HDD Module

3. Disconnect the HDD cable from the HDD module.

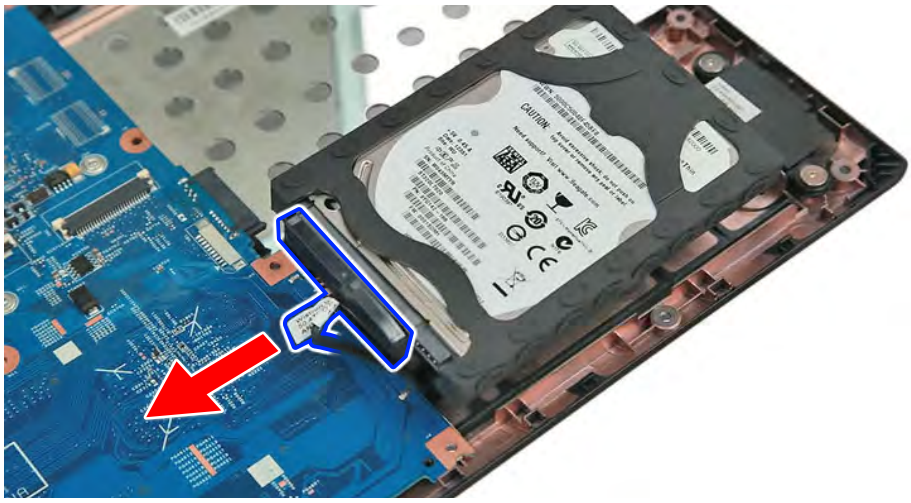

Figure 3-30. HDD Cable

Removing the WLAN Module

1. Perform the “Removing the Palmrest Module/Upper Case” procedure described on page 3-18.
2. Unplug the two (2) antenna cables from the WLAN module.

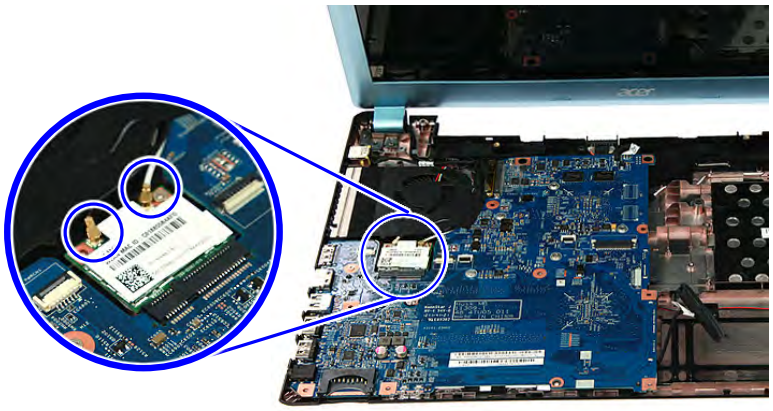

Figure 3-31. WLAN Module Antennas

+ **IMPORTANT:**

  For reference during machine reassembly, note which cable color corresponds to the main (black) and auxiliary (white) connectors.

3. Remove the screw securing the WLAN module to the mainboard.

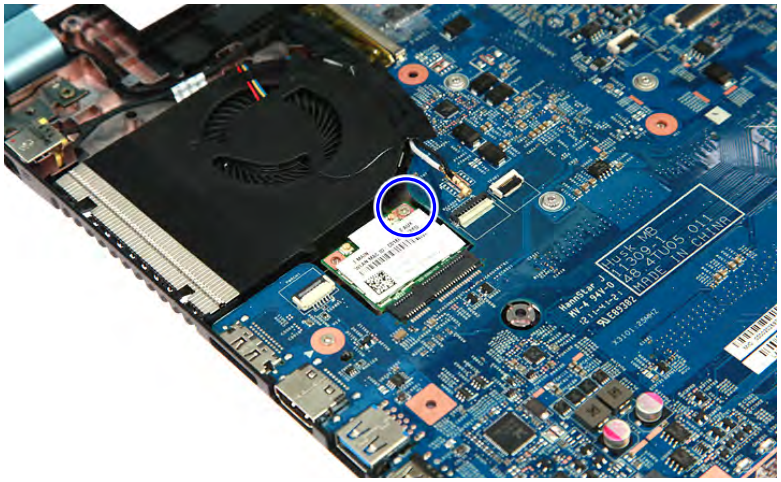

Figure 3-32. WLAN Module Screw

Table 3-32. Screw

Step	Screw	Quantity	Screw Type
WLAN Module Disassembly	M2 × L3	1	

4. Detach the WLAN module from the slot.

Figure 3-33. WLAN Module

NOTE:

A circuit board that is > 10cm^2 has been highlighted with a yellow rectangle in Figure 3-33. Follow the local regulations for disposing this type of circuit board.

Removing the Mainboard

1. Perform the “Removing the Palmrest Module/Upper Case” procedure described on page 3-18.
2. Perform the “Removing the ODD Module” procedure described on page 3-14.
3. Perform the “Removing the SATA Board” procedure described on page 3-25.
4. Perform the “Removing the WLAN Module” procedure described on page 3-27.
5. Turn the computer over to acces the base side of the lower case assembly.
6. Disconnect the speaker cable from the main board.

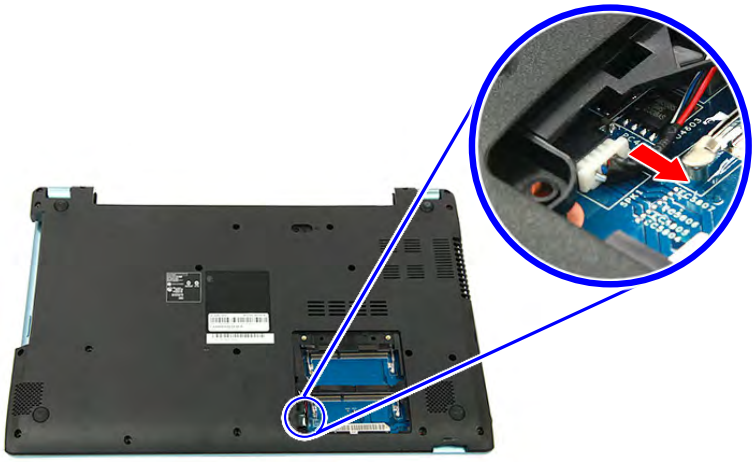

Figure 3-34. Speaker Cable

7. Turn the computer over to acces the mainboard.
8. Release the LCD cable from the adhesive tape securing it (**1**), then disconnect the cable from the mainboard (**2**).

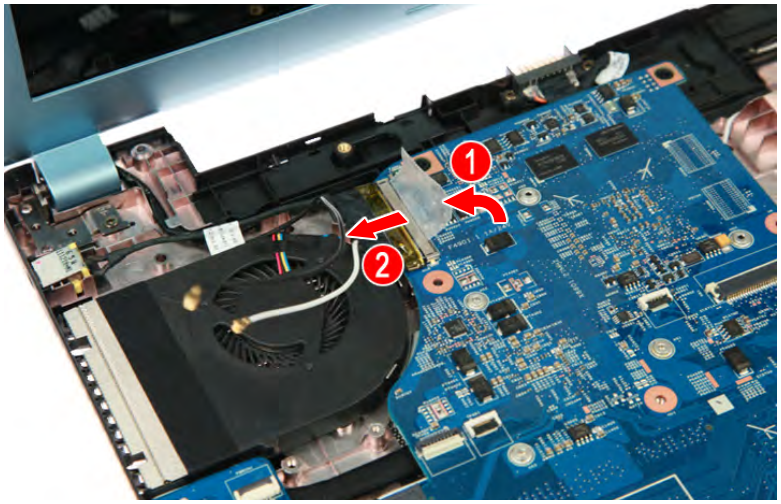

Figure 3-35. LCD Cable

9. Remove the screw securing the mainboard to the lower case assembly.

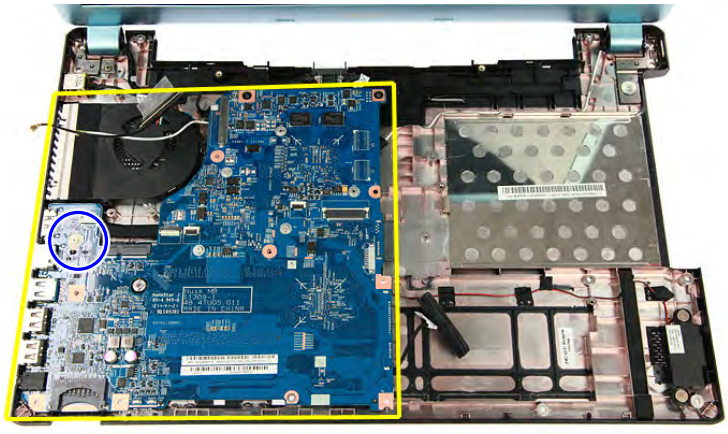

Figure 3-36. Mainboard Screw

Table 3-36. Screw

Step	Screw	Quantity	Screw Type
Mainboard Disassembly	M2 × L3	1	

NOTE:

A circuit board that is > 10cm^2 has been highlighted with a yellow rectangle in Figure 3-37. Follow the local regulations for disposing this type of circuit board.

10. Gently tilt the mainboard towards the LCD panel.

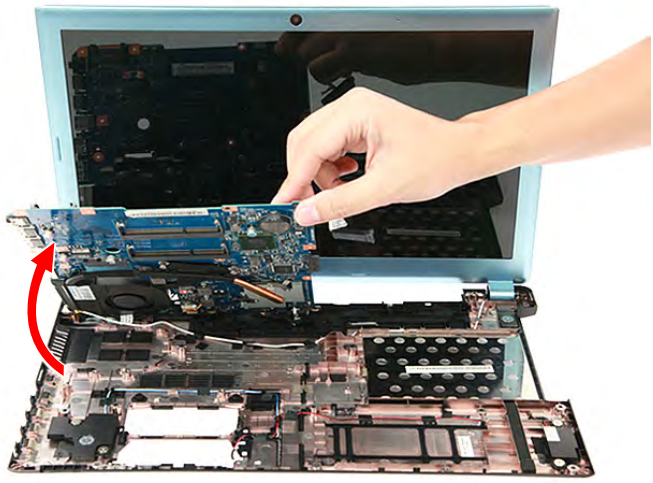

Figure 3-37. Mainboard

11. Disconnect the HDD cable from the mainboard (**1**).
12. Disconnect the battery cable from the mainboard (**2**).
13. Disconnect the DC-In cable from the mainboard (**3**), then lift the mainboard out of the lower case.

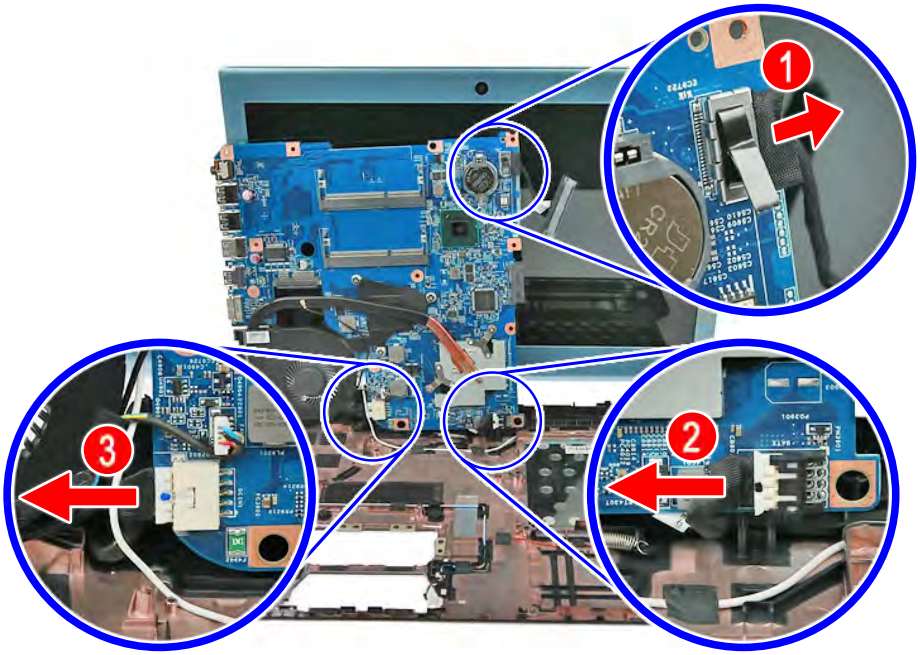

Figure 3-38. HDD, Battery and DC-In Cables

Removing the Thermal Module

1. Perform the “Removing the Mainboard” procedure described on the preceding on page 3-29.
2. Disconnect the thermal module fan cable from the mainboard.

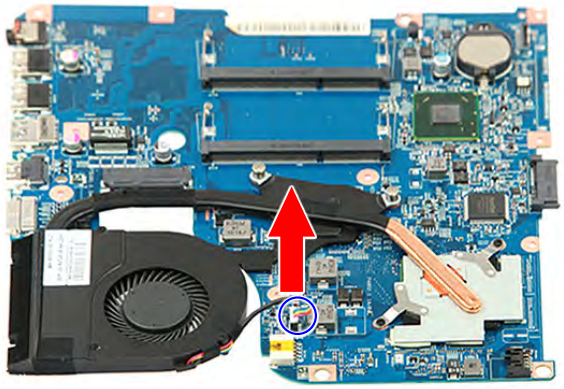

Figure 3-39. Fan Cable

3. Loosen the spring-loaded captive screws securing the thermal module. Follow the screw sequence indicated on Figure 3-40.

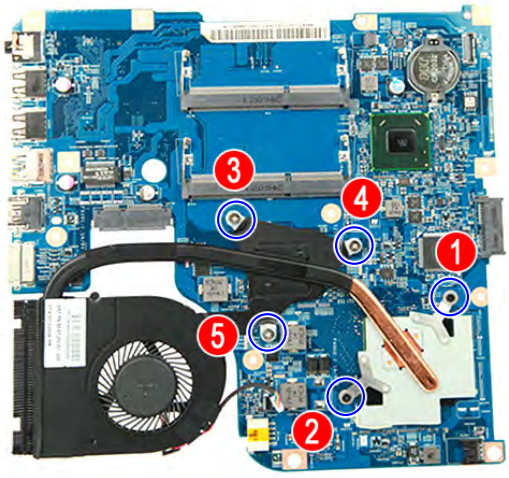

Figure 3-40. Thermal Module Screws

Table 3-40. Screws

Step	Screw	Quantity	Screw Type
Thermal Module Disassembly	–	5	–

4. Gently lift and detach the thermal module from the mainboard.

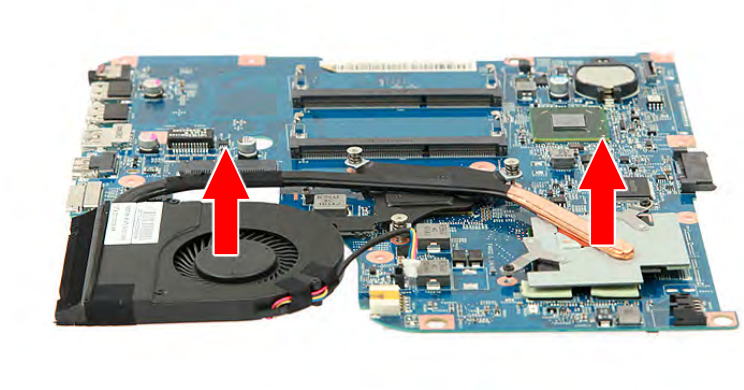

Figure 3-41. Thermal Module

Removing the DC In Module

1. Perform the “Removing the Mainboard” procedure described on page 3-29.
2. Detach the DC In module from the lower case assembly.

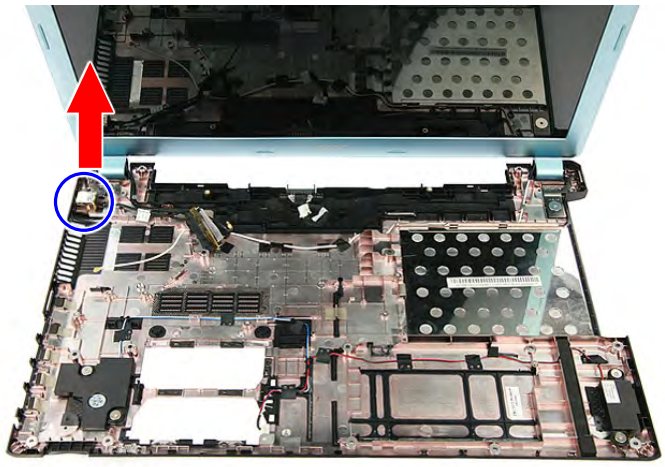

Figure 3-42. DC In Cable

Removing the Battery Connector

1. Perform the “Removing the Mainboard” procedure described on the preceding on page 3-29.
2. Remove the two screws securing the battery connector to the lower case assembly.

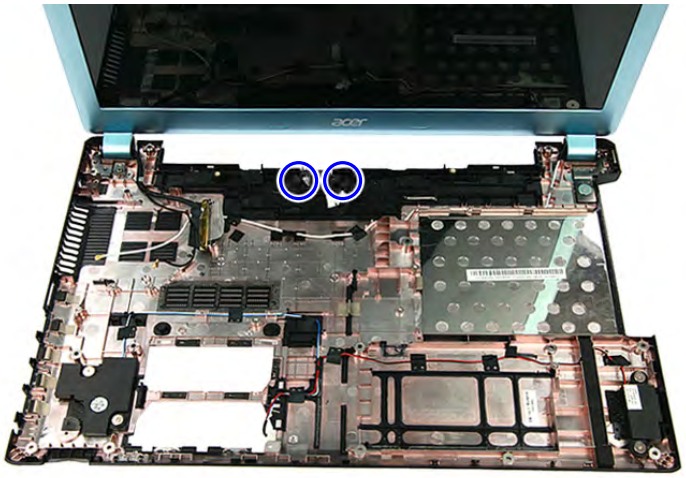

Figure 3-43. Battery Connector Screws

Table 3-43. Screws

Step	Screw	Quantity	Screw Type
Battery Connector Disassembly	M2.5 × L5	2	

3. Detach the battery connector from the lower case assembly.

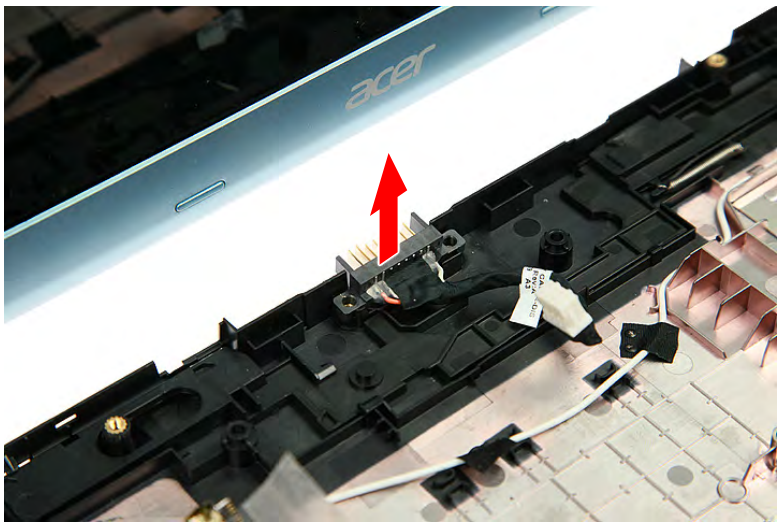

Figure 3-44. Battery Connector

Removing the Speaker Module

1. Perform the “Removing the Mainboard” procedure described on page 3-29.
2. Detach the speaker cables from lower case assembly.

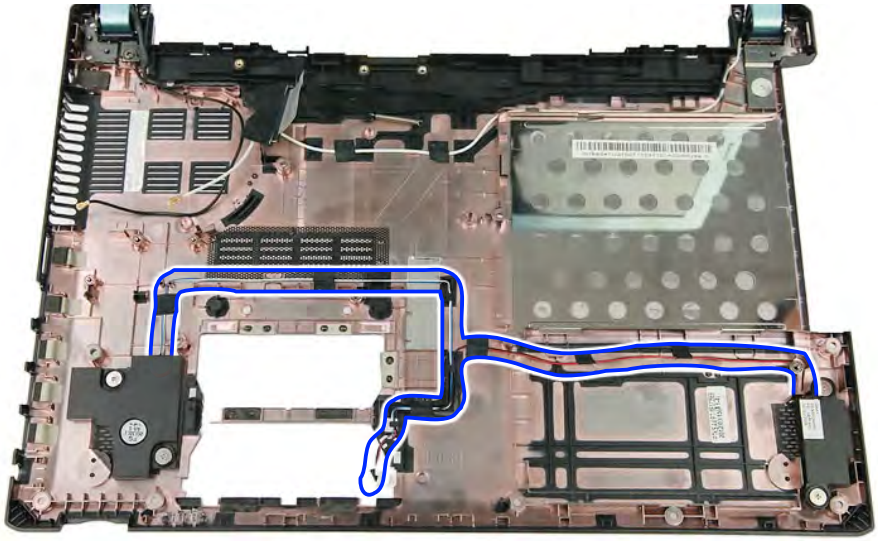

Figure 3-45. Speaker Cable

3. Remove the four screws securing the Speaker Module to the lower case assembly.

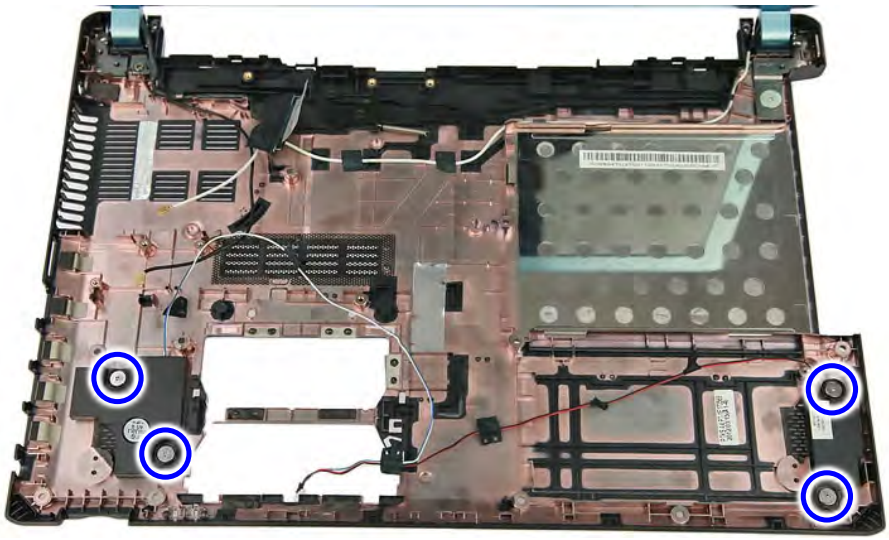

Figure 3-46. Speaker Screws

Table 3-46. Screws

Step	Screw	Quantity	Screw Type
Speakers Disassembly	M2 × L3	4	

4. Gently lift the Speaker Module and detach it from the lower case assembly.

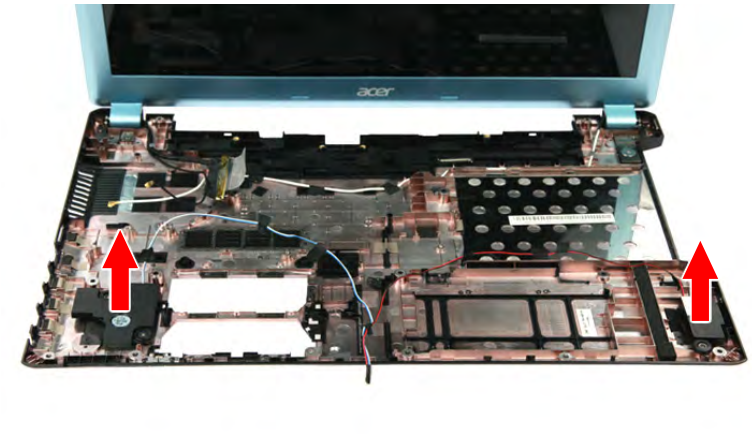

Figure 3-47. Speakers

Removing the LCD Module

1. Perform the “Removing the Mainboard” procedure described on page 3-29.
2. Gently pull out the WLAN antenna cables from lower case; remove the adhesive tapes securing the cables and release the cables from the latches.

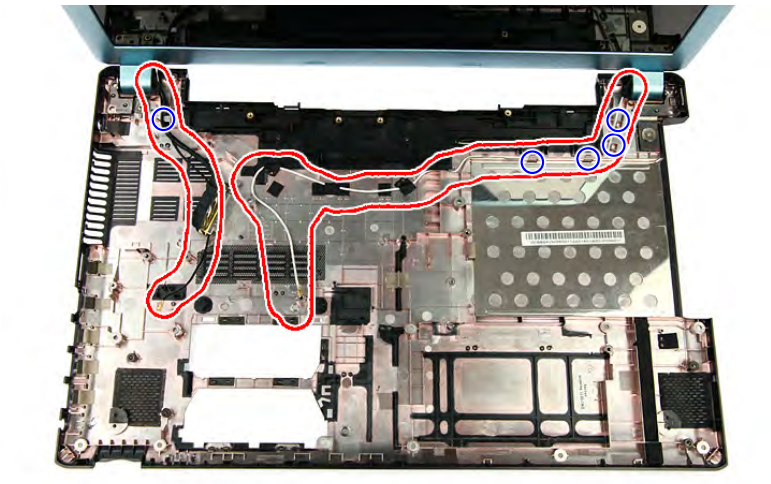

Figure 3-48. WLAN Antenna Cables - Latches and Adhesive Tapes

3. Remove the two screws securing the LCD module.

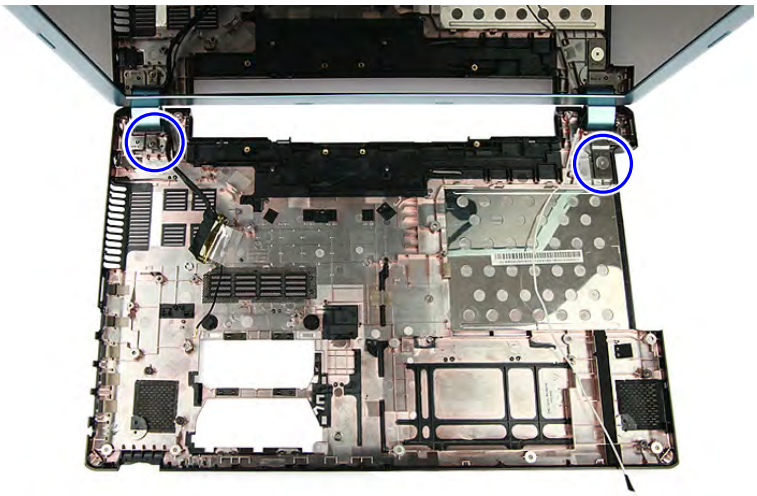

Figure 3-49. LCD Module Hinge Screws

Table 3-49. Screws

Step	Screw	Quantity	Screw Type
LCD Module Disassembly	M2 ×3	1	
	M2.5 ×L5	1	

4. Detach the LCD module from the lower case.

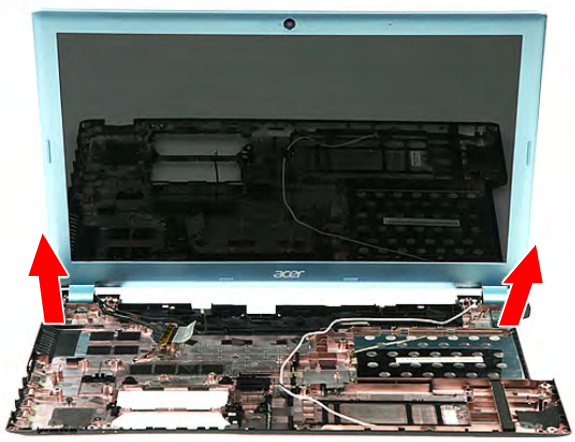

Figure 3-50. LCD Module

LCD Module Disassembly Process

LCD Module Disassembly Flowchart

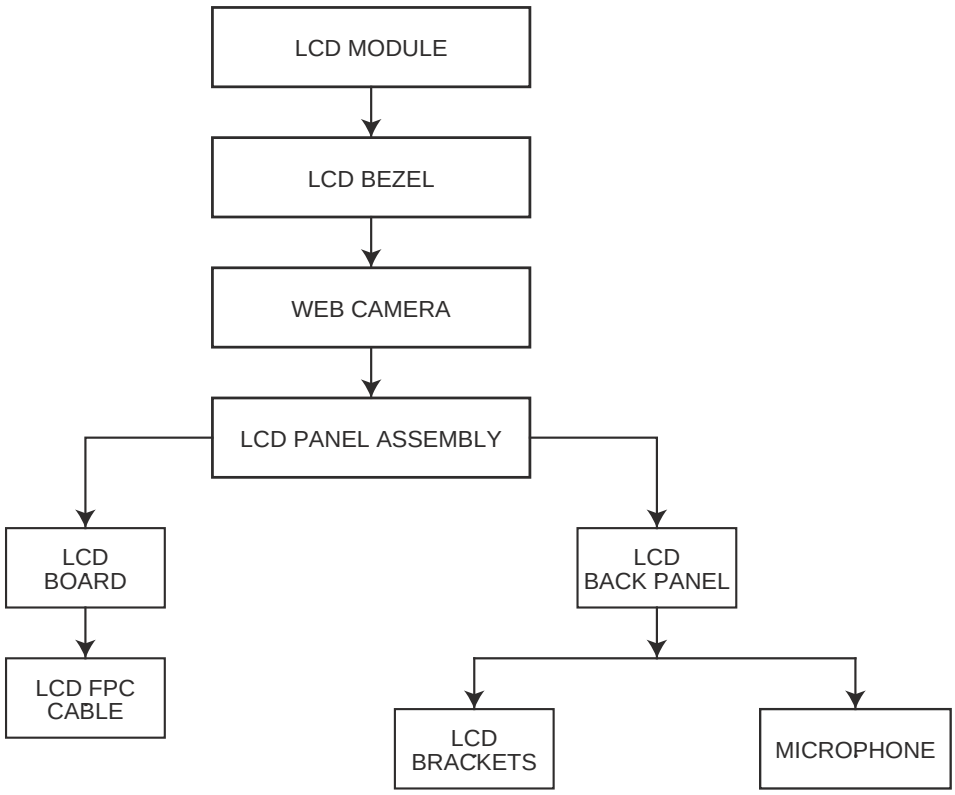

Figure 3-51. LCD Module Disassembly Flowchart

Table 3-51. Screw List

Step	Screw	Quantity	Acer Part Number
LCD Panel Disassembly	M2 x L3	4	86.00J40.323
LCD Bracket Disassembly	M2 x L3	6	86.00J40.323

Removing the LCD Bezel

1. Perform the “Removing the LCD Module” procedure described on page 3-38.
2. Gently pry loose the LCD bezel from the LCD cover (**1**). Start on the bottom side, continue to the left and right sides, and finally the top side. Detach the bezel from the LCD assembly (**2**).

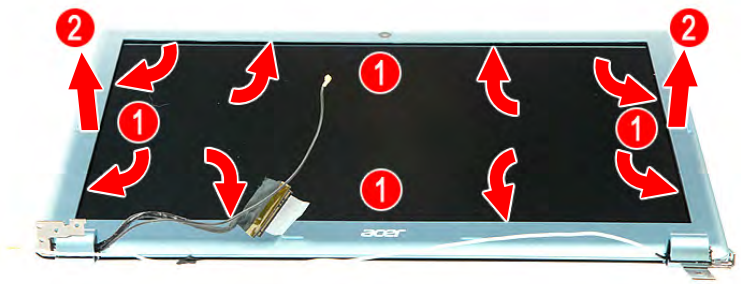

Figure 3-52. LCD Bezel

Removing the Camera Board

1. Perform the “Removing the LCD Bezel” procedure described on page 3-41.
2. Disconnect the camera cable from the camera board.

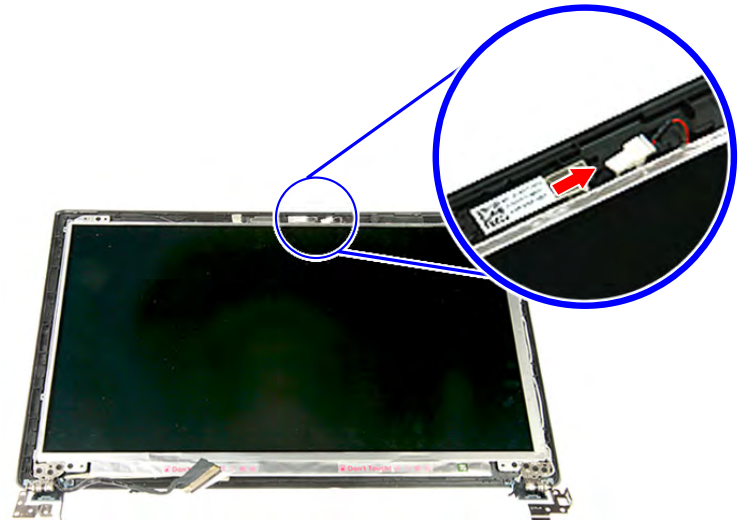

Figure 3-53. Camera Cable

3. Gently pry the camera board off the LCD back cover.

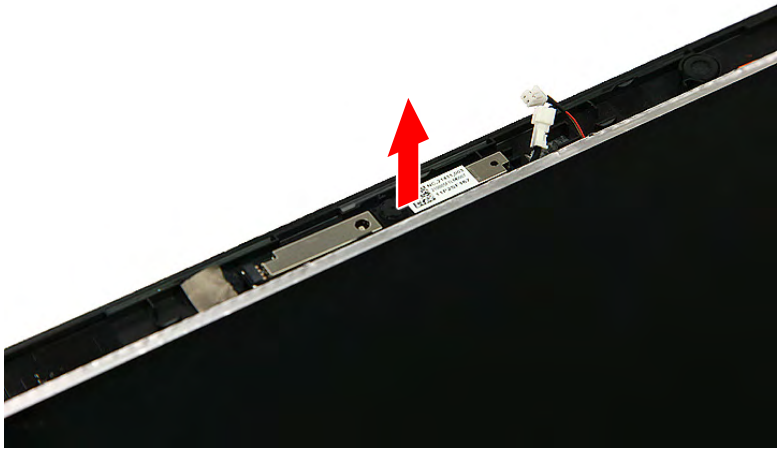

Figure 3-54. Camera Board

NOTE:

A circuit board that is >10 cm2 has been highlighted with a yellow rectangle in Figure 3-54. Follow the local regulations for disposing this type of circuit board.

Removing the LCD Panel

1. Perform the “Removing the LCD Bezel” procedure described on page 3-41.
2. Remove the four screws securing the LCD panel to the LCD back cover.

Figure 3-55. LCD Panel Screws

Table 3-55. Screws

Step	Screw	Quantity	Screw Type
LCD Panel Disassembly	M2 x L3	4	

3. Release the LCD cable from the latch located near the hinge (**1**), then gently lift the LCD panel (**2**).

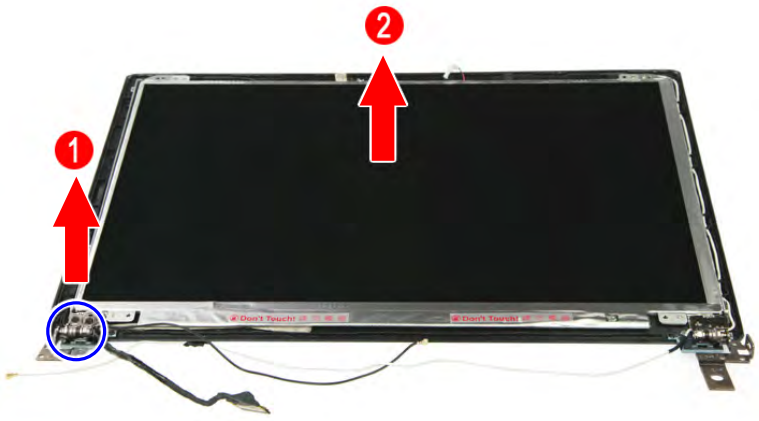

Figure 3-56. LCD Cable

Removing the LCD FPC Cable

1. Perform the “Removing the LCD Panel” procedure described on page 3-43.
2. Detach the self adhesive tapes securing the FPC cable to the back of the LCD Panel.

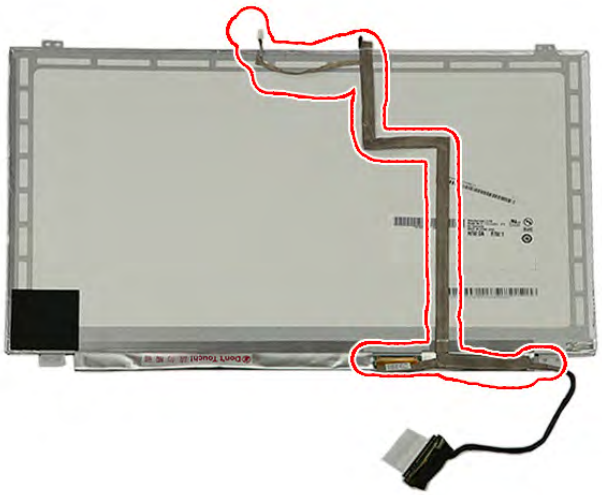

Figure 3-57. FPC Cable Adhesive Tapes

3. Detach the transparent adhesive tape (**1**), then disconnect the FPC cable from the LCD panel (**2**).

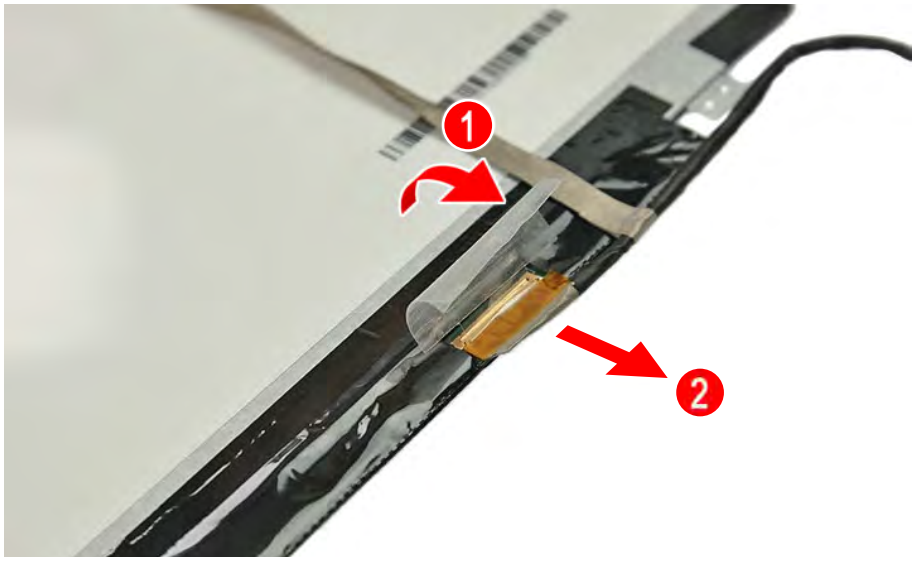

Figure 3-58. FPC Cable

Removing the LCD Brackets

1. Perform the “Removing the LCD Panel” procedure described on page 3-43.
2. Remove the six screws securing the left and right LCD brackets to the LCD back cover.

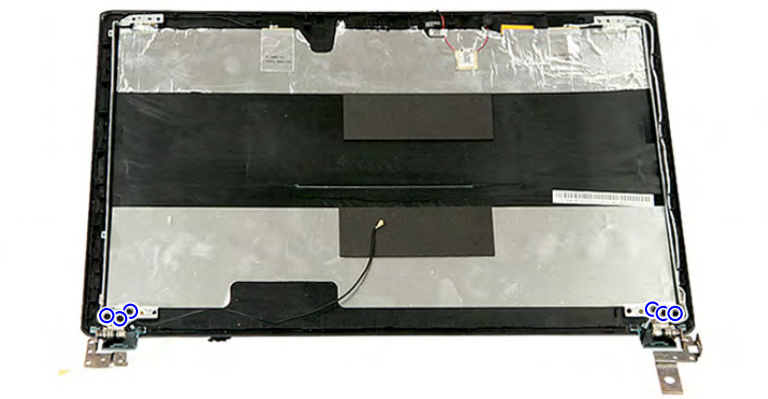

Figure 3-59. LCD Bracket Screws

Table 3-59. Screws

Step	Screw	Quantity	Screw Type
LCD Bracket Disassembly	M2 × L3	6	

3. Detach the LCD bracket from the LCD back cover.

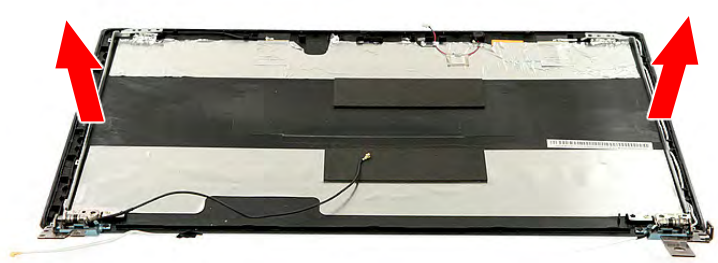

Figure 3-60. LCD Bracket

Removing the Microphone

1. Perform the “Removing the LCD Panel” procedure described on page 3-43.
2. Release the microphone cable from the adhesive tapes securing them.

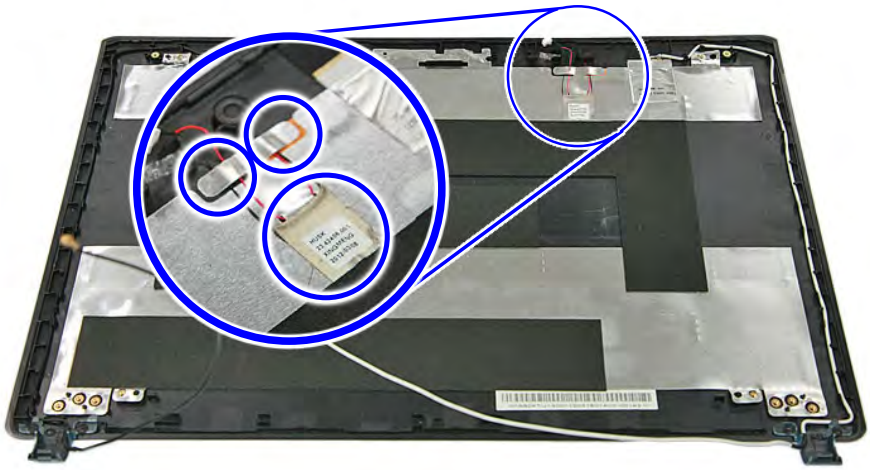

Figure 3-61. Microphone Adhesive Tapes

3. Gently pry the microphone off the LCD back panel.

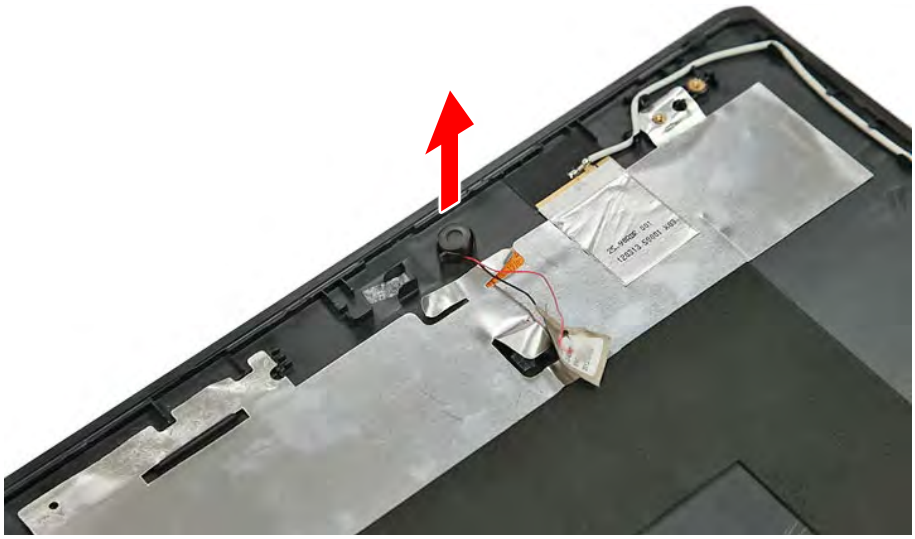

Figure 3-62. Microphone

Reinstalling the Microphone

1. Gently place the microphone on its socket in the LCD back panel.

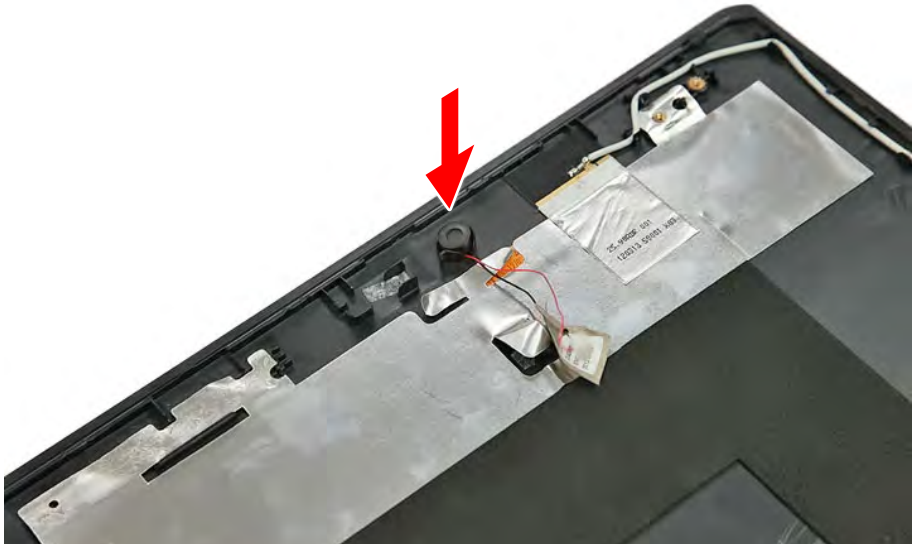

Figure 3-63. Microphone

2. Secure the microphone cable to the LCD back panel using adhesive tapes.

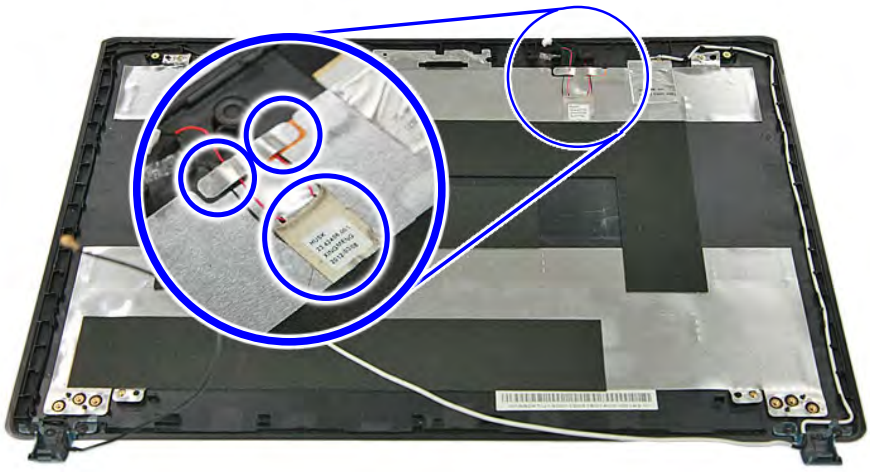

Figure 3-64. Microphone Adhesive Tapes

Reinstalling the LCD Brackets

1. Place the LCD bracket into the LCD back cover.

Figure 3-65. LCD Bracket

2. Secure the left and right LCD brackets to the LCD back cover using six screws.

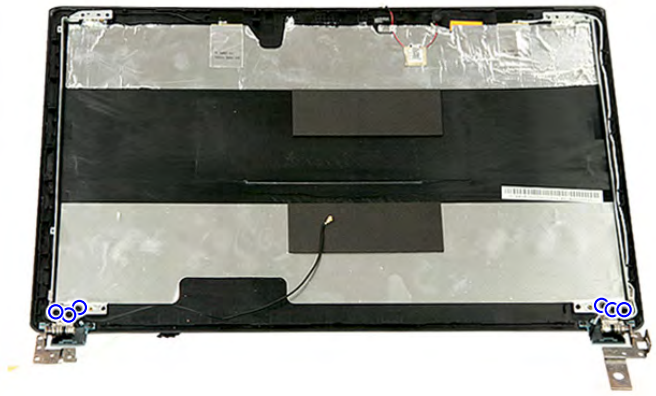

Figure 3-66. LCD Bracket Screws

Table 3-66. Screws

Step	Screw	Quantity	Screw Type
LCD Bracket Reassembly	M2 × L3	6	

Reinstalling the LCD FPC Cable

1. Connect the FPC cable to the LCD panel (**1**), then secure the FPC cable to the LCD panel using transparent adhesive tape (**2**).

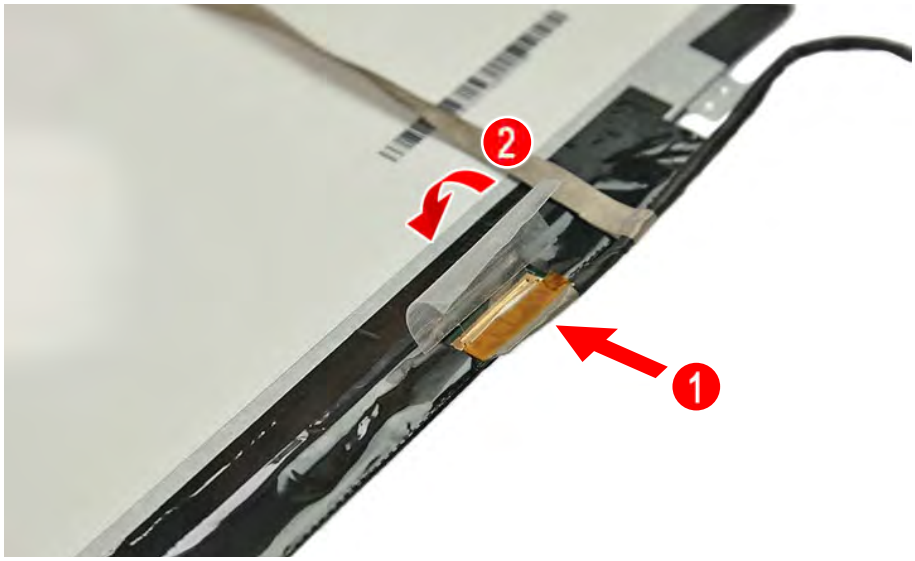

Figure 3-67. FPC Cable

2. Secure the FPC cable to the back of the LCD Panel using self-adhesive tape.

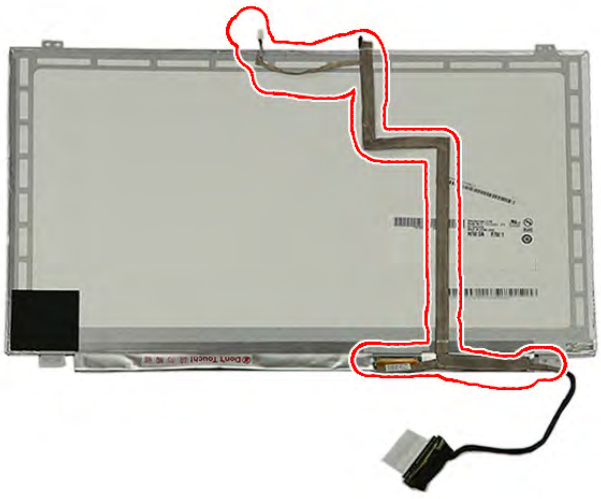

Figure 3-68. FPC Cable Adhesive Tapes

Reinstalling the LCD Panel

1. Gently place the LCD panel into the LCD back cover (**1**), then insert the LCD cable into the latch located near the hinge (**2**).

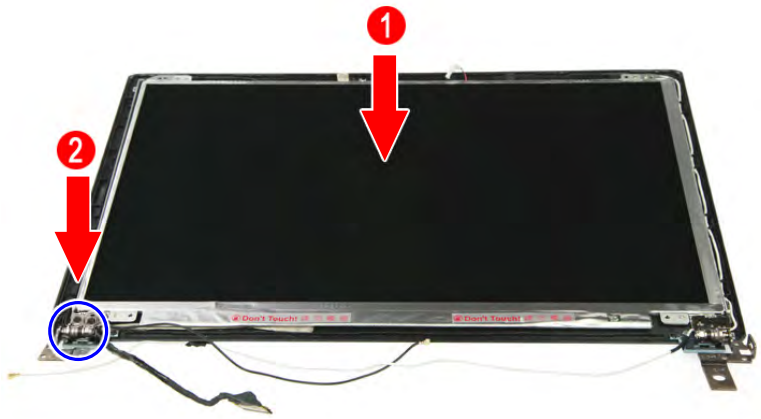

Figure 3-69. LCD Cable

2. Secure the LCD panel to the LCD back cover using four screws.

Figure 3-70. LCD Panel Screws

Table 3-70. Screws

Step	Screw	Quantity	Screw Type
LCD Panel Reassembly	M2 × L3	4	

Reinstalling the Camera Board

1. Gently place the camera board into the LCD back cover.

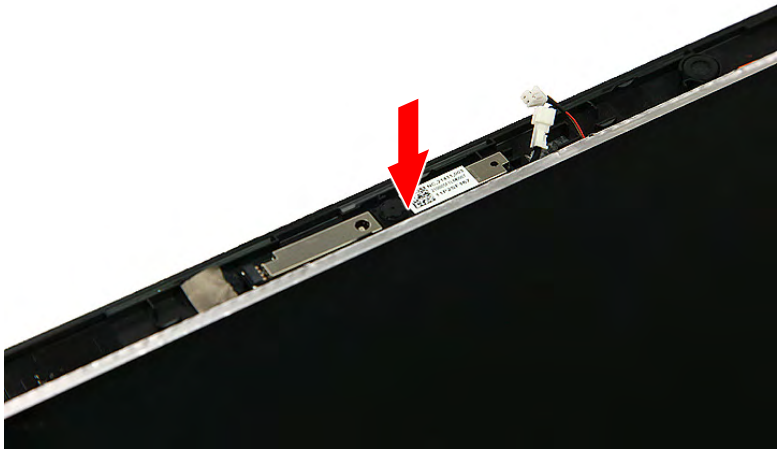

Figure 3-71. Camera Board

2. Connect the camera cable to the camera board.

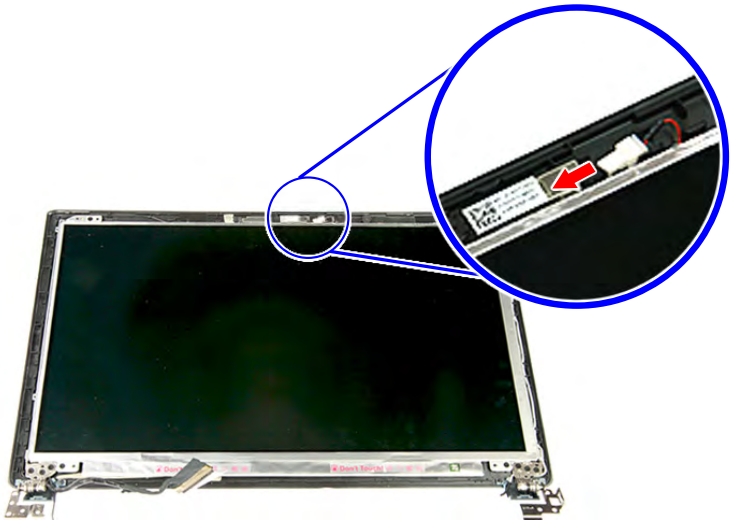

Figure 3-72. Camera Cable

Reinstalling the LCD Bezel

1. Place the bezel into the LCD assembly (**1**), then gently press all sides until the bezel latch into place (**2**).

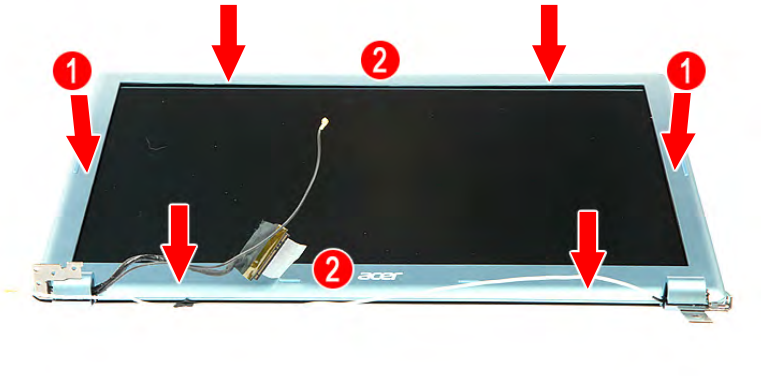

Figure 3-73. LCD Bezel

Reinstalling the LCD Module

1. Place the LCD module into its socket in the lower case.

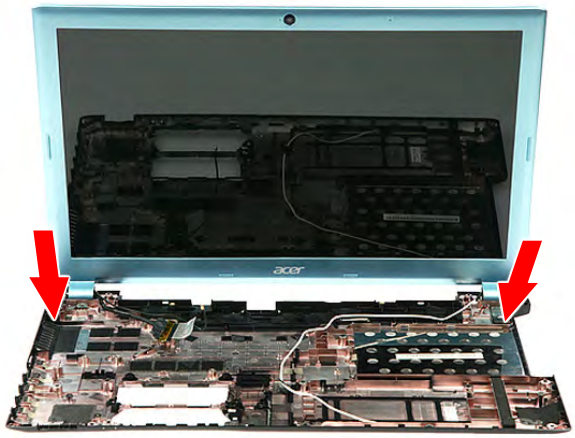

Figure 3-74. LCD Module

2. Secure the LCD module to the lower case using two screws.

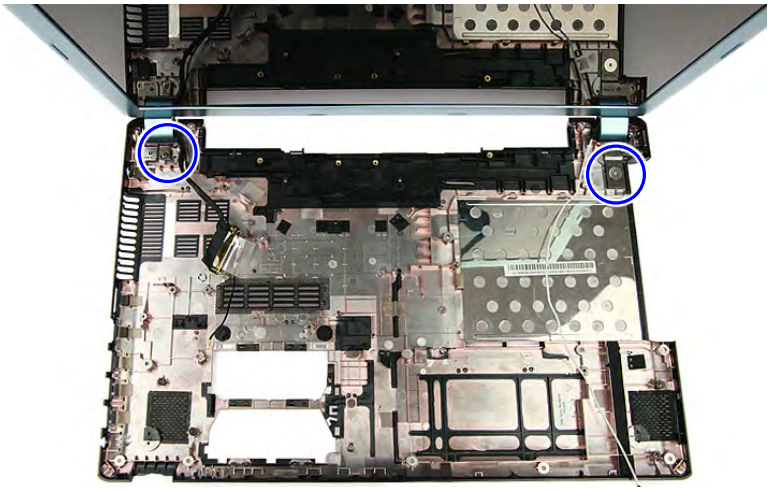

Figure 3-75. LCD Module Hinge Screws

Table 3-75. Screws

Step	Screw	Quantity	Screw Type
LCD Module Reassembly	M2 ×3	1	
	M2.5 ×L5	1	

3. Insert the cables in the lower case latches as shown, then secure them to the lower case using adhesive tapes.

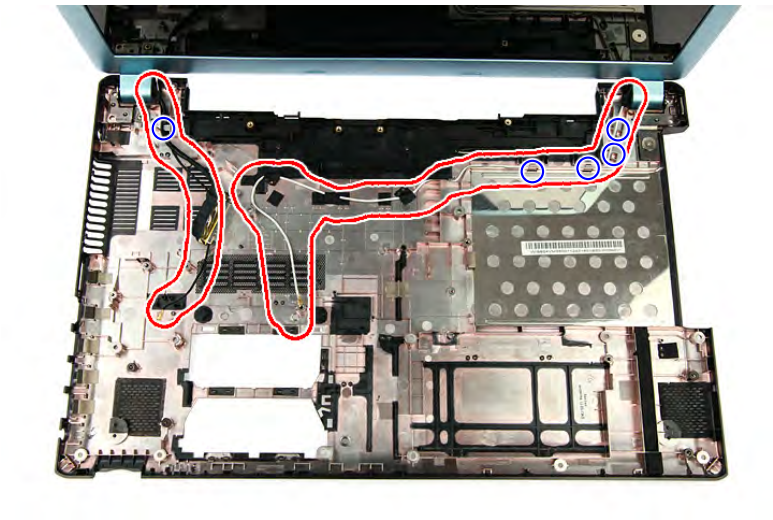

Figure 3-76. WLAN Antenna Cables - Latches and Adhesive Tapes

Reinstalling the Speaker Module

1. Place the Speaker Module into the lower case assembly.

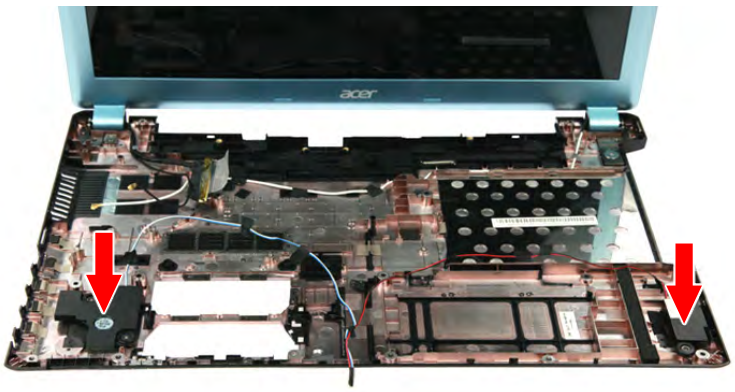

Figure 3-77. Speakers

2. Secure the Speaker Module to the lower case assembly using four screws.

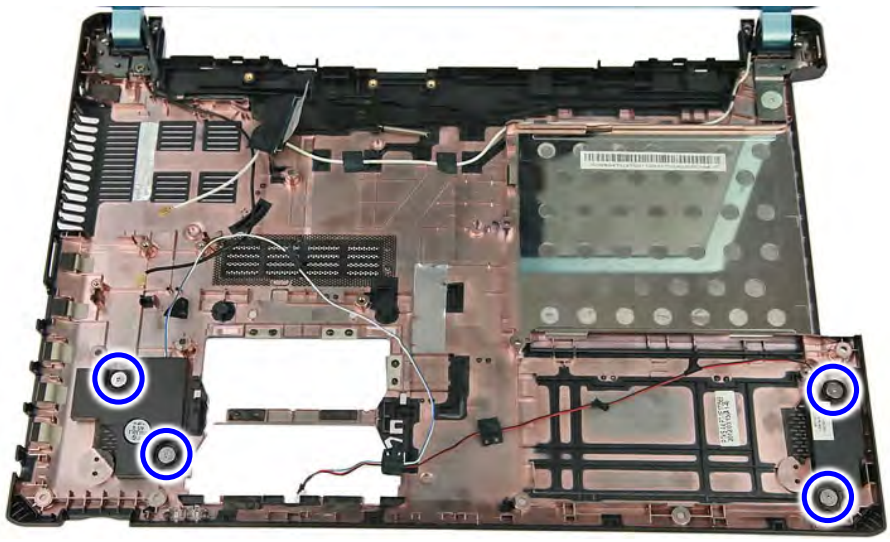

Figure 3-78. Speaker Screws

Table 3-78. Screws

Step	Screw	Quantity	Screw Type
Speakers Reassembly	M2 × L3	4	

3. Insert the cables in the lower case latches as shown, then secure them to the lower case using adhesive tapes

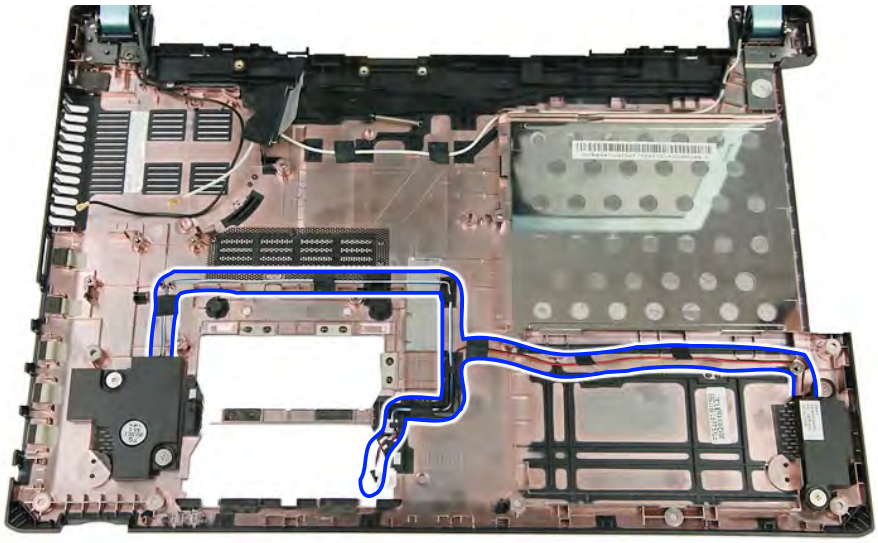

Figure 3-79. Speaker Cable

Reinstalling the Battery Connector

1. Place the battery connector into the lower case assembly.

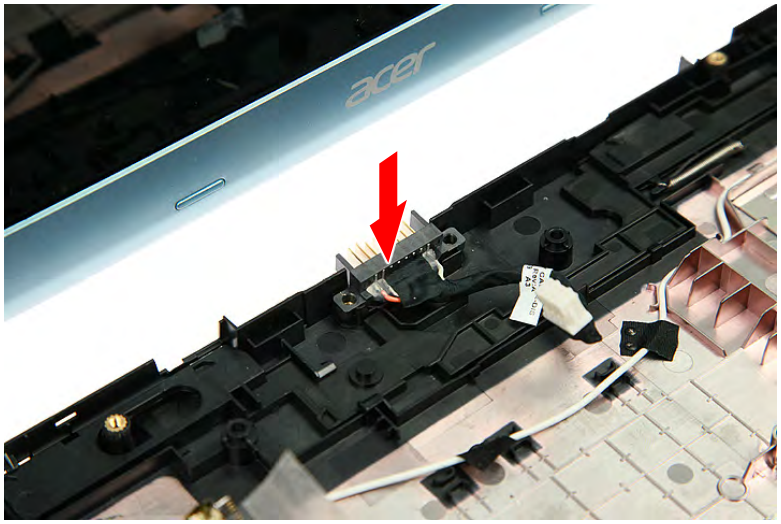

Figure 3-80. Battery Connector

2. Secure the battery connector to the lower case assembly using two screws.

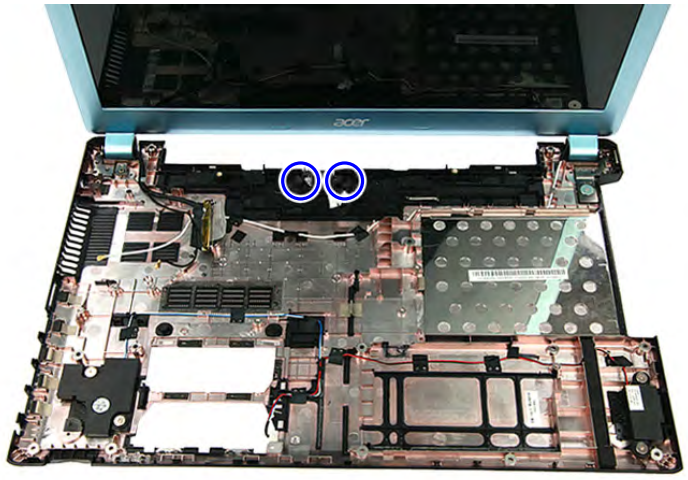

Figure 3-81. Battery Connector Screws

Table 3-81. Screws

Step	Screw	Quantity	Screw Type
Battery Connector Reassembly	M2 × L3	2	

Reinstalling the DC In Module

1. Place the DC In module into the lower case assembly.

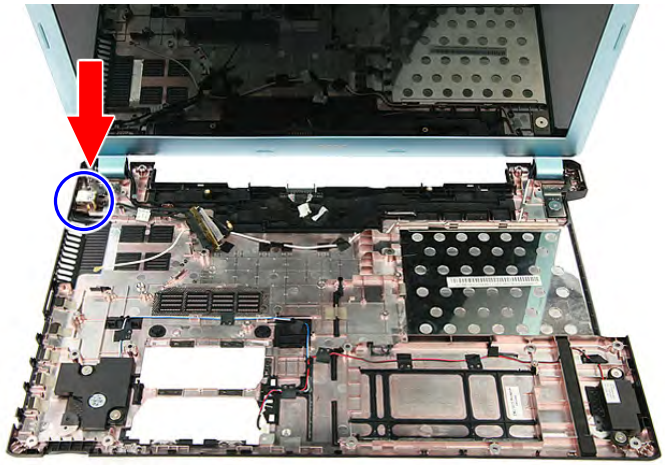

Figure 3-82. DC In Cable

Reinstalling the Thermal Module

1. Place the thermal module into the mainboard.

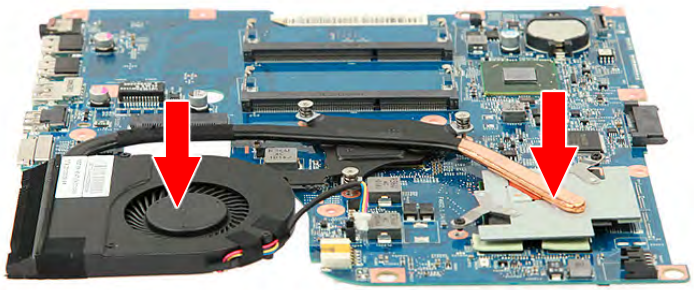

Figure 3-83. Thermal Module

2. Tighten the spring-loaded captive screws securing the thermal module. Follow the screw sequence indicated on Figure 3-84.

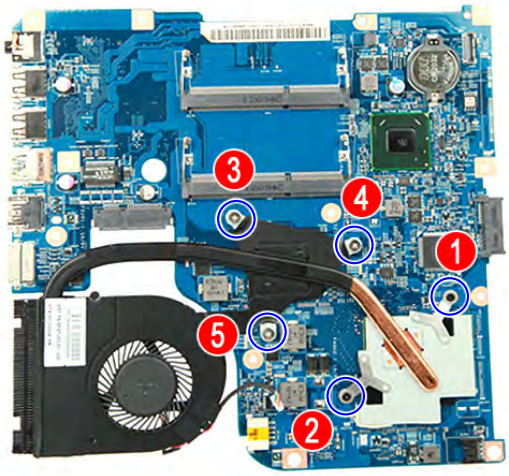

Figure 3-84. Thermal Module Screws

Table 3-84. Screws

Step	Screw	Quantity	Screw Type
Thermal Module Reassembly	–	5	–

3. Connect the thermal module fan cable to the mainboard.

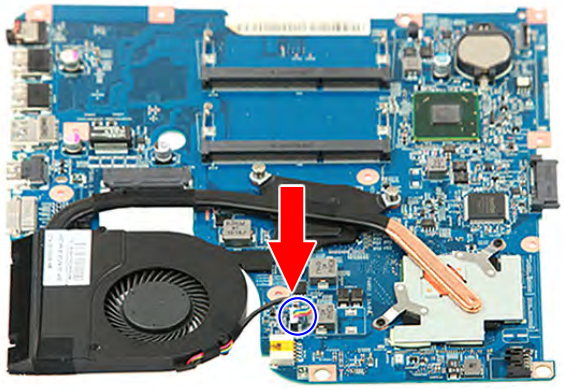

Figure 3-85. Fan Cable

Reinstalling the Mainboard

1. Place the mainboard into the lower case, then connect the HDD cable to the mainboard (**1**).
2. Connect the battery cable to the mainboard (**2**), then connect the DC-In cable to the mainboard (**3**).

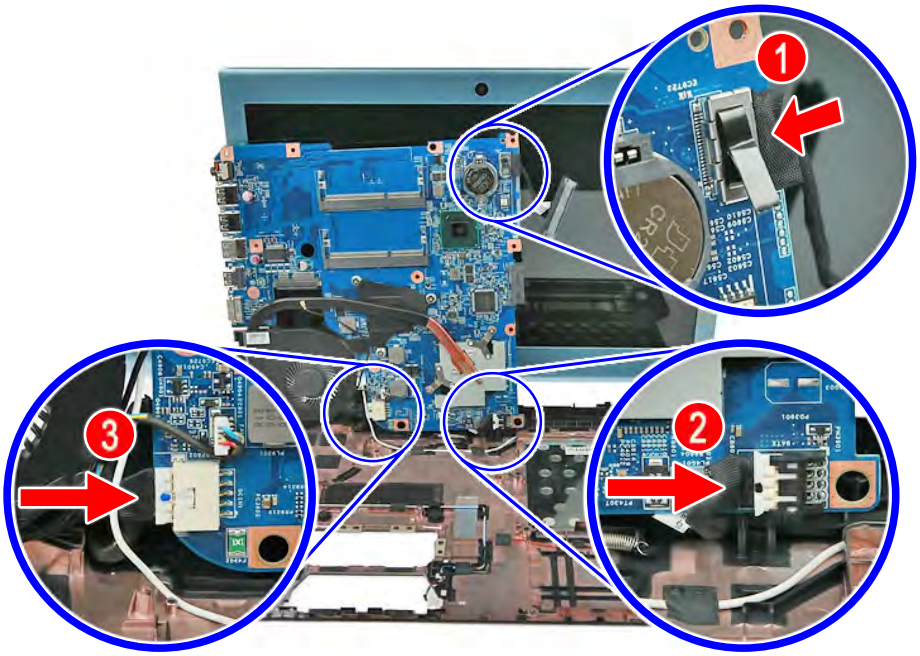

Figure 3-86. HDD, Battery and DC-In Cables

3. Gently lower the mainboard into its socket in the lower case assembly.

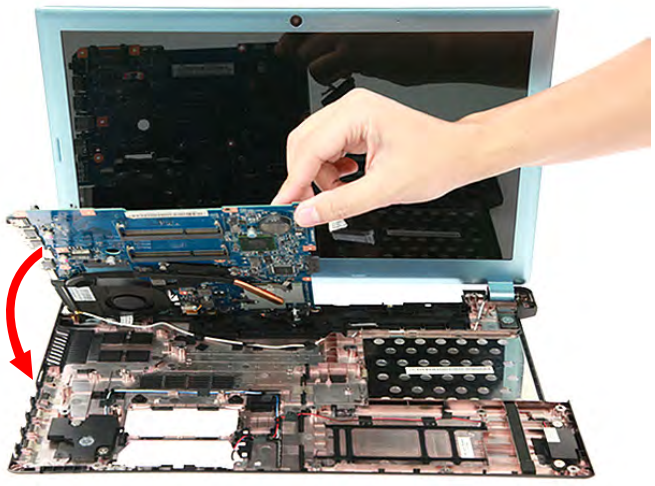

Figure 3-87. Mainboard

4. Secure the mainboard to the lower case assembly using one screw.

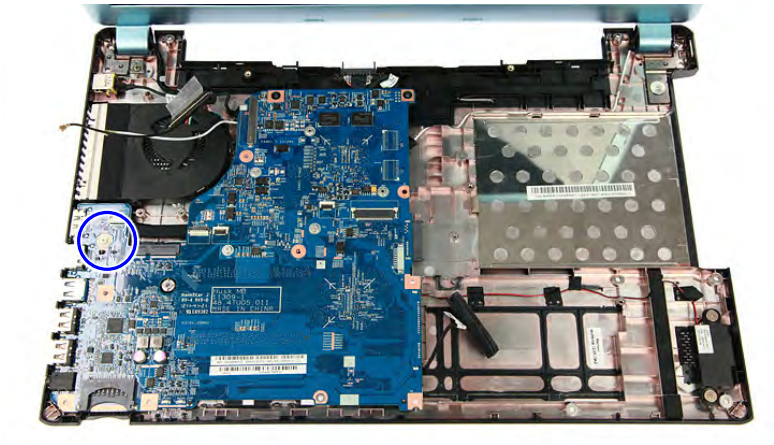

Figure 3-88. Mainboard Screw

Table 3-88. Screw

Step	Screw	Quantity	Screw Type
Mainboard Reassembly	M2 × L3	1	

5. Connect the cable to the mainboard (**1**), then secure the LCD cable to the mainboard using adhesive tape (**2**).

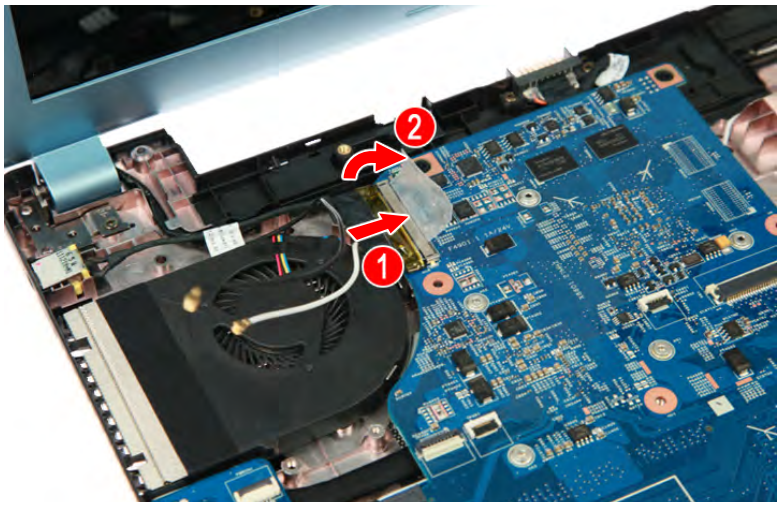

Figure 3-89. LCD Cable

6. Turn the computer over to acces the base side of the lower case assembly.

7. Connect the speaker cable to the main board.

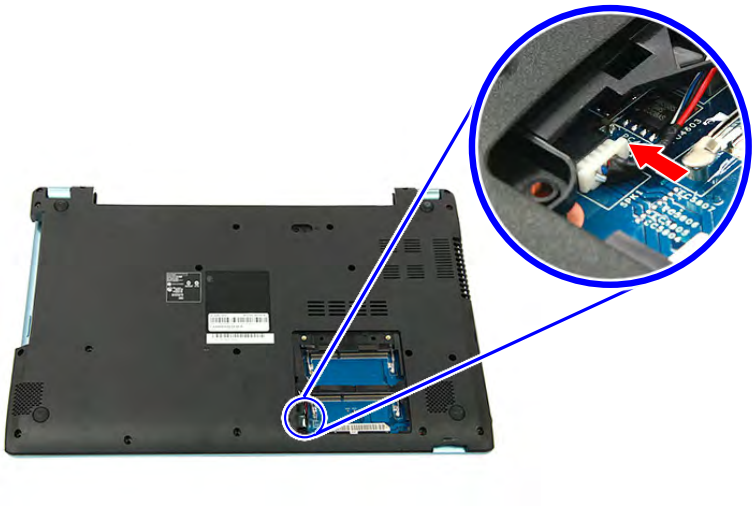

Figure 3-90. Speaker Cable

Reinstalling the WLAN Module

1. Insert the WLAN module into its slot in the mainboard.

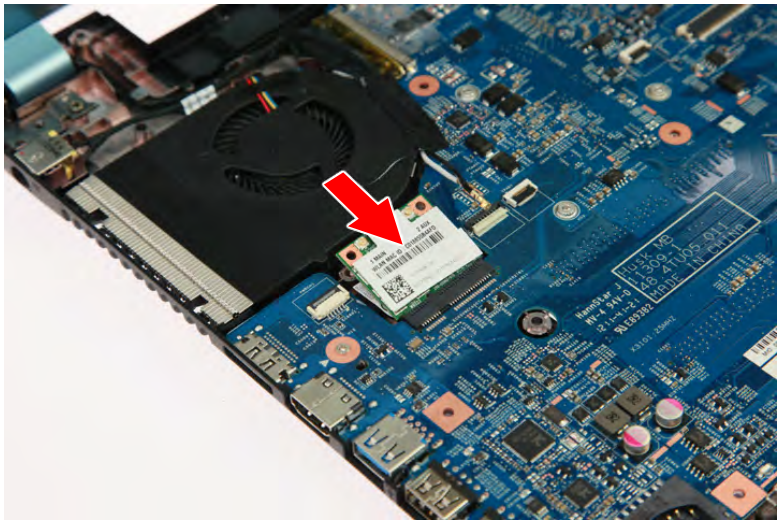

Figure 3-91. WLAN Module

2. Secure the WLAN module to the mainboard using one screw.

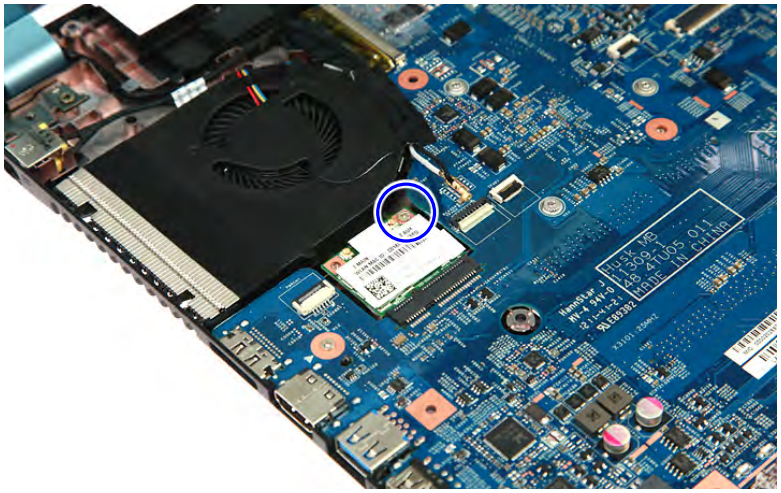

Figure 3-92. WLAN Module Screw

Table 3-92. Screw

Step	Screw	Quantity	Screw Type
WLAN Module Reassembly	M2 × L3	1	

3. Plug the two (2) antenna cables to the WLAN module.

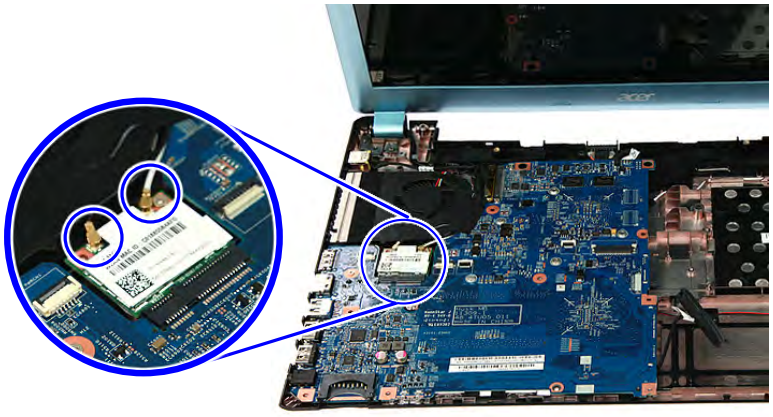

Figure 3-93. WLAN Module Antennas

+ **IMPORTANT:**

Refer to your machine disassembly note to determine which cable color corresponds to the main (black) and auxiliary (white) connectors.

Reinstalling the HDD Module

1. Connect the HDD cable to the HDD module.

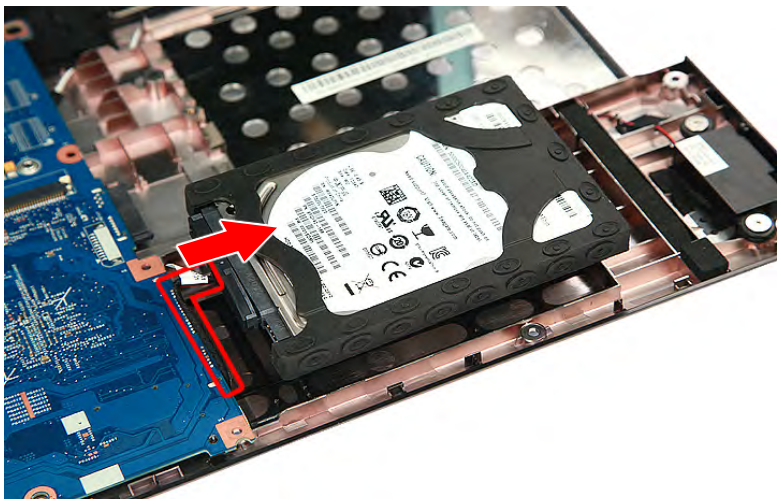

Figure 3-94. HDD Cable

2. Gently insert the HDD assembly into its socket.

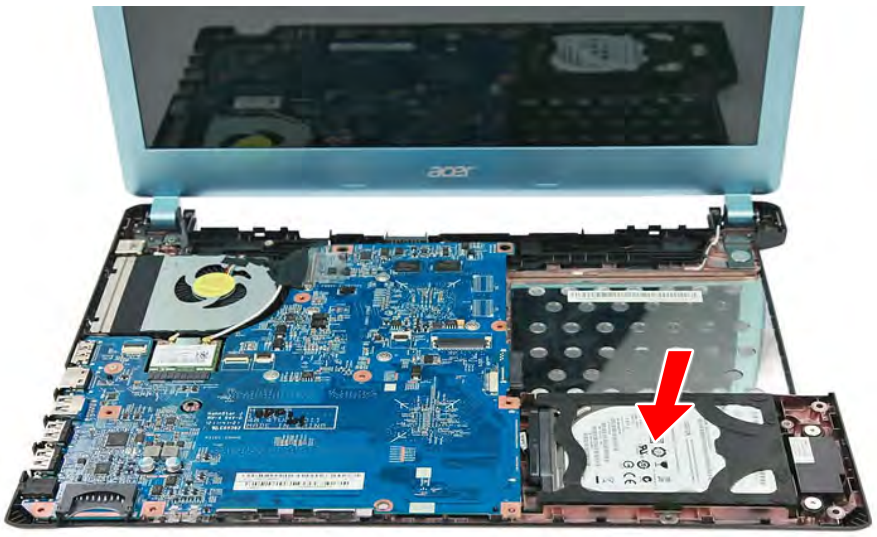

Figure 3-95. HDD Module

Reinstalling the SATA Board

1. Place the SATA board in its socket in the mainboard.

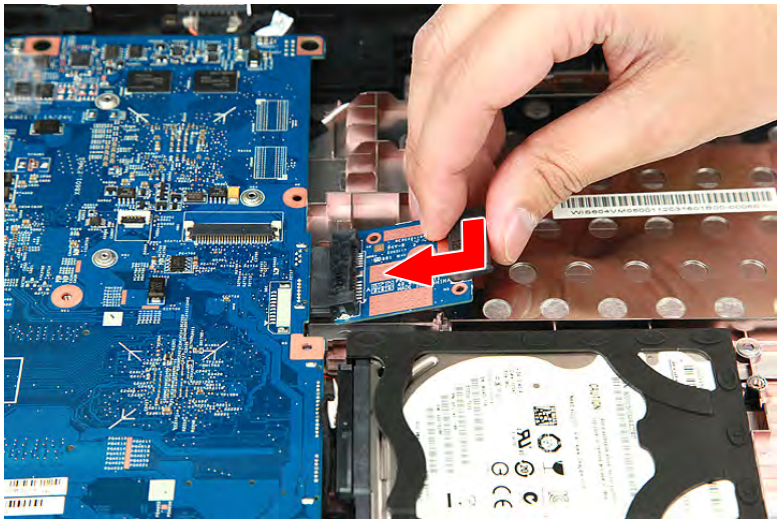

Figure 3-96. SATA Board

2. Secure the SATA board to the mainboard using one screw.

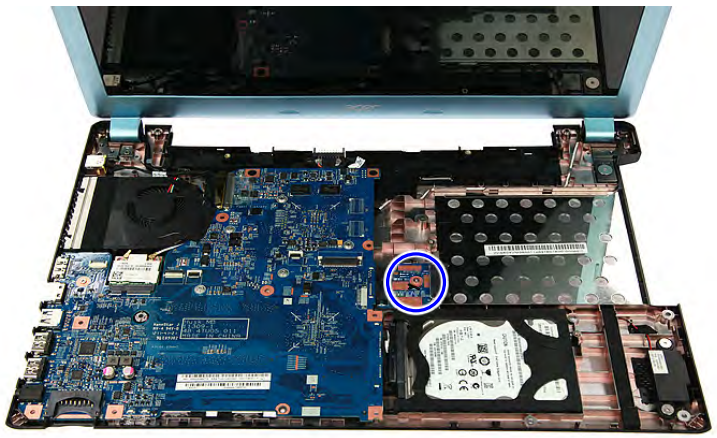

Figure 3-97. SATA Board Screw

Table 3-97. Screw

Step	Screw	Quantity	Screw Type
SATA Board Reassembly	M2 × L3	1	

Reinstalling the Power Button Board

1. Place the power button board and cable into the upper case.

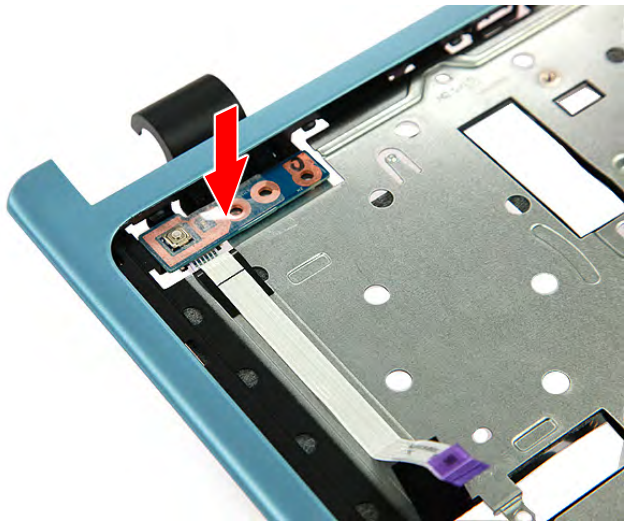

Figure 3-98. Power Button Board

2. Secure the power button board to the upper case using one screw.

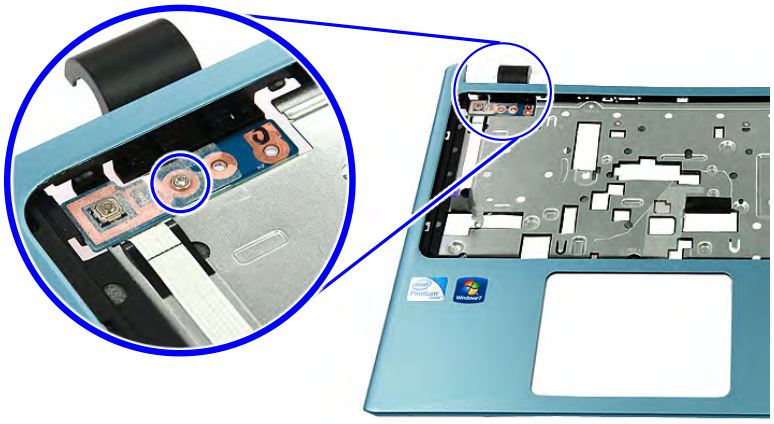

Figure 3-99. Power Button Board Screw

Table 3-99. Screw

Step	Screw	Quantity	Screw Type
Power Button Board Reassembly	M2 × L3	1	

3. Turn the upper case over.
4. Connect the power button cable to the power button board (**1**), then press the connector latch (**2**) until it locks into place.

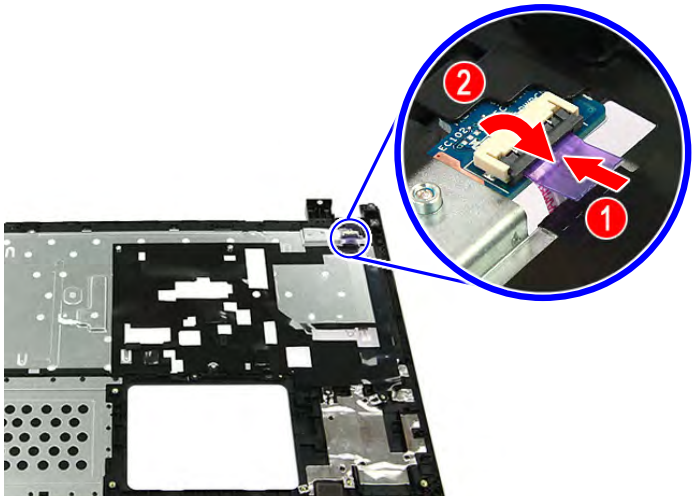

Figure 3-100. Power Button Cable

Reinstalling the Touchpad Board

1. Place the touchpad board into the upper case assembly.

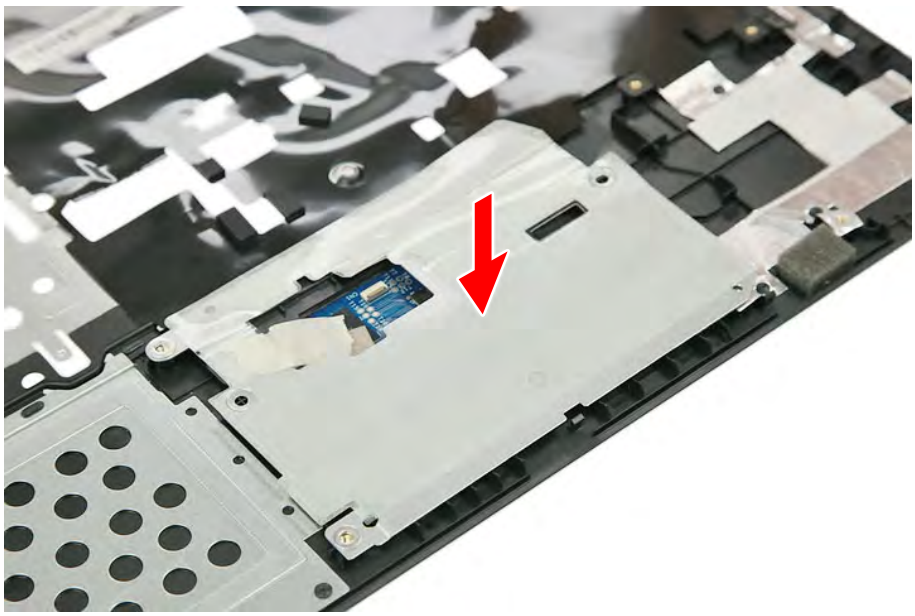

Figure 3-101. Touchpad Board

2. Connect the touchpad cable to the touchpad board (**1**), then press the connector latch (**2**) until it locks into place.

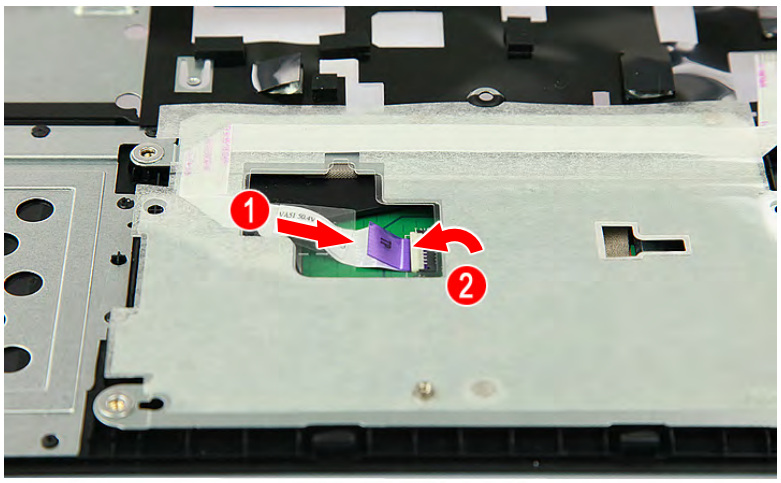

Figure 3-102. Touchpad Cable

3. Place the touchpad cable into the touchpad board (**1**), then secure the touchpad cable to the board using adhesive tape (**2**).

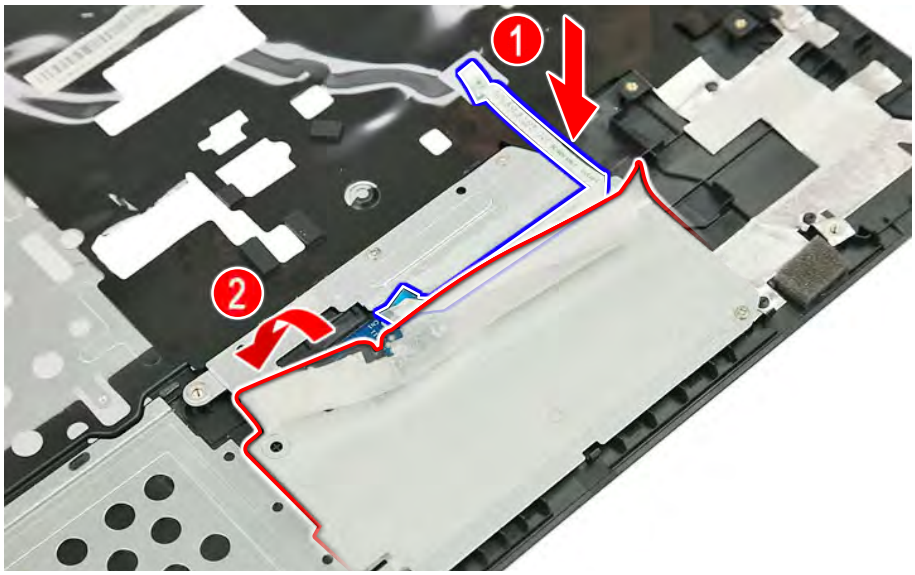

Figure 3-103. Touchpad Adhesive Tape

4. Secure the touchpad board to the upper case assembly using three screws.

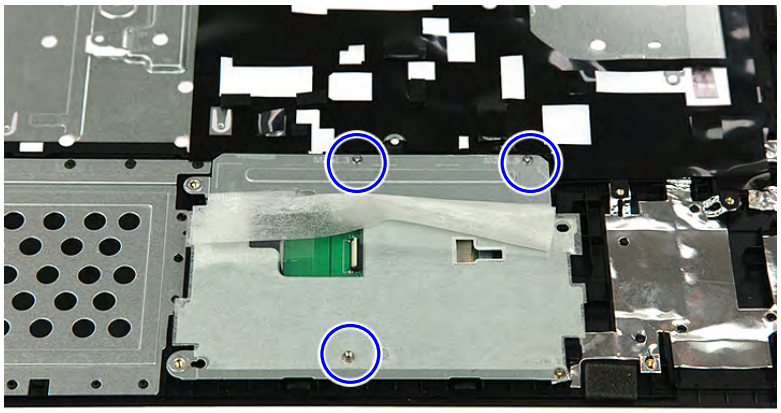

Figure 3-104. Touchpad Screws

Table 3-104. Screws

Step	Screw	Quantity	Screw Type
Touchpad Module Reassembly	M2 × L3	3	

Reinstalling the Palmrest Module/Upper Case

1. Place the upper case into the lower case assembly.

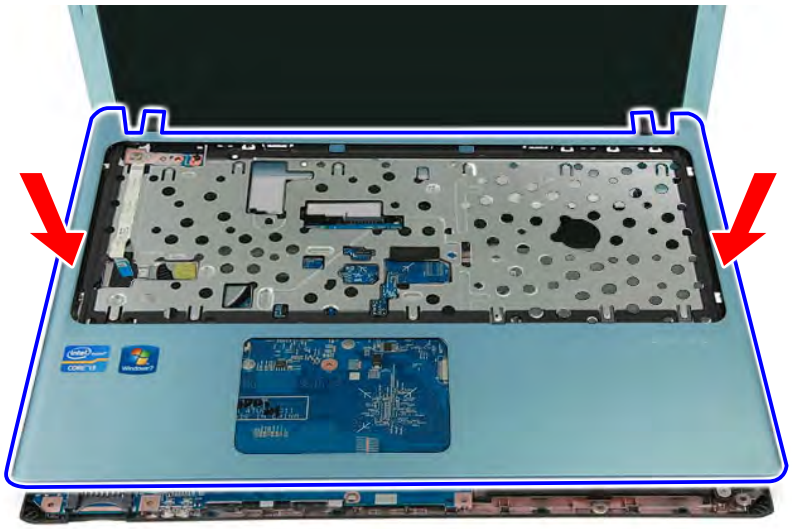

Figure 3-105. Upper Case

2. Secure the upper case to the lower case assembly using four screws.

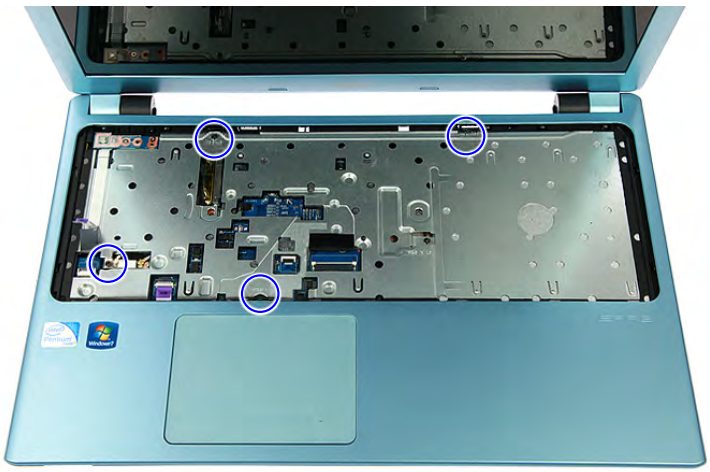

Figure 3-106. Upper Case Screws – Top Side

Table 3-106. Screws

Step	Screw	Quantity	Screw Type
Upper Case Reassembly	M2.5 × L5	4	

3. Connect the power button and touchpad cables to the mainboard (**1**), then press the connector latches (**2**) until they lock into place.

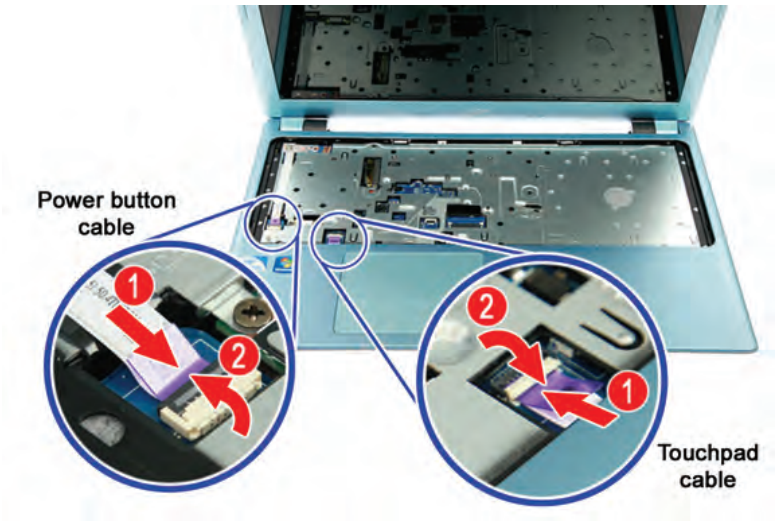

Figure 3-107. Power Button and Touchpad Cables

4. Turn the computer over to acces the base side of the lower case assembly.
5. Secure the upper case to the lower case assembly using seventeen screws.

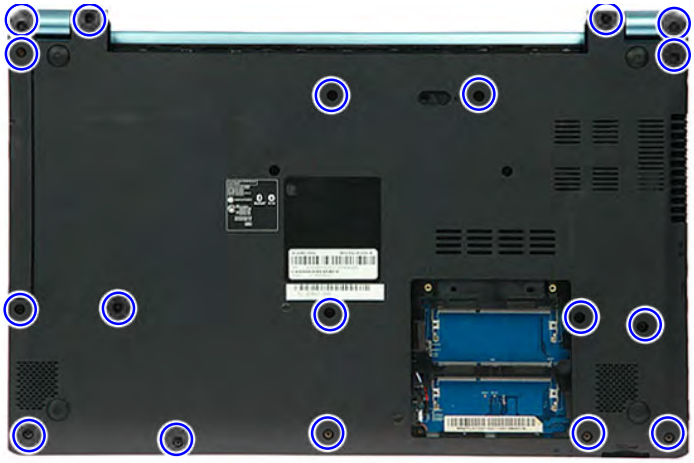

Figure 3-108. Upper Case Screws – Base Side

Table 3-108. Screws

Step	Screw	Quantity	Screw Type
Upper Case Reassembly	M2.5 × L5	17	

External Module Reassembly Process

Reinstalling the ODD Module

1. Press the ODD bezel into the module until it latch into place.

Figure 3-109. ODD Bezel

2. Place the bracket into the module.

Figure 3-110. ODD Bracket

3. Secure the ODD module to the bracket using two screws.

Figure 3-111. ODD Bracket Screws

Table 3-111. Screws

Step	Screw	Quantity	Screw Type
ODD Bracket Reassembly	M2 × L3	2	

4. Gently push the ODD module into the ODD drive bay until the ODD connector latch into place.

Figure 3-112. ODD Module

5. Turn the computer over and open the LCD panel.
6. Secure the ODD module to the upper case assembly using one screw.

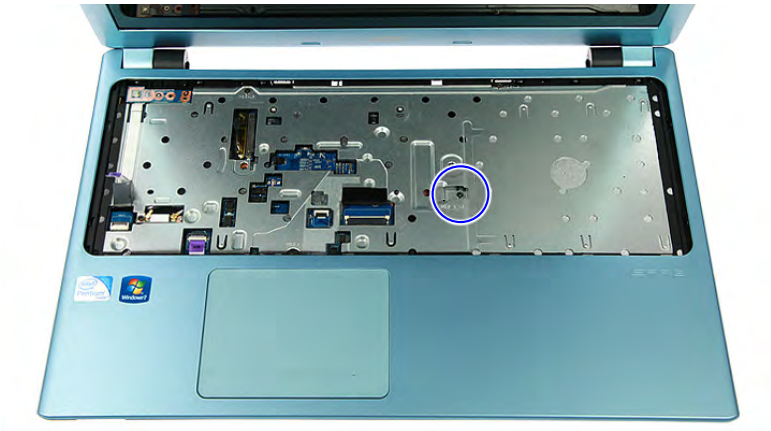

Figure 3-113. ODD Module Screw

Table 3-113. Screw

Step	Screw	Quantity	Screw Type
ODD Module Reassembly	M2.5 × L5	1	

Reinstalling the Keyboard

1. Turn the computer over and open the LCD panel.
2. Connect the cable to the mainboard (**1**), then press the connector latch (**2**) until it locks into place. Place the keyboard into its socket.

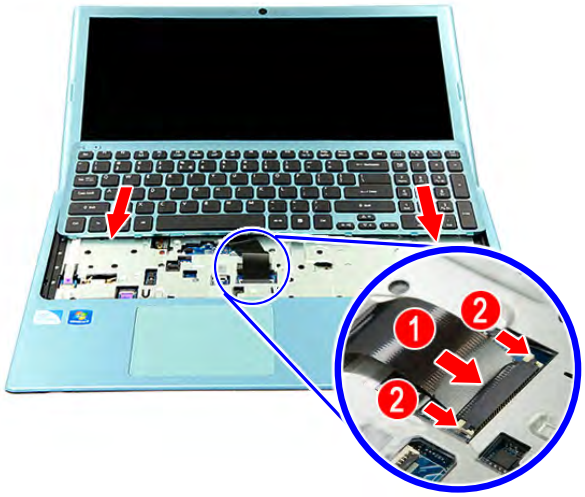

Figure 3-114. Keyboard

3. Use a non-marring plastic flat-blade screwdriver to push the latches on the top side of the keyboard, then press the keyboard until it latch into place.

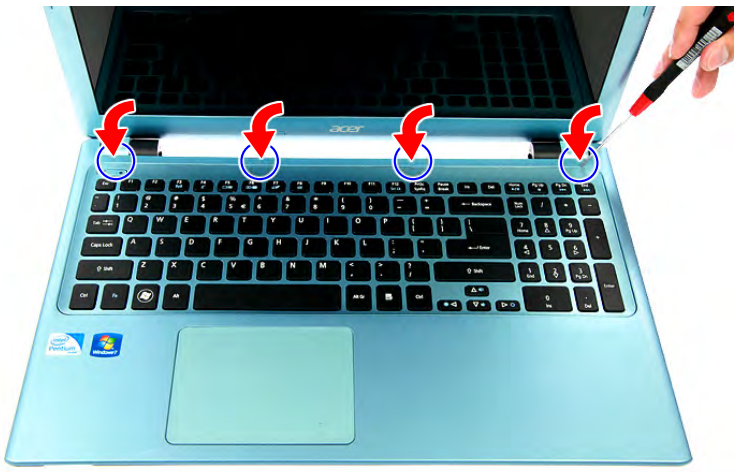

Figure 3-115. Keyboard Latches

4. Turn the computer over to acces the base side of the lower case assembly.
5. Secure the keyboard to the lower case assembly using two screws.

Figure 3-116. Upper Case Screws – Base Side

Table 3-116. Screws

Step	Screw	Quantity	Screw Type
Upper Case Reassembly	M2.5 × L5	17	

Reinstalling the DIMM Modules

1. Insert the DIMM module into the slot (**1**), then push it downward until it latches into place (**2**).

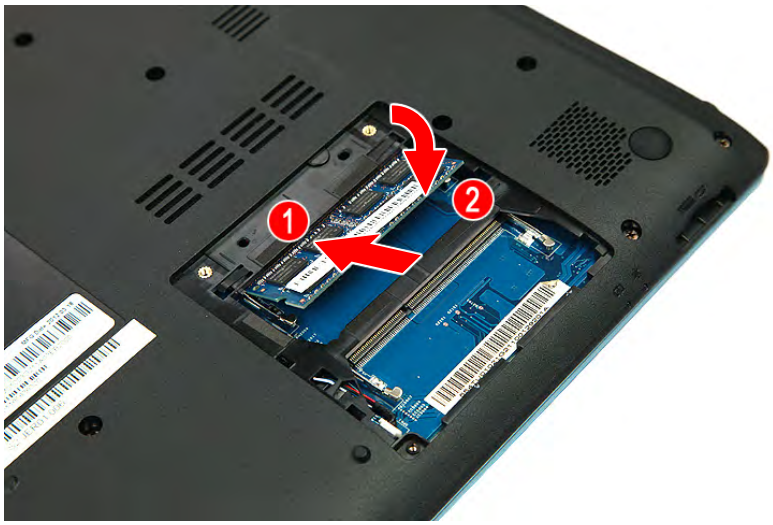

Figure 3-117. DIMM Modules

2. Repeat Step 1 to reinstall the remaining DIMM module.

Reinstalling the DIMM Cover

1. Place the DIMM cover into the computer and press it downward until the DIMM cover latches into place.

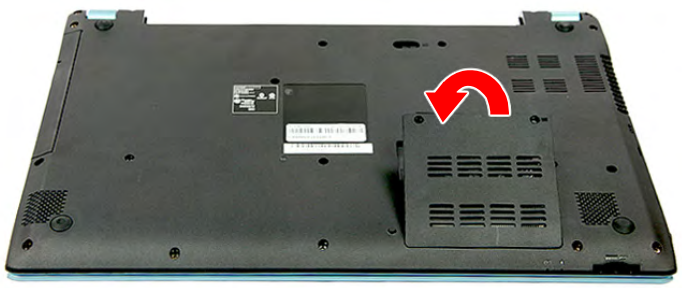

Figure 3-118. DIMM Cover

2. Secure the DIMM cover to the lower case assembly using two screws.

Figure 3-119. DIMM Cover Screws

Table 3-119. Screws

Step	Screw	Quantity	Screw Type
DIMM Cover Reassembly	M2.5 × L5	2	

Reinstalling the Battery Pack

1. Insert the battery pack into its bay until it latches into place.

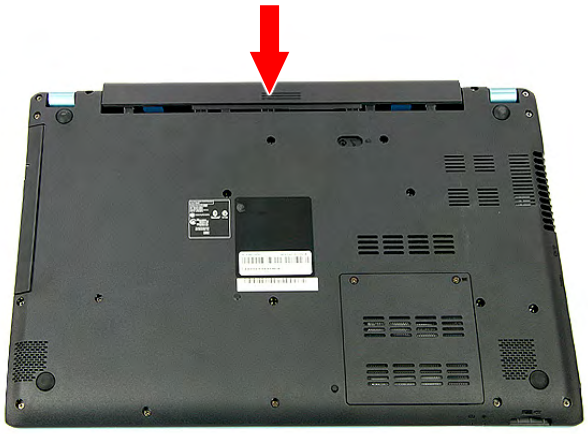

Figure 3-120. Battery Pack

CHAPTER 4

Troubleshooting

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POST Codes 4-25
Component Codes 4-25
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Troubleshooting

Introduction

This chapter contains information about troubleshooting common problems associated with the computer.

General Information

The following procedures are a guide for troubleshooting computer problems. The step by step procedures are designed to be performed as described.

NOTE:

The diagnostic tests are intended for Acer products only. Non-Acer products, prototype cards, or modified options can give false errors and invalid system responses.

1. Obtain as much detailed information as possible about the problem.
2. If possible, verify the symptoms by re-creating the failure through diagnostic tests or repeating the operation that led to the problem.
3. Refer to Table 4-1 for a list of verified symptom category to determine the solution.

Table 4-1. Common Problems

Symptoms (Verified)
Power On Issues
No Display Issues
LCD Failure
Keyboard Failure
Touchpad Failure
Internal Speaker Failure
Microphone Failure
USB Failure
WLAN Failure
Card Reader Failure
Thermal Unit Failure
Other Functions Failure
Intermittent Problems
Undetermined Problems

4. If the issue is still not resolved, refer to the Online Support Information on page 8-3

Power On Issues

If the system does not power on, perform the following, one at a time, to correct the problem. Do not replace a non-defective FRU.

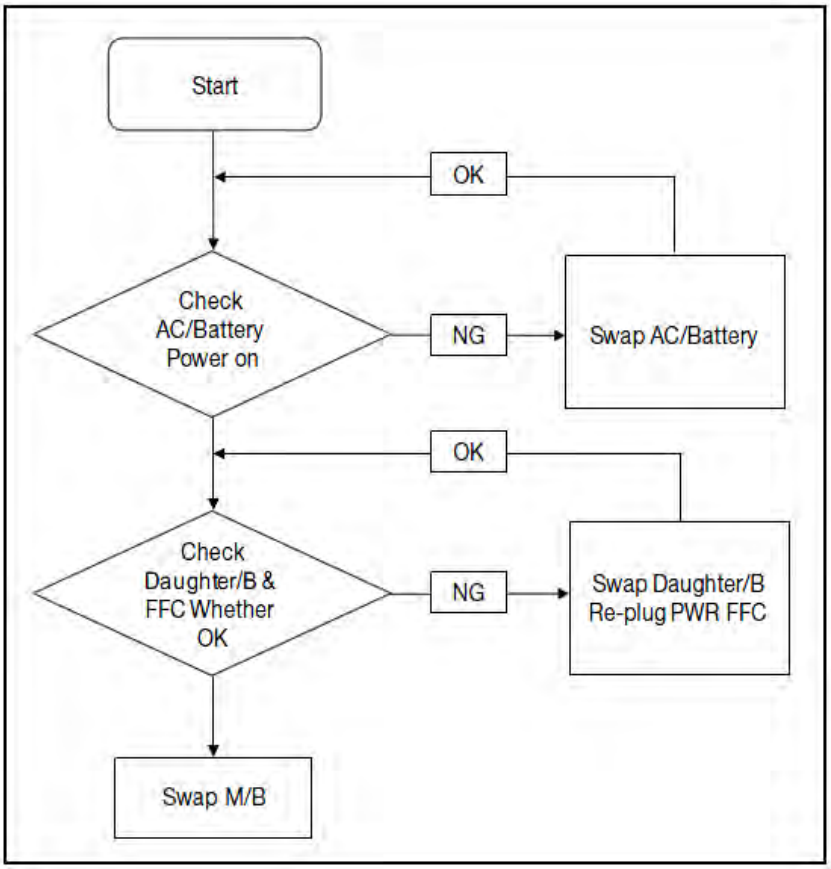

Figure 4-1. Power On Issue

Computer Shuts Down Intermittently

If the system powers off at intervals, perform the following.

1. Makes sure the power cable is properly connected to the computer and the electrical outlet.
2. Remove all extension cables between the computer and the outlet.
3. Remove all surge protectors between the computer and the electrical outlet. Plug the computer directly into a known serviceable electrical outlet.
4. Disconnect the power and open the casing to check the thermal module and fan airways are free of obstructions. Refer to the to the "Thermal Unit Failure" section on page 4-16.
5. Remove all external and non-essential hardware connected to the computer that are not necessary to boot the computer to the failure point.
6. Remove any recently installed software.
7. If the issue is still not resolved, refer to the Online Support Information on page 8-3.

No Display Issues

If the Display does not work, perform the following, one at a time. Do not replace a non-defective FRU:

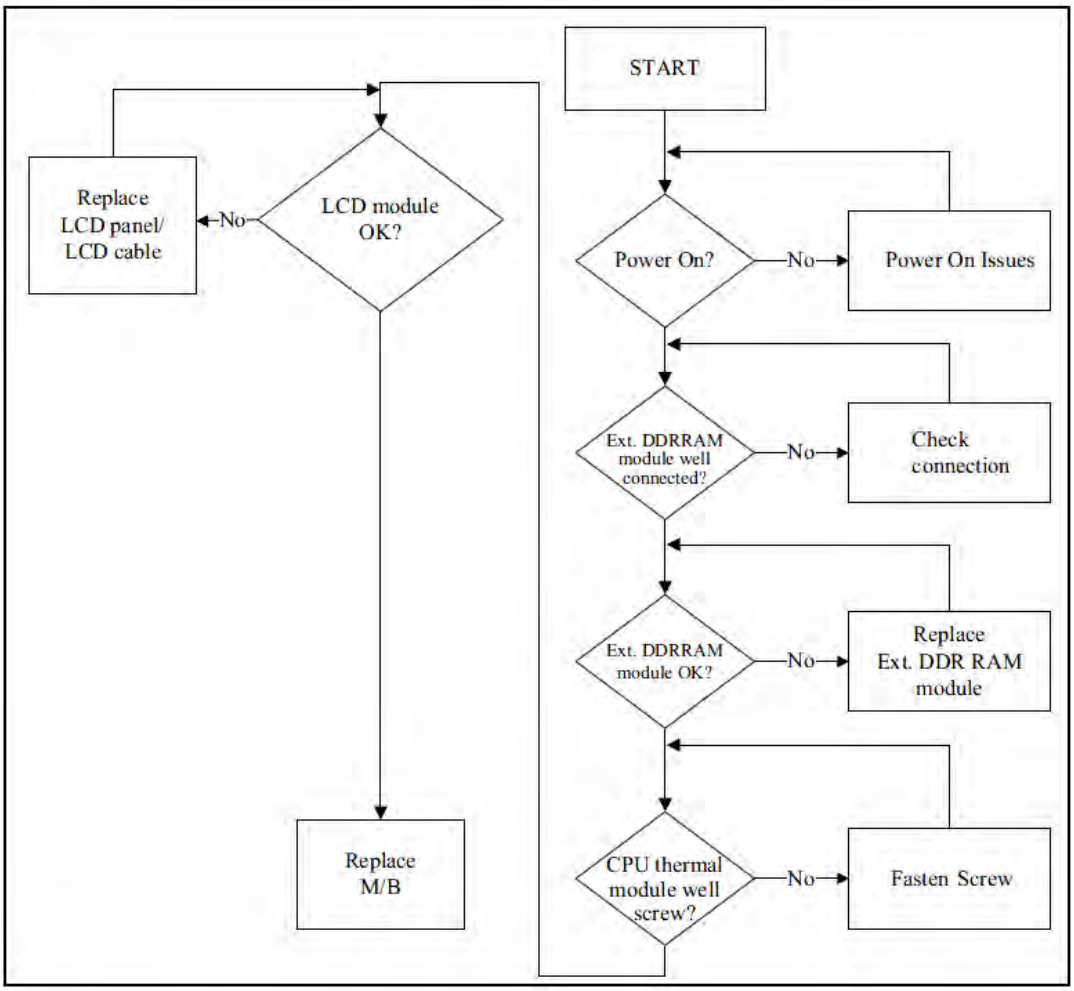

Figure 4-2. No Display Issue

No POST or Video

If the POST or video does not appear, perform the following one at a time.

1. Make sure that internal display is selected. Switch between the internal and external display by pressing ***Fn*+*F5***.

NOTE:

This hotkey may not apply to all models. Refer to the computer's user manual for the applicable hotkey sequence.

2. Make sure the computer has power by checking for one of the following:
   - Fans start up
   - Status LEDs illuminate

   If there is no power, refer to the "Power On Issues" section on page 4-4.

3. Drain stored power by removing the power cable and the battery pack. Hold the power button for 10 seconds.
4. Connect the power cable and reboot the computer.
5. Connect an external monitor to the computer and switch between the internal display and the external display by pressing ***Fn***+***F5***.
6. If the POST or video appears on the external display only, refer to the "LCD Failure" section on page 4-7.
7. Disconnect power and all external devices including port replicators or docking stations.
8. Remove any memory cards and CD/DVD discs.
9. Start the computer. If the computer boots correctly, add the devices one by one until the failure point is discovered.
10. Reinstall the memory modules.
11. Perform the "Reinstalling the HDD Module" and "Reinstalling the ODD Module" procedures described on pages 3-66 and 3-74 respectively.
12. If the issue is still not resolved, refer to the Online Support Information on page 8-3.

Abnormal Video

If the video appears abnormal, perform the following one at a time.

1. Boot the computer.

   If permanent vertical/horizontal lines or dark spots appear in the same location, the LCD panel is faulty and should be replaced. The same goes for when there is extensive pixel damage (i.e. different colored spots in the same locations on the screen). Perform the "Removing the LCD Module" and "Removing the Camera Board" procedures described on pages 3-38 and 3-42 respectively.

NOTE:

Make sure that the computer is not running on battery alone as this may reduce display brightness.

2. Adjust the brightness to its highest level. Refer to the User Manual for instructions on adjusting the settings. If the display is too dim at the highest brightness setting, the LCD is faulty and should be replaced. Refer to Disassembly Process.
3. Check the display resolution is correctly configured:
   - Minimize or close all Windows.
   - If display size is only abnormal in an application, check the view settings and control/mouse wheel zoom feature in the application.
   - If desktop display resolution is not normal, right-click on the desktop and select `Personalize Display Settings`.
   - Click and drag the Resolution slider to the desired resolution.
   - Click **Apply** and check the display. Readjust if necessary.
4. Roll back the video driver to the previous version if updated.
5. Remove and reinstall the video driver.
6. Check the Device Manager to determine that:
   - The device is properly installed. There are no red Xs or yellow exclamation marks
   - There are no device conflicts
   - No hardware is listed under `Other Devices`

7. If the issue is still not resolved, refer to the Online Support Information on page 8-3
8. Run the Windows Memory Diagnostic from the operating system DVD and follow the on-screen prompts.
9. If the issue is still not resolved, refer to the Online Support Information on page 8-3

LCD Failure

If the LCD fails, perform the following, one at a time. Do not replace a non-defective FRU:

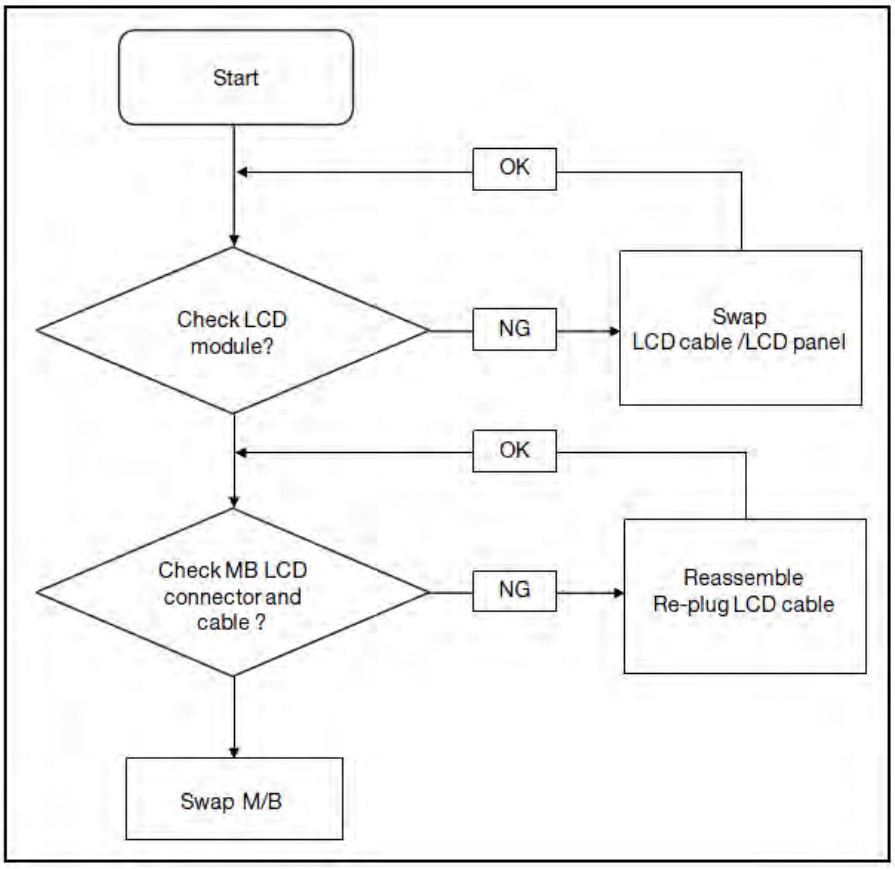

Figure 4-3. LCD Failure

Keyboard Failure

If the Keyboard fails, perform the following, one at a time. Do not replace a non-defective FRU:

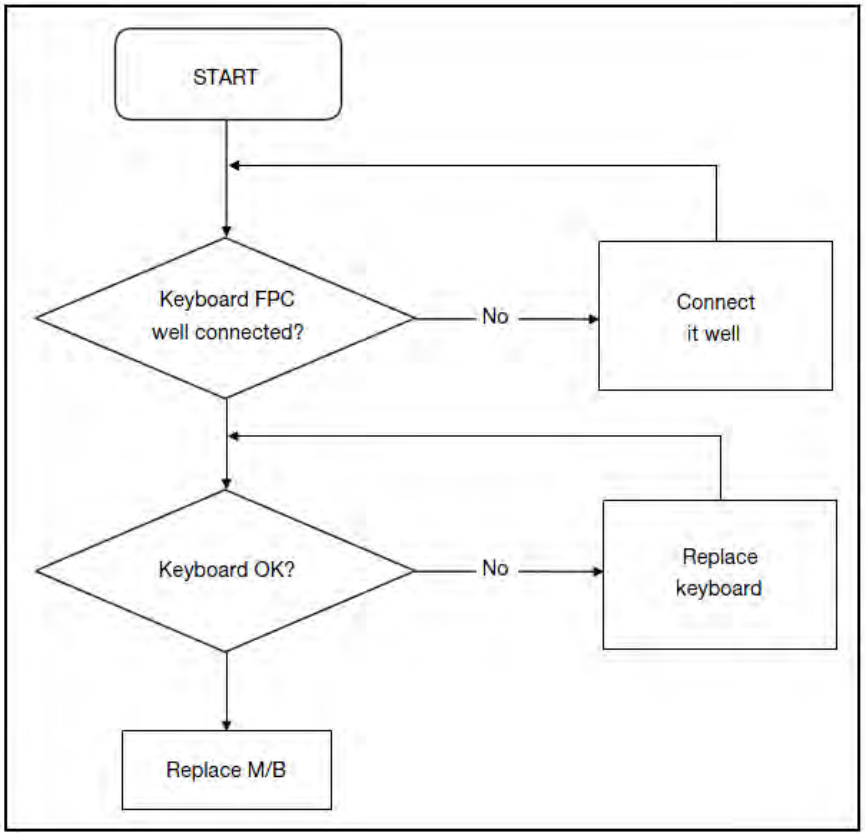

Figure 4-4. Keyboard Failure

Touchpad Failure

If the Touchpad fails, perform the following, one at a time. Do not replace a non-defective FRU:

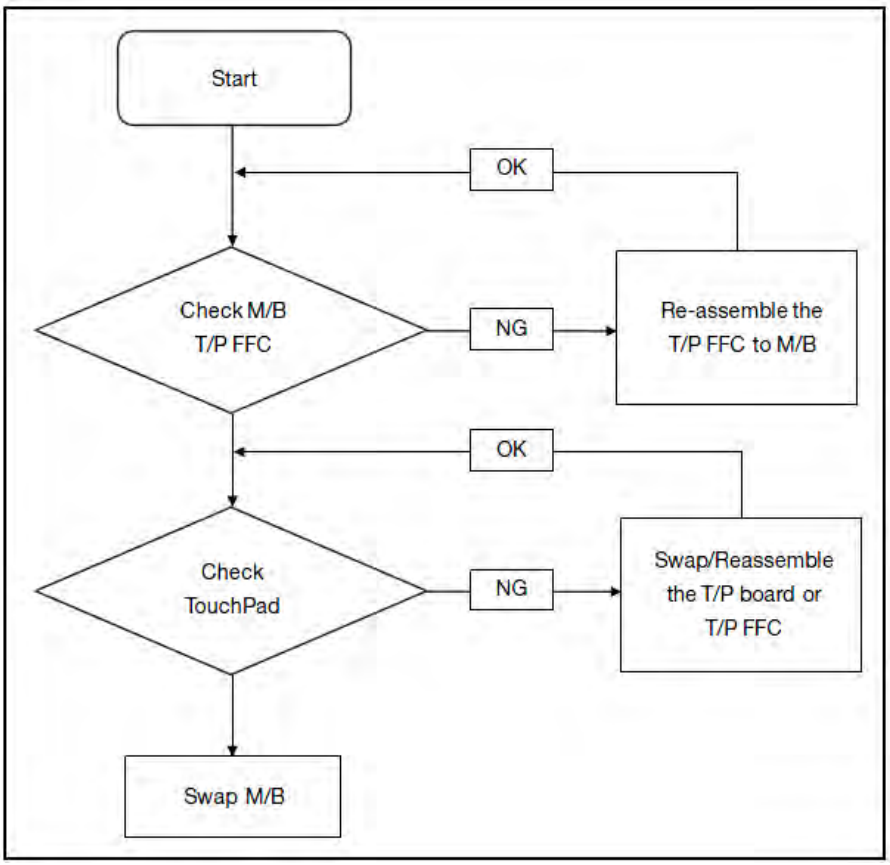

Figure 4-5. Touchpad Failure

Internal Speaker Failure

If internal Speakers fail, perform the following, one at a time. Do not replace a non-defective FRU:

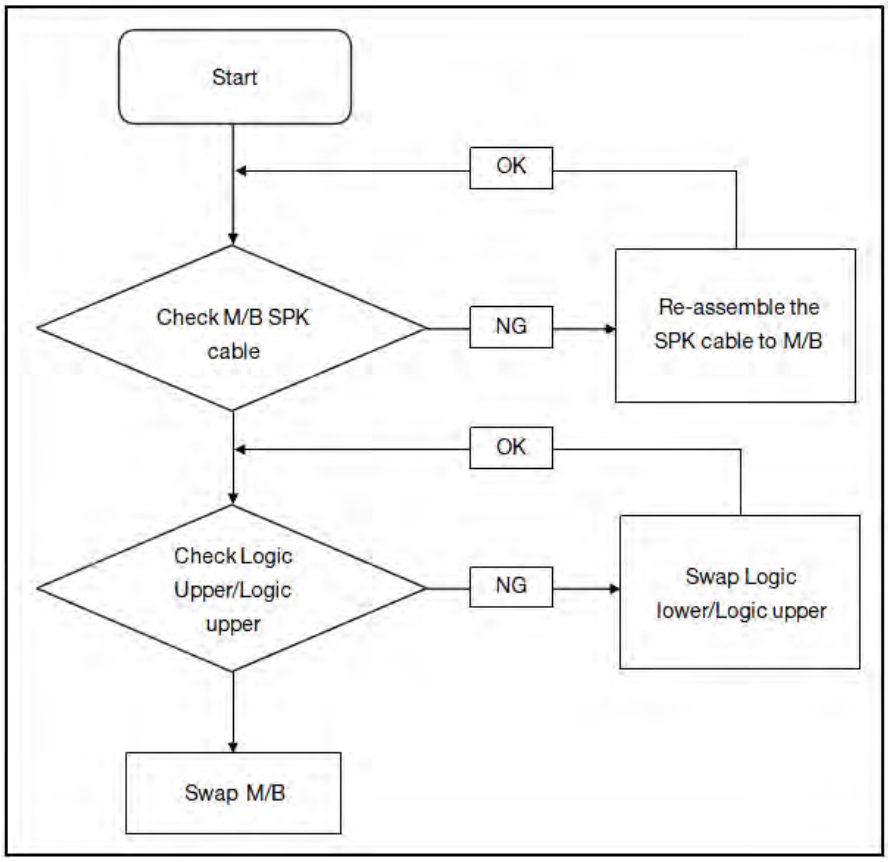

Figure 4-6. Internal Speaker Failure

Sound Problems

Perform the following, one at a time.

1. Boot the computer.
2. Navigate to Start → Control Panel → System and Maintenance → System → Device Manager. Check the Device Manager to determine that:
   - The device is properly installed
   - There are no red Xs or yellow exclamation marks
   - There are no device conflicts
   - No hardware is listed under Other Devices
3. If updated recently, roll back the audio driver to the previous version.
4. Remove and reinstall the audio driver.
5. Make sure that all volume controls are set mid range:
   - Click the volume icon on the task bar

- Drag the slider to 50. Confirm that the volume is not muted.
- Click Mixer to verify that other audio applications are set to 50 and not muted.

6. Navigate to Start → Control Panel → Hardware and Sound → Sound. Confirm that Speakers are selected as the default audio device (green check mark).

NOTE:

If Speakers do not show, right-click on the `Playback` tab and select `Show Disabled Devices` (clear by default).

7. Select Speakers and click Configure to start `Speaker Setup`. Follow the on-screen prompts to configure the speakers.
8. Remove any recently installed hardware or software.
9. Restore system and file settings from a known good date using `System Restore`.
10. If the issue is remains, repeat step 9, selecting an earlier time and date.
11. Reinstall the Operating System.
12. If the issue is still not resolved, refer to the Online Support Information on page 8-3

Microphone Failure

If internal or external Microphones fail, perform the following, one at a time.

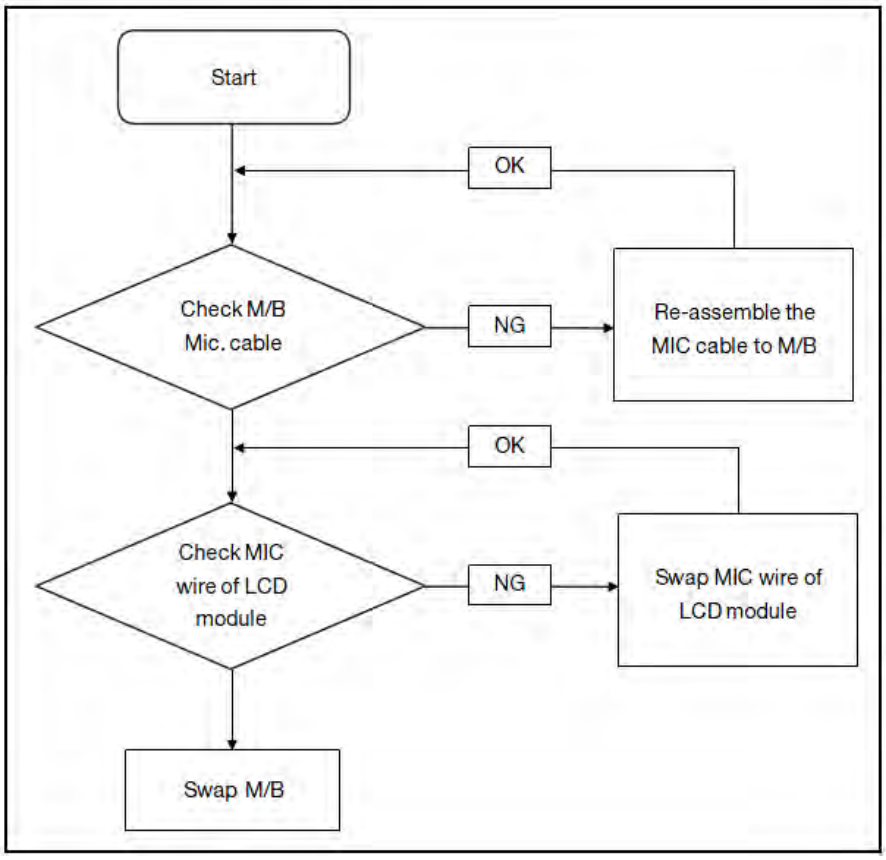

Figure 4-7. Microphone Failure

1. Check that the microphone is enabled. Navigate to Start → Control Panel → Hardware and Sound → Sound and select the `Recording` tab.
2. Right click on the `Recording` tab and select `Show Disabled Devices` (clear by default). The microphone appears on the `Recording` tab.
3. Right click on the microphone and select **Enable**.
4. Select the microphone then click **Properties**. Select the `Levels` tab.
5. Increase the volume to the maximum setting and click **OK**.
6. Test the microphone hardware:
   - Select the microphone and click **Configure**.
   - Select **Set up microphone**.
   - Select the microphone type from the list and click **Next**.
   - Follow the on-screen prompts to complete the test.
7. If the issue is still not resolved, refer to the Online Support Information on page 8-3

USB Failure

If the USB fails, perform the following, one at a time. Do not replace a non-defective FRU:

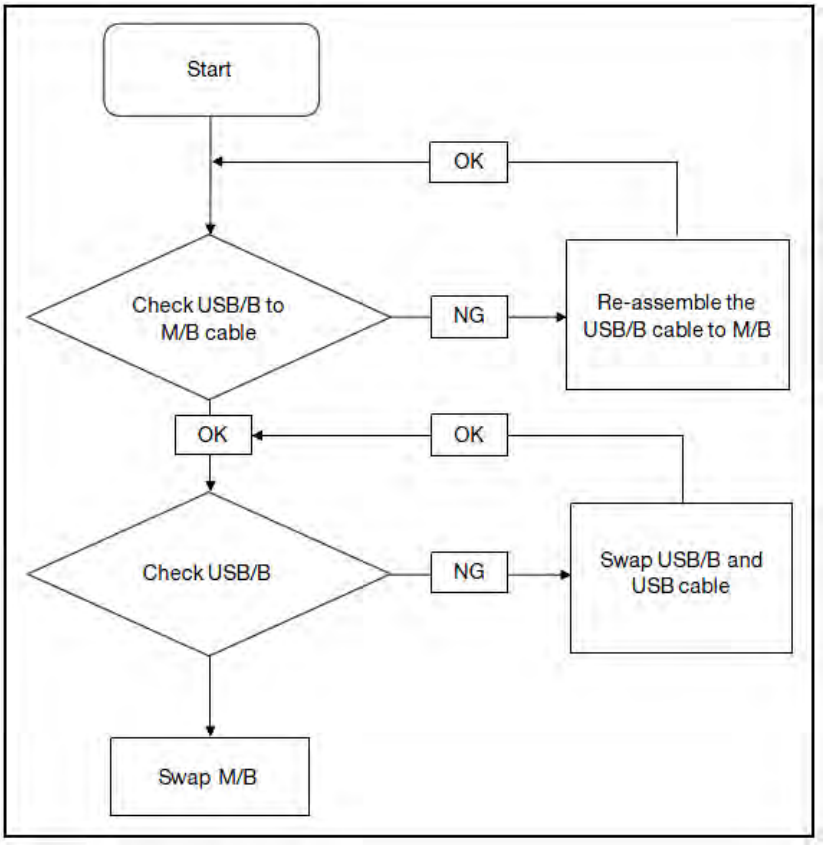

Figure 4-8. USB Failure

WLAN Failure

If the WLAN fails, perform the following, one at a time. Do not replace a non-defective FRU:

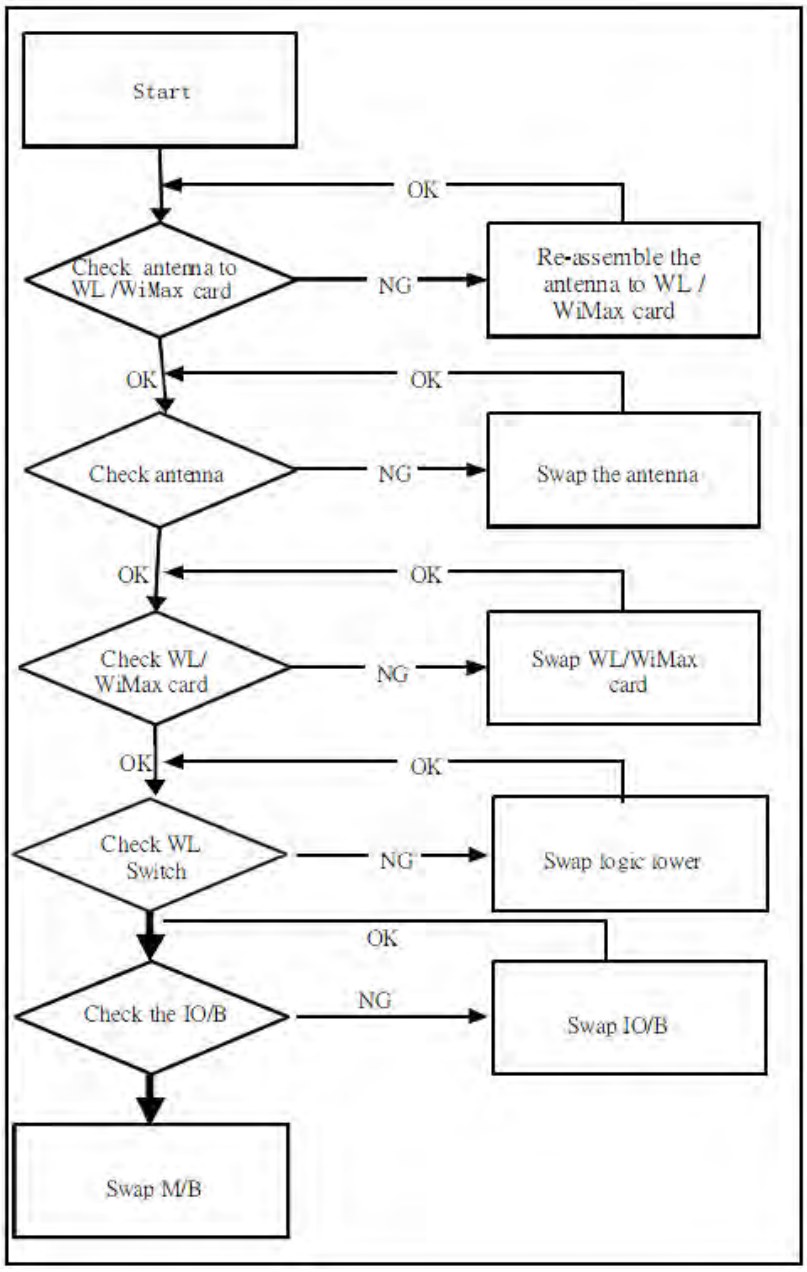

Figure 4-9. WLAN Failure

Card Reader Failure

If the Card Reader fails, perform the following, one at a time. Do not replace a non-defective FRU:

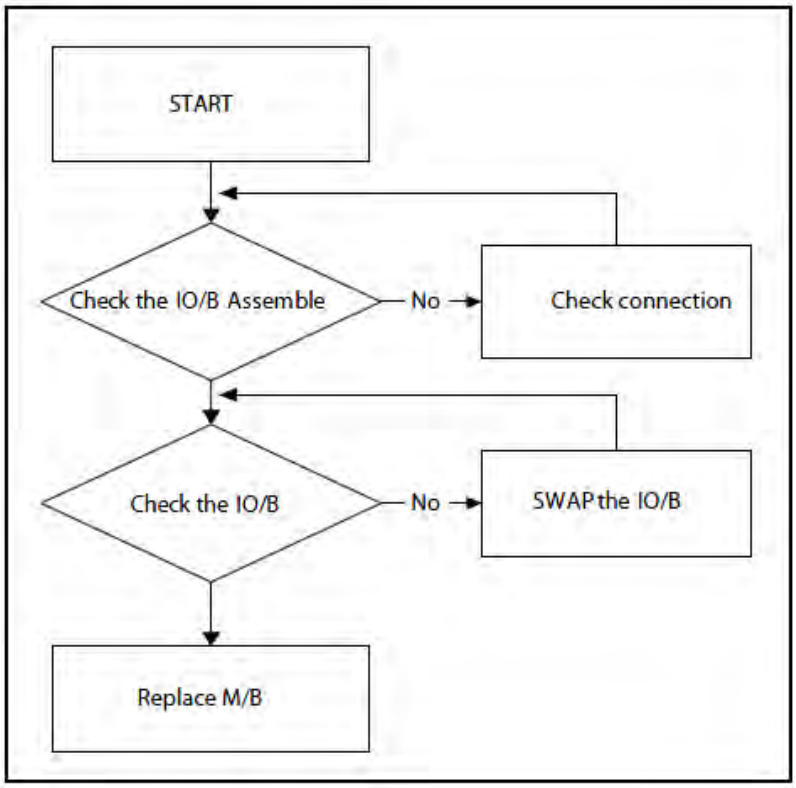

Figure 4-10. Card Reader Failure

Thermal Unit Failure

If the Thermal Unit fails, perform the following, one at a time. Do not replace a non-defective FRU:

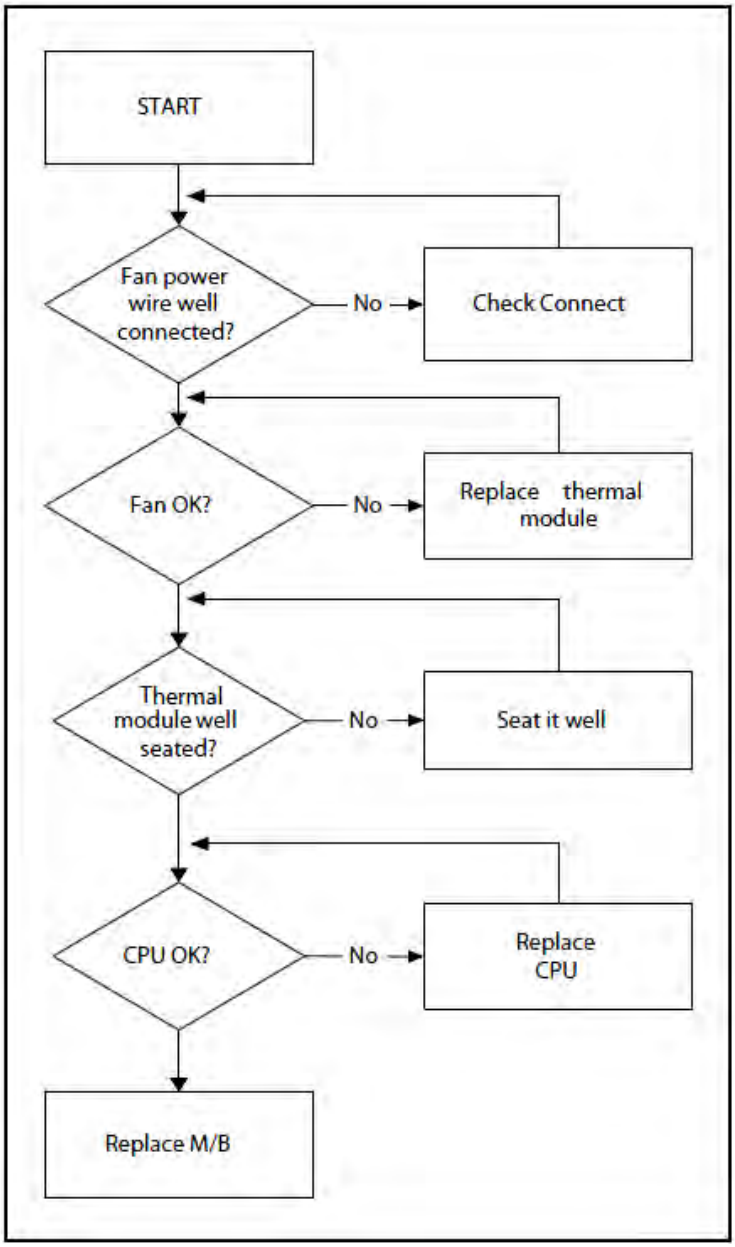

Figure 4-11. Thermal Unit Failure

Other Functions Failure

1. Check if drives are functioning correctly.
2. Check if external modules are functioning correctly.
3. Change mainboard to check if current one is defective.

Intermittent Problems

Intermittent system hang problems can be caused by a variety of reasons that have nothing to do with a hardware defect, such as: cosmic radiation, electrostatic discharge, or software errors. FRU replacement should be considered only when a recurring problem exists.

When analyzing an intermittent problem, perform the following:

1. Run the advanced diagnostic test for the system board in loop mode at least 10 times.
2. If no error is detected, do not replace any FRU.
3. If an error is detected, replace the FRU. Rerun the test to verify that there are no more errors.

Undetermined Problems

The diagnostic problems does not identify which adapter or device failed, which installed devices are incorrect, whether a short circuit is suspected, or whether the system is inoperative.

Perform the following procedures to isolate the failing FRU (do not replace non-defective FRU).

NOTE:
Verify that all attached devices are supported by the computer.

NOTE:
Verify that the power supply being used at the time of the failure is operating correctly.

1. Remove power from the computer.
2. Visually check the components for damage. If any problems are found, replace the FRU.
3. Remove or disconnect all of the following devices:
   - Non-Acer devices
   - Printer, mouse, and other external devices
   - Battery pack
   - Hard disk drive
   - DIMM
   - CD-ROM/Diskette drive Module
   - PC Cards
4. Apply power to the computer.
5. Determine if the problem has changed.
6. If the problem does not recur, connect the removed devices one at a time until failing FRU is found.
7. If the problem remains, replace the following FRUs one at a time. Do not replace a non-defective FRU:
   - Mainboard
   - LCD assembly

Error Codes

Table 4-2. Error Codes

Error Codes	Error Messages
006	Equipment Configuration Error Causes: 1. CPU BIOS Update Code Mismatch 2. IDE Primary Channel Master Drive Error (The causes will be shown before “Equipment Configuration Error”)
010	Memory Error at xxxx:xxxx:xxxxh (R:xxxxh, W:xxxxh)
070	Real Time Clock Error
071	CMOS Battery Bad
072	CMOS Checksum Error
110	System is disabled. An incorrect password was entered.
<No error code>	Battery critically low. In this situation BIOS will issue four (4) short beeps, then shuts the system down. No message is displayed.
<No error code>	Temperature is critically high. In this situation BIOS shuts the system down. No message is displayed.

BIOS Beep Codes

Table 4-3. BIOS Beep Codes

Code	Beeps	POST Routine Description
02h		Verify Real Mode
03h		Disable Non-Maskable Interrupt (NMI)
04h		Get CPU type
06h		Initialize system hardware
08h		Initialize chipset with initial POST values
09h		Set IN POST flag
0Ah		Initialize CPU registers
0Bh		Enable CPU cache
0Ch		Initialize caches to initial POST values
0Eh		Initialize I/O component
0Fh		Initialize the local bus IDE
10h		Initialize Power Management
11h		Load alternate registers with initial POST values
12h		Restore CPU control word during warm boot
13h		Initialize PCI Bus Mastering devices
14h		Initialize keyboard controller
16h	1-2-2-3	BIOS ROM checksum
17h		Initialize cache before memory autosize
18h		8254 timer initialization
1Ah		8237 DMA controller initialization
1Ch		Reset Programmable Interrupt Controller
20h	1-3-1-1	Test DRAM refresh
22h	1-3-1-3	Test 8742 Keyboard Controller
24h		Set ES segment register to 4 GB
26h		Enable A20 line
28h		Autosize DRAM
29h		Initialize POST Memory Manager
2Ah		Clear 215 KB base RAM
2Ch	1-3-4-1	RAM failure on address line xxxx
2Eh	1-3-4-3	RAM failure on data bits xxxx of low byte of memory bus

Table 4-3. BIOS Beep Codes

Code	Beeps	POST Routine Description
2Fh		Enable cache before system BIOS shadow
30h	1-4-1-1	RAM failure on data bits xxxx of high byte of memory bus
32h		Test CPU bus-clock frequency
33h		Initialize Phoenix Dispatch Manager
36h		Warm start shut down
38h		Shadow system BIOS ROM
3Ah		Autosize cache
3Ch		Advanced configuration of chipset registers
3Dh		Load alternate registers with CMOS values
42h		Initialize interrupt vectors
45h		POST device initialization
46h	2-1-2-3	Check ROM copyright notice
48h		Check video configuration against CMOS
49h		Initialize PCI bus and devices
4Ah		Initialize all video adapters in system
4Bh		QuietBoot start (optional)
4Ch		Shadow video BIOS ROM
4Eh		Display BIOS copyright notice
50h		Display CPU type and speed
51h		Initialize EISA board
52h		Test keyboard
54h		Set key click if enabled
58h	2-2-3-1	Test for unexpected interrupts
59h		Initialize POST display service
5Ah		Display prompt “Press F2 to enter SETUP”
5Bh		Disable CPU cache
5Ch		Test RAM between 512 and 640 KB
60h		Test extended memory
62h		Test extended memory address lines
64h		Jump to User Patch1
66h		Configure advanced cache registers
67h		Initialize Multi Processor APIC
68h		Enable external and CPU caches

Table 4-3. BIOS Beep Codes

Code	Beeps	POST Routine Description
69h		Setup System Management Mode (SMM) area
6Ah		Display external L2 cache size
6Bh		Load custom defaults (optional)
6Ch		Display shadow-area message
6Eh		Display possible high address for UMB recovery
70h		Display error messages
72h		Check for configuration errors
76h		Check for keyboard errors
7Ch		Set up hardware interrupt vectors
7Eh		Initialize coprocessor if present
80h		Disable onboard Super I/O ports and IRQs
81h		Late POST device initialization
82h		Detect and install external RS232 ports
83h		Configure non-MCD IDE controllers
84h		Detect and install external parallel ports
85h		Initialize PC-compatible PnP ISA devices
86h		Re-initialize onboard I/O ports
87h		Configure Motherboard Configurable Devices (optional)
88h		Initialize BIOS Area
89h		Enable Non-Maskable Interrupts (NMIs)
8Ah		Initialize Extended BIOS Data Area
8Bh		Test and initialize PS/2 mouse
8Ch		Initialize floppy controller
8Fh		Determine number of ATA drives (optional)
90h		Initialize hard-disk controllers
91h		Initialize local-bus hard-disk controllers
92h		Jump to UserPatch2
93h		Build MPTABLE for multi-processor boards
95h		Install CD ROM for boot
96h		Clear huge ES segment register
97h		Fixup Multi Processor table
98h	1-2	Search for option ROMs. One long, two short beeps on checksum failure.

Table 4-3. BIOS Beep Codes

Code	Beeps	POST Routine Description
99h		Check for SMART drive (optional)
9Ah		Shadow option ROMs
9Ch		Set up Power Management
9Dh		Initialize security engine (optional)
9Eh		Enable hardware interrupts
9Fh		Determine number of ATA and SCSI drives
A0h		Set time of day
A2h		Check key lock
A4h		Initialize Typematic rate
A8h		Erase F2 prompt
AAh		Scan for F2 key stroke
ACh		Enter SETUP
AEh		Clear Boot flag
B0h		Check for errors
B2h		POST done- prepare to boot operating system
B4h	1	One short beep before boot
B5h		Terminate QuietBoot (optional)
B6h		Check password (optional)
B9h		Prepare Boot
BAh		Initialize DMI parameters
BBh		Initialize PnP Option ROMs
BCh		Clear parity checkers
BDh		Display MultiBoot menu
BEh		Clear screen (optional)
BFh		Check virus and backup reminders
C0h		Try to boot with INT 19
C1h		Initialize POST Error Manager (PEM)
C2h		Initialize error logging
C3h		Initialize error display function
C4h		Initialize system error handler
C5h		PnPnd dual CMOS (optional)
C6h		Initialize notebook docking (optional)
C7h		Initialize notebook docking late

Table 4-3. BIOS Beep Codes

Code	Beeps	POST Routine Description
C8h		Force check (optional)
C9h		Extended checksum (optional)
D2h		Unknown interrupt
E0h		Initialize the chipset
E1h		Initialize the bridge
E2h		Initialize the CPU
E3h		Initialize the system timer
E4h		Initialize system I/O
E5h		Check force recovery boot
E6h		Checksum BIOS ROM
E7h		Go to BIOS
E8h		Set Huge Segment
E9h		Initialize Multi Processor
EAh		Initialize OEM special code
EBh		Initialize PIC and DMA
ECh		Initialize Memory type
EDh		Initialize Memory size
EEh		Shadow Boot Block
EFh		System memory test
F0h		Initialize interrupt vectors
F1h		Initialize Run Time Clock
F2h		Initialize video
F3h		Initialize System Management Mode
F4h	1	Output one beep before boot
F5h		Boot to Mini DOS
F6h		Clear Huge Segment
F7h		Boot to Full DOS

POST Codes

There are two types of POST codes: Progress Codes and Error Codes. Progress Codes are designed to show the execution point while booting or executing services. Error Codes are designed to halt on exceptional (fatal) error conditions.

Component Codes

The Component Code is an unsigned integer value that is assigned by the build process. The following tables describe the various ranges of component codes:

The Component Code is assigned to an individual component (or driver) using the POSTCODE= option in the DSC file. If the value that follows POSTCODE= is a hexadecimal or decimal number, in the range 0x00-0xdf, then that code will be used with all POST Codes associated with that driver.

Table 4-4. Component Codes

Range	Description
0x00-0x1f	OEM Components. These values are reserved for OEM components

Table 4-4. Component Codes

Range	Description
0x20-0x9f	These values are reserved for SecureCore Tiano™ core components. POSTCODE_CC_VARIABLE_SERVICES (0x20) POSTCODE_CC_KEYBOARD_CONTROLLER (0x21) POSTCODE_CC_BOOT_MODE (0x22) POSTCODE_CC_S3_SUPPORT (0x23) POSTCODE_CC_TCG (0x24) POSTCODE_CC_HDD_PASSWORD (0x25) POSTCODE_CC_CPU_IO (0x26) POSTCODE_CC_BOOT_SCRIPT (0x27) POSTCODE_CC_STATUS_CODE (0x28) POSTCODE_CC_DATA_HUB (0x29) POSTCODE_CC_HII_DATABASE (0x2a) POSTCODE_CC_RESET (0x2b) POSTCODE_CC_METRONOME (0x2c) POSTCODE_CC_INTERRUPT_CONTROLLER (0x2d) POSTCODE_CC_DIAGNOSTIC_SUMMARY (0x2e) POSTCODE_CC_SMBIOS (0x2f) POSTCODE_CC_SMM_COMMUNICATION (0x30) POSTCODE_CC_SMM_RUNTIME (0x31) POSTCODE_CC_SMM_SERVICES (0x32) POSTCODE_CC_FIRMWARE_DEVICE (0x33) POSTCODE_CC_CAPSULE_SERVICES (0x34) POSTCODE_CC_MONOTONIC_COUNTER (0x35) POSTCODE_CC_SMBIOS_EVENT_LOG (0x36) POSTCODE_CC_RTC (0x37) POSTCODE_CC_BOOT_MANAGER (0x38) POSTCODE_CC_VGA (0x39)

Table 4-4. Component Codes

Range	Description
	POSTCODE_CC_HII_FORMS_BROWSER (0x3a) POSTCODE_CC_BOOT_MENU (0x3b) POSTCODE_CC_USER_MANAGER (0x3c) POSTCODE_CC_TIMER (0x3d) POSTCODE_CC_PCI_BUS (0x3e) POSTCODE_CC_ISA_BUS (0x3f) POSTCODE_CC_IDE_BUS (0x40) POSTCODE_CC_AHCI_BUS (0x41) POSTCODE_CC_SCSI_BUS (0x42) POSTCODE_CC_USB_BUS (0x43) POSTCODE_CC_FLOPPY (0x44) POSTCODE_CC_SERIAL_PORT (0x45) POSTCODE_CC_PS2_MOUSE (0x46) POSTCODE_CC_PS2_KEYBOARD (0x47) POSTCODE_CC_EHCI (0x48) POSTCODE_CC_XHCI (0x49) POSTCODE_CC_UHCI (0x4a) POSTCODE_CC_OHCI (0x4b) POSTCODE_CC_USB_KEYBOARD (0x4c) POSTCODE_CC_USB_MOUSE (0x4d) POSTCODE_CC_USB_MASS_STORAGE (0x4e) POSTCODE_CC_CONSOLE_SPLITTER (0x4f) POSTCODE_CC_GRAPHICS_CONSOLE (0x50) POSTCODE_CC_SERIAL_CONSOLE (0x51) POSTCODE_CC_TEXT_CONSOLE (0x52) POSTCODE_CC_DISK_IO (0x53) POSTCODE_CC_PARTITION (0x54) POSTCODE_CC_SETUP (0x55) POSTCODE_CC_LEGACY_BIOS (0x56) POSTCODE_CC_BLOCK_IO_THUNK (0x57) POSTCODE_CC_CRYPTO (0x58)

Table 4-4. Component Codes

Range	Description
0xa0-0xaf	These values are reserved for SecureCore Tiano™ platform components. POSTCODE_CC_PLATFORM_STAGE0 (0xa0) - Early PEI Platform Initialization. POSTCODE_CC_PLATFORM_STAGE1 (0xa1) -PEI Platform Initialization. POSTCODE_CC_PLATFORM_DXE (0xa1) - DXE Platform Initialization. POSTCODE_CC_PLATFORM_SMM (0xa1) - SMM Platform Initialization. POSTCODE_CC_PLATFORM_FLASH (0xa2) - Flash Platform Initialization. POSTCODE_CC_PLATFORM_CSM (0xa3) - CSM Platform Initialization. 0xa4-0xa7 - Reserved for future expansion. 0xa8-0xaf - Reserved for use by the individual platform.
0xb0-0xbf	These values are reserved for future expansion.
0xc0-0xcf	These values are reserved for core chipset drivers (north bridge, south bridge and CPU) and are assigned by chipset family. POSTCODE_CC_MEMORY_CONTROLLER (0xc0) - Memory Controller.
0xd0-0xd7	These values are reserved for Small Silicon drivers (SIOs, flash, fingerprint, etc.) POSTCODE_CC_SUPER_IO (0xd0) - Super I/O POSTCODE_CC_FLASH_CONTROLLER (0xd1) - Flash Controller POSTCODE_CC_FLASH_DEVICE (0xd2) - Flash Device POSTCODE_CC_FINGERPRINT (0xd3) - Fingerprint Sensor POSTCODE_CC_CLOCK_CONTROLLER (0xd4) - Clock Controller POSTCODE_CC_MGMT_CONTROLLER (0xd5) - Embedded controller or management controller. 0xd6-0xd7 - Reserved for future expansion.
0xd8-0xdf	Reserved for platform usage.

Table 4-4. Component Codes

Range	Description
0xe0-0xff	These are not components, but rather represent Architectural Progress Codes or Error Codes detailing milestones in the system boot progress. The corresponding Progress Code value is always set to zero. POSTCODE_PC_SEC_ENTRY (0xe0) - Reset vector. POSTCODE_PC_SEC_EXIT (0xe1) - Leaving SEC/Going to PEI. POSTCODE_PC_PEI_ENTRY (0xe2) - Entering PEI Dispatch. POSTCODE_PC_PEI_EXIT (0xe3) - Exiting PEI Dispatch. POSTCODE_PC_IPL_DXE (0xe4) - Entering DXE IPL's normal boot path. POSTCODE_PC_IPL_S3 (0xe5) - Entering DXE IPL's S3 boot path. POSTCODE_PC_S3_OS (0xe6) - Exiting S3 boot path back to the OS. POSTCODE_PC_IPL_RECOVERY (0xe7) - Entering DXE IPL's recovery boot path. POSTCODE_PC_IPL_EXIT (0xe8) POSTCODE_PC_DXE_ENTRY (0xe9) - Entering DXE Dispatch. POSTCODE_PC_DXE_EXIT (0xea) - Exiting DXE Dispatch. POSTCODE_EC_PEI_MEMORY (0xeb) - No permanent memory found at the end of PEI. POSTCODE_EC_PEI_IPL (0xec) - No DXE IPL found at the end of PEI. POSTCODE_EC_IPL_DXE (0xed) - No DXE found at end of DXE IPL. POSTCODE_EC_IPL_PPI (0xee) - Couldn't find PPIs needed by DXE. POSTCODE_EC_DXE_ARCH (0xef) - Missing one or more architectural protocols at the end of DXE.

Progress Codes

This section describes the progress code values.

Table 4-5. Progress Codes

Range	Description
0x00-0x1f	Standard progress Codes. All other values are reserved. POSTCODE_PC_COMP_PEI_BEGIN (0x01) - The component was loaded and the PEI entry point called. POSTCODE_PC_COMP_PEI_END (0x02) - The component returned from the PEI entry point. POSTCODE_PC_COMP_DXE_BEGIN (0x03) - The component was loaded and the DXE/UEFI entry point called. POSTCODE_PC_COMP_DXE_END (0x04) - The component returned from the DE/UEFI entry point. POSTCODE_PC_COMP_SUPPORTED (0x05) - The Supported() member function of the component's instance of the Driver Binding protocol was called. POSTCODE_PC_COMP_START (0x06) - The Start() member function of the component's instance of the Driver Binding protocol was called. POSTCODE_PC_COMP_STOP (0x07) - The Stop() member function of the component's instance of the Driver Binding protocol was called. POSTCODE_PC_COMP_SMM_INIT (0x08) - The component was loaded and the entry point called inside of SMM. POSTCODE_EC_DEVICE_ERROR (0x09) - The driver encountered a condition where it cannot proceed due to a hardware failure. POSTCODE_EC_RESOURCE_ERROR (0x0a) - The driver encountered a condition where it cannot proceed due to being unable to acquire resources. POSTCODE_EC_DATA_CORRUPT (0x0b) - The driver encountered a condition where it found invalid data and could not continue.
0x20-0x3f	Component-Specific Progress Codes. These values are specific to the component type.
0x40-0x5f	OEM Progress Codes. These progress codes are reserved for OEM usage.
0x60-0x7f	Reserved. These are reserved for future expansion.

CHAPTER 5

Jumper and Connector Locations

Mainboard Layout 5-3

Clearing Password Check and BIOS Recovery 5-7

Clearing the BIOS Passwords 5-7

Performing a BIOS Recovery 5-8

Jumper and Connector Locations

Mainboard Layout

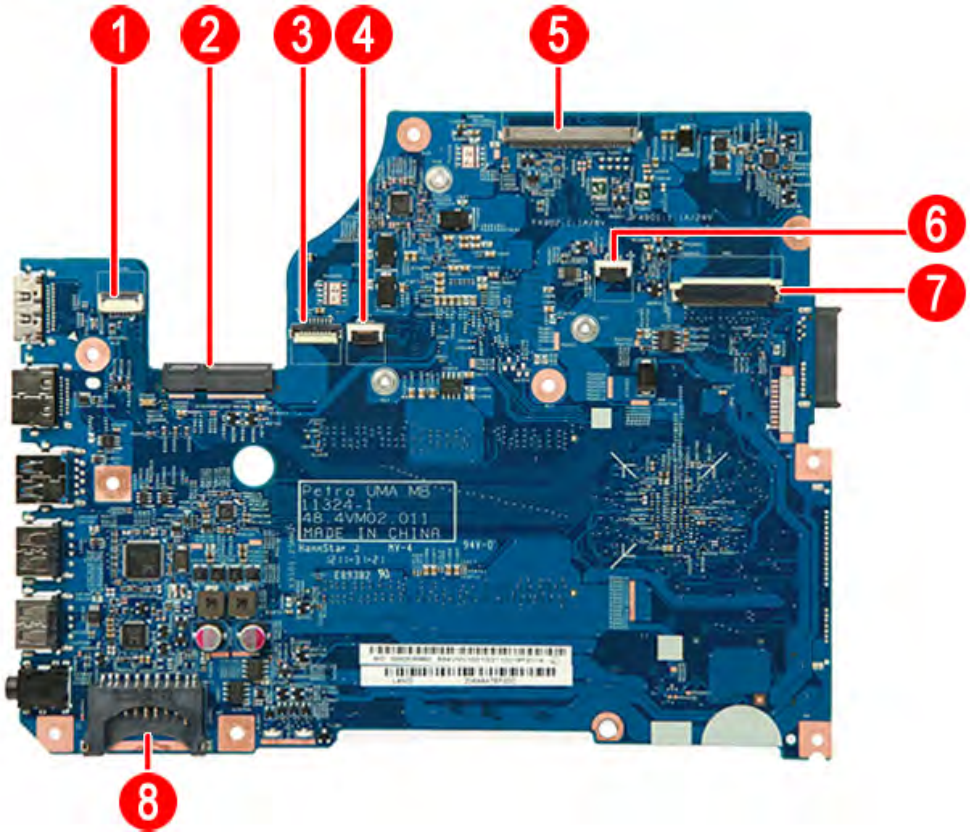

Figure 5-1. Mainboard Top View (UMA)

Table 5-1. Mainboard Top View (UMA)

No.	Code	Component	No.	Code	Component
1	PWRCN1	Power button board cable connector	5	LCD1	LCD cable connector
2	WLAN1	Mini card slot (for wireless module)	6	KB2	Backlight keyboard cable connector
3	TPAD1	Touchpad cable connector (15” models)	7	KB1	Keyboard cable connector
4	TPAD2	Touchpad cable connector (14” models)	8	CARD1	Card reader connector

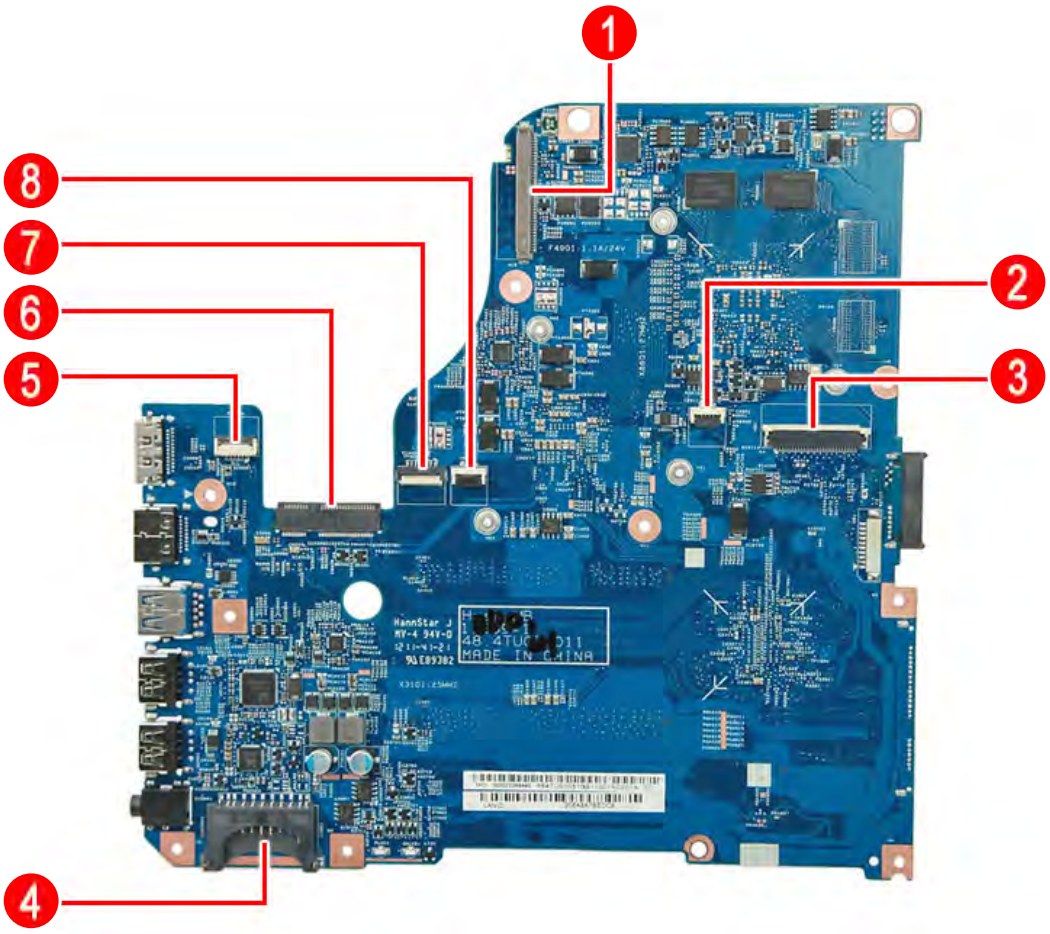

Figure 5-2. Mainboard Top View (Discreet)

Table 5-2. Mainboard Top View (Discreet)

No.	Code	Component	No.	Code	Component
1	LCD1	LCD cable connector	5	PWRCN1	Power button board cable connector
2	KB2	Backlight keyboard cable connector	6	WLAN1	Mini card slot (for wireless module)
3	KB1	Keyboard cable connector	7	TPAD1	Touchpad cable connector (15” models)
4	CARD1	Card reader connector	8	TPAD2	Touchpad cable connector (14” models)

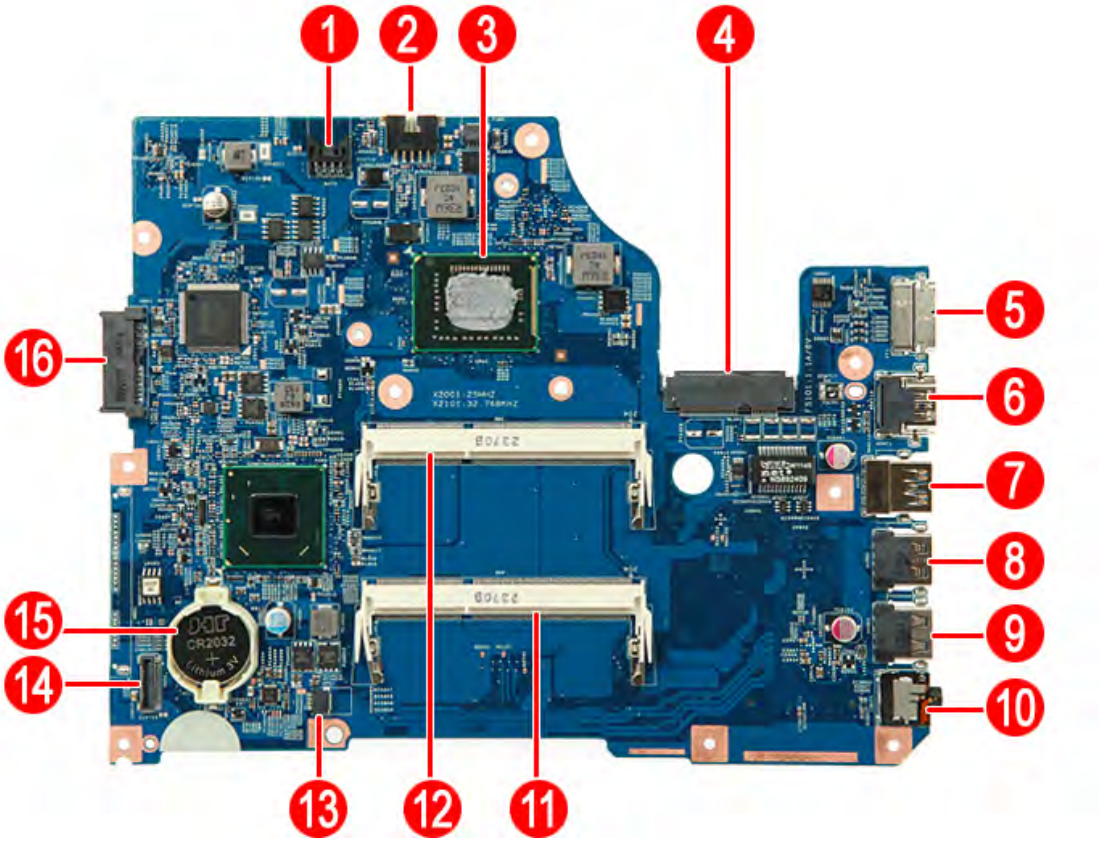

Figure 5-3. Mainboard Bottom View (UMA)

Table 5-3. Mainboard Bottom View (UMA)

No.	Code	Component	No.	Code	Component
1	LCD1	LCD cable connector	9	AUSB3	USB 2.0 port
2	KB2	Backlight keyboard cable connector	10	LOUT1	Headphones/ speaker/ line-out jack port
3	CPU1	CPU	11	DM2	DIMM slot 2
4	WLAN1	Mini card slot (for wireless module)	12	DM1	DIMM slot 1
5	FT1	Feature port	13	SPK1	Speaker cable connector
6	HDMI1	HDMI port	14	HDD2	HDD cable connector
7	AUSB1	USB 3.0 port	15	RTC1	RTC battery
8	AUSB2	USB 2.0 port	16	ODD1	ODD connector

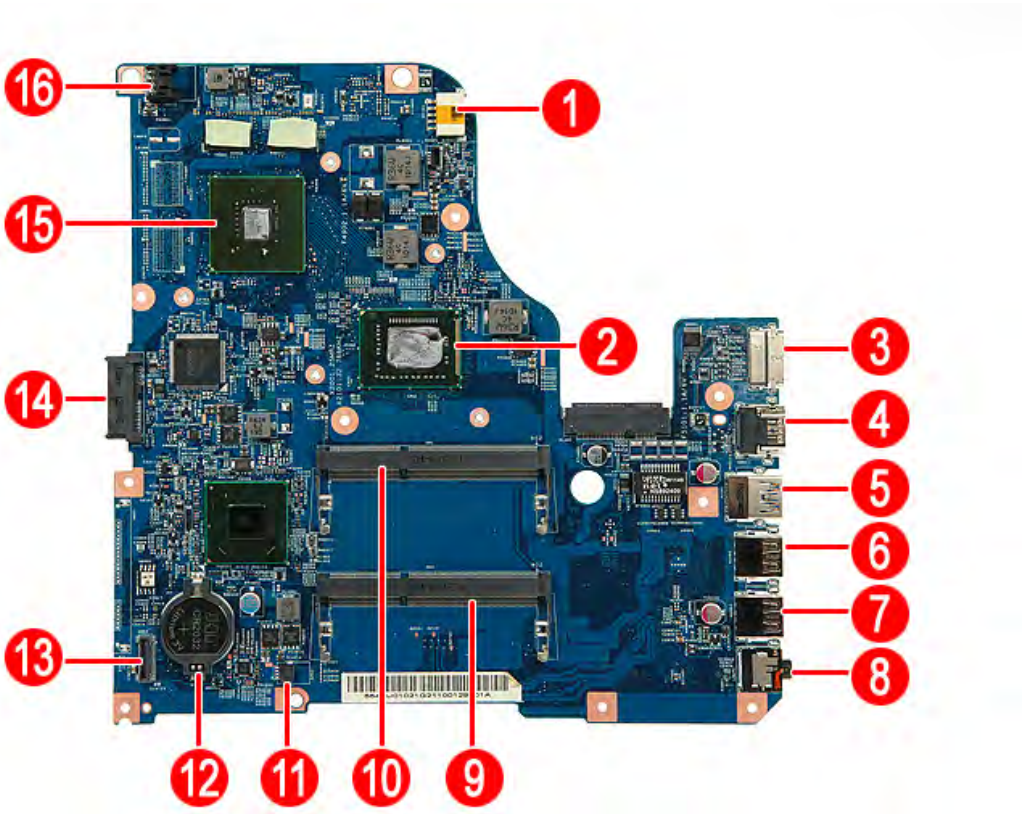

Figure 5-4. Mainboard Bottom View (Discrete)

Table 5-4. Mainboard Bottom View (Discrete)

No.	Code	Component	No.	Code	Component
1	DCIN1	DC-In cable connector	9	DM2	DIMM slot 2
2	CPU1	CPU	10	DM1	DIMM slot 1
3	FT1	Feature port	11	SPK1	Speaker cable connector
4	HDMI1	HDMI port	12	RTC1	RTC battery
5	AUSB1	USB 3.0 port	13	HDD2	HDD cable connector
6	AUSB2	USB 2.0 port	14	ODD1	ODD connector
7	AUSB3	USB 2.0 port	15	VGA1	VGA
8	LOUT1	Headphones/ speaker/ line-out jack port	16	BAT2	Battery connector

Clearing Password Check and BIOS Recovery

This section provides procedures for:

- Clearing the BIOS passwords
- Performing a BIOS recovery

Clearing the BIOS Passwords

To clear a lost BIOS password (user or supervisor password), you need to short the clear password hardware gap (G2201) located on the mainboard.

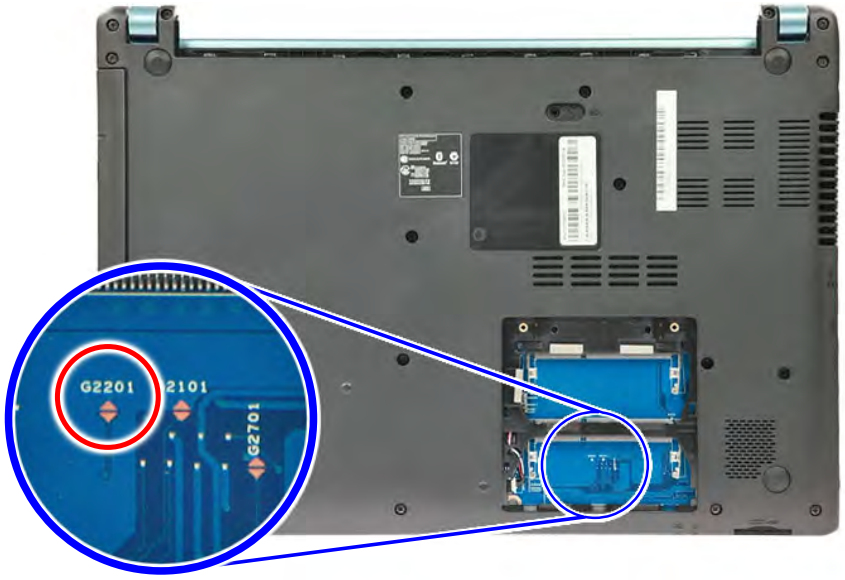

Figure 2-5. G2201 Hardware Gap

1. Shut down the computer and disconnect the AC adapter and all other peripherals from the computer.
2. Remove the battery pack and DIMM cover.
3. If the DIMM2 slot is occupied, remove the installed DIMM module and locate the G2201 gap.
4. Use an electrical conductivity tool to short the two contacts on the hardware gap together.
5. While resting the tool on the two contacts, plug one end of the AC adapter into the DC-in jack and plug one end to an electrical outlet.
6. Press the ⏻ button to turn on the computer.
7. After the BIOS POST, remove the tool from the hardware gap.
8. Reinstall the DIMM module, DIMM cover and battery pack.
9. Turn on the computer and press ***F2*** during bootup to access the *Setup Utility*. If no password prompt appears, the BIOS passwords have been cleared. If the prompt appears, repeat steps 4-9 until the BIOS passwords have been cleared.
10. Press ***F9*** to load the system defaults.
11. Press ***F10*** to save the changes you made and close the Setup Utility.

Performing a BIOS Recovery

Boot Block

An interruption during a BIOS flash procedure (e.g. a power outage) can corrupt the BIOS code, which will cause the system to go into an unbootable state. The BIOS boot block refers to a special BIOS program that can be used to boot up a system with minimum BIOS initialization.You need to access and execute the boot block to reboot the computer and recover the regular BIOS code.

Creating the Crisis Disk

NOTE:

The BIOS crisis recovery disk should be prepared in a computer running the Windows XP, Vista, or 7 OS.

1. Prepare a removable USB flash drive.

   Note that all data in the USB flash drive will be cleared during the creation of the crisis disk.

2. Set up a computer running the Windows XP, Vista, or 7 operating system and plug in the USB flash drive into an available USB port.
3. Open the *Notepad* program and create a new file.
4. Type **`startup.nsh`**.

   For example, the USB key prompt is *fs0*. The *PFlash.efi* and *BIOS.cap* files are in the *fs0: root directory*.

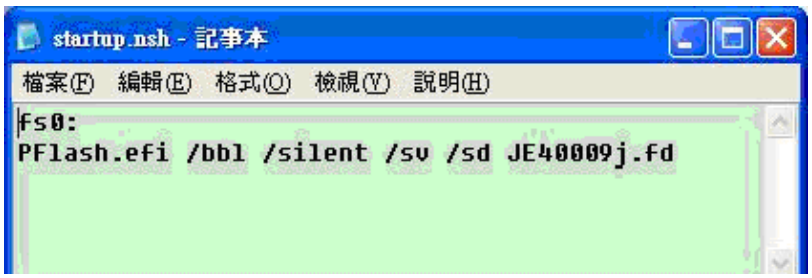

Figure 5-6. Startup.nsh File

5. Save this file as *startup.nsh* in the USB flash drive's root directory.
6. Decompress the Crisis Package Source in the USB flash drive's root directory.
7. Eject and reconnect the USB flash drive from the computer, and make sure it contains the following files:
   - *EFI folder*
   - *BIOS image file*
   - *BIOS.cap*
   - *PFlash.efi*
   - *PFlashX86efi*
   - *Startup.nsh*

Performing a BIOS recovery

NOTE:

Make sure the battery pack is installed to the system and that the computer is connected to a UPS unit during the BIOS recovery process.

The function hotkey sequence ***Fn***+***Esc*** is used to enable the BIOS recovery process when system is powered On during BIOS POST. If this function is enabled, the system will force the BIOS to execute the boot block program.

To perform a BIOS recovery:

1. Shut down the BIOS failed-computer.
2. Connect the USB flash drive containing the Crisis Recovery disk files to the computer.
3. Press and hold the ***Fn***+***Esc*** keys, then press the power button ⏻.

   The BIOS recovery process begins. When the process is complete the computer will automatically reboot.
4. Disconnect the USB flash drive from the computer.
5. Perform a BIOS flash procedure to update the BIOS firmware. Refer to the "BIOS Flash Utilities" section on page 2-13 for detailed instructions.

CHAPTER 6

FRU List

Aspire MS2361
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FRU (Field Replaceable Unit) List

This chapter provides users with a FRU (Field Replaceable Unit) listing in global configurations for the Aspire MS2361. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

NOTE:

WHEN ORDERING FRU PARTS, check the most up-to-date information available on the regional web or channel. Part number changes will not be noted on the printed Service Guide. For ACER AUTHORIZED SERVICE PROVIDERS, the Acer office may have a DIFFERENT part number code from those given in the FRU list of this printed Service Guide. Users MUST use the local FRU list provided by the regional Acer office to order FRU parts for repair and service of customer machines.

NOTE:

To scrap or to return the defective parts, users should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by the regional Acer office on how to return it.

Aspire MS2361
Exploded Diagrams

Main Assembly

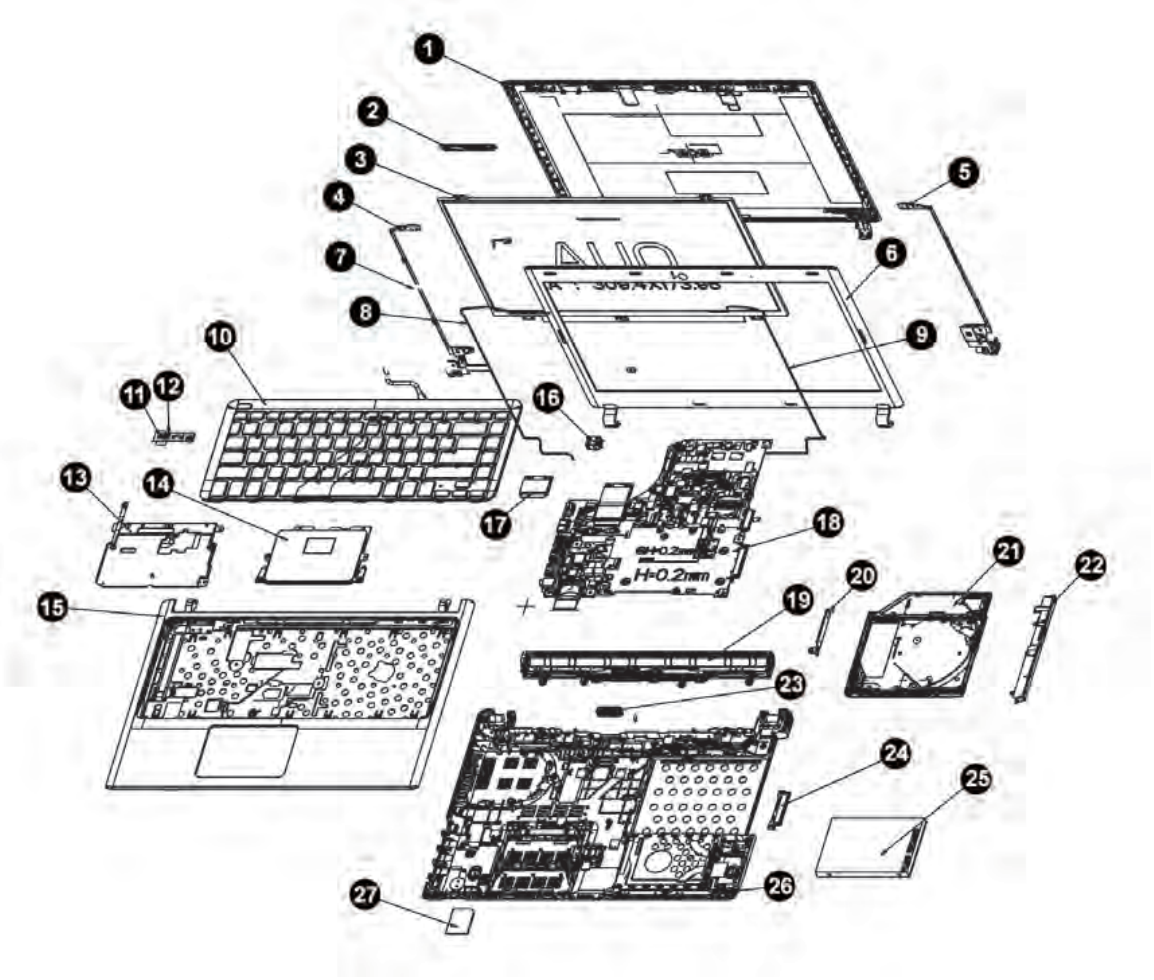


Figure 6-1. Main Assembly Exploded Diagram

Table 6-1. Main Assembly Exploded Diagram

No.	Description	Part Number
1	Panel assembly	60.4TU13.011
2	CCD module	
3	LCD module	
4	Husk hinge (left)	34.4TU15.001
5	Husk hinge (right)	34.4TU14.001
6	LCD bezel assembly	60.4TU14.001

Table 6-1. Main Assembly Exploded Diagram

No.	Description	Part Number
7	LVDS combo cable	50.4TU08.001
8	Antenna WIFI main (left)	25.90ADQ.001
9	Antenna WIFI aux. (right)	25.90ADR.001
10	Keyboard	60.4TU09.002
11	Power board	
12	Power board EMI shield / mylar	40.4TU18.001
13	Touch pad bracket assembly	60.4TU07.002
14	Touch pad module	60.4TU15.002
15	Upper case assembly	65.4TU12.001
16	DC-In cable	50.4TU04.001
17	Wireless LAN card	
18	Mainboard	
19	Battery	
20	ODD bracket	33.4TU05.001
21	ODD module	
22	ODD bezel assembly	60.4TU10.001
23	UMA battery cable	50.4TU14.001
24	HDD cable	65.4TU14.001
25	HDD module	
26	Lower case assembly	60.4TU27.001
27	Dummy card	42.4TU15.001
28	DIMM cover	60.4TU11.001

LCD Assembly

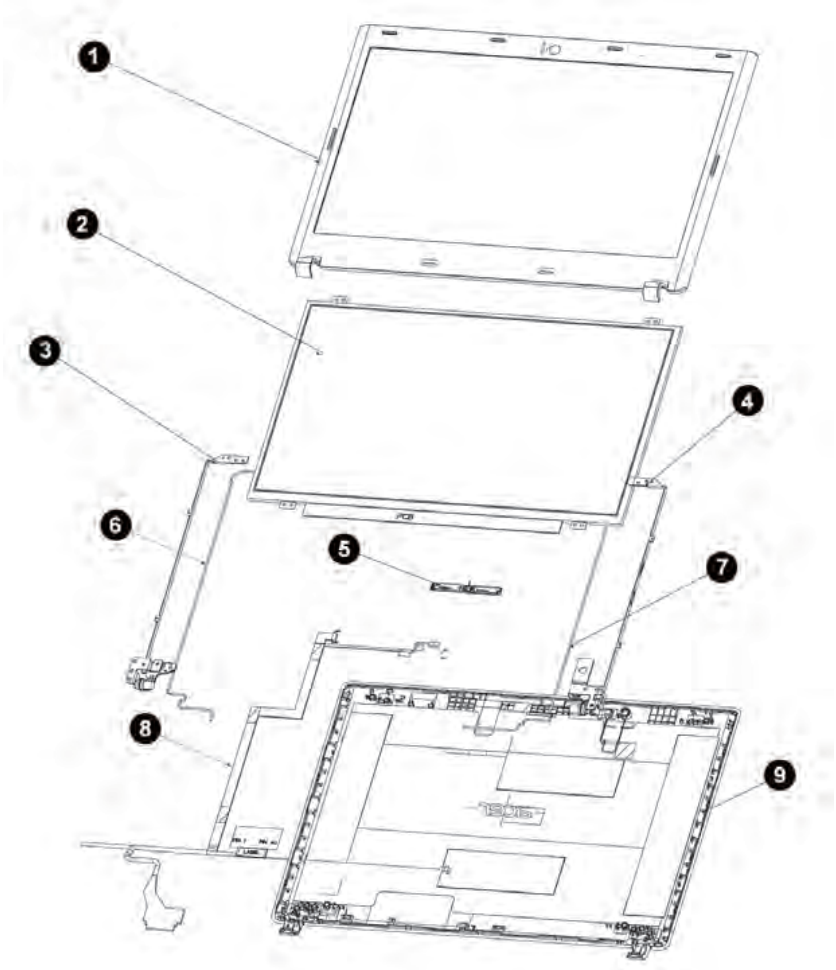


Figure 6-2. LCD Assembly Exploded Diagram

Table 6-2. LCD Assembly Exploded Diagram

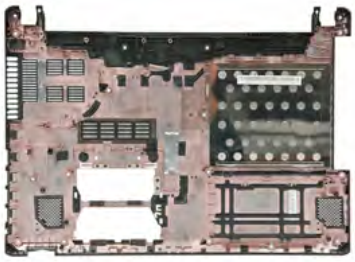
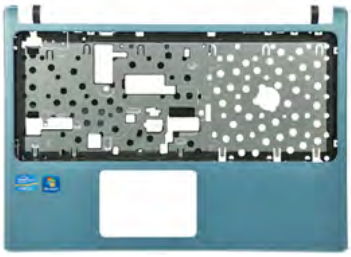
No.	Description	Part Number
1	LCD bezel assembly	60.4TU37.001
2	LCD module	
3	Hinge (left)	34.4TU15.001
4	Hinge (right)	34.4TU14.001
5	CCD module	
6	Antenna WIFI (left)	25.90ADQ.001
7	Antenna WIFI (right)	25.90ADR.001
8	LVDS combo cable	50.4TU08.001
9	Panel painting	60.4TU13.001

FRU List

Category	Description	Acer Part No.
ADAPTER		
	ADP 65W 19V LV5 ADP-65VH BA LOW PROFILE	AP.06501.033
	ADP 65W 19V YELLOW LITE-ON PA-1650-86AW	AP.06503.031
	ADP 65W 19V YELLOW A065R035L/A11-065N1A	AP.0650H.003
BATTERY		
	BTY PACK LI+ SANYO 4C 2.6AH SANYO	KT.00403.003
BOARDS		
	HUSK POWER BD 11957-1 MP D	55.M2DN1.001
	PETRA ODD BD 11958-1 D	55.M2DN1.002
	TOUCHPAD W/ BLUE TP MYLAR FOR PETRA	56.M1KN1.001
	TOUCHPAD W/ SILVER TP MYLAR FOR PETRA	56.M1PN1.001
	TOUCHPAD W/ BLACK TP MYLAR FOR PETRA	56.M2DN1.001
	TOUCHPAD EMC SA577C-1400	56.M2DN1.002
	TOUCHPAD SYNAPTICS TM-02134-001 FW VERSI	56.M2DN1.003

Category	Description	Acer Part No.
	WLAN BROADCOM 43228+20702	NI.23600.100
	WLAN 3RD WIFI 2X2 AGN+ BT4.0 ATHEROS	NI.23600.102
	WLAN 3RD WIFI 2X2 AGN+ BT4.0 ATHEROS	NI.23600.103
CABLES		
	US BK 1M	27.RSF01.001
	EU BK 1M	27.RSF01.002
	UK BK 1M	27.RSF01.003
	DENMARK BK 1M	27.RSF01.004
	SWISS BK 1M	27.RSF01.005
	ITALY BK 1M	27.RSF01.006
	CHINA BK 1M	27.RSF01.007
	TAIWANESE BK 1M	27.RSF01.008
	JAPAN BK 1M	27.RSF01.009
	KOREA BK 1M	27.RSF01.010
	ISRAEL BK 1M	27.RSF01.011
	ARGENTINA 1M	27.RSF01.012
	BRAZIL BK 1M	27.RSF01.013
	SOUTH AFRICA BK 2.5A 1M	27.RSF01.014
	SOUTH AFRICA 2.5A BK 1M	27.RSF01.015
	AUSTRALIA BK 1M HAVE LABEL	27.RSF01.016
	C.A. HUSK DCIN CABLE ICT	50.M1PN1.001
	HUSK DCIN CABLE FOR UMA	50.M2DN1.003
	C.A. PETRA DIS BATTER CABLE ICT	50.M1PN1.002
	C.A. HUSK UMA BATTERY CABLE ICT	50.M2DN1.004

Category	Description	Acer Part No.
	C.A. LCD CABLE PETRA	50.M1PN1.003
	C.A. FFC PB HUSK CVILUX	50.M2DN1.001
	C.A. HUSK HDD CABLE INT	50.M2DN1.002
	C.A. LVDS_UMA_PETRA	50.M2DN1.005
CAMERA		
	CAMERA 1.0M_HD 11P2SF167 LITEON	57.M2DN1.001
	CAMERA 1.0M_HD CNFB1D921004970LH CHICONY	57.M2DN1.002
	CAMERA 1.0M_HD HF1016-A21U-OV02 SUYIN	57.M2DN1.003
CASE/COVER/BRACKET ASSEMBLY		
	ODD BKT HUSK	33.M2DN1.001

Category	Description	Acer Part No.
	HINGE LCD L PETRA	33.M2DN1.002
	HINGE LCD R PETRA	33.M2DN1.003
	ASSY HUSK CR LCASE DOOR ASSY	42.M2DN1.001
	60 PETRA LCASE ASSY DIS	60.M2DN1.001
	ODD BEZEL ASSY HUSK	42.M2DN1.003
	ASSY PETRA UCASE WITH PALREST BKT	60.M1KN1.001
	PETRA UCASE SILIVER WITH PALMREST BKT	60.M1PN1.001
	PETRA UCASE BLACK WITH PALMREST BKT	60.M2DN1.002
	ASSY PETRA UCASE TP BRT ASSY	60.M2DN1.006
COMMUNICATION MODULE		
	ANTENNA WIFI MAIN L PETRA	50.M2DN1.006
	ANTENNA WIFI AUX R PETRA	50.M2DN1.007

Category	Description	Acer Part No.
	ODD NSM8XS9.0 FOR PETRA	6M.M2DN1.001
	ODD DVD-RW 9.0 HLDS GU61N	KU.0080D.064
	HDD 320GB ST320LT020/9YG142-188 7mmH 5.4	KH.32001.021
	HDD320GB SGT 9YG142-190 FW:0010SDM1 5.4K	KH.32001.026
	HDD 500GB HTS545050A7E380 0J23335 5.4K	KH.50007.023
HEATSINK		
	ASSY THM DIS FORCECON+FORCECON VA41 CR	60.M1PN1.002
	ASSY THM UMA FORCECON+FORCECON VA41 CR	60.M2DN1.003
KEYBOARD		
	KB MP-11F53A0-4422 ARABIC AF7S	60.M1KN1.005
	KB MP-11F56B0-4422 BELGIUN AF7S	60.M1KN1.006
	KB MP-11F56PA-4422 BRAZILIAN AF7S	60.M1KN1.007
	KB MP-11F56BG-4422 BULGARIA AF7S	60.M1KN1.008
	KB MP-11F56CS-4422 CZ/SK AF7S	60.M1KN1.009
	KB MP-11F53RC-4422 CHINESE AF7S	60.M1KN1.010
	KB MP-11F56DK-4422 DANISH AF7S	60.M1KN1.011
	KB MP-11F56AF-4422 FR/ARABIC AF7S	60.M1KN1.012

Category	Description	Acer Part No.
KEYBOARD	KB MP-11F56F0-4422 FRENCH AF7S	60.M1KN1.013
	KB MP-11F56D0-4422 GERMAN AF7S	60.M1KN1.014
	KB MP-11F53GR-4422 GREEK AF7S	60.M1KN1.015
	KB MP-11F56HU-4422 HUNGARIAN AF7S	60.M1KN1.016
	KB MP-11F56I0-4422 ITALIAN AF7S	60.M1KN1.017
	KB MP-11F50J0-4422 JAPANESE AF7S	60.M1KN1.018
	KB MP-11F53K0-4422 KOREAN AF7S	60.M1KN1.019
	KB MP-11F56DN-4422 NORDIC AF7S	60.M1KN1.020
	KB MP-11F56N0-4422 NORWEGIAN AF7S	60.M1KN1.021
	KB MP-11F56P0-4422 PORTUGUESE AF7S	60.M1KN1.022
	KB MP-11F53SU-4422 RUSSIAN AF7S	60.M1KN1.023
	KB MP-11F56SA-4422 SLO/CRO AF7S	60.M1KN1.024
	KB MP-11F56E0-4422 SPANISH AF7S	60.M1KN1.025
	KB MP-11F56S0-4422 SWEDEN AF7S	60.M1KN1.026
	KB MP-11F56CH-4422 SWISS/G AF7S	60.M1KN1.027
	KB MP-11F53T0-4422 THAILAND AF7S	60.M1KN1.028
	KB MP-11F56TQ-4422 TURKISH AF7S	60.M1KN1.029
	KB MP-11F56GB-4422 UK AF7S	60.M1KN1.030
	KB MP-11F53U4-4422 US-INTERNATION AF7S	60.M1KN1.031
	KB MP-11F53HB-4422 HEBREW AF7S	60.M1KN1.032

Category	Description	Acer Part No.
KEYBOARD	KB MP-11F56CU-4422 CANADA BILINGUAL AF7S	60.M1KN1.033
	KB MP-11F53A0-4421 ARABIC AF7S	60.M1PN1.006
	KB MP-11F56B0-4421 BELGIUN AF7S	60.M1PN1.007
	KB MP-11F56PA-4421 BRAZILIAN AF7S	60.M1PN1.008
	KB MP-11F56BG-4421 BULGARIA AF7S	60.M1PN1.009
	KB MP-11F56CS-4421 CZ/SK AF7S	60.M1PN1.010
	KB MP-11F53RC-4421 CHINESE AF7S	60.M1PN1.011
	KB MP-11F56DK-4421 DANISH AF7S	60.M1PN1.012
	KB MP-11F56AF-4421 FR/ARABIC AF7S	60.M1PN1.013
	KB MP-11F56F0-4421 FRENCH AF7S	60.M1PN1.014
	KB MP-11F56D0-4421 GERMAN AF7S	60.M1PN1.015
	KB MP-11F53GR-4421 GREEK AF7S	60.M1PN1.016
	KB MP-11F56HU-4421 HUNGARIAN AF7S	60.M1PN1.017
	KB MP-11F56I0-4421 ITALIAN AF7S	60.M1PN1.018
	KB MP-11F50J0-4421 JAPANESE AF7S	60.M1PN1.019
	KB MP-11F53K0-4421 KOREAN AF7S	60.M1PN1.020
	KB MP-11F56DN-4421 NORDIC AF7S	60.M1PN1.021
	KB MP-11F56N0-4421 NORWEGIAN AF7S	60.M1PN1.022
	KB MP-11F56P0-4421 PORTUGUESE AF7S	60.M1PN1.023
	KB MP-11F53SU-4421 RUSSIAN AF7S	60.M1PN1.024

Category	Description	Acer Part No.
KEYBOARD	KB MP-11F56SA-4421 SLO/CRO AF7S	60.M1PN1.025
	KB MP-11F56E0-4421 SPANISH AF7S	60.M1PN1.026
	KB MP-11F56S0-4421 SWEDEN AF7S	60.M1PN1.027
	KB MP-11F56CH-4421 SWISS/G AF7S	60.M1PN1.028
	KB MP-11F53T0-4421 THAILAND AF7S	60.M1PN1.029
	KB MP-11F56TQ-4421 TURKISH AF7S	60.M1PN1.030
	KB MP-11F56GB-4421 UK AF7S	60.M1PN1.031
	KB MP-11F53U4-4421 US-INTERNATION AF7S	60.M1PN1.032
	KB MP-11F53HB-4421 HEBREW AF7S	60.M1PN1.033
	KB MP-11F56CU-4421 CANADA BILINGUAL AF7S	60.M1PN1.034
	KB MP-11F53A0-442 ARABIC AF7S	60.M2DN1.007
	KB MP-11F56B0-442 BELGIUN AF7S	60.M2DN1.008
	KB MP-11F56PA-442 BRAZILIAN PORTUGUESE A	60.M2DN1.009
	KB MP-11F56BG-442 BULGARIA AF7S	60.M2DN1.010
	KB MP-11F56CS-442 CZ/SK AF7S	60.M2DN1.011
	KB MP-11F53RC-442 CHINESE AF7S	60.M2DN1.012
	KB MP-11F56DK-442 DANISH AF7S	60.M2DN1.013
	KB MP-11F56AF-442 FR/ARABIC AF7S	60.M2DN1.014
	KB MP-11F56F0-442 FRENCH AF7S	60.M2DN1.015
	KB MP-11F56D0-442 GERMAN AF7S	60.M2DN1.016

Category	Description	Acer Part No.
KEYBOARD	KB MP-11F53GR-442 GREEK AF7S	60.M2DN1.017
	KB MP-11F56HU-442 HUNGARIAN AF7S	60.M2DN1.018
	KB MP-11F56I0-442 ITALIAN AF7S	60.M2DN1.019
	KB MP-11F50J0-442 JAPANESE AF7S	60.M2DN1.020
	KB MP-11F53K0-442 KOREAN AF7S	60.M2DN1.021
	KB MP-11F56DN-442 NORDIC AF7S	60.M2DN1.022
	KB MP-11F56N0-442 NORWEGIAN AF7S	60.M2DN1.023
	KB MP-11F56P0-442 PORTUGUESE AF7S	60.M2DN1.024
	KB MP-11F53SU-442 RUSSIAN AF7S	60.M2DN1.025
	KB MP-11F56SA-442 SLO/CRO AF7S	60.M2DN1.026
	KB MP-11F56E0-442 SPANISH AF7S	60.M2DN1.027
	KB MP-11F56S0-442 SWEDEN AF7S	60.M2DN1.028
	KB MP-11F56CH-442 SWISS/G AF7S	60.M2DN1.029
	KB MP-11F53T0-442 THAILAND AF7S	60.M2DN1.030
	KB MP-11F56TQ-442 TURKISH AF7S	60.M2DN1.031
	KB MP-11F56GB-442 UK AF7S	60.M2DN1.032
	KB MP-11F53U4-442 US-INTERNATION AF7S	60.M2DN1.033
	KB MP-11F53HB-442 HEBREW AF7S	60.M2DN1.034
	KB MP-11F56CU-442 CANADA BILINGUAL AF7S	60.M2DN1.035
	KB MP-11F53A0-4424 ARABIC AF7S	NK.I1713.004

Category	Description	Acer Part No.
KEYBOARD	KB MP-11F56B0-4424 BELGIUN AF7S	NK.I1713.005
	KB MP-11F56PA-4424 BRAZILIAN AF7S	NK.I1713.006
	KB MP-11F56BG-4424 BULGARIA AF7S	NK.I1713.007
	KB MP-11F56CS-4424 CZ/SK AF7S	NK.I1713.008
	KB MP-11F53RC-4424 CHINESE AF7S	NK.I1713.009
	KB MP-11F56DK-4424 DANISH AF7S	NK.I1713.00A
	KB MP-11F56AF-4424 FR/ARABIC AF7S	NK.I1713.00B
	KB MP-11F56F0-4424 FRENCH AF7S	NK.I1713.00C
	KB MP-11F56D0-4424 GERMAN AF7S	NK.I1713.00D
	KB MP-11F53GR-4424 GREEK AF7S	NK.I1713.00E
	KB MP-11F56HU-4424 HUNGARIAN AF7S	NK.I1713.00F
	KB MP-11F56I0-4424 ITALIAN AF7S	NK.I1713.00G
	KB MP-11F50J0-4424 JAPANESE AF7S	NK.I1713.00H
	KB MP-11F53K0-4424 KOREAN AF7S	NK.I1713.00J
	KB MP-11F56DN-4424 NORDIC AF7S	NK.I1713.00K
	KB MP-11F56N0-4424 NORWEGIAN AF7S	NK.I1713.00L
	KB MP-11F56P0-4424 PORTUGUESE AF7S	NK.I1713.00M
	KB MP-11F53SU-4424 RUSSIAN AF7S	NK.I1713.00N
	KB MP-11F56SA-4424 SLO/CRO AF7S	NK.I1713.00P
	KB MP-11F56E0-4424 SPANISH AF7S	NK.I1713.00Q

Category	Description	Acer Part No.
KEYBOARD	KB MP-11F56S0-4424 SWEDEN AF7S	NK.I1713.00R
	KB MP-11F56CH-4424 SWISS/G AF7S	NK.I1713.00S
	KB MP-11F53T0-4424 THAILAND AF7S	NK.I1713.00T
	KB MP-11F56TQ-4424 TURKISH AF7S	NK.I1713.00U
	KB MP-11F56GB-4424 UK AF7S	NK.I1713.00V
	KB MP-11F53U4-4424 US-INTERNATION AF7S	NK.I1713.00W
	KB MP-11F53HB-4424 HEBREW AF7S	NK.I1713.00X
	KB MP-11F56CU-4424 CANADA BILINGUAL AF7S	NK.I1713.00Y
LCD		
	"LCD 15.6""WXGA ANT*2 Css W/CAM UMA IMR"	6M.M1JN1.001
	"LCD 15.6""WXGA ANT*2 Css W/CAM UMA PAINT"	6M.M1JN1.002
	"LCD 15.6""WXGA ANT*2 Cbb W/CAM UMA IMR"	6M.M1KN1.001
	"LCD 15.6""WXGA ANT*2 Cbb W/CAM UMA PAINT"	6M.M1KN1.002
	"LCD 15.6""WXGA ANT*2 Cbb W/CAM DIS IMR"	6M.M1NN1.001
	"LCD 15.6""WXGA ANT*2 Cbb W/CAM DIS PAINT"	6M.M1NN1.002
	"LCD 15.6""WXGA ANT*2 Css W/CAM DIS IMR"	6M.M1PN1.001
	"LCD 15.6""WXGA ANT*2 Css W/CAM DIS PAINT"	6M.M1PN1.002
	"LCD 15.6""WXGA ANT*2 Ckk W/CAM UMA IMR"	6M.M2DN1.002
	"LCD 15.6""WXGA ANT*2 Ckk W/CAM UMA PAINT"	6M.M2DN1.003
	"LCD 15.6""WXGA ANT*2 Ckk W/CAM DIS IMR"	6M.M2EN1.001
	"LCD 15.6""WXGA ANT*2 Ckk W/CAM DIS PAINT"	6M.M2EN1.002

Category	Description	Acer Part No.
LCD	"LED LCD LPL15.6""W WXGAGLARELP156WH3-TL AA"	LK.15608.014
MAINBOARD		
	PETRA MB UMA 11324-1 CELERON 867 D	NB.M1G11.001
	PETRA MB UMA 11324-1 I3-2367 D	NB.M1K11.001
	HUSK MB NV DIS 11309-1 CELERON 867 D	NB.M1L11.001
	HUSK MB NV DIS 11309-1 I3 2367M D	NB.M1N11.001
	SODIMM 2G ACR256X64D3S13C9G DDR3 1333MH	KN.2GB07.006
	SODIMM 2G EBJ20UF8BDU0-GN-F DDR3 1600MHZ	KN.2GB09.012
	SODIMM 2G HMT325S6CFR8C-H9 DDR3 1333MHZ	KN.2GB0G.031
	SODIMM 4G NT4GC64B8HG0NS-CG DDR3 1333	KN.4GB03.009
	SODIMM 4G ACR512X64D3S13C9G DDR3 1333MHZ	KN.4GB07.001
	SODIMM 4G EBJ40UG8BBU0-GN-F DDR3 1600MHZ	KN.4GB09.005
	SODIMM 4G HMT351S6CFR8C-H9 DDR3 1333MHZ	KN.4GB0G.012

Category	Description	Acer Part No.
MICROPHONE		
	MICROPHONE CABLE HUSK XM	RESERVE
	MICROPHONE CABLE_GOERTEK	RESERVE
	MICROPHONE CABLE_GOTOP	RESERVE
MISCELLANEOUS		
	HUSK_PW_BD_EMI_MYLAR _SY	47.M2DN1.001
	HDD DASP 7MM	47.M2DN1.002
	HUSK_KB_SCREW_LD	86.M2DN1.001
SCREWS		
	SCRW MACH WAFER M2.5*L3 ZN S N	86.00B34.530
	"SCRWF_PHM2-0.4X3(4.2,0.3)RED"	86.00J40.323
	SCREW WAFER NYLOK NI 2ML3	86.9A552.3R0
	SCRW IMS 2.5X5_NYLOK1.8	86.M2DN1.002
SPEAKER		
	SPEAKER PETRA(VA51CR) FG	23.M2DN1.001

CHAPTER 7

Test Compatible Components

Microsoft Windows 7 Environment Test. 7-3

Test Compatible Components

This computer's compatibility is tested and verified by Acer's internal testing department. All of its system functions are tested under Windows® 7 environment.

Refer to the following lists for components, adapter cards, and peripherals which have passed these tests. Regarding configuration, combination and test procedures, please refer to the Compatibility Test Report released by the Acer Mobile System Testing Department.

Microsoft Windows 7 Environment Test

Vendor	Type	Description	Part No.
Accessory			
10000286 WISTRON	LAN/VGA combo port cable	LAN/VGA combo port cable	NC.23811.003
Adapter			
10001081 DELTA	65W	"Adapter DELTA 65W 19V 1.7x5.5x11 Yellow ADP-65VH BA, LV5, Low profile LED LF"	AP.06501.033
60036752 LITE-ON SINGAPORE	65W	"Adapter LITE-ON 65W 19V 1.7x5.5x11 Yellow PA-1650-86AW, LV5, Low profile LF"	AP.06503.031
60016453 CHICONY POWER	65W	"Adapter Chicony Power 65W 19V 1.7x5.5x11 Yellow A065R035L / A11-065N1A, LV5, low profile LF"	AP.0650H.003
Audio Codec			
10004786 REALTEK	ALC271X_VB6	Realtek ALC271X_VB6 QFN-48	LZ.21000.161
Battery			
60001921 SANYO	4CELL 2.6	Battery SANYO AL12A32 Li-Ion 4S1P SANYO 4 cell 2600mAh Main COMMON	KT.00403.003
Camera			
10001023 LITE-ON	HD	Liteon HD LT_OV9726_SP	NC.21411.003
10001044 CHICONY	HD	Chicony HD CH_OV9726_AU	NC.21411.005
PLM00012 Suyin	HD	Suyin HD SY_OV9726_AU	NC.21411.008

Vendor	Type	Description	Part No.
Card Reader			
10000981 MISC	Multi-in-1 card reader	Multi-in-1 card reader	CR.21500.030
Cover			
60014273 NISSHA	Matte Blue IMR VS5A	A Cover Matte Blue IMR VS5A	NC.21011.00D
60014273 NISSHA	Matte Silver IMR VS5A	A Cover Matte Silver IMR VS5A	NC.21011.00E
9999995 ONE TIME VENDOR	Normal w/Camera	Normal w/Camera	LZ.21000.011
60014273 NISSHA	Matte Blue IMR VS5C	C Cover Matte Blue IMR VS5C	NC.21011.00H
60014273 NISSHA	Matte Silver IMR VS5C	C Cover Matte Silver IMR VS5C	NC.21011.00J
CPU			
10001067 INTEL	CM867B	CPU Intel Celeron 867 BGA 1.3G 17W DDR3-1333	KC.NB001.867
10001067 INTEL	CM877B	CPU Intel Celeron 877 BGA 1.4G 17W DDR3-1333	KC.NB001.877
10001067 INTEL	Ci32367MB	CPU Intel Core i3 2367M BGA 1.4G 17W	KC.23601.7MB
10001067 INTEL	Ci33217UB	CPU Intel Core i3 i3-3217U BGA 1.8G 1600 17W Ivy Bridge	KC.32101.3UM
10001067 INTEL	Ci52467MB	CPU Intel Core i5 2467M BGA 1.6G 17W	KC.24601.7MB
10001067 INTEL	Ci53317UB	CPU Intel Core i5 i5-3317U BGA 1.7G 1600 17W Ivy Bridge	KC.33101.5UM
10001067 INTEL	Ci73517UB	CPU Intel Core i7 i7-3517U BGA 1.9G 1600 17W Ivy Bridge	KC.35101.7UM
10001067 INTEL	PMD977B	CPU Intel Pentium Dual-Core 977 BGA 1.4G 17W DDR3-1333	KC.PB001.977
10001067 INTEL	PMD987B	CPU Intel Pentium Dual-Core 987 BGA 1.5G 17W DDR3-1333	KC.PB001.987
HDD			
60002005 HGST SG	N320GB5.4KS	"HDD HGST 2.5"" 5400rpm 320GB HTS543232A7A384,0J28213,Eagle B7, 320G/P 7mmzh SATA 8MB LF+HF F/W:DA4788"	KH.32007.017

Vendor	Type	Description	Part No.
60002036 SEAGATE	N320GB5.4KS_ 4K	"HDD SEAGATE 2.5"" 5400rpm 320GB ST320LT020/9YG142-188, Sapta 15,320G/P SATA 8MB LF+HF F/W:0001SDM1 7mmzh"	KH.32001.021
60002036 SEAGATE	N320GB5.4KS_ 4K	"HDD SEAGATE 2.5"" 5400rpm 320GB 9WS14C-188 ST320LT012, Yarra 500G/P, 7mmzh SATA 8MB LF+HF F/W:0001SDM1"	KH.32001.024
60002036 SEAGATE	N320GB5.4KS_ 4K	"HDD SEAGATE 2.5"" 5400rpm 320GB 320G/P, 7mmzh, 9YG142-190, Sapta 15 SATA 8MB LF+HF F/W:0010SDM1"	KH.32001.026
60002005 HGST SG	N320GB5.4KS_ 4K	"HDD HGST 2.5"" 5400rpm 320GB HTS545032A7E384, Jaguar B7 500G/P SATA 8MB LF+HF F/W:DA4466"	KH.32007.016
60001994 WD	N320GB5.4KS_ 4K	"HDD WD 2.5"" 5400rpm 320GB WD3200LPVT-22G33T0,MN500S, 500G/P, 7mmzh HDD SATA 8MB LF+HF F/W:01.01A01"	KH.32008.031
60002005 HGST SG	N500GB5.4KS	"HDD HGST 2.5"" 5400rpm 500GB Dummy P.N for 500G SATA 8MB LF+HF F/W:"	KH.50007.015
60002036 SEAGATE	N500GB5.4KS_ 4K	"HDD SEAGATE 2.5"" 5400rpm 500GB 9WS142-188 ST500LT012, Yarra 500G/P, 7mmzh SATA 8MB LF+HF F/W:0001SDM1"	KH.50001.030
60002005 HGST SG	N500GB5.4KS_ 4K	"HDD HGST 2.5"" 5400rpm 500GB HTS545050A7E380, Jaguar B7,0J23335, 500G/P SATA 8MB LF+HF F/W:DA4837"	KH.50007.023
60001994 WD	N500GB5.4KS_ 4K	"HDD WD 2.5"" 5400rpm 500GB WD5000LPVT-22G33T0, MN500S, 500G/P, 7mmzh HDD SATA 8MB LF+HF F/W: 01.01A01"	KH.50008.040
Keyboard			
10001044 CHICONY	AF7S_A10B	Keyboard CHICONY AF7S_A10B AF7S Internal 17 Standard Black NONE Y2010 Acer Legend	NK.I1713.001
LAN			
10004786 REALTEK	RTL8411	Realtek RTL8411 EN	NI.22400.059

Vendor	Type	Description	Part No.
LCD			
60003316 AUO	NLED15.6WXG AGS	LED LCD AUO 15.6"W WXGA Glare B156XW04 V5 LF 200nit 8ms 500:1	LK.15605.021
60003089 LG	NLED15.6WXG AGS	LED LCD LPL 15.6"W WXGA Glare LP156WH3-TLAA LF 200nit 16ms 500:1 (Power saving) (2011)	LK.15608.014
Memory			
60002041 QIMONDA	SO2GBIII	Memory NONE SO-DIMM DDRIII 2GB dummy LF+HF	KN.2GB00.004
60001993 NANYA	SO2GBIII13	Memory NANYA SO-DIMM DDRIII 1333 2GB NT2GC64B88G0NS-CG LF+HF	KN.2GB03.025
60024207 KINGSTON-FA R EAST	SO2GBIII13	Memory KINGSTON SO-DIMM DDRIII 1333 2GB ACR256X64D3S13C9G LF+HF	KN.2GB07.006
60004668 ELPIDA	SO2GBIII13	Memory ELPIDA SO-DIMM DDRIII 1600 2GB EBJ20UF8BDU0-GN-F LF+HF 256*8 38nm	KN.2GB09.012
60002215 SAMSUNG	SO2GBIII13	Memory SAMSUNG SO-DIMM DDRIII 1333 2GB M471B5773DH0-CH9 LF 256*8	KN.2GB0B.030
60001955 A-DATA	SO2GBIII13	Memory A-DATA SO-DIMM DDRIII 1333 2GB AD73I1B0873EV LF+HF	KN.2GB0C.008
60002045 HYNIX	SO2GBIII13	Memory HYNIX SO-DIMM DDRIII 1333 2GB HMT325S6CFR8C-H9 LF+HF 256x8 38nm	KN.2GB0G.031
60002041 QIMONDA	SO4GBIII	Memory NONE SO-DIMM DDRIII 4GB dummy LF+HF	KN.4GB00.003
60001993 NANYA	SO4GBIII13	Memory NANYA SO-DIMM DDRIII 1333 4GB NT4GC64B8HG0NS-CG LF+HF 46nm	KN.4GB03.009
60024207 KINGSTON-FA R EAST	SO4GBIII13	Memory KINGSTON SO-DIMM DDRIII 1333 4GB ACR512X64D3S13C9G LF+HF	KN.4GB07.001
60004668 ELPIDA	SO4GBIII13	Memory ELPIDA SO-DIMM DDRIII 1600 4GB EBJ40UG8BBU0-GN-F LF+HF 512*8 38nm	KN.4GB09.005
60002215 SAMSUNG	SO4GBIII13	Memory SAMSUNG SO-DIMM DDRIII 1333 4GB M471B5273DH0-CH9 LF 256*8 35nm	KN.4GB0B.015

Vendor	Type	Description	Part No.
60002215 SAMSUNG	SO4GBIII13	Memory SAMSUNG SO-DIMM DDRIII 1333 4GB M471B5173BH0-CH9 LF+HF 512*8 35nm	KN.4GB0B.018
60002045 HYNIX	SO4GBIII13	Memory HYNIX SO-DIMM DDRIII 1333 4GB HMT351S6CFR8C-H9 LF+HF 256x8 38nm	KN.4GB0G.012
NB Chipset			
10001067 INTEL	HM70	NB Chipset Intel CS HM70 Chief River	KI.G7501.004
10001067 INTEL	HM77	NB Chipset Intel CS HM77 Chief River	KI.G7501.002
ODD			
60001944 LG HK	NSM8XS9.0	ODD HLDS Super-Multi DRIVE 9.0mm Tray 8X GU61N LF+HF W/O bezel SATA	KU.0080D.064
SB Chipset			
9999995 ONE TIME VENDOR	N	N	KI.22800.011
Software			
10000981 MISC	McAfee	Antivirus application McAfee	SR.23900.001
Touchpad			
10000981 MISC	CP5ISV1M	Elantech Touchpad CP5ISV1M	NC.24611.006
10000981 MISC	CP5ISV1M	Synaptics Touchpad CP5ISV1M	NC.24611.007
VGA Chip			
60001915 NVIDIA	N13MGS	"VGA Chip nVidia N13M-GS-B-A1 28nm, 29mmx29mm, GB4-128 package"	KG.MGS0V.001
60002168 AMD	THAMES_PRO	"VGA Chip AMD THAMES_PRO 40nm, 29*29, M2 package"	KG.THA0A.001
10001067 INTEL	UMA	UMA (Intel)	KI.23200.038
VRAM			
10000981 MISC	1G-DDR3 (128*16*4)	1G-DDR3 128*16*4	KI.23300.029
10000981 MISC	1G-DDR3 (64*16*8)	1G-DDR3 64*16*8	KI.23300.018
60002045 HYNIX	VR1GbIII9	VRAM HYNIX Graphic DDRIII 900 1Gb H5TQ1G63DFR-11C LF 64*16 46nm	VR.1GB0G.006

Vendor	Type	Description	Part No.
60002045 HYNIX	VR2GBIII9	VRAM HYNIX Graphic DDRIII 900 2Gb H5TQ2G63BFR-11C LF 128*16 46nm	VR.2GB0G.002
60002045 HYNIX	VR2GBIII9	VRAM HYNIX Graphic DDRIII 900 2Gb H5TQ2G63DFR-11C LF+HF 128*16 38nm Gemma die	VR.2GB0G.005
WiFi Antenna			
10000105 WNC	PIFA	PIFA	LZ.23500.006
Wireless LAN			
10001018 HON HAI	3rd WiFi 2x2 AGN+ BT4.0	Foxconn 3rd WiFi 2x2 AGN+ BT4.0 Broadcom 43228+20702 (WiFi 43228 2x2 DB AGN+BT4.0 20702)	NI.23600.100
10001018 HON HAI	3rd WiFi 2x2 AGN+ BT4.0	Foxconn 3rd WiFi 2x2 AGN+ BT4.0 Atheros WB222	NI.23600.102
10001023 LITE-ON	3rd WiFi 2x2 AGN+ BT4.0	Liteon 3rd WiFi 2x2 AGN+ BT4.0 Atheros WB222	NI.23600.103

CHAPTER 8

Online Support Information

Online Support Information 8-3

Online Support Information

This section describes online technical support services available to help users repair their Acer Systems.

For distributors, dealers, ASP or TPM, please refer the technical queries to a local Acer branch office. Acer Branch Offices and Regional Business Units may access our website. However some information sources will require a user i.d. and password. These can be obtained directly from Acer CSD Taiwan.

Acer's Website offers convenient and valuable support resources.

In the Technical Information section users can download information on all of Acer's Notebook, Desktop and Server models including:

- Service guides for all models
- Bios updates
- Software utilities
- Spare parts lists
- TABs (Technical Announcement Bulletin)

For these purposes, we have included an Acrobat File to facilitate the problem-free downloading of our technical material.

Also contained on this website are:

- Detailed information on Acer's International Traveller’s Warranty (ITW)
- Returned material authorization procedures
- An overview of all the support services we offer, accompanied by a list of telephone, fax and email contacts for all technical queries.

We are always looking for ways to optimize and improve our services, so do not hesitate to direct any suggestions or comments to us.