Acer Aspire 5910 Notebook Computer Service Guide

Service guide files and updates are available on the Acer CSD web site at http://csd.acer.com.tw

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Revision History

Refer to the table below for the updates made on this version of the Aspire 5910 Notebook Computer Service Guide.

Date	Chapter	Updates

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Conventions

The following textual conventions are used in this service guide.

SCREEN MESSAGES	Denotes actual messages that appear on screen.
NOTE	Gives additional information related to the current topic.
WARNING	Alerts you to any physical risk or system damage that might result from doing or not doing specific actions.
CAUTION	Gives precautionary measures to avoid possible hardware or software problems.
IMPORTANT	Reminds you to do specific actions relevant to the accomplishment of procedures.

Service Guide Coverage

This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided 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 (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic Service Guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.

FRU Information

Please note WHEN ORDERING FRU PARTS, that you should 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 will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed 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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System Tour

Features

Your Aspire 5910 is part of the Acer Gemstone line of notebook computers. It provides superior computing performance and excellent audio-visual experience in an all new sleek and elegant exterior.

NOTE: The features listed in this section is for your reference only. The exact configuration of your Aspire computer depends on the model purchased.

Computing platform

- Mobile technology: Intel® Centrino® Duo mobile technology
- Processor: Intel Core™ 2 Duo processor. Your Aspire notebook supports the following processor sequence: T7600, T7400, T7200, T5600, and T5500.
- Processor technologies
  - Intel Virtualization Technology (Intel VT)
  - Enhanced Intel SpeedStep® Technology
  - Intel 64-bit architecture
  - Execute Disable Bit functionality
- Core logic: Mobile Intel 945PM Express Chipset

Memory

- Two DIMM slots supporting DDR2 533/667 MHz memory modules
- Maximum 4 GB system memory using two soDIMM modules
- Supports dual-channel memory mode
- 1 MB flash BIOS and shadow RAM support

Storage subsystem

- SATA hard disk drives in 80–,120–, and 160 GB capacities (higher HDD capacity supported)
- DVD-Super Multi double-layer drive or DVD/CD-RW combo drive
- 5-in-1 card reader slot supports Secure Digital (SD), MultiMediaCard (MMC), Memory Stick® (MS), Memory Stick Pro™ (MS Pro), and xD-Picture Card™ (xD) formats

Display and graphics

- 15.4" WXGA high-brightness (220-nits) Acer CrystalBrite™ TFT LCD (1400 x 900 pixel resolution, 16.7 million colors)
- Graphics controller: ATI Mobility™ Radeon™ X2300 HD
- Acer GridVista™ for simultaneous multi-window viewing (8 ms response time)
- Acer Arcade™ featuring Acer CinemaVision™ and Acer ClearVision™ technologies
- Supports the following video capabilities:
  - Dual independent display
  - MPEG-2/DVD hardware-assisted function (full decode)
  - WMV9 (VC-1) and H.264 (AVC, full decode)
  - S-video/TV-out (NTSC/PAL)
  - True Digital Visual Interface (DVI-D) with support for High-bandwidth Digital Content Protection (HDCP)

Audio

- One speaker grill with L/R stereo speakers
- One subwoofer supporting low-frequency effects
- Two built-in stereo microphones supports beam forming, echo cancellation, and noise suppression technologies
- Realtek ALC883 Azalia High Definition Audio Codec
- Intel High Definition Audio (Intel HD Audio, integrated in the Intel ICH7-M)
- Supports the following audio technologies:
  - Dolby® SurroundSound
  - Dolby Home Theater
  - S/PDIF (Sony/Philips Digital Interface)
  - MS-Sound

Connectivity

- WLAN controller options
  - Intel PRO/Wireless 3945ABG Network Connection (tri-mode 802.11a/b/g)
  - Intel Wireless Wi-Fi Link 4965AGN
  - Intel PRO/Wireless 2200BG Network Connection (dual mode 802.11b/g)
- Broadcom NetLink™ BCM5787 Gigabit Ethernet Controller with PCI Express
- Acer Video Conference solution for advanced Voice and Video over Internet Protocol (VVoIP)
  - Acer OrbiCam™310,000 pixel camera supporting the Acer PrimaLite™ and Acer VisageON™ technologies
  - Acer PureZone audio technology for crisp, uninterrupted voice communication
- Multiple network connection options
  - WLAN via Acer InviLink™ 802.11b/g Wi-Fi CERTIFIED solution; Acer SignalUp™ compatible
  - WPAN via Bluetooth® 2.0+EDR (Enhanced Data Rate) interface
  - LAN via a Gigabit Ethernet port (Wake-on-LAN ready)
  - 56K ITU V.92 MDC 1.5 modem (PTT approved, Wake-on-Ring ready)

Keyboard and special keys

- 88-/89-/93-key keyboard with international language support
  - Embedded numeric keypad
  - Inverted "T" cursor keys, 12 function keys, Windows® key, independent US and Euro dollar sign keys, and hotkey controls
  - Seamless touchpad pointing device with 4-way scroll button
  - 2.5 mm (minimum) key travel
- Acer MediaTouch keys: play/pause, stop, previous, next, and record keys
- Easy-launch keys: WLAN, Internet, email, Bluetooth, Acer Empowering, and Acer Arcade™

I/O interface

- Front panel ports
  - Line-in
  - Microphone-in
  - Headphone (with S/PDIF support)
  - 5-in-1 card reader slot
- Rear panel: DC-in jack for the AC adapter

- Left panel ports
  - Kensington lock
  - Ethernet (RJ-45)
  - DVI-D
  - VGA (external monitor)
  - S-video/TV-out
  - USB 2.0 (2x)
  - IEEE 1394
  - ExpressCard™/54 slot
- Right panel ports
  - USB 2.0 (2x)
  - Modem (RJ-11)
- Infrared port

Status indicators

- Power status
- Battery charge level
- HDD activity
- Num Lock
- Caps Lock

Power subsystem

- 71W 4800 mAh Li-ion battery pack (8-cell) or 44W 4000 mAh Li-ion battery pack (6-cell)
- Acer QuicCharge™ battery technology
  - 80% charge in 1 hour
  - 2-hour rapid charge system-off
  - 3-hour charge-in-use
- 3-pin 90W 19V AC adapter (DIS)
- ACPI 3.0 CPU power management standard (supports standby and hibernation modes)

Physical

- Dimensions (width x length x height): 366.3 x 273.9 x 40.0/43.9 mm (14.4 x 10.8 x 1.6/1.7 in)
- Weight (with 8-cell battery pack): 3.2 kg (7.0 lbs)
- Two-spindle design for portability
- Holographic 3D finish exterior for a sleek, elegant look
- CeramiFinish interior surface for a comfortable hands-on fit

Software

- Operating system options
  - Windows Vista™ Ultimate
  - Windows Vista Home Premium
  - Windows Vista Home Basic
  - Linpus Linux
- System tools and utilities
  - Acer Empowering Technology (eNet, ePower, eAudio , ePresentation, eDataSecurity, eLock, eRecovery, and eSettings Management)
  - Acer Crystal Eye
  - Acer PureZone
  - Acer GridVista
  - Acer Launch Manager
  - Acer Arcade or Acer Arcade Deluxe (DV Wizard, DVDivine, VideoMagician, Play Movie, and HomeMedia)
  - Microsoft Works 8.5 with Office Home and Student 2007 Trial
  - Adobe®Reader®
  - CyberLink® PowerProducer®
  - NTI CD-Maker™
  - Norton Internet Security™

Environment

- Temperature:
  - Operating: 5° C to 35° C
  - Non-operating: -20° C to 65° C
- Humidity (non-condensing):
  - Operating: 20% to 80%
  - Non-operating: 20% to 80%

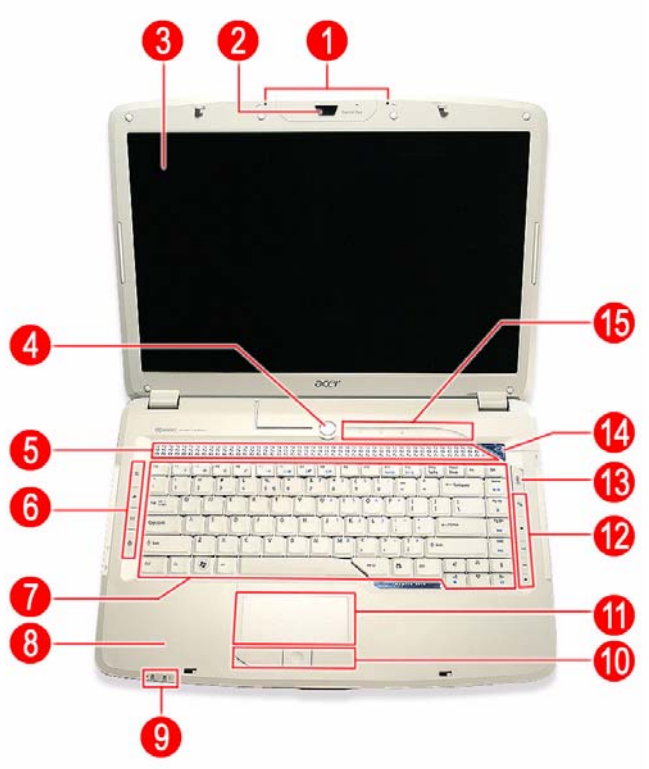
Accessories

- Acer Xpress VoIP phone with the Acer Video Conference Manager
- 512 MB, 1 or 2GB DDR2 667 MHz soDIMM modules
- 8-cell Li-ion battery pack
- 3-pin 90 W AC adapter
- External USB floppy disk drive

Aspire Tour

This section is a virtual tour of your Aspire notebook's interior and exterior components.

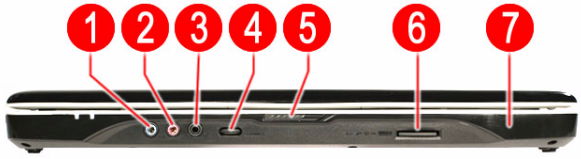
Open Front View



Number	Icon	Item	Description
1		Internal microphone	Create sound recording and conduct voice communication. Supports Acer PureZone audio technology.
2		Acer OrbiCam camera	Conduct video communication. (for selected models)
3		LCD panel	Displays computer output.
4		Power button	Turns the computer on and off.
5		Speaker grill	Delivers Dolby-quality audio output.
6		Easy-launch buttons	Press to launch frequently used programs/function. Use Launch Manager to configure these keys.
7		Keyboard	For entering data into your computer.
8		Palmrest	Comfortable support area for your hands when you use the keyboard.
9		Status indicators	Light-Emitting Diodes (LEDs) for monitoring the power status and battery charge level.
10		Click buttons	The left and right buttons function like the left and right mouse buttons; the center button serves as a 4-way scroll button.

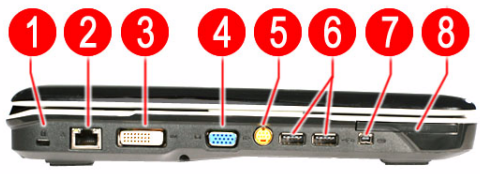
Number	Icon	Item	Description
11		Touchpad	Touch-sensitive pointing device which functions like a computer mouse.
12		Acer MediaTouch keys	For controlling playback in multimedia programs, including in Acer Arcade.
13		Acer Arcade key	Press to launch the Acer Arcade program.
14		Acer Empowering key	Press to launch the Acer Empowering Technology widgets.
15		Status indicators	LEDs for monitoring the HDD activity, as well as the Num Lock and Caps Lock functions.

Close Front View



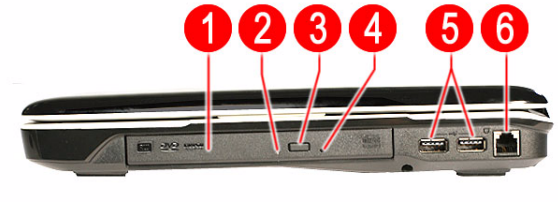
Number	Icon	Item	Description
1		Line-in jack	Accepts audio line-in devices (e.g., audio CD player, stereo walkman).
2		Microphone-in jack	Accepts an external microphone.
3		Headphone jack	Accepts audio line-out devices (e.g., speakers, headphones). S/PDIF support provided.
4		Volume control	Adjust the system audio-out volume.
5		Lid latch	Locks and releases the notebook lid.
6		5-in-1 card reader slot	Accepts MS, MS PRO, MMC, SD, and xD formats memory cards.
7		IR port	Interfaces with Infrared devices (e.g. infrared printer, IR-aware computers). **Note:** In Bluetooth-enabled models, this is where the Bluetooth board is located.

Left View



Number	Icon	Item	Description
1		Kensington lock hatch	Accepts a Kensington-compatible computer security lock.
2		Ethernet port (RJ-45)	Connects to an Ethernet 10/100/1000-based network (selected models).
3	DVI-D	DVI-D port	Connects to a display device with DVI-D input.
4		VGA port	Connects to an external display device (e.g., external monitor, LCD projector).
5		S-Video/TV-out port	Connects to a television or display device with an S-video input. Supports both NTSC and PAL standards.
6		USB 2.0 ports	Connects to USB 2.0 devices (e.g. USB mouse, USB camera).
7	1394	IEEE 1394 ports	Connects to a IEEE 1394 devices.
8	ExpressCard / 54	ExpressCard/54 slot	Accepts an ExpressCard/54 module.

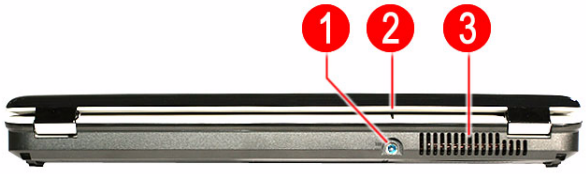
Right View



Number	Icon	Item	Description
1		Optical disc drive (ODD)	Accepts CDs or DVDs (drive type maybe slot-load or tray-load depending on model).
2		ODD access indicator *	Lights up when a the optical drive is active .
3		ODD eject button *	Ejects the optical disc from the drive.
4		Emergency eject hole *	Ejects the ODD tray when the computer is turned off.
5		USB 2.0 ports	Connects to USB 2.0 devices (e.g. USB mouse, USB camera).
6		Modem port (RJ-11)	Connects to a phone line.

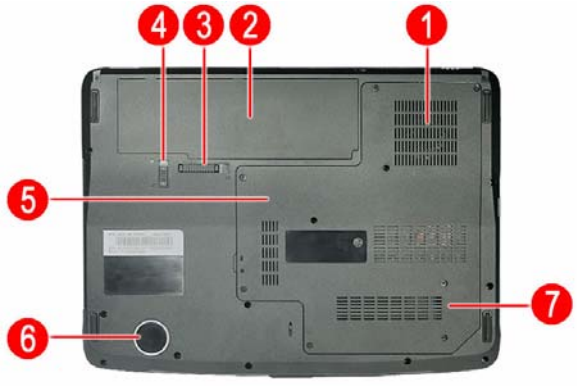
* Item location varies depending on the drive model.

Rear View



Number	Icon	Item	Description
1		AC power indicator	Lights up blue when the AC adapter is connected to the DC-in jack (AC power mode).
2		DC-in jack	Connects to an AC adapter.
2		Ventilation slots	Enable the computer to stay cool, even after prolonged use.

Base View



Number	Icon	Item	Description
1		Ventilation slots and cooling fan	Enable the computer to stay cool, even after prolonged use. **Note:** Do not cover or obstruct the opening of the fan.
2		Battery pack	Provides power to the computer.
3		Battery release latch	Releases the battery pack for removal.
4		Battery lock	Secures the battery pack in position.
5		Memory compartment	Houses the computer's main memory.
6		Subwoofer	Emits low frequency sound output.
7		HDD compartment	Houses the computer's hard disk drive.

Status Indicators

The computer has several status indicators for monitoring various system components and functions.

Number	Icon	Indicator	Description
1		Power	Indicates the computer's power state. It lights up: ❑ Blue when the computer is powered on. ❑ Flashing orange when the computer is in standby or hibernation mode.
2		Battery charge	Indicates the battery charging state. It lights up: ❑ Orange when the computer is charging. ❑ Green when the computer is in AC mode.
3		Hard drive activity	Flashes blue when there is hard drive activity.
4		Num Lock	Lights up blue when the Num Lock function is activated.
5		Caps Lock	Lights up blue when the Caps Lock function is activated.

Easy-launch Keys

On the left and right side of the keyboard are special keys for launching commonly-used programs.

Number	Icon	Indicator	Description
1		WLAN key/indicator	Press to enable/disable the wireless LAN function. This key also indicates the WLAN status. It lights up: ❑ Blue when there is an active WLAN connection ❑ Orange when there is no WLAN connection.
2		Web browser *	Press to launch the preferred Internet browser.
3		Mail *	Press to launch the preset E-mail application.
4		Bluetooth key/indicator*	Press to enable/disable the Bluetooth function. This key also indicates the Bluetooth status. It lights up: ❑ Blue when there's an active Bluetooth connection ❑ Orange when there's no Bluetooth connection.
5		Acer Arcade key	Press to launch the Acer Arcade program.
6		Acer Empowering key *	Press to launch the Acer Empowering Technology widgets.

* These keys are user-programmable. Run Launch Manager to configure them. Go to page 22 for instructions.

System Utilities

Phoenix TrustedCore Setup Utility

Phoenix TrustedCore Setup Utility is a hardware configuration program built into your system's Basic Input/ Output System (BIOS). Since most systems are already properly configured and optimized, there is normally no need to run this utility.

You will need to run this utility under the following conditions:

- When changing the system configuration including:
  - Setting the system time and date
  - Configuring the hard drives
  - Specifying the boot device sequence
  - Configuring the power management modes
  - Setting up system passwords or making other changes to the security setup
- When a configuration error is detected by the system and you are prompted ("Run Setup" message) to make changes to the BIOS settings.

IMPORTANT: If you repeatedly receive "Run Setup" messages, the RTC battery located on the system board (RTC1) may be defective. In this case, the system cannot retain configuration values in CMOS. Replace the RTC battery with a new one.

NOTE: For ease of reading, Phoenix TrustedCore Setup Utility will be simply referred to as "Setup" or "Setup Utility" in this Service Guide.

The screenshots used in this guide display default system values. These values may not be the same as those in your computer.

In the descriptive tables following each of the menu screen illustrations, settings in **boldface** are the default and suggested parameter settings.

The Setup Utility loads the configuration values in a battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM, which allows configuration data to be retained when power is turned off. The values take effect when the system is booted. Power-On Self Test (POST) uses these values to configure the hardware. If the values and the actual hardware do not agree, POST generates an error message. You must run this utility to change the BIOS settings from the default or current configuration.

Accessing the Setup Utility

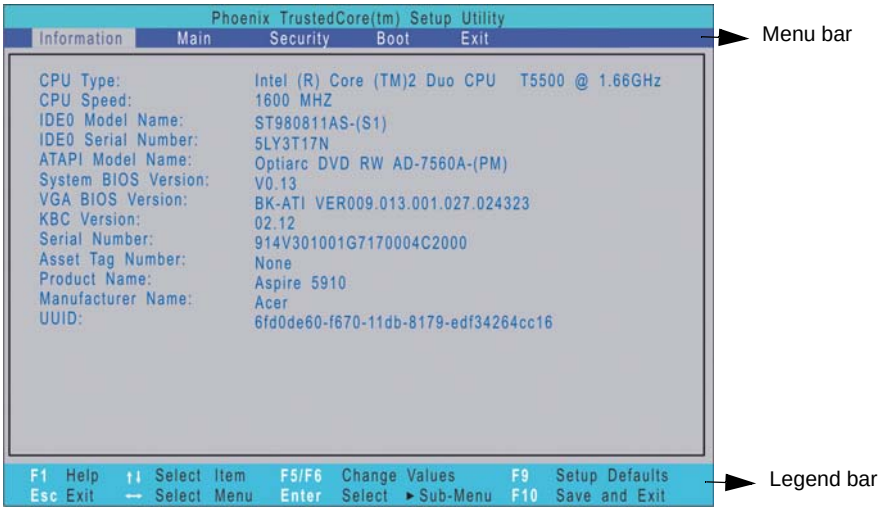
1. Turn on the computer.

   If the computer is already turned on, save your data and close all open applications, then restart the computer.

2. During POST, press **F2**.

   If you fail to press **F2** before POST is completed, you will need to restart the computer.

The first page to be displayed will be the Information menu. Use the left (←) and right (→) arrow keys to move between selections on the menu bar.

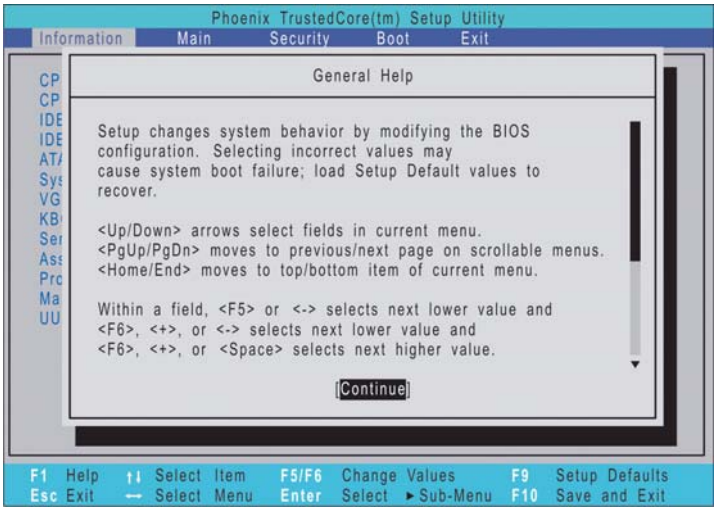


Navigating Through the Setup Utility

Use the keys listed in the legend bar on the bottom of the Setup screen to work your way through the various menu and submenu screens of the Setup Utility. The table below lists these legend keys and their respective functions.

Key	Function
← and →	To move between selections on the menu bar.
↑ and ↓	To move the cursor to the field you want.The currently selected field will be highlighted. The right side of each menu screen displays a field help panel—Item Specific Help panel. This panel displays the help text for the currently selected field. It updates as you move the cursor to each field. You can also use these keys to navigate through the multipage General Help window.
F5 or (-) F6, (+), or Space	To select a value for the currently selected field (only if it is user-configurable). Press **F5** or (-) to select the next lower value; **F6**, (+), or Space to select the next higher value. A parameter that is enclosed in square brackets [ ] is user-configurable. Parameters are not user-configurable for one of the following reasons: ❑ The field value is auto-configured or auto-detected.· ❑ The field value is informational only. ❑ The field is password-protected.
Enter	To select a field value.
Esc or Alt-X	If you press this key: ❑ On one of the menu screens, the Exit menu displays. ❑ On a General Help window, closes the window.
F1 or Alt-H	To bring up the General Help window. This window lists other Setup navigation keys that are not displayed on the legend bar.
F9	Press to load default system values.
F10	Press to save changes and close the Setup Utility.

Additional help information is available on the General Help window. Just press **F1** on any screen.



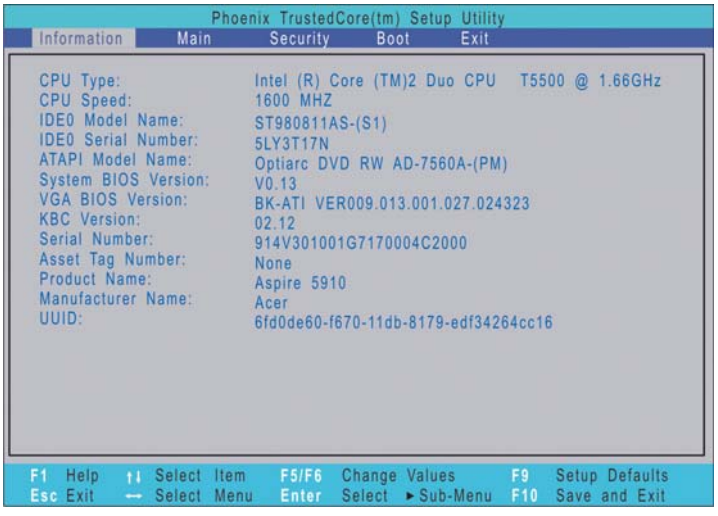
Setup Utility Menus

The *Phoenix*BIOS Setup Utility has five menus for configuring the various system functions. These include:

- Information
- Main
- Security
- Boot
- Exit

Information

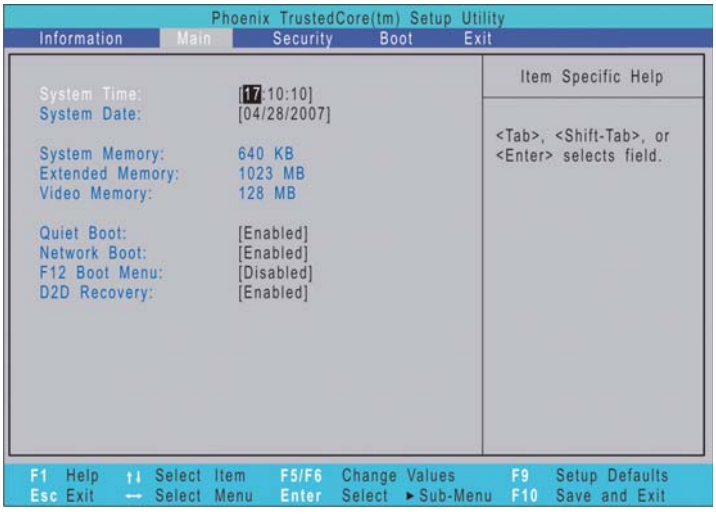
The Information menu screen displays a summary of your computer hardware information. These information are necessary for troubleshooting and may be required when asking for technical support.



Field	Description
CPU Type	Displays the processor name, sequence number, and clock speed.
CPU Speed	Displays the CPU speed.
IDEO Model Name	Displays the hard disk drive model.
IDEO Serial Number	Displays the hard disk drive serial number.
ATAPI Model Name	Displays the optical disc drive model.
System BIOS Version	Displays the current system BIOS version.
VGA BIOS Version	Displays the current VGA firmware version.
KBC Version	Displays the current keyboard controller version.
Serial Number	Displays the system serial number.
Asset Tag Number	Displays the system asset tag number
Product Name	Displays the official model name of the product.
Manufacturer Name	Displays the manufacturer of the computer.
UUID	Displays the universally unique identifier of your computer. This will only be visible when an internal LAN device is presenting.

Main

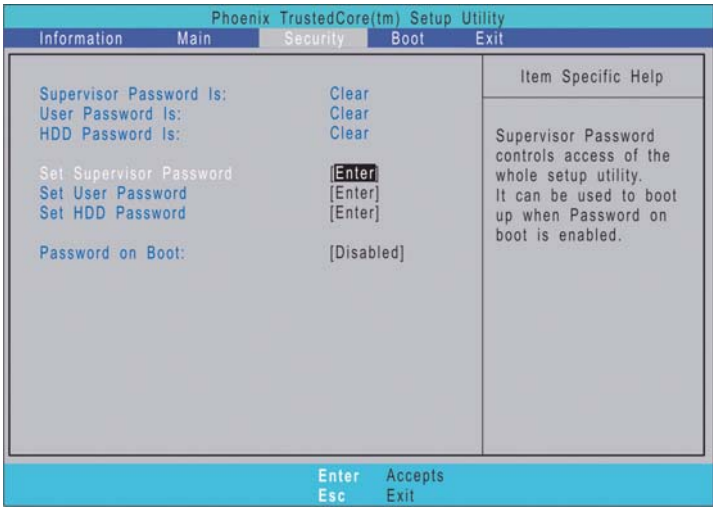
The Main menu screen allows you to configure the basic system settings and view the memory allocations.



Field	Description	Value
System Time	Set the system time.	HH:MM:SS (hour:minute:second)
System Date	Set the system date.	MM/DD/YYYY (month/day/year)
System Memory	Displays the size of system memory detected during boot-up. Memory size is fixed at 640 MB.	
Extended Memory	Displays the size of extended memory detected during boot-up. Extended memory size is equal to total memory size less 1 MB.	
Video Memory	Displays the size of video memory detected during boot-up.	**128 MB** 256 MB
Quiet Boot	When enabled, the Acer logo screen appears during boot-up	Disabled **Enabled**
Network Boot	When enabled, remote host with appropriate boot image can boot this computer. (Only works with an Ethernet device.)	Disabled **Enabled**
F12 Boot Menu	When enabled, the “Press F12 to enter Multi-Boot Menu” message is displayed during POST.	**Disabled** Enabled
D2D Recovery	When enabled, pressing Alt-F10 during POST will activate the Acer disc-to-disc recovery function. The function allows the user to create a hidden partition on the hard drive to store a copy of the OS and restore the system to its default factory settings.	Disabled **Enabled**

Security

The Security menu screen displays system passwords options to help safeguard and protect your computer from unauthorized use.



Field	Description	Value
Supervisor Password Is	Indicates whether a supervisor password is in use (Set) or not (Clear).	
User Password Is	Indicates whether a user password is in use (Set) or not (Clear).	
HDD Password Is	Indicates whether an HDD password is in use (HDD Password Set) or not (Clear).	
Set Supervisor Password	When set, this password will allow the user to access and change all settings in the Setup Utility. Press **Enter** to configure.	
Set User Password	When set, this password will restrict a user's access to the Setup menus. Only the following menus will be accessible: ❑ System Time ❑ System Date ❑ Boot menu options ❑ All Exit menu options excluding Load Setup Defaults A supervisor password must first be set before creating a user password.	
Set HDD Password	When set, this password will restrict a user's access to the internal hard disk drive. It will be required during boot-up or when resuming from S4 mode (hibernation). **Note:** If this password is the same as the power-on password, it will not be required anymore at boot-up.	
Password on Boot	Referred to as power-on password. When set, the user or supervisor password will be required to boot up the system or when resuming from S4 mode. A supervisor password must first be set before creating this password.	**Disabled** Enabled

Setting a system password

Note the following before you define a system password:

- The maximum length of password contains eight alphanumeric characters—A - Z, 0 - 9, and ';' (for a French keyboard).
- System passwords are case-insensitive.
- Password re-try is limited to three times. If user failed to enter the correct password, the system will hang up.

To set a system password:

1. Press ↑ or ↓ to highlight a set password field, then press **Enter**.

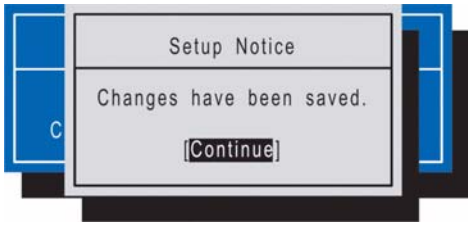
   The password box appears.

2. Type a password then press **Enter**.

IMPORTANT: Be very careful when typing your password because the characters do not appear on the screen. Only shaded blocks representing each typed character are visible.

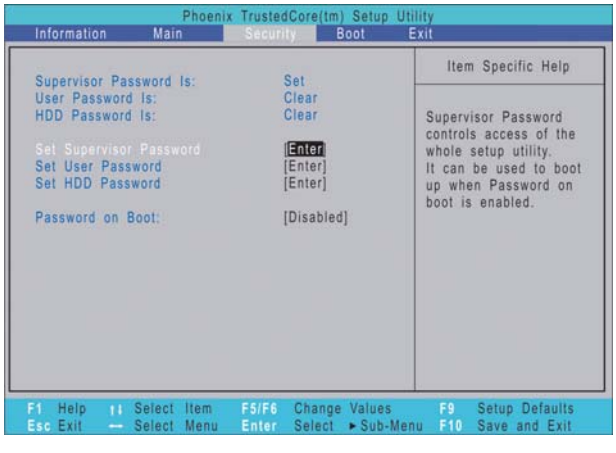
3. Retype the password to verify the first entry, then press **Enter**.

   You will be prompted to save the new password.



4. Press **Enter**.

   The corresponding password status field displays **Set** to indicate that a password has been enabled.



5. Press **F10** to save the password and close the Setup Utility.

To change a system password:

1. Press ↑ or ↓ to highlight an enabled password field, then press **Enter**.

   The password box appears.

2. Type the original password, then press **Enter**.
3. Type a new password, then press **Enter**.
4. Retype the new password to verify the first entry, then press **Enter**.

   You will be prompted to save the new password.
5. Press **Enter**.
6. Press **F10** to save the password and close the Setup Utility.

To remove a system password:

1. Press ↑ or ↓ to highlight a password parameter, then press **Enter**.

   The password box appears.
2. Type the original password, then press **Enter**.
3. Press **Enter** twice without entering anything in the new and confirm password fields.

   You will be prompted to confirm the password removal.
4. Press **Enter**.

   The corresponding password status field displays **Clear** to indicate that the password has been disabled.
5. Press **F10** to save the changes you made and close the Setup Utility.

To clear a lost password:

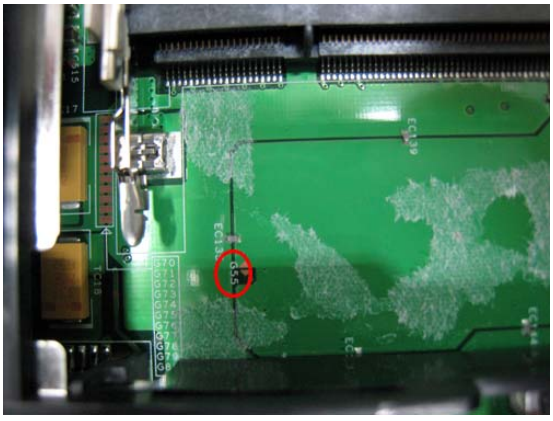
If you have forgotten the user password, the computer will continue to function normally but you will have limited access to the Setup Utility.

If you have enabled the Password on Boot field and you forget the supervisor password, you will not be able to boot up the computer. The same thing applies if you forget an HDD password. You will need to clear the lost password by shorting the SW1 dip switch located near the DIMM slot (DM1).

Perform the following procedure to clear all the system passwords (user, supervisor, and HDD).

1. Turn off the computer and unplug all the peripherals connected to it.
2. Unplug the power cord from the computer.
3. Remove the lower case cover according to the instructions described on page 28.
4. Remove the memory modules according to the instructions described on page 29.

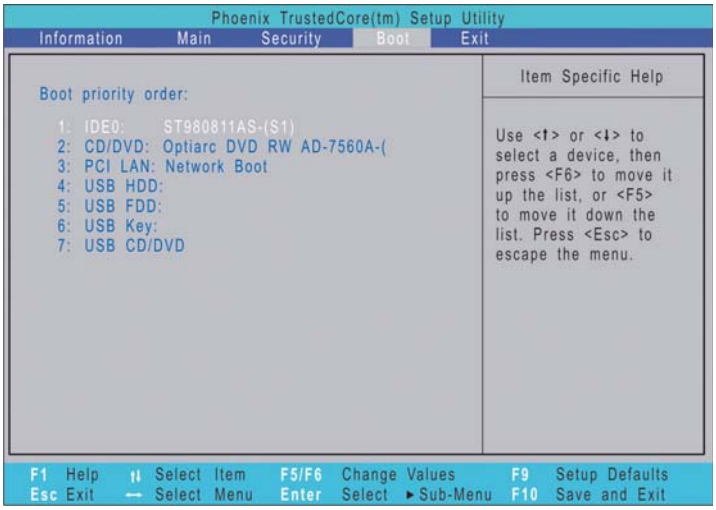
5. Peel off the black tape near the DIMM slot to expose the SW1 dip switch.
6. Locate the SW1 dip switch (G55).



7. Position the SWI dip switch to **ON** to clear all system passwords.
8. Reinstall the memory modules and the lower case cover.
9. Turn on the computer and press **F2** during bootup to access the Setup Utility.
10. Press **F9** to load the system defaults.
11. Press **F10** to save the changes you made and close the Setup Utility.

Boot

The Boot menu screen allows users to set the drive sequence in which Setup attempts to boot the operating system. By default, Setup searches for boot devices in the order shown in the screen below.

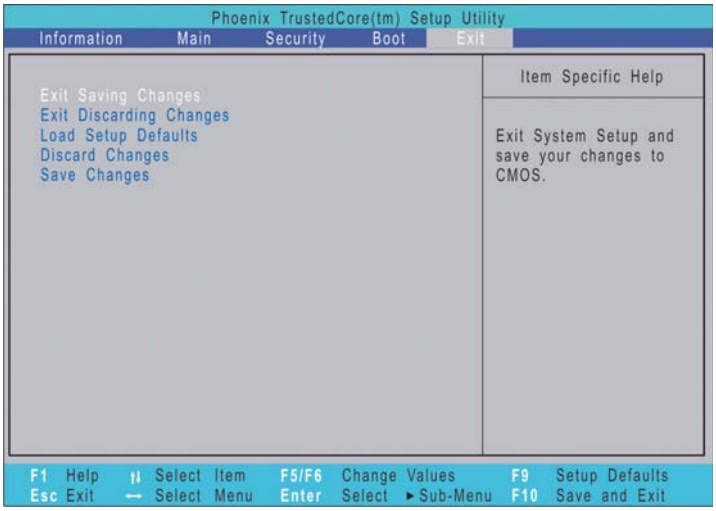


To set the boot drive sequence:

1. Press ↑ or ↓ to select a bootable device.
2. Press **F6** to move the device up the list, or **F5** to move it down the list.
3. Press **F10** to save the changes you made and close the Setup Utility.

Exit

The Exit menu displays the several options on how to quit from the Setup Utility. Select any of the exit options then press **Enter**.



Option	Description
Exit Saving Changes	Saves changes made and closes the Setup Utility. Keyboard shortcut: F10·
Exit Discarding Changes	Discards changes made and closes the Setup Utility.
Load Setup Defaults	Loads the factory-default settings for all Setup fields. Keyboard shortcut: F9
Discard Changes	Discards all changes made to the Setup Utility and loads the previous configuration settings.
Save Changes	Saves all changes made to the Setup Utility.

BIOS Flash Utility

The BIOS flash memory update is required under the following conditions:

- ❑ When there are new versions of system programs
- ❑ When new hardware options are installed
- ❑ When the BIOS has been corrupted and you need to restore it

BIOS Flash Precautions

- ❑ If you do not have a crisis recovery diskette at hand, create a **Crisis Recovery Diskette** in Windows XP of Vista before you use the flash utility.
- ❑ Do not install memory-related drivers (XMS, EMS, DPMI) when you use the flash utility.
- ❑ Place the computer in AC mode during the BIOS flash procedure. If the battery pack does not contain enough power to finish the BIOS flash, you may not able to boot the system because the BIOS is not completely loaded.

To flash the BIOS:

1. Prepare a bootable diskette.
2. Copy the flash utilities to the bootable diskette.
3. Boot the system from the bootable diskette.

   The flash utility will automatically be executed.
4. Follow the on-screen instructions to finish the flashing of the BIOS.

BIOS Recovery

If a BIOS flash procedure fails to complete, perform a BIOS recovery procedure by using the **Crisis Recovery Diskette**. During this procedure, the system will force the BIOS to enter a special BIOS block, called boot block, to boot up the system with minimum BIOS initialization.

To perform BIOS recovery:

1. Make sure the power cord is connected to the computer.
1. Attached a USB floppy drive to the computer.
2. Insert the **Crisis Recovery Diskette** into the floppy drive.
3. Press and hold the **Fn**+**Esc** keys, then press the power button ⏻.

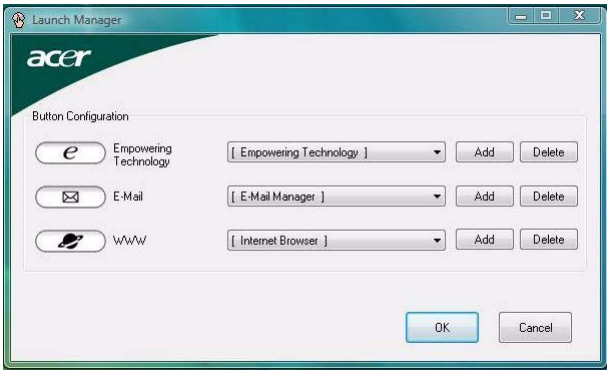
   This initialize the BIOS recovery process. The boot block BIOS will start to restore the failed BIOS code. Short beeps should be heard during this process. Once the process is completed, a long beep should be heard.
4. Turn off the computer once the process is complete.
5. Turn on the computer again and flash the BIOS. Refer to the previous instructions.

Launch Manager

Launch Manager allows users to configure three of the easy-launch keys—Acer Empowering, Web browser, and Mail.

To configure an easy-launch key:

1. Select **Start** | **All Programs** | **Launch Manager**.



2. Select which key to configure, then click the **Add** button opposite it.

3. You can set the key to open a particular file or program, or display a Web site address. Select the corresponding radio button, then type or browse for your selection.
4. If you've entered a Web site address, key in a descriptive label for the new easy-launch key function.
5. Click **OK**.
6. Click **OK** to save the new settings.

System Disassembly

This chapter provides step-by-step instructions on how to disassemble the notebook computer for maintenance and troubleshooting purposes.

Disassembly Tools

In performing the disassembly process, you will need the following tools:

- ❑ Wrist-grounding strap and conductive mat for preventing electrostatic discharge
- ❑ Philips screwdriver
- ❑ Flat screwdriver
- ❑ Hex screwdriver
- ❑ Flat plastic screwdriver
- ❑ Plastic tweezers

Stages of the Disassembly Process

The disassembly process is divided into three stages:

1. External modules disassembly
2. Main unit disassembly
   a. Upper case disassembly
   b. Lower case disassembly
3. LDC module disassembly

IMPORTANT: The disassembly procedure described in this chapter is a gradual process, as illustrated in the flowcharts preceding each disassembly stage section. This means that users need to observe the instructions in a step-by step manner. To illustrate, removing the HDD assembly will require that you first remove the battery pack and the stylus. Failure to observe the gradual flow of the process may result in component damage.

NOTE: To reinstall the system components and assemble the unit, perform the disassembly procedures in reverse.

Equivalent Torque Values

Torque values indicated in this chapter are expressed in kgf-cm (kilogram force-centimetre). For equivalent values in in-lb (inch-pound force) and Nmm (milli Newton meter), refer to the table below.

Torque Units	kgf-cm	in-lb	Nmm
Torque values	1.6	1.39	156.91
	3	2.60	294.21
	4	3.47	392.28

System Screw List

Listed below are the screw types used in this system, plus their corresponding part numbers.

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

Screw	Type	Color	Part Number
A	M2 x L8 BZN+NYLOK	Black	86.00D75.220
B	M2 x L4 BZN	Black	86.00A02.140
C	M2.5 x L8 BZN+NYLOK	Black	86.00E34.738
D	M2 x L4 BZN+NYLOK	Black	86.00E13.524
E	M3 x L4	Silver	86.9A554.4R0
F	M2 x L3 BZN+NYLOK	Black	86.00E25.723
G	M2 x L2.5 BZN+NYLOK	Black	86.00D72.620
H	M2.5 x L12 BZN+NYLOK	Silver	86.00E67.63C
I	M2.5 x L4 BZN+NYLOK	Black	86.00D30.630
J	M2.5 x L6 BZN+NYLOK	Black	86.00E33.736
K	M2 X L2 NI	Silver	86.00D77.320
L	M2.5 x L5 BZN+NYLOK	Black	86.00F19.735
M	M2.5 x L3 BZN+NYLOK	Black	86.00D52.630

Pre-disassembly Procedure

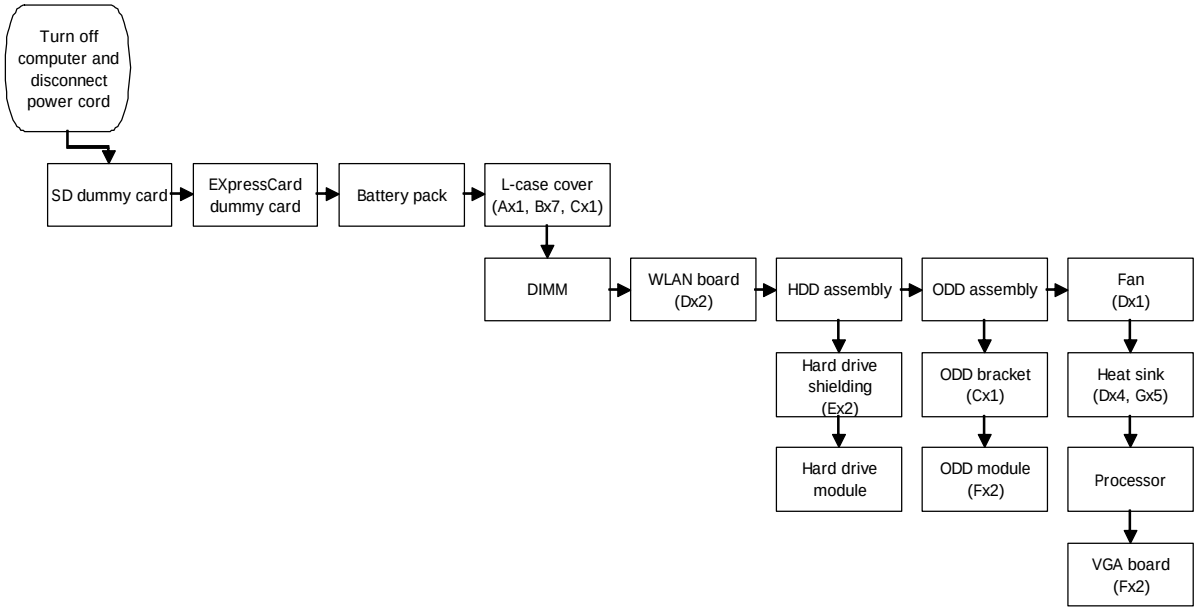
Before proceeding with the disassembly procedure, perform the steps listed below:

1. Turn off the power to the computer and all peripherals.
2. Unplug the power cord from the computer.

3. Unplug all peripheral cables from the computer.
4. Close the notebook lid and place the computer on a flat, steady surface.

External Modules Disassembly

External Modules Disassembly Flowchart



Screw	Type	Part Number
A	M2 x L8 BZN+NYLOK	86.00D75.220
B	M2 x L4 BZN	86.00A02.140
C	M2.5 x L8 BZN+NYLOK	86.00E34.738
D	M2 x L4 BZN+NYLOK	86.00E13.524
E	M3 x L4	86.9A554.4R0
F	M2 x L3 BZN+NYLOK	86.00E25.723
G	M2 x L2.5 BZN+NYLOK	86.00D72.620

Removing the SD Dummy Card

1. Push against the card, as if you were pushing it further into the slot, letting the card spring out.

2. Pull the SD dummy card out of its slot.

Removing the ExpressCard/54 Dummy Card

1. Push against the card, as if you were pushing it further into the slot, letting the card spring out.

2. Pull the ExpressCard/54 dummy card out of its slot.

Removing the Battery Pack

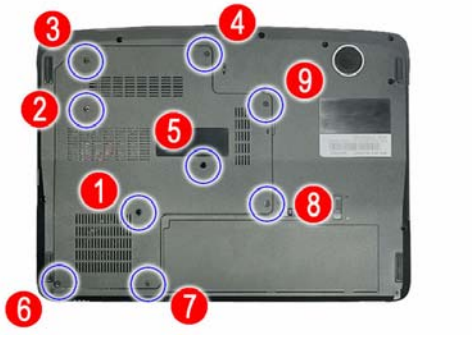
1. Turn the unit over with the base facing upward.
2. Slide the battery lock to the unlock position.

3. Slide the battery release latch to pop up the battery from its bay.

4. Remove the battery pack from its bay.

Removing the Lower Case Cover

1. Remove the screws securing the lower case cover.

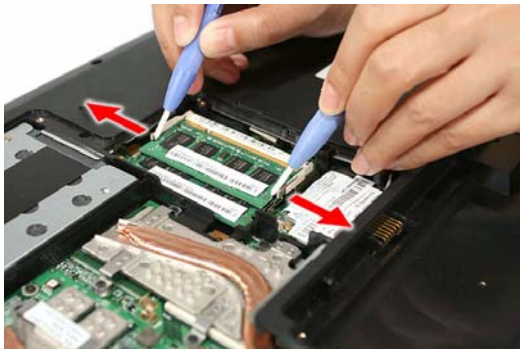


Step	Type	Quantity	Color	Torque
1	M2 x L8 BZN+NYLOK	1	Black	1.6 kgf-cm +/-15%
	M2 x L4 BZN	7	Black	1.6 kgf-cm +/-15%
	M2.5 x L8 BZN+NYLOK	1	Black	3 kgf-cm +/-15%

2. Pry the lower case cover from the main unit, then remove it.

Removing the Memory Modules

1. Push out the latches on both sides of the exterior DIMM slot (DM1).



2. Remove the memory module from its slot.

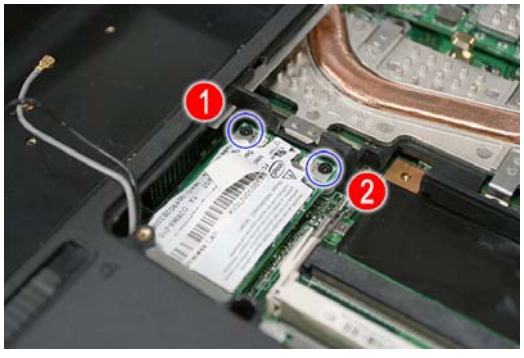
3. Repeat steps 1 and 2 to remove the second memory module.

Removing the WLAN Board

1. Peel off the end of the bar code tape securing the WLAN antennas.

2. Disconnect the antennas from the WLAN board, then move them away from the board.

3. Remove the screws securing the WLAN board.



Step	Type	Quantity	Color	Torque
3	M2 x L4 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

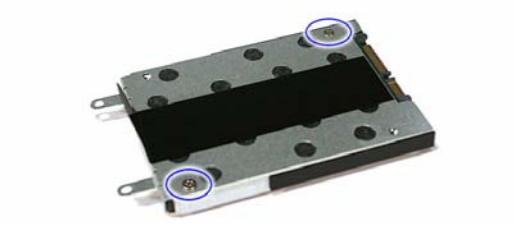
4. Remove the WLAN board from its slot (MINI1).

Removing and Dismantling the HDD Assembly

1. Partly peel off the mylar tape (**1**) and use it to pull the HDD assembly from its connector (**2**. SATA1).

2. Remove the HDD assembly from the main unit.

3. Remove the screws on the HDD module shielding.



Step	Type	Quantity	Color	Torque
3	M3 x L4	2	Silver	3 kgf-cm +/-15%

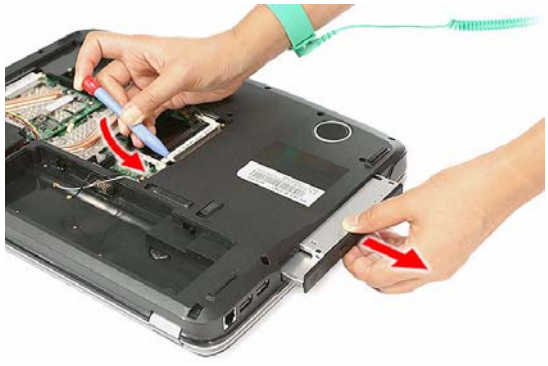
4. Remove the HDD module from its shielding.

Removing and Dismantling the ODD Assembly

1. Remove the screw securing the ODD assembly to the main unit.

Step	Type	Quantity	Color	Torque
1	M2.5 x L8	1	Black	3 kgf-cm +/-15%

2. Use a plastic flat screwdriver to push the ODD assembly out of the main unit, then slide it out of its bay.

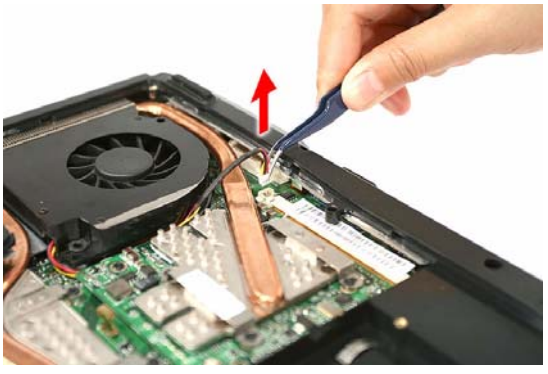


3. Detach the ODD bracket by removing the screws that secure it to the ODD module.

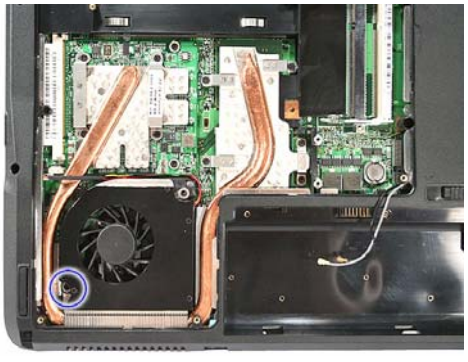
Step	Type	Quantity	Color	Torque
3	M2 x L3 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

Removing the Cooling Fan

1. Disconnect the fan cable from its system board connector (FAN1).



2. Remove the screw securing the fan.

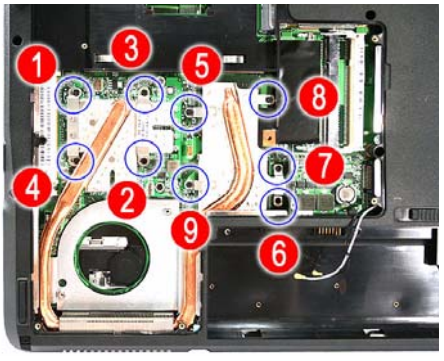


Step	Type	Quantity	Color	Torque
2	M2 x L4 BZN+NYLOK	1	Black	1.6 kgf-cm +/-15%

3. Remove the fan from the main unit.

Removing the Heat Sink

1. Remove the screws securing the heat sink (Discrete model).



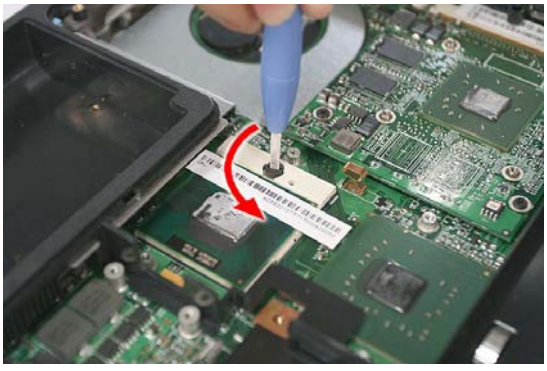
Step	Type	Quantity	Color	Torque
1	M2 x L4 BZN+NYLOK	4	Black	1.6 kgf-cm +/-15%
	M2 x L2.5 BZN+NYLOK	5	Black	1.6 kgf-cm +/-15%

2. Carefully pull the heat sink from its base, then remove it from the system board.

Removing the Processor

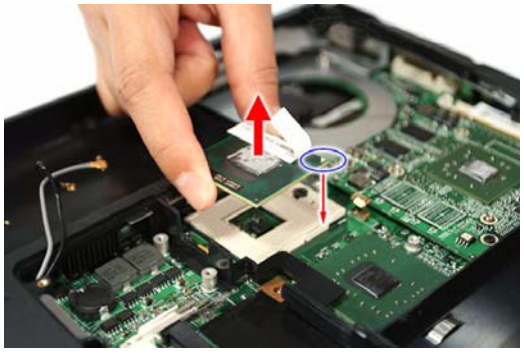
1. Use a flat screwdriver to turn the processor socket lock to the counter-clockwise to the unlock position (note the unlock icon).

   Torque value: 3 kgf-cm +/-15%



2. Partly peel off the processor bar code tape.

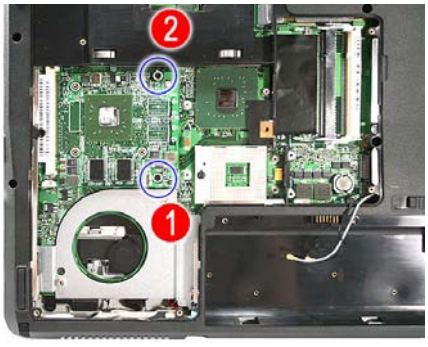
3. Hold the processor by its edges and remove it from its socket (U36).



IMPORTANT: When installing a processor, note the golden arrow on the corner to make sure the processor is properly oriented over the socket. Refer to figure above.

Removing the VGA Board

1. Remove the screws securing the VGA board to the system board.



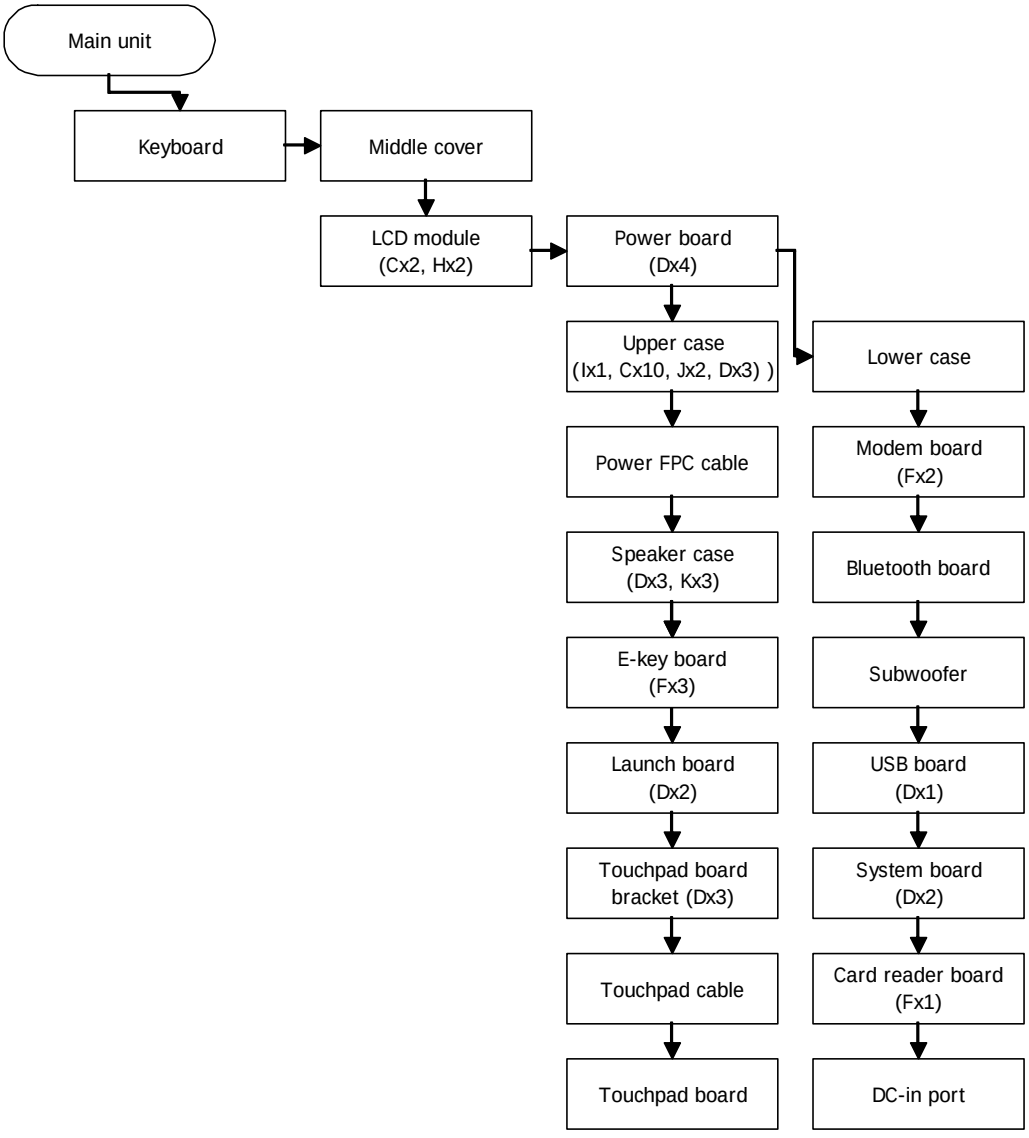
Step	Part Number and Type	Quantity	Color	Torque
1	M2 x L3 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

2. Hold the VGA board by its edges and pull it from its slot (MXM1).

Main Unit Disassembly

IMPORTANT: To prevent from scratching or damaging the LCD panel, cover it with a protective film before disassembling the main unit.

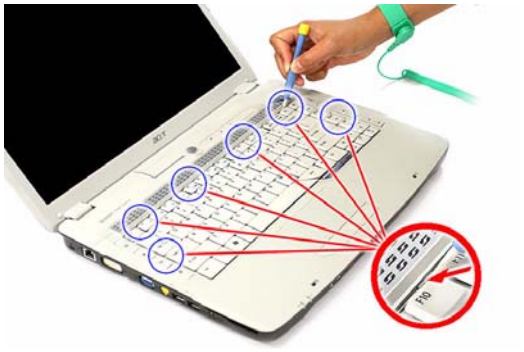
Main Unit Disassembly Flowchart



Screw	Type	Part Number
C	M2.5 x L8 BZN+NYLOK	86.00E34.738
D	M2 x L4 BZN+NYLOK	86.00E13.524
F	M2 x L3 BZN+NYLOK	86.00E25.723
H	M2.5 x L12 BZN+NYLOK	86.00E67.63C
I	M2.5 x L4 BZN+NYLOK	86.00D30.630
J	M2.5 x L6 BZN+NYLOK	86.00E33.736
K	M2 X L2 NI	86.00D77.320

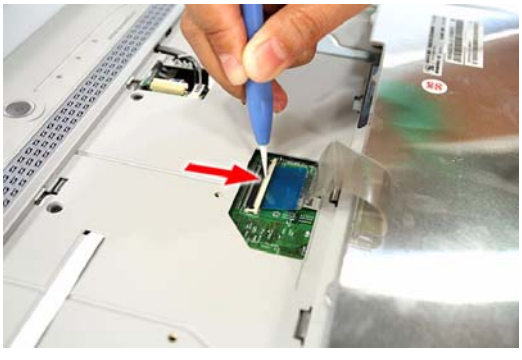
Removing the Keyboard

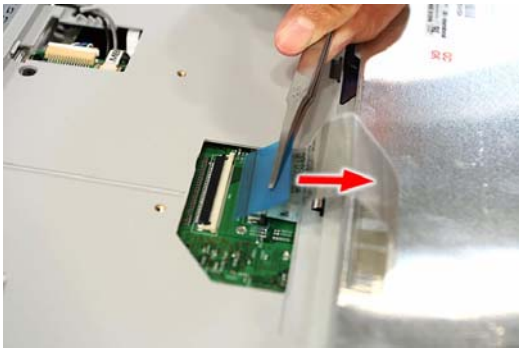
1. Use a flat plastic screwdriver to push the six tabs securing the keyboard to the upper case (U-case).



2. Pry the keyboard off to release it from the upper case, then turn it over the palmrest to gain access to the keyboard cable.

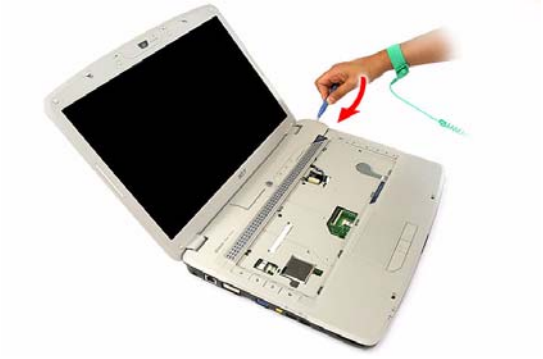
3. Disconnect the keyboard cable from its system board connector (KB1) to completely detach the keyboard from the main unit.



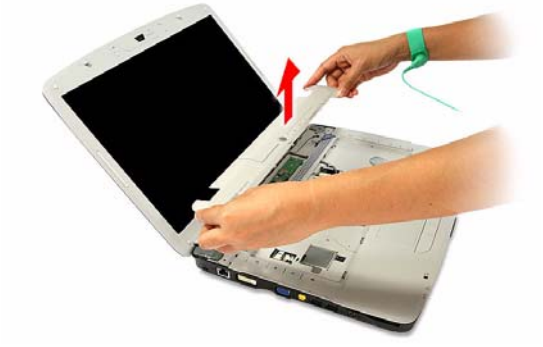


Removing the Middle Cover

1. Open the LCD panel completely to facilitate the easy removal of the middle cover.
2. Use a plastic flat screwdriver to pry one end of the middle cover. Continue prying on the other side until the cover is released from the U-case.

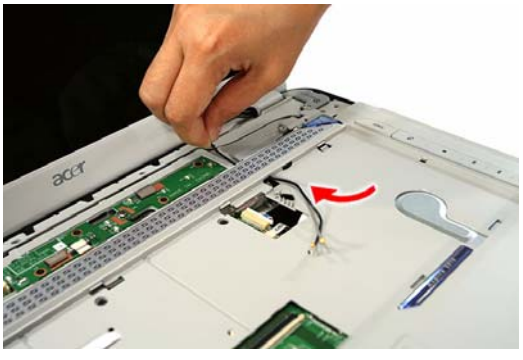


3. Remove the middle cover from the main unit.

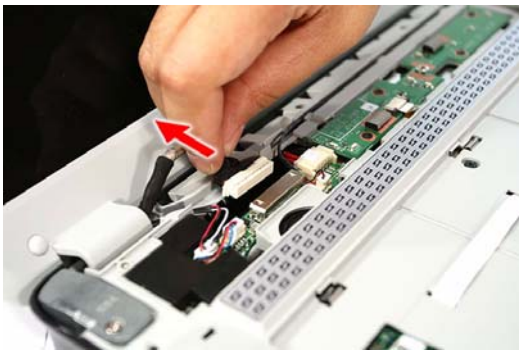


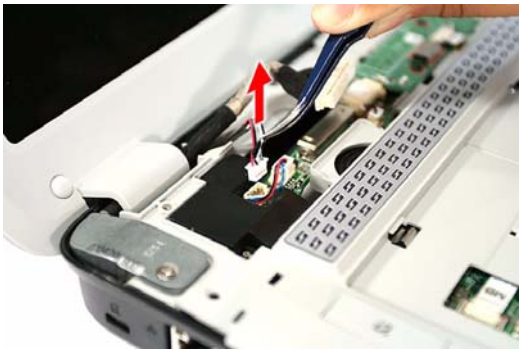
Removing the LCD Module

1. Pull out the WLAN antennas from underneath the computer base, and then from under the speaker grill.



2. Disconnect the LCD and internal microphone cables from their system board connectors (LCD1, INTMIC1).

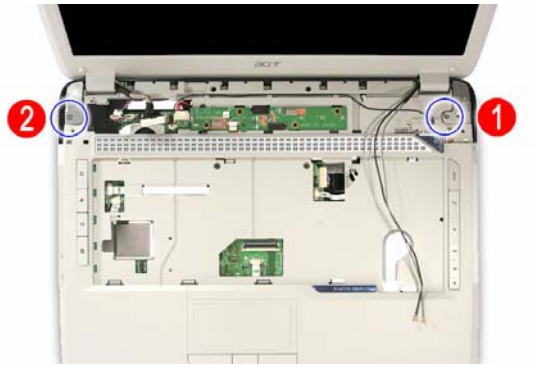




3. Close the computer lid and turn the unit over to the base side.
4. Remove the lower case screws securing the LCD module.

Step	Type	Quantity	Color	Torque
4	M2.5 x L8 BZN+NYLOK	2	Black	3 kgf-cm +/-15%

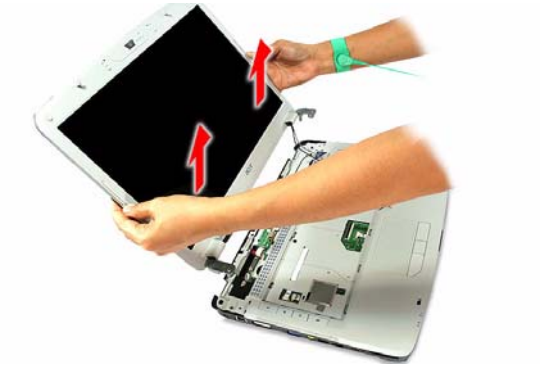
5. Turn the unit right side up and open the notebook lid again.
6. Remove the hinge screws securing the LCD module.



Step	Type	Quantity	Color	Torque
6	M2.5 x L12 BZN+NYLOK	2	Silver	4 kgf-cm +/-15%

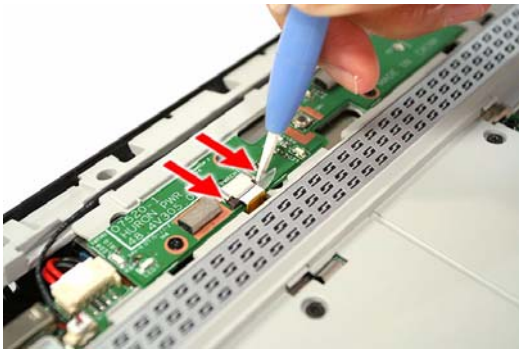
7. Detach the LCD module from the main unit.

   Proceed to page 55 for instructions on how to disassemble the LCD module.

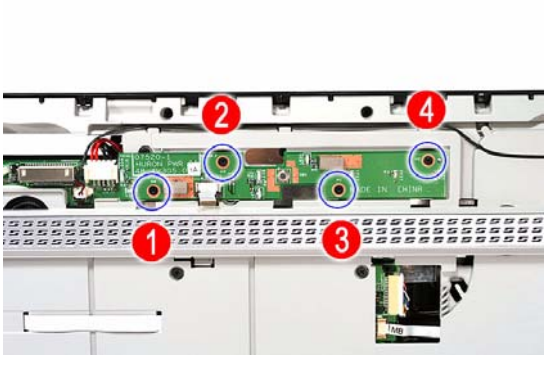


Removing the Power Board

1. Disconnect the power FPC cable from its power board connector (PWRCN1).

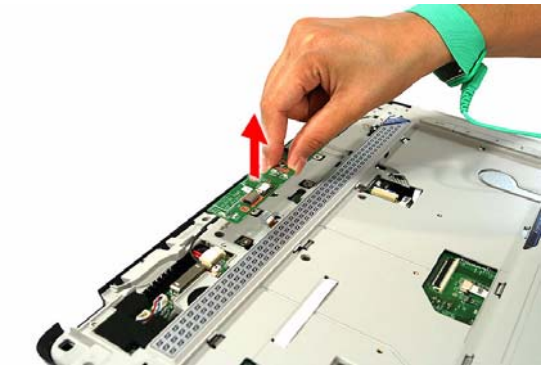


2. Remove the screws securing the power board.



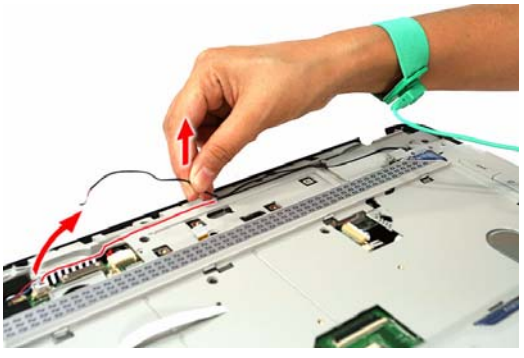
Step	Type	Quantity	Color	Torque
2	M2 x L4 BZN+NYLOK	4	Black	1.6 kgf-cm +/-15%

3. Remove the power board from the upper case.

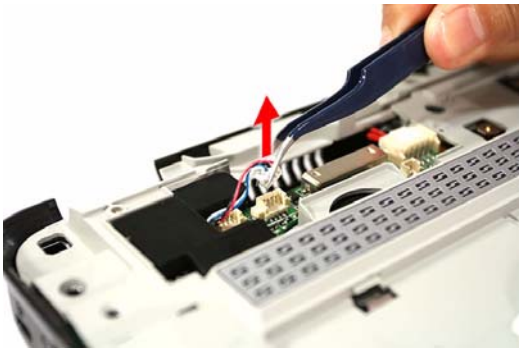


Removing the Upper Case

1. Disconnect the following system cables from their connectors.
   - Empowering Key board cable (E_KEY1)

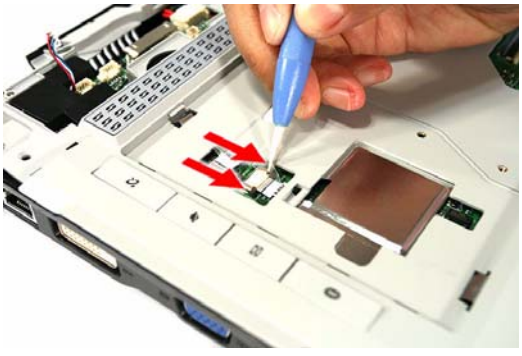
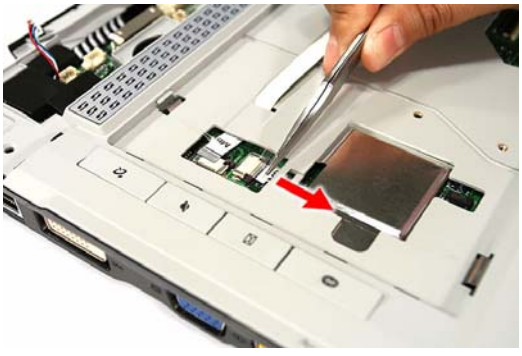


   - Speaker cable (SPKR1)

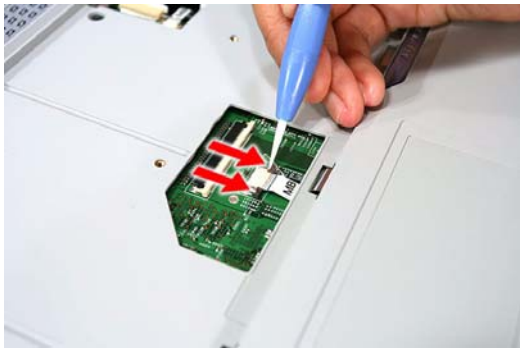
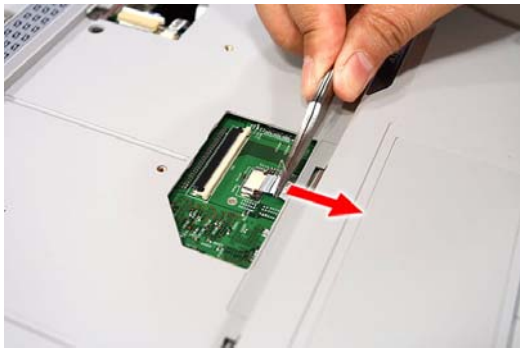


- Power FPC cable (PWRCN1)

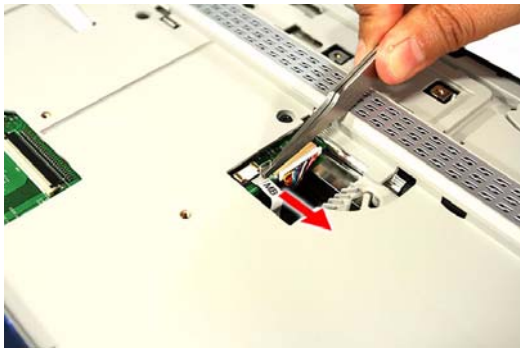

- Launch board cable (LAUNCHCN1)

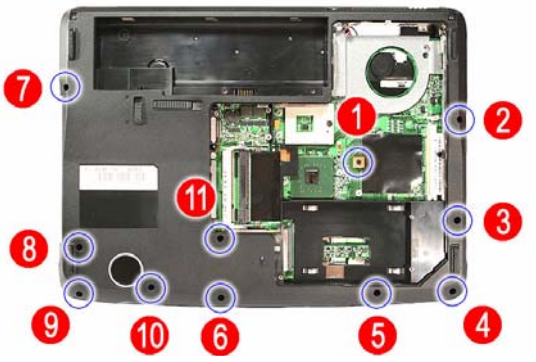
- Touchpad cable (TPAD1)

- Media FPC cable (MEDIA1)

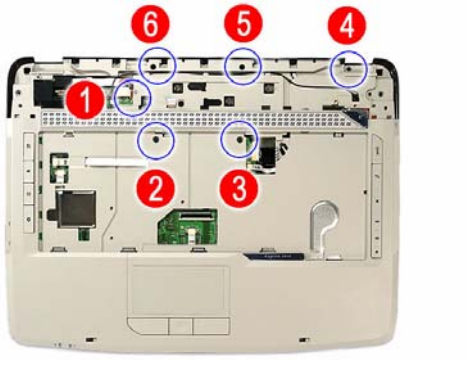



2. Turn the unit over to the base side.
3. Remove the lower case screws securing the upper case.



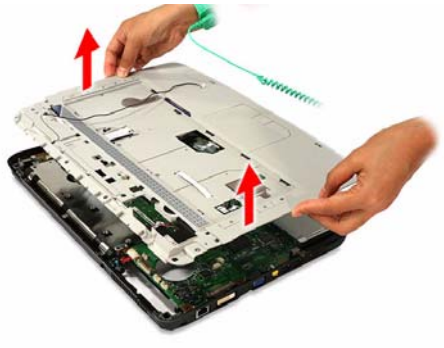
Step	Type	Quantity	Color	Torque
4	M2.5 x L4 BZN+NYLOK	1	Black	3 kgf-cm +/-15%
	M2.5 x L8 BZN+NYLOK	10	Black	3 kgf-cm +/-15%

4. Turn the unit over again and remove the top upper case screws.



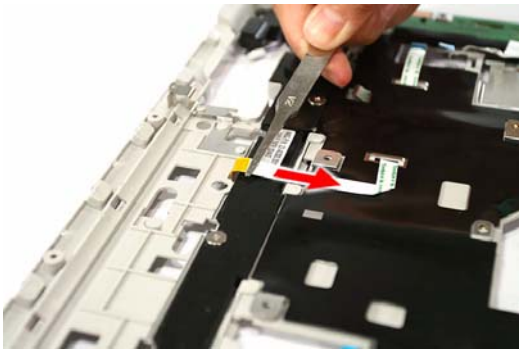
Step	Type	Quantity	Color	Torque
2	M2.5 x L6 BZN+NYLOK	2	Black	3 kgf-cm +/-15%
	M2 x L4 BZN+NYLOK	3	Black	1.6 kgf-cm +/-15%

5. Pry the upper case from its lower case latches to remove it.



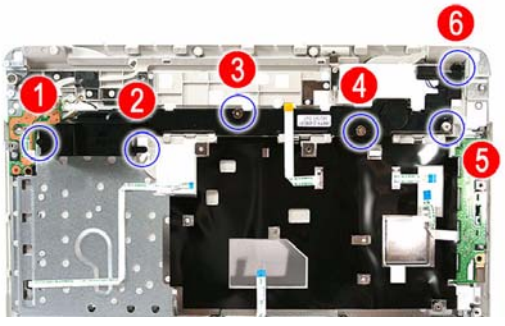
Removing the Power FPC Cable

- ❑ Remove the power FPC cable from the upper case.



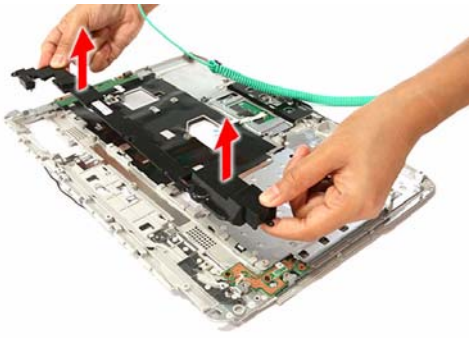
Removing the Speaker

1. Remove the screws securing the speaker.



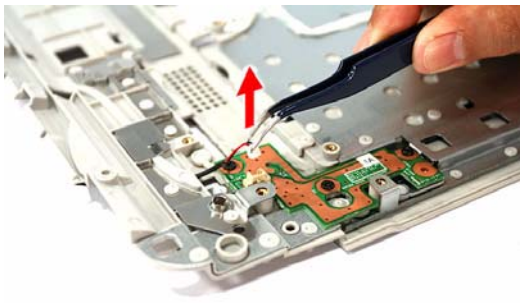
Step	Type	Quantity	Color	Torque
1	M2 x L4 BZN+NYLOK	3	Black	1.6 kgf-cm +/-15%
	M2 X L2 NI	3	Silver	1.6 kgf-cm +/-15%

2. Remove the speaker from the lower case.

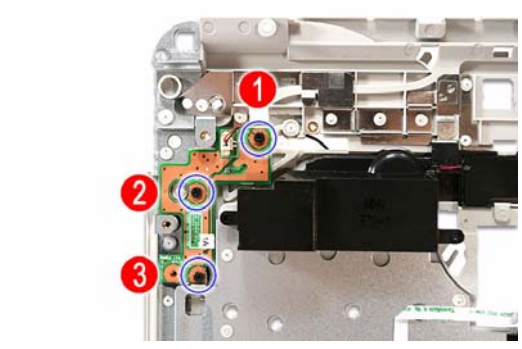


Removing the E-key Board

1. Disconnect the E-key board cable (E_KEY1).

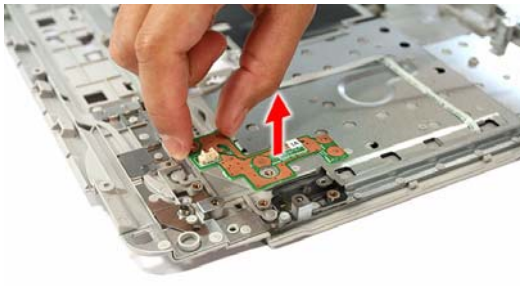


2. Remove the screws securing the E-key board.



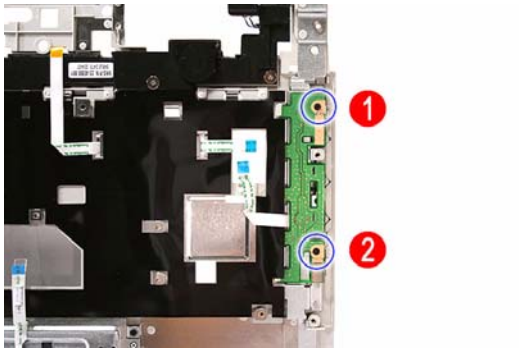
Step	Type	Quantity	Color	Torque
2	M2 x L3 BZN+NYLOK	3	Black	1.6 kgf-cm +/-15%

3. Remove the E-key board from the upper case.



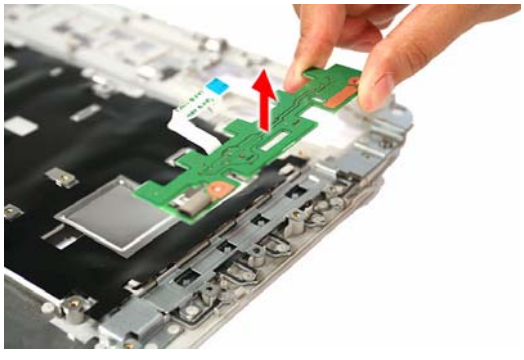
Removing the Launch Board

1. Remove the screws securing the launch board.



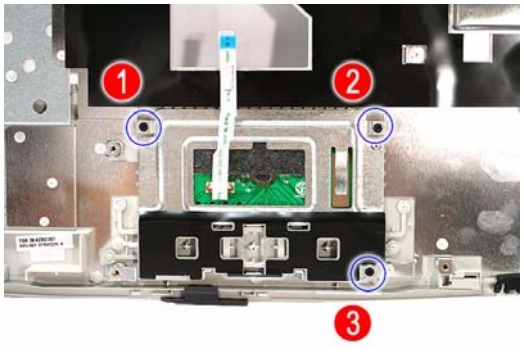
Step	Type	Quantity	Color	Torque
1	M2 x L4 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

2. Remove the launch board from the upper case.



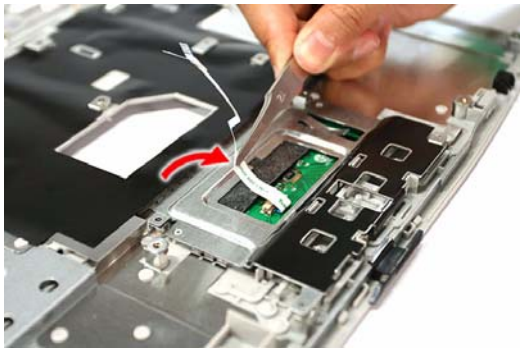
Removing the Touchpad Board

1. Remove the screws securing the touchpad board bracket.



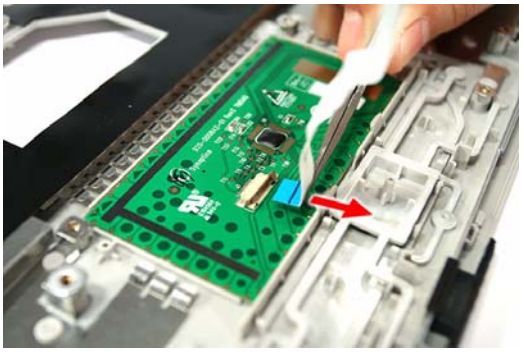
Step	Type	Quantity	Color	Torque
1	M2 x L4 BZN+NYLOK	3	Black	1.6 kgf-cm +/-15%

2. Detach the touchpad FPC cable from the upper case adhesive tape.



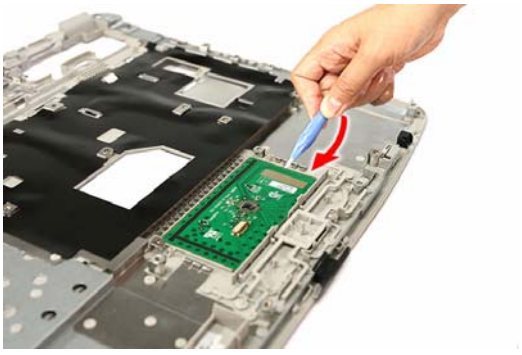
3. Remove the touchpad board bracket from the upper case.

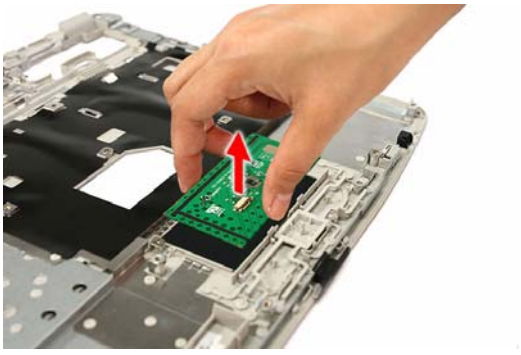
4. Disconnect the touchpad FPC cable.



5. Carefully pry loose the touchpad board from the upper case to detach it.

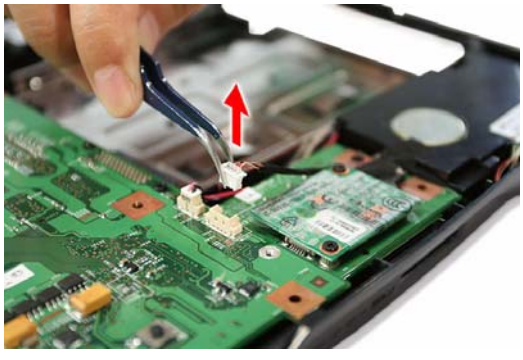
CAUTION: The touchpad board is glued to the upper case. Remove the touchpad board only if it is defective.





Removing the Modem Board

1. Disconnect the Bluetooth cable from its system board connector (BLUE1).

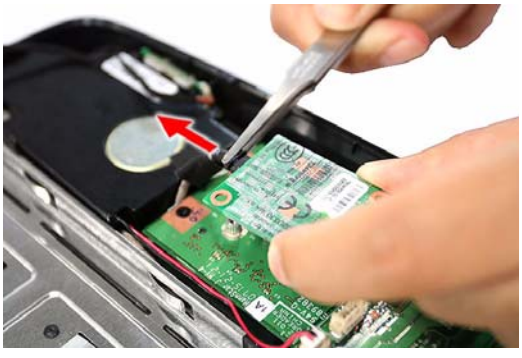


2. Peel off the tape protecting the Bluetooth and modem cables.

3. Remove the screws securing the modem board.

Step	Type	Quantity	Color	Torque
3	M2 x L3 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

4. Remove the modem board from its card reader board connector (MDC1), then disconnect the modem cable from the board.

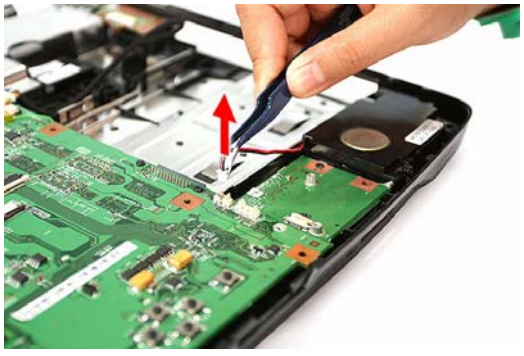


Removing the Bluetooth Board

- ❑ Remove the Bluetooth board from the lower case.

Removing the Subwoofer

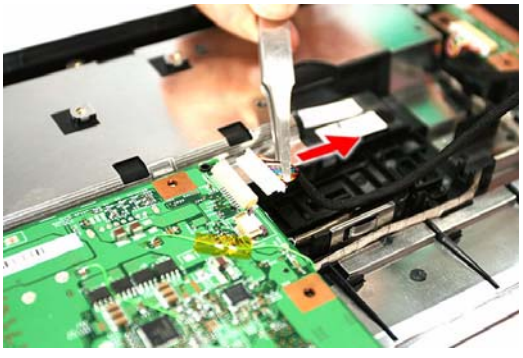
1. Disconnect the subwoofer cable from its system board connector (SPKR2).



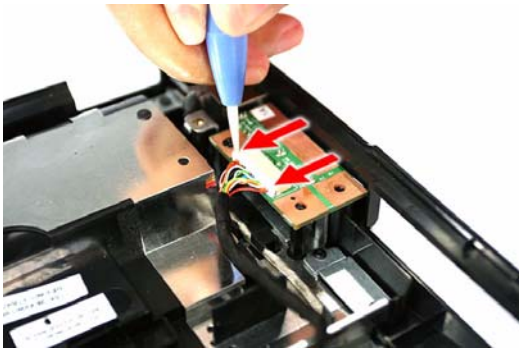
2. Remove the subwoofer from the lower case.

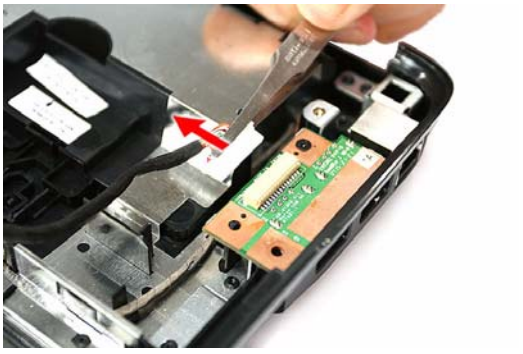
Removing the USB Board

1. Disconnect the USB FPC cable from its system board connector (USBCN1).

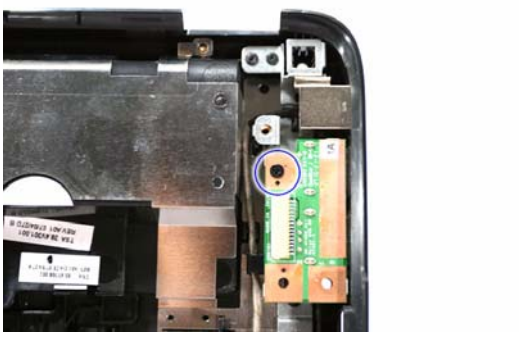


2. Disconnect the USB FPC cable from the its USB board connector.



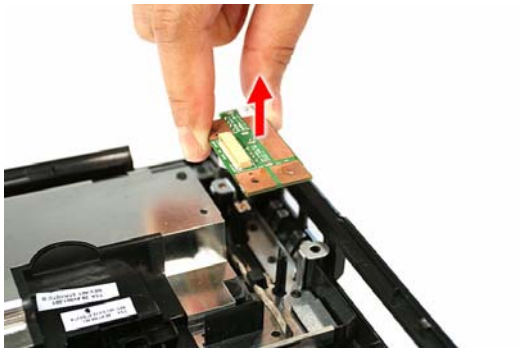


3. Remove the screw securing the USB board.



Step	Type	Quantity	Color	Torque
3	M2 x L4 BZN+NYLOK	1	Black	1.6 kgf-cm +/-15%

4. Remove the USB board from the lower case.



Removing the System Board

1. Disconnect the DC-in cable from its system board connector (DC1).

2. Remove the screws securing the system board and the card reader board to the lower case.

Step	Type	Quantity	Color	Torque
2	M2 x L4 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

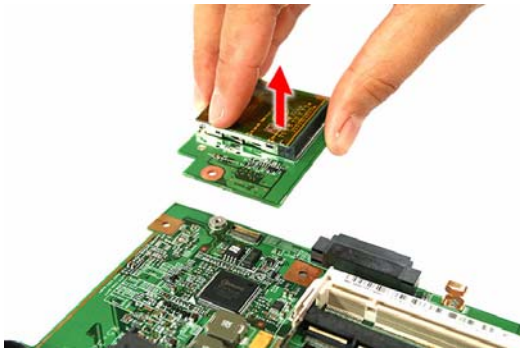
3. Carefully remove the system board from the lower case.

Removing the Card Reader Board

1. Remove the screw securing the card reader board to the system board.

Step	Type	Quantity	Color	Torque
1	M2 x L3 BZN+NYLOK	1	Black	1.6 kgf-cm +/-15%

2. Turn the system board over, and detach the card reader board from its connector (CARDREADER1).

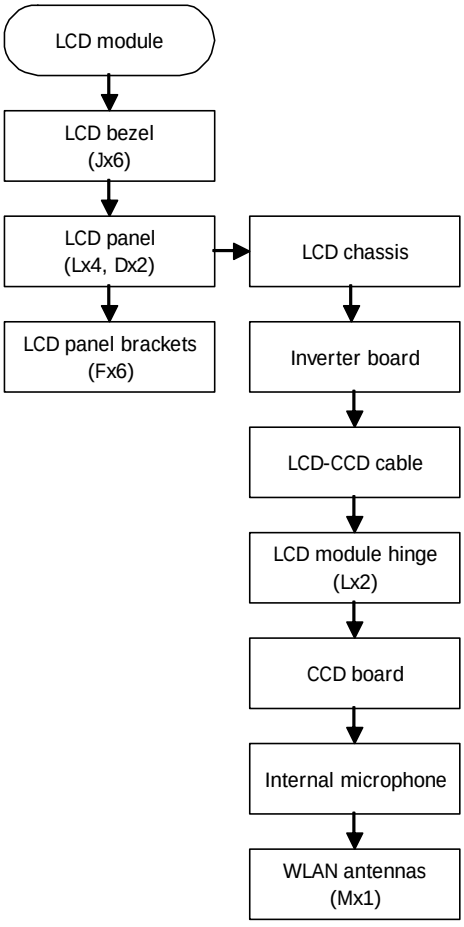


Removing the DC-in Jack

- Remove the DC-in jack from the lower case.

LCD Module Disassembly

LCD Module Disassembly Flowchart

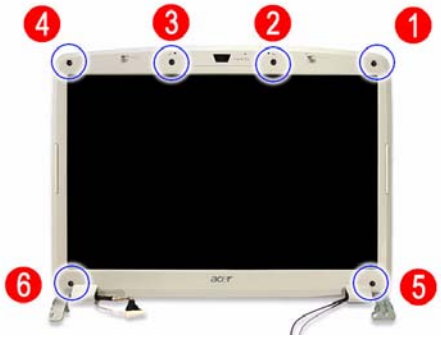


Screw	Type	Part Number
D	M2 x L4 BZN+NYLOK	86.00E13.524
F	M2 x L3 BZN+NYLOK	86.00E25.723
J	M2.5 x L6 BZN+NYLOK	86.00E33.736
L	M2.5 x L5 BZN+NYLOK	86.00F19.735
M	M2.5 x L3 BZN+NYLOK	86.00D52.630

Removing the LCD Bezel

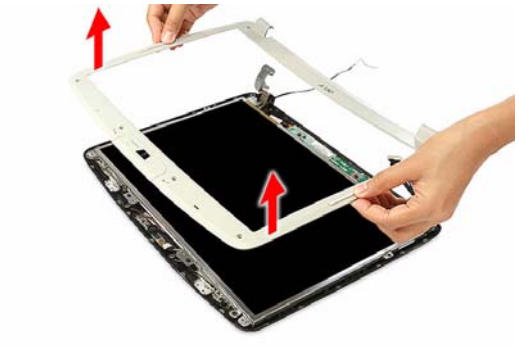
1. Remove the rubber pads securing the LCD bezel screws.

2. Remove the screws securing the LCD bezel.



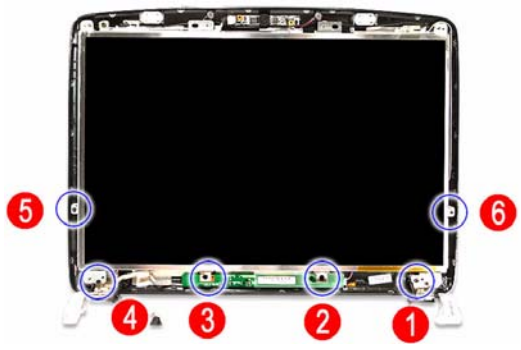
Step	Type	Quantity	Color	Torque
2	M2.5 x L6 BZN+NYLOK	6	Black	3 kgf-cm +/-15%

3. Carefully pry the LCD bezel open and remove it from the LCD module.



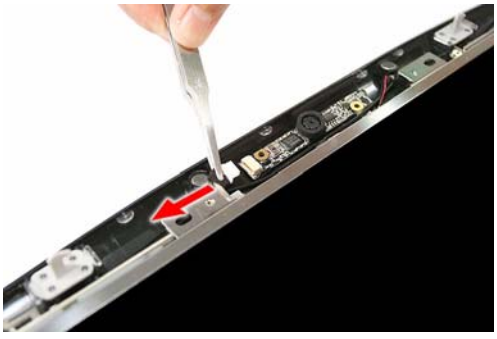
Removing the LCD Panel

1. Remove the screws securing the LCD panel.



Step	Type	Quantity	Color	Torque
1	M2.5 x L5 BZN+NYLOK	4	Black	3 kgf-cm +/-15%
	M2 x L4 BZN+NYLOK	2	Black	1.6 kgf-cm +/-15%

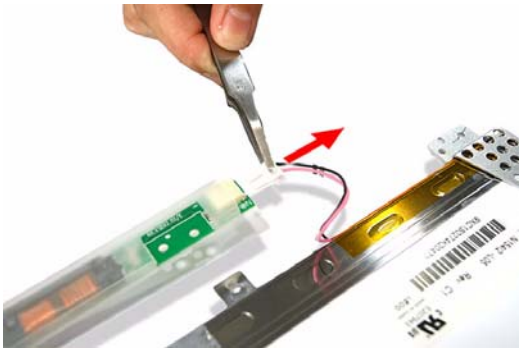
2. Disconnect the CCD board cable.

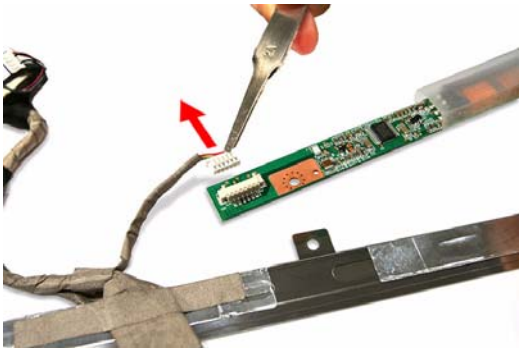


3. Remove the LCD panel from its chassis, then turn it over to gain access to the inverter board cables.

Removing the Inverter Board

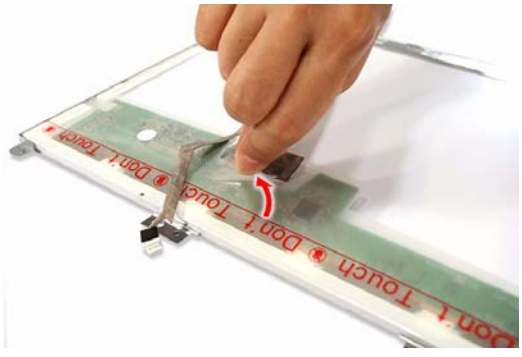
- ❑ Disconnect the 2P and inverter cables from the inverter board.



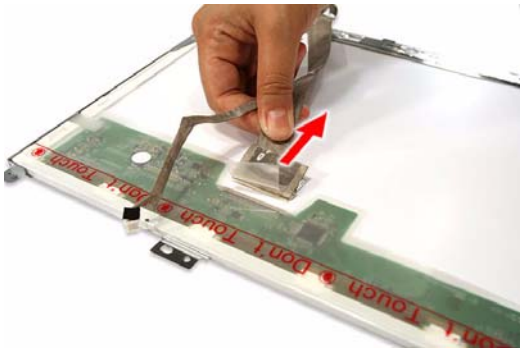


Removing the LCD-CCD Cable

1. Peel off the acetic tapes securing the LCD-CCD cable to the LCD panel.



2. Disconnect the LCD connector end of the LCD-CCD cable from the LCD panel PCB.



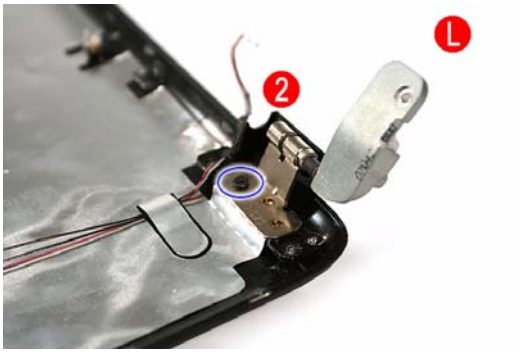
Removing the LCD Panel Brackets

❑ Remove the screws securing the LCD panel brackets.

Step	Part Number and Type	Quantity	Color	Torque
*	M2 x L3 BZN+NYLOK	6	Black	1.6 kgf-cm +/-15%

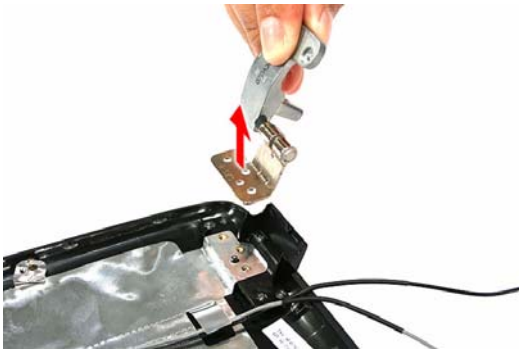
Removing the LCD Module Hinges

1. Remove the screws securing the LCD module hinges.



Step	Type	Quantity	Color	Torque
1	M2.5 x L5 BZN+NYLOK	2	Black	3 kgf-cm +/-15%

2. Remove the LCD module hinges from the LCD chassis.

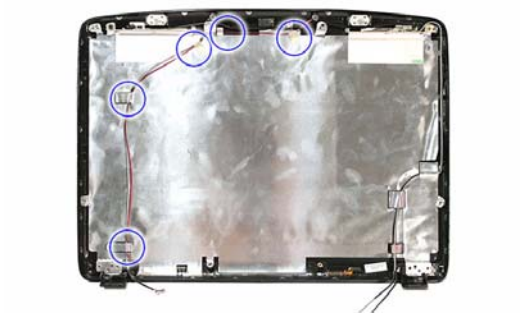


Removing the CCD Board

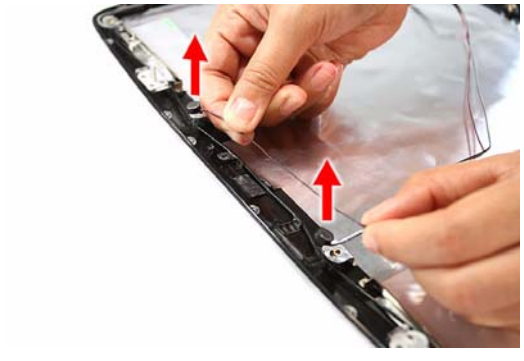
- ❑ Remove the CCD board from the LCD chassis.

Removing the Microphones

1. Peel off the aluminum foil tabs and acetic tapes securing the microphone cables.



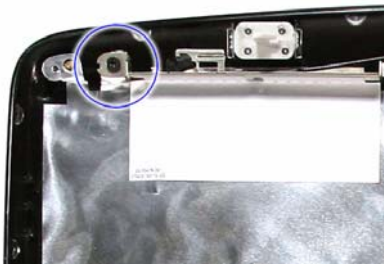
2. Carefully remove the internal microphones from the LCD chassis.



Removing the WLAN Antennas

1. Peel off the aluminum foil tabs securing the WLAN antennas.

2. Remove the screw securing the left antenna bracket.



Step	Type	Quantity	Color	Torque
2	M2.5 x L3 BZN+NYLOK	1	Black	3 kgf-cm +/-15%

3. Carefully detach the WLAN antenna from the LCD chassis.

System Troubleshooting

This chapter provides instructions on how to troubleshoot system hardware problems. If the problem can't be resolved using the procedures described here, information for getting online technical assistance is also provided.

Hardware Diagnostic Procedure

IMPORTANT: The diagnostic tests described in this chapter are only intended to test Acer products. Non-Acer products, prototype cards, or modified options can give false errors and invalid system responses.

1. Obtain as much detail as possible about the presented failure symptoms.
2. Verify the symptoms by attempting to re-create the failure through diagnostic tests or by repeating the same condition that precedes the symptoms.
3. Refer the table below to determine which corrective action to perform.

Problem	Symptom	Section to Refer to
Power failure	The power indicator does light up or stay lit.	"Power System Check" on page 65
POST failure	POST does not complete. No beep or error codes issued.	"POST Error Message" on page 67 "Undetermined Problems"
	POST detects an error and displayed messages on screen.	"POST Error Message" on page 67
Specific component failure	Dysfunctional component symptoms (e.g. blurred LCD display).	"POST Error Message" on page 67
Intermittent failure	Symptoms cannot be re-created	Use the customer-reported symptoms and go to the "POST Error Message" section on page 67. "Intermittent Problems" on page 78

System Check Procedures

External Diskette Drive Check

Do the following to isolate the problem to a controller, driver, or diskette. A write-enabled, diagnostic diskette is required.

IMPORTANT: Make sure that the diskette does not have more than one label attached to it. Multiple labels can damage to the drive.

1. Boot from the diagnostics diskette and start the diagnostics program.
2. Check if the FDD Test is successful (pass).
3. Follow the instructions in the message window.

If an error occurs with the internal diskette drive, reconnect the diskette connector on the system board.

If the error still remains:

1. Reconnect the external diskette drive.
2. Replace the external diskette drive.
3. Replace the system board.

External CD-ROM Drive Check

Do the following to isolate the problem to a controller, drive, or CD-ROM.

IMPORTANT: Make sure that the CD-ROM does not have any label attached to it. The label can damage the drive.

1. Boot from the diagnostics diskette and start the diagnostics program.
2. Check if the CD-ROM Test is successful (pass).
3. Follow the instructions in the message window.

If an error occurs, reconnect the CD-ROM drive connector on the system board.

If the error still remains:

1. Reconnect the CD-ROM module.
2. Replace the CD-ROM module.
3. Replace the system board.

Keyboard or Auxiliary Input Device Check

Remove the external keyboard if the internal keyboard is to be tested.

If the internal keyboard does not work or an unexpected character appears, make sure that the flexible cable extending from the keyboard is properly connected to its system board connector (KB1).

If the keyboard cable connection is correct, run the Keyboard Test.

If the tests detect a keyboard problem, do the following one at a time to correct the problem.

1. Reconnect the keyboard cable.
2. Replace the keyboard.
3. Replace the system board.

The following auxiliary input devices are supported by this computer:

- ❑ Numeric keypad
- ❑ External keyboard

If any of these devices do not work, reconnect the device cable and check if that corrects the device failure.

Memory Check

Memory errors might stop system operations, display error messages, or cause the system to hang up.

Make sure that the DIMM is properly installed in its slot. A loose connection can cause an error.

If the DIMM connection is correct, run the Doagmpstotics Test.

1. Boot from the diagnostics diskette and start the Doagmpstotics program.
2. Go to the diagnostic memory in the test items.
3. Press **F2** in the test items.
4. Follow the instructions in the message window.

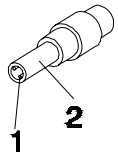
Power System Check

To verify the cause of the power problem, power on the computer using the AC adapter, and then the battery pack.

1. Remove the battery pack.
2. Connect the AC adapter and check if power is supplied.
3. Disconnect the AC adapter and install a fully-charged battery pack, and then check if power is supplied.
   - If the failure is cause by a defective AC adapter, refer to the “Check the AC Adapter” section.
   - If the failure is cause by a defective battery pack, refer to the “Check the Battery Pack” section.

Check the AC Adapter

Unplug the AC adapter cable from the computer and measure the output voltage at the plug of the AC adapter cable. Refer the figure below.



Pin 1: + 19 to +20.5V
Pin 2: OV, ground

1. If the voltage is not correct, replace the power adapter.
2. If the voltage is within the range, do the following:
   a. Replace the system board.
   b. If the problem is not corrected, see the section “Undetermined Problems” on page 79.
   c. If the voltage is still not corrected, proceed to the next step.

NOTE: An audible noise from the power adapter does not always indicate a defect.

3. If the power indicator does not light up, check the power cord of the AC adapter for correct continuity and installation.
4. If the operational charge does not work, see the “Check the Battery Pack” section on the next page.

Check the Battery Pack

Check the battery pack via the OS control and by checking the actual battery pack.

Using the OS control:

1. Open the **Power Management** setting in the Windows Control Panel screen.
2. On the Power Meter tab, confirm that the **Current Power Source** and **Total Battery Power Remaining** parameters are correct.
3. Repeat steps 1 and 2 using both the battery pack and the AC adapter as the power source.

   This will help you identify if the problem is on recharging or discharging.

Checking the battery pack voltage:

1. Power off the computer.
2. Remove the battery pack and measure the voltage between battery terminals 1 (+) and 6 (ground).
3. If the voltage is still less than 7.5 Vdc after recharging, replace the battery.

Checking the battery charge function:

1. Use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.
2. If the battery charge indicator does not light up, remove the battery pack and allow it to return to room temperature, then reinstall the battery pack.
3. If the charge indicator still does not light up, replace the battery pack.

Touchpad Check

If the touchpad doesn't work, do the following actions one at a time to correct the problem. Do not replace a non-defective FRU:

1. Reconnect the touchpad cable.
2. Replace the touchpad board.
3. Replace the system board.

After you use the touchpad, the pointer drifts on the screen for a short time. This self-acting pointer movement can occur when a slight, steady pressure is applied to the touchpad pointer. This symptom is not a hardware problem. No service actions are necessary if the pointer movement stops in a short period of time.

POST Error Indicators

When POST detects a system failure, it either displays a POST error message, or emits a series of beep codes.

POST Error Message

Whenever a non-fatal error occurs during POST, an error message describing the problem appears onscreen. These text messages are displayed in normal video (white text on black background). It shows the details of the error.

The POST error message index in this section lists the error messages and their possible causes. The most likely cause is listed first. The listed error symptoms classified by function.

NOTE: Perform the FRU replacement or actions in the sequence shown in FRU/Action column, if the FRU replacement does not solve the problem, put the original part back in the computer. Do not replace a non-defective FRU.

This index can also help you determine the next possible FRU to be replaced when servicing a computer.

If the symptom is not listed, see “Undetermined Problems” on page 79.

NOTE: Most of the error messages occur during POST. Some of them display information about a hardware device, e.g., the amount of memory installed. Others may indicate a problem with a device, such as the way it has been configured.

IMPORTANT: If the system fails after you make changes in the Setup Utility menus, reboot the computer, enter Setup, then press **F9** to load the Setup defaults to correct the error.

Error Code List

Error Code	Error Message
006	Equipment Configuration Error Causes: 1. CPU BIOS Update Code Mismatch 2. IDE Primary Channel Master Drive Error (The causes will be shown before the `Equipment Configuration Error` message)
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 disabled. Incorrect password is specified.
<No error code>	Battery Critical Low In this situation BIOS will issue four short beeps, then shut down the system, no message will show.
<No error code>	Thermal Critical High In this situation BIOS will shut down the system, no message will show.

Error Message List

Error Message	FRU/Action in Sequence
Failure Fixed Disk	Reconnect the hard disk drive to its connector. Run the Setup Utility, then press **F9** to load the system defaults. Hard disk drive System board
Stuck Key	Refer to the “Keyboard or Auxiliary Input Device Check” section on page 64.
Keyboard Error	Refer to the “Keyboard or Auxiliary Input Device Check” section on page 64.
Keyboard Controller Failed	Refer to the “Keyboard or Auxiliary Input Device Check” section on page 64.
Keyboard locked - Unlock key switch	Unlock external keyboard
Monitor type does not match CMOS - Run Setup	Run the Setup Utility, then press **F9** to load the system defaults.
Shadow RAM Failed at offset: nnnn	BIOS ROM System board
System RAM Failed at offset: nnnn	DIMM System board
Extended RAM Failed at offset: nnnn	DIMM System board
System battery is dead - Replace and run Setup	Replace the RTC battery, then access the Setup Utility to reconfigure the system time setttings.
System CMOS checksum bad - Default configuration used	RTC battery Run the Setup Utility to reconfigure the system time settings.
System timer error	RTC battery Run the Setup Utility to reconfigure the system time settings. System board
Real time clock error	RTC battery Run the Setup Utility to reconfigure the system time settings. System board
Previous boot incomplete - Default configuration used	Run the Setup Utility, then press **F9** to load the system defaults. RTC battery System board
Memory size found by POST differed from CMOS	Run the Setup Utility, then press **F9** to load the system defaults. DIMM System board
Diskette drive A error	Check if the drive matches the diskette type set in the Setup Utility. Refer to the “External Diskette Drive Check” section on page 64.
Incorrect Drive A type - run SETUP	Check if the drive matches the diskette type set in the Setup Utility.
System cache error - Cache disabled	System board
CPU ID:	System board

Error Message	FRU/Action in Sequence
DMA Test Failed	DIMM System board
Software NMI Failed	DIMM System board
Fail-Safe Timer NMI Failed	DIMM System board
Device Address Conflict	Run the Setup Utility, then press **F9** to load the system defaults. RTC battery System board
Allocation Error for device	Run the Setup Utility, then press **F9** to load the system defaults. RTC battery System board
Failing Bits: nnnn	DIMM BIOS ROM System board
Fixed Disk n	None
Invalid System Configuration Data	BIOS ROM System board
I/O device IRQ conflict	Run the Setup Utility, then press **F9** to load the system defaults. RTC battery System board
Operating system not found	Run the Setup Utility and see if fixed disk and drive A: are properly identified. Diskette drive Hard disk drive System board

System Error – No Beep

Error Message	FRU/Action in Sequence
No beep, power indicator turns off and the LCD screen is blank.	Power source (battery pack and power adapter). Refer to the “Power System Check” section on page 65. Ensure every internal cables are properly and securely connected. Reinstall the memory module. System board.
No beep, power indicator turns on but the LCD screen is blank.	Power source (battery pack and power adapter). Refer to the “Power System Check” section on page 65. Reconnect the LCD-CCD cable. Hard disk drive LCD-CCD cable Inverter board LCD panel System board

Error Message	FRU/Action in Sequence
No beep, power indicator turns on, the LCD screen is blank, but you can view POST when connected to an external CRT.	Reconnect the LCD-CCD cable. LCD-CCD cable Inverter board LCD panel System board
No beep, power indicator turns on and a blinking cursor appears on screen during POST.	Ensure every internal cables are properly and securely connected. System board
No beep during POST but system runs correctly.	Speaker System board

POST 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

Code	Beeps	POST Routine Description
2Eh	1-3-4-3	RAM failure on data bits xxxx of low byte of memory bus
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
69h		Setup System Management Mode (SMM) area
6Ah		Display external L2 cache size
6Bh		Load custom defaults (optional)
6Ch		Display shadow-area message

Code	Beeps	POST Routine Description
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.
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

Code	Beeps	POST Routine Description
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
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

Code	Beeps	POST Routine Description
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

Index of Symptom-to-FRU Error Message

NOTE: If the symptom or error for your problem condition is not listed in this section, refer to the "Undetermined Problems" section on page 79.

LCD-related Symptoms

Symptom/Error	Action in Sequence
LCD backlight doesn't work LCD is too dark LCD brightness cannot be adjusted LCD contrast cannot be adjusted	Run the Setup Utility, then press **F9** to load the system defaults. Reconnect the LCD-CCD cable. Keyboard (if contrast and brightness function key doesn't work). LCD-CCD cable Inverter board LCD panel System board
Unreadable LCD screen Missing pels in characters Abnormal screen Wrong color displayed	Reconnect the LCD-CCD cable. LCD cable Inverter board LCD panel System board
LCD has extra horizontal or vertical lines displayed.	Inverter board LCD-CCD cable LCD panel System board

Power-related Symptoms

Symptom/Error	Action in Sequence
Power shuts down during operation	Power source (battery pack and power adapter). Refer to the "Power System Check" section on page 65. Battery pack Power adapter System board
The system won't power on.	Power source (battery pack and power adapter). Refer to the "Power System Check" section on page 65. Battery pack Power adapter System board
The system won't power off.	Power source (battery pack and power adapter). Refer to the "Power System Check" section on page 65. Hold and press the power button for more than four seconds. System board
Battery won't charged	Refer to the "Check the Battery Pack" section on page 65. Battery pack System board

Memory-related Symptom

Symptom / Error	Action in Sequence
Memory count (size) appears different from actual size.	Run the Setup Utility, then press **F9** to load the system defaults. DIMM System board

Audio-related Symptoms

Symptom / Error	Action in Sequence
In Windows multimedia programs, no sound comes from the computer.	Audio driver Speaker System board
Internal speakers emit noise or emit no sound.	Speaker System board

Power Management-related Symptoms

Symptom / Error	Action in Sequence
The system will not enter hibernation mode.	Check the system hibernation settings. Press the e key, then select **ePower Management** from the Empowering Technology interface. Keyboard (if control is from the keyboard) Hard disk drive System board
The system will not enter hibernation mode and emits four short beeps every minute.	Press **Fn**+**0** and see if the computer enters hibernation mode. Check the system hibernation settings. Press the e key, then select **ePower Management** from the Empowering Technology interface. Touchpad Keyboard Hard disk drive System board
The system does not enter standby mode after closing the notebook lid.	Check the system hibernation settings. Press the e key, then select **ePower Management** from the Empowering Technology interface. System board
The system will not leave hibernation mode.	Hard disk drive System board
The system doesn't resume from standby mode after opening the LCD.	System board
Battery fuel gauge in Windows doesn't go higher than 90%.	Remove the battery pack and let it cool for two hours. Refresh the battery pack (continue battery usage until power is depleted, then recharge the battery). Battery pack System board
System hangs intermittently.	Reinstall the system drives (HDD/ODD). System board

I/O-related Symptoms

Symptom / Error	Action in Sequence
System configuration values does not match the installed devices.	Run the Setup Utility, then press **F9** to load the system defaults. Reconnect hard disk/CD-ROM/diskette drives.
External display does not work correctly.	Press **Fn**+**F5**, LCD/CRT/both display switching System board
USB does not work correctly	System board
Print problems	Run printer self-test. Printer driver Printer cable Printer System board
Keyboard (one or more keys) does not work.	Reconnect the keyboard cable. Keyboard System board
Touchpad does not work.	Reconnect the touchpad cable. Touchpad board System board
Internal modem does not work correctly.	Modem port Modem board System board

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, do the following:

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

Undetermined Problems

Undetermined problems are those for which diagnostic tests cannot identify the cause. This may be a failure to detemine which adapter or device failed, which installed device is malfunctioning, a short circuit is suspected, or when the system is inoperative.

IMPORTANT: Verify that all attached devices are supported by the computer, and that power supply to the computer is good.

Follow these procedures to isolate the failing FRU (do not isolate non-defective FRU).

1. Shut down the computer.
2. Visually check the failing FRU for damage. If any problems are found, replace the FRU.
3. Remove or disconnect all the following devices:
   - Non-Acer devices
   - Printer, mouse, and other external devices
   - Battery pack
   - Hard disk drive
   - DIMM
   - Optical drive/diskette drive
   - Cards in the ExpressCard/54 and card reader slots
4. Power on the computer.
5. Determine if the problem has changed.
6. If the problem does not recur, reconnect the removed devices one at a time until you find the failing FRU.
7. If the problem remains, replace the following FRU one at a time. Do not replace a non-defective FRU:
   - System board
   - LCD module assembly

Online Support Information

This section describes online technical support services available to help you repair your Aspire notebook.

If you are a distributor, dealer, ASP or TPM, please refer your technical queries to your local Acer branch office. Acer Branch Offices and Regional Business Units may access our website at http://global.acer.com/support/index. However some information sources will require a user ID and password. These can be obtained directly from Acer CSD Taiwan.

Acer's Website offers you convenient and valuable support resources whenever you need them.

In the Support & Downloads tab you can download information materials for all of Acer notebook, desktop and server models including:

- Service guides for all models
- User's manuals
- Training materials
- BIOS updates
- Software utilities
- Spare parts lists
- Technical Announcement Bulletins (TABs)

For these purposes, we have included an Acrobat File to facilitate a hassle-free downloading of our technical materials.

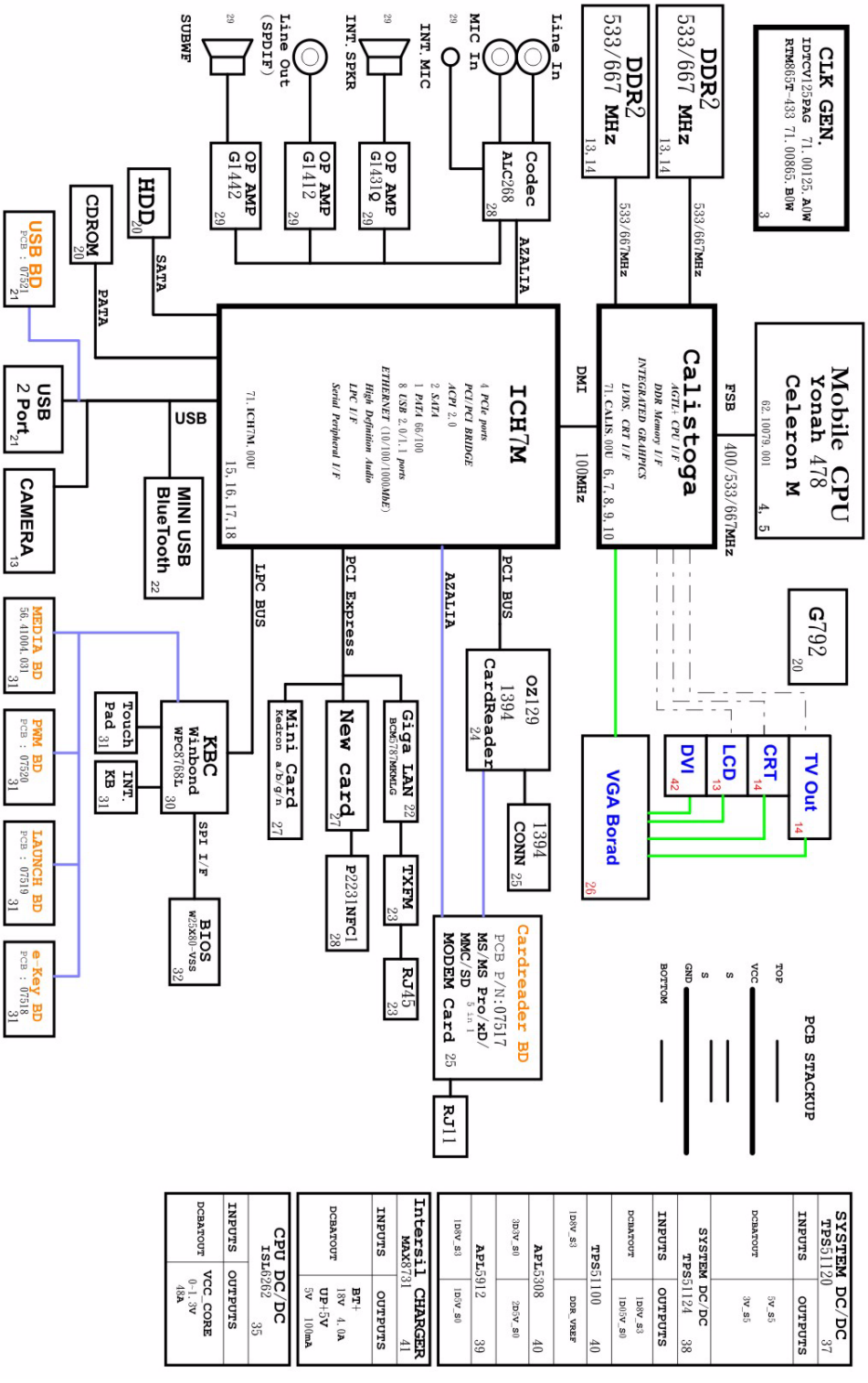
The following are also available in the Support & Downloads tab:

- Detailed information on Acer's International Traveler'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 your technical queries.

We are always looking for ways to optimize and improve our services, so if you have any suggestions or comments, please do not hesitate to communicate these to us.

System Block Diagram and Board Layout

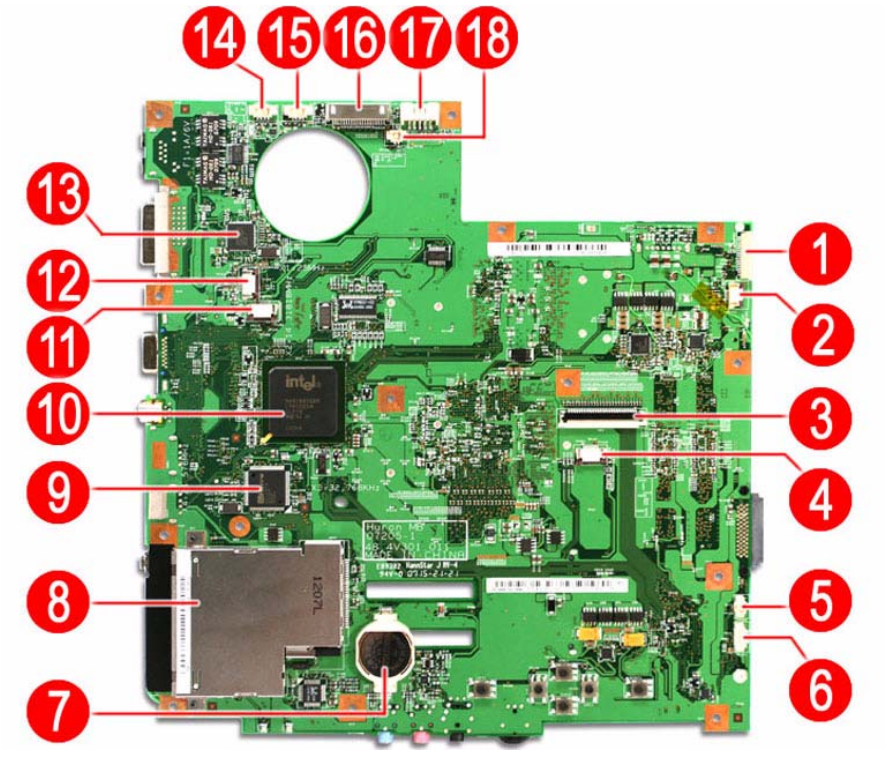
System Block Diagram



System Board Layout

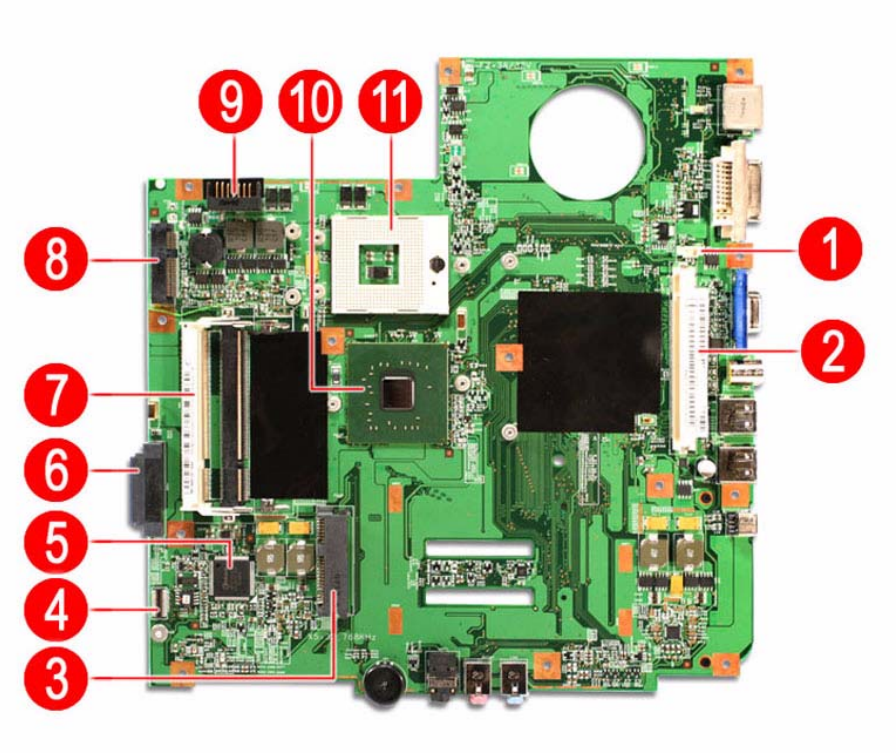
This section shows the top and bottom layout of the Aspire 5910 system board.

Top View



Item	Code	Description	Item	Code	Description
1	USBCN1	USB FPC cable connector	10	U14	Intel ICH7-M (south bridge)
2	MEDIA1	Media FPC cable connector	11	LAUNCHCN1	Launch board cable connector
3	KB1	Keyboard cable connector	12	PWRCN1	Power FPC cable connector
4	TPAD1	Touchpad board cable connector	13	U4	BCM5787M Gigabit Ethernet controller
5	SPKR2	Subwoofer cable connector	14	INTMIC1	Microphone cable connector
6	BLUE1	Bluetooth board cable connector	15	SPKR1	Speaker cable connector
7	RTC1	CMOS battery (RTC battery)	16	LCD1	LCD-CCD cable connector
8	NEW1	Card reader slot	17	DC1	DC-in cable connector
9	U15	IEEE 1394/card reader function chip	18	E_KEY1	E-key board cable connector

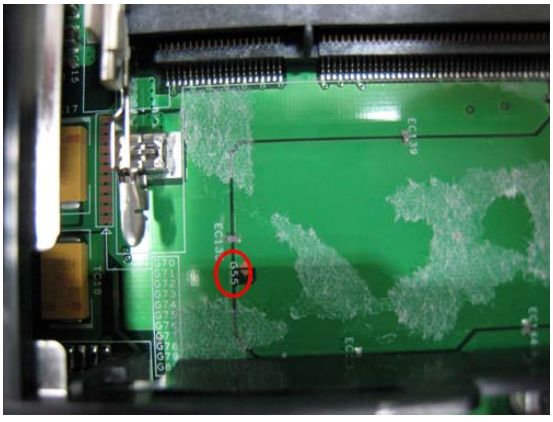
Bottom View

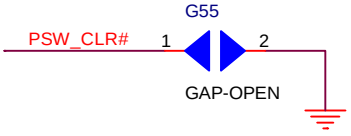


Item	Code	Description	Item	Code	Description
1	FAN1	Fan cable connector	7	DMI	soDIMM slots
2	MXM1	VGA board slot	8	MINI1	WLAN board slot
3	CARD READER1	Card reader board connector	9	BAT1	Battery pack connector
4	U47	Keyboard controller	10	U40	Intel MCH (north bridge)
5	SATA1	Hard drive connector	11	U36	Intel LGA775 socket
6	ODD1	Optical drive connector			

System Switch

If you have enabled the Password on Boot field and you forget the supervisor password, you will not be able to boot up the computer. The same thing applies if you forget an HDD password. Your Aspire notebook has a hardware dip switch (SW1) for clearing lost system passwords. Go to page 18 for instructions on how to use this dip switch.





Aspire 5910 Series Model Configurations

This chapter provides features summary for each of the four Acer 5910 Series computer model configurations.

Model A

System Internal Part Number: 91.4V301.001G

DC Level Part Number: DC.4V301.001

System Board Internal Part Number: 55.4V301.001G

Component	Description	Part Number	Provider
Processor	IC Intel Core 2 Duo T5500, 1.66 GHz PGA B	KC.55001.DTP	Intel
North bridge	PM945 QG82945PM A3 (MM#876959)	KI.94501.006	Intel
South bridge	ICH7M NH82801GBM ICH7M B0	KI.80101.017	Intel
LCD module	LCD 15.4" WXGA CMO N154I2-L05 G	LK.1540D.017	CMO
Memory	2x soDIMM 512 MB HYMP564S64CP6-Y5 AB	KN.5120G.019	Hynix
VGA	MXM71-1N HYNIX VGA BD (D)	55.4U002.091G	AMD
VRAM	128 MB	—	—
Camera module	Camellia Camera CMOS 0.3M CN0314-OV03 U	56.18012.041	Suyin
Hard disk drive	80 GB SGT ST980811AS	KH.08001.030	Seagate
Optical disc drive	Sony Super-Multi drive 12.7 mm Tray DL 8X AD-7560A LF w/o bezel, PATA Gbase	KU.0080E.005	Sony
Inverter board	15"/17" VK.21189.801	19.21066.101	Darfon
Battery pack	Sony AS-2007B Li-Ion 3S2P Sony 6-cell 4000 mAh Main Common G4E cell	BT.00604.018	Sony
Power cord	USA/W CNS 2.5A 125V 8121-	27.01518.781	Linetek
AC adapter	Lite-On, 90W	AP.09003.011	Lite-On
Modem board	MDC1.5 CONEXANT AZALIA T 3.3V	54.09018.051	Foxconn
Bluetooth board	Foxconn Broadcom 2045 (BT 2.0)	56.25020.003	Foxconn
Wireless module	Intel PRO/Wireless 3945ABG MOW1 (MM#872612)	KI.GLN01.001	Intel
Keyboard	US-International	9J.N5982.V1D	Darfon

Model B

System Internal Part Number: 91.4V301.002G

DC Level Part Number: DC.4V301.001

System Board Internal Part Number: 55.4V301.001G

Component	Description	Part Number	Provider
Processor	IC Intel Core 2 Duo T7200 2.0 Ghz PGA B2	KC.72001.DTP	Intel
North bridge	PM945 QG82945PM A3 (MM#876959)	KI.94501.006	Intel
South bridge	ICH7M NH82801GBM ICH7M B0	KI.80101.017	Intel
LCD module	LCD 15.4" WXGA AU B154EW02 V7 G HW Code: 0A	LK.15405.021	AUO
Memory	2x soDIMM 512 MB NT512T64UH8B0FN-3C	KN.51203.032	Nanya
VGA	MXM71-1N HYNIX VGA BD (D)	55.4U002.091G	AMD
VRAM	128 MB	—	—
Camera	Camellia Camera CMOS 0.3M CN0314-OV03 U	56.18012.041	Suyin
Hard disk drive	120 GB Toshiba MK1237GSX	KH.12004.006	Toshiba
Optical disc drive	8X Super Multi (DL), HLDS GSA-T20N, LF , Gbase	KU.0080D.027	HLDS
Inverter board	15"/17" T62I249.00	19.21030.P01	Foxconn
Battery pack	Simplo AS-2007B Li-Ion 3S2P, Panasonic 6-cell 4000 mAh Main Common PSS cell	BT.00607.010	Simplo
Power cord	USA/W CNS 2.5A 125V 8121-	27.01518.781	Linetek
AC adapter	Delta, 90W	AP.09001.013	Delta
Modem board	MDC1.5 CONEXANT AZALIA T 3.3V	54.09018.051	Foxconn
Bluetooth board	Foxconn Broadcom 2045 (BT 2.0)	56.25020.003	Foxconn
Wireless module	Intel Wireless Wi-Fi Link 4965AGN (Kedron)	KI.KDN01.001	Intel
Keyboard	UK	9J.N5982.V0U	Darfon

Model C

System Internal Part Number: 91.4V301.003G

DC Level Part Number: DC.4V301.001

System Board Internal Part Number: 55.4V301.001G

Component	Description	Part Number	Provider
Processor	IC Intel Core 2 Duo T7200 2.0 Ghz PGA B2	KC.72001.DTP	Intel
North bridge	PM945 QG82945PM A3 (MM#876959)	KI.94501.006	Intel
South bridge	ICH7M NH82801GBM ICH7M B0	KI.80101.017	Intel
LCD module	LCD 15.4" WXGA LTN154AT01-001 G	LK.15406.021	Samsung
Memory	2x soDIMM 1 GB HYMP512S64CP8-Y5 AB	KN.1GB0G.006	Hynix
VGA	MXM71-1N HYNIX VGA BD (D)	55.4U002.091G	AMD
VRAM	128 MB	—	—
Camera	Camellia Camera CMOS 0.3M CN0314-OV03 U	56.18012.041	Suyin
Hard disk drive	160 GB SGT ST9160821AS	KH.16001.026	Seagate
Optical disc drive	Pioneer Super Multi Drive 12.7 mm, Tray DL, 8X DVR-K17RS LF (w/o bezel) PATA Gbase	KU.00805.038	Pioneer
Inverter board	15"/17" YNV-W10	19.21072.101	YEC
Battery pack	Simplo AS-2007B Li-Ion 4S2P, Panasonic 8-cell 4800 mAh Main Common	BT.00807.014	Simplo
Power cord	USA/W CNS 2.5A 125V 8121-	27.01518.781	Linetek
AC adapter	Delta, 90W	AP.09001.013	Delta
Modem board	MDC1.5 CONEXANT AZALIA T 3.3V	54.09018.051	Foxconn
Bluetooth board	Foxconn Broadcom 2045 (BT 2.0)	56.25020.003	Foxconn
Wireless module	Intel PRO/Wireless 3945ABG MOW1 (MM#872612)	KI.GLN01.001	Intel
Keyboard	US-International	9J.N5982.V1D	Darfon

Model D

System Internal Part Number: S2.AGV0X.001

DC Level Part Number: DC.4V301.001

System Board Internal Part Number: 55.4V301.001G

Component	Description	Part Number	Provider
Processor	IC Intel Core 2 Duo T7400 2.16 Ghz 4 MB L2 cache 667 FSB	KC.74001.DTP	Intel
North bridge	PM945 QG82945PM A3 (MM#876959)	KI.94501.006	Intel
South bridge	ICH7M NH82801GBM ICH7M B0	KI.80101.017	Intel
LCD module	LCD 15.4" WXGA LTN154AT01-001 G	LK.15406.021	Samsung
Memory	2x soDIMM 1 GB HYMP512S64CP8-Y5 AB	KN.1GB0G.006	Hynix
VGA	MXM71-1N HYNIX VGA BD (D)	55.4U002.091G	AMD
VRAM	128 MB	—	—
Camera	Camellia Camera CMOS 0.3M CN0314-OV03 U	56.18012.041	Suyin
Hard disk drive	160 GB SGT ST9160821AS	KH.16001.026	Seagate
Optical disc drive	Pioneer Super Multi Drive 12.7 mm, Tray DL, 8X DVR-K17RS LF (w/o bezel) PATA Gbase	KU.00805.038	Pioneer
Inverter board	15"/17" YNV-W10	19.21072.101	YEC
Battery pack	Simplo AS-2007B Li-Ion 4S2P, Panasonic 8-cell 4800 mAh Main Common	BT.00807.014	Simplo
Power cord	USA/W CNS 2.5A 125V 8121- CORD EUR 220V 3P BK	27.01518.781 27.01518.601	Linetek I-Sheng
AC adapter	Delta, 90W	AP.09001.013	Delta
Modem board	MDC1.5 CONEXANT AZALIA T 3.3V	54.09018.051	Foxconn
Bluetooth board	Foxconn Broadcom 2045 (BT 2.0)	56.25020.003	Foxconn
Wireless module	Intel PRO/Wireless 3945ABG MOW1 (MM#872612)	KI.GLN01.001	Intel
Keyboard	US-International	9J.N5982.V1D	Darfon

Test Compatible Components

This computer's compatibility is tested and verified by Acer's internal testing department. All of its system functions are tested for both the Home Basic and Home Premium editions of Microsoft's latest operating system Windows Vista.

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 Aspire 5910 series Compatibility Test Report released by the Acer Mobile System Testing Department.

Hardware Compatibility Tests

Item	Specification
VGA/DVD-D/S-Video Port Test	
CRT monitor	Acer 211c 21" ViewSonic G220F ViewSonic PF790 19" Sony TV Trinitron (S-Video)
LCD monitor	Acer FP751 17" TFT LCD Acer AL1521 15" LCD monitor (DVI) Acer AL1721 17" LCD monitor (DVI) ViewSonic VD201b 20" LCD (DVI-I, DVI-D, D-sub) Westinghouse W37G (HDMI) HP LP2065 20" TFT monitor (DVI Port) HP S9500 19" monitor (DVI Port)
Projector	Dell 3300MP projector
USB Port Test	
USB mouse	Logicool USB mouse (OWCM-USB) Logitech USB wheel mouse Logitech First Wheel Mouse Dell by logitech HP USB Optical Austin Mouse Belkin MiniGlow optical USB mouse HP USB optical mouse (RB129AA)
USB keyboard	Microsoft Natural Keyboard Pro Dell USB keyboard dxe Internet Navigator Keyboard Dell Smart Card Keyboard
USB joystick	Logitech WingMan RumblePad (G-UA3)
USB speaker	Aiwa Multimedia Digital Speaker (SC-UC78) Peripheral Dolby headphone (5.1 channel) Panasonic USB Speaker (EAB-MPC57USB) JS iFun USB speaker
USB web camera	Intel Easy PC Camera (A20953-001) Orange Micro USB 2.0 Web Cam
USB scanner	Canon Scanner D1250 (JP OS only) HP 2400 Scanjet (USB1.1)
USB printer	HP 450wbt Deskjet Printer (USB/Bluetooth)

Hardware Compatibility Tests

Item	Specification
USB hub	ATEN UH-204 4 -port USB hub IOGEAR 4-port USB hub Corega WLAN USB Stick-11 (CG-WLUSBST11)
USB card reader	PQI 6-in-1 Flash Card Reader/Writer
USB Zip drive	Iomega USB Zip 250 MB
USB hard drive	Fujitsu DynaMO-1300 1.3G Transcend 80G HDD (with IEEE1394) Galileo Mass Storage 2.5 Travel Kit (with IEEE 1394) Transcend 2.5" Portable 80 GB HDD **Note**: Place computer in AC power mode when transferring large amount of data.
USB optical drive	Plextor DVD+R/RW LG DVD+R/RW 16X (with IEEE1394) Sony DVD+R/RW 16X (with IEEE1394) Logitec CD-RW+ DVD-ROM combo drive
USB flash drive	Sony 128 MB Memory Key Sony 5 GB Micro Vault Pro USB Flash Drive IBM 128 MB USB Memory Key IBM 512 MB Memory Key Apacer 256 MB Handy Drive
IEEE 1394 Port Test	
1394 storage device	LG DVD+R/RW 16X SONY DVD+R/RW 16X Transcend 2.5" Portable 80 GB HDD
1394 camera	Sony DV
1394 hub	ATEN FH-600 Firewire 6-port expansion hub
WLAN Access Point Test	
Access point 802.11b	Cisco Aironet 350 Cisco Aironet 1230
Access point 802.11a	Intel Pro/Wireless 5000 Netgear HE102
Access point 802.11g	Wireless 108AG Access Point
Access point 802.11n	D-Link WiFi 802.11n Rangebooster N 650 BUFFALO WZR-G144N AirStation Wireless IEEE 802.11n/g/b Belkin N1MIMO wireless router
Bluetooth Access Point Test	X Bridge Bluetooth Access Point BT300
Bluetooth Device Test	Sony Ericsson Wireless Headset Sony Ericsson T610 X Bridge BT300 Bluetooth Access Point EPSON Bluetooth Print Adapter HP Deskiet 450wbt AmbiCom Bluetooth Wireless CompactFlash Card with PC Card Adapter
ExpressCard Test	Abcom 5-in-1 Adapter ExpressCard Reader Abcom GigaLan Express Card Sunix ECF2400 2-port 1394A ExpressCard Sunix External SATAII Express Card IK KOUWELL IEEE1394+USB2.0 ExpressCard SIIG Express Card 11-in-1 R/W
Memory Card Test (SD/MS/MMC/CF/xD)	

Hardware Compatibility Tests

Item	Specification
Secure Digital (SD)	Apacer 128/256 MB SD card Transcend 256 MB SD card SanDisk 256 MB SD card Apacer 2 GB SD card (150x Hi-Speed) Kingmax 1GB SD card (66x Hi-Speed) SanDisk I GB SD card RIDATA 4 GB SD PRO Memory Card
Memory Stick (MS)	I-O DATA 64 MB Memory Stick Apacer 128 MB Memory Stick Sony 512 MB Memory Stick Pro Lexar High-speed 512 MB Memory Stick Pro Duo Lexar High-speed 1 GB Memory Stick Pro Duo SanDisk 1GB Memory Stick Pro Sony High-speed 2 GB Memory Stick Pro Dou Sony 2 GB Memory Stick Pro
MultiMedia Card (MMC)	SanDisk 32MB MMC Apacer 128 MB MMC Transcend 64/128 MB MMC Transcend 128 MB MMC Transcend 256 MB MMC SanDisk 128 MB RS-MMC PQI 256 MB RS-MMC Mobile\ Transcend 512 MB MMC A-DATA Turbo 200X 2 GB MMC
CompactFlash	Apacer 256/512 MB Compact Flash Card SanDisk 2 GB Compact Flash Card
extreme Digital	Olympus 512 MB xD-Picture Card

Games and Software Compatibility Tests

Item	Specification
Games	Blizzard q Blizzard WarCraft III (CD-04-062) q Blizzard WarCraft III - Frozen Throne Expansion Pack (CD-04-157) Atari q Neverwinter Nights + Patch v1.62 (CD-04-220 / WKS) q Unreal Tournament 2004 (CD-04-140) ID Software q Quake III Arena (CD-04-057) q Quake IIII (CD-04-197) Activision q Call of Duty 2 (CD-04-203) q Star Wars Jedi Knight: Jedi Academy (CD-04-192) Electronic Arts q A Battlefield 1942 (CD-04-107/WKS) q Battlefield 2 (CD-04-207) q Command & Conquer Generals (CD-04-222 / WKS) q Madden NFL 2006 (CD-04-216) q Nascar Thunder 2004 (CD-04-113) q Nascar SimRacing (CD-04-228) q NBA LIVE 2006 (CD-04-214 / WKS) q Tiger Woods PGA Tour 2006 (CD-04-199) q Medal of Honor Allied Assault Spearhead Expansion Pack (CD-04-122-1) q FIFA World Cup GERMANY 2006 (CD-04-234) q Sports FIFA 2006 Soccer (CD-04-236) Microsoft q Flight Simulator 2004 A Century of Flight (CD-04-074) q Halo (CD-04-078) q Rise of Nations 1.0 (CD-04-079 / WKS) Activision Doom 3 (CD-04-194) Sierra Half-Life 2 (CD-04-237) Crytek Far Cry (CD-04-154) Interwise Silent Hunter III (CD-04-226) Ubisoft Tom Clancy's Splinter Cell: Chaos Theory (CD-04-230)
System utilities and applications	PowerDVD Windows DVD Maker NTI-CD Maker Acrobat Reader Microsoft Office Norton Internet Security Acer Launch Manager Wireless AP Bluetooth AP

Technical Specifications

This section provides technical specifications for the system hardware components.

Processor

Item	Intel Core 2 Duo Processor Number				
	T7600	T7400	T7200	T5600	T5500
CPU speed	2.33 GHz	2.16 GHz	2 GHz	1.83 GHz	1.66 GHz
Bus speed	667 MHz	667 MHz	667 MHz	667 MHz	667 MHz
Bus/core ratio	14	13	12	11	10
L2 cache size	4 MB	4 MB	4 MB	2 MB	2 MB
L2 cache speed	2.33 GHz	2.16 GHz	2 GHz	1.83 GHz	1.66 GHz
Manufacturing technology	65 nm				
Core stepping	B2				
CPUID string	0X6F6				
Thermal design power	34W				
Thermal specification	100° C				
Core voltage	1.0375 - 1.30V				
Socket type	LGA775				
Core logic	Mobile Intel 945PM Express Chipset ❑ North bridge: 82945PM (MCH) ❑ South bridge: 82801GBM/GHM (ICH7-M)				
Technologies	❑ Intel Virtualization Technology (T5500 does not support this technology) ❑ Enhanced Intel SpeedStep ❑ Intel 64-bit architecture ❑ Execute Disable Bit				

System Controllers

Item	Specification
Storage controller	Intel ICH7-M
Memory controller	Intel 82945PM
Graphics controller	ATI Mobility Radeon X2300 HD
Audio controller	Realtek ALC883 Azalia HD Audio Codec
USB controller	Integrated in the Intel ICH7-M
Keyboard/touchpad controller	Winbond WPC8768L
LAN controller	Broadcom NetLink BCM5787 Gigabit Ethernet Controller with PCI Express

System Controllers

Item	Specification
WLAN controller	Options include: ❑ Intel PRO/Wireless 3945ABG Network Connection ❑ Intel Wireless Wi-Fi Link 4965AGN ❑ Intel PRO/Wireless 2200BG Network Connection

Memory

Item	Specification		
Memory controller	Intel 82945PM		
DIMM slot number	2		
Maximum memory size per socket	2048 MB		
Maximum memory	4 GB (2 GB soDIMM installed in both DIMM slots)		
DIMM type	DDR II synchronous DRAM		
Provider	Hynix		Nanya
Model	HYMP564S64C P6-Y5 AB	HYMP512S64C P8-Y5 AB	NT512T64UH8B0FN-3C
DIMM size	512 MB	1 GB	512 MB
DIMM speed	667 MHz		

Memory Population Options

The following table lists possible system memory configurations. You may combine DIMMs of various capacities to form other combinations. The configuration for slot 1 and slot 2 could be reversed.

Slot 1	Slot 2	Total Memory
0 MB	256 MB	256 MB
0 MB	512 MB	512 MB
0 MB	1024 MB	1024 MB
0 MB	2048 MB	2048 MB
256 MB	256 MB	512 MB
256 MB	512 MB	768 MB
256 MB	1024 MB	1280 MB
256 MB	2048 MB	2304 MB
512 MB	256 MB	768 MB
512 MB	512 MB	1024 MB
512 MB	1024 MB	1536 MB
512 MB	2048 MB	2560 MB
1024 MB	0 MB	1024 MB
1024 MB	256 MB	1280 MB
1024 MB	512 MB	1536 MB
1024 MB	1024 MB	2048 MB
1024 MB	2048 MB	3072 MB
2048 MB	0 MB	2048 MB
2048 MB	256 MB	2304 MB
2048 MB	512 MB	2560 MB
2048 MB	1024 MB	3072 MB
2048 MB	2048 MB	409 6MB

Video Interface

Item	Specification
Graphics controller	ATI Mobility Radeon X2300 HD
Package	Micro-FCBGA 465-pin
Video memory	256 MB
Memory bus width	128-bit
Memory type	Graphics Double Data Rate 3 (GDDR3)
Compatibility	❑ Microsoft DirectX 9.0c ❑ PowerPlay 6.0

Audio Interface

Item	Specification
Audio controller	Realtek ALC883 Azalia
Amplifier	G1431, G1412, and G1442
Internal speakers	❑ One speaker grill with 2W L/R stereo speakers ❑ One 2.5W subwoofer
Internal microphone	Two built-in stereo microphones
Supported audio technologies	❑ Intel HD Audio (integrated in the Intel ICH7-M) ❑ Dolby SurroundSound ❑ Dolby Home Theater ❑ S/PDIF ❑ MS-Sound

USB Interface

Item	Specification
USB controller	Integrated in the Intel ICH7-M
USB specification	2.0
Number of USB port	4 (two each on the left and right sides)

Keyboard

Item	Specification
Keyboard controller	Winbond WPC8768L
Keyboard layout	88-/89-/93-key keyboard with international language support
Features	❑ Embedded numeric keypad ❑ Inverted "T" cursor keys, 12 function keys, Windows® key, independent US and Euro dollar sign keys, and hotkey controls ❑ Acer MediaTouch keys: play/pause, stop, previous, next, and record keys ❑ Easy-launch keys: WLAN, Internet, email, Bluetooth, Acer Empowering, and Acer Arcade
Simultaneously support for internal and external keyboard	Yes

LAN Controller

Item	Specification
LAN controller	Broadcom NetLink BCM5787 Gigabit Ethernet Controller with PCI Express
Data link protocols	❑ Ethernet ❑ Fast Ethernet ❑ Gigabit Ethernet
Remote management protocol	DMI 2.0
Interface type	PCI Express x1
LAN connector type	RJ-45
LAN connector location	Left side
Features	❑ Wake on LAN (WOL) ❑ ACPI 2.0

WLAN Controller

Specification	WLAN Module	
	Intel PRO/Wireless 3945ABG	Intel Wireless Wi-Fi Link 4965AGN
Dimensions (H x W x D)	2.00 x 1.18 x 0.18 in (50.95 x 30 x 4.5 mm)	2.00 x 1.18 x 0.13 in (50.95 x 30 x 3.30 mm)
Weight	6g	7.2g
Diversity	On-board dual diversity switching support for systems designed with two antennas	On-board diversity support for systems designed with two or three antennas
Radio ON/OFF control	Supported in both hardware and software	
Connector interface	Mini Card form factor, based on PCIe electrical interface	
LEDs Output	Link, Activity	Single LED
Operating temperature	0 to +80° C	
Humidity Non-operating	50% to 92% RH non-condensing (at temperatures of 25° C to 80° C)	50% to 90% RH non-condensing (at temperatures of 25° C to 35° C)
Operating system	Microsoft Windows XP (Professional, Home, Tablet), 2000	Microsoft Windows 2000, XP (32/64-bit), and Vista (32/64-bit)
Wi-Fi Alliance	Wi-Fi CERTIFIED for 2.4 GHz and 5 GHZ band, WMM, WPA and WPA2	Wi-Fi Certified for 802.11a, 802.11b, 802.11g, WMM, WPA, and WPA2 (Wi-Fi Alliance Draft-N and 802.11n certifications expected when available)
Microsoft WHQL	Yes	
IEEE WLAN standard	IEEE 802.11a, IEEE 802.11g and IEEE 802.11b	IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, (targeting IEEE 802.11n when available)
Architecture	Infrastructure or ad hoc (peer-to-peer)	
Data rate	Up to 54 Mbps data rates	Up to 300 Mbps Draft-N data rates
Encryption	64-bit and 128-bit WEP, AES-CCMP, CKIP, TKIP	CKIP, TKIP, 64-bit and 128-bit WEP (for 802.11a/b/g), AES-CCMP (for 802.11a/b/g/n)

Modem

Item	Specification
Data modem data baud rate (bps)	56K
Supports modem protocol	V.90/V.92 WWDAA
Modem connector type	RJ-11
Modem connector location	Right side

Bluetooth Interface

Item	Specification
Chipset	Foxconn Broadcom 2045
Data throughput	723 bps (full speed data rate)
Protocol	Bluetooth 1.1 (Upgradeable to Bluetooth 1.2 when SIG specification is ratified).
Interface	USB 1.1
Connector type	USB

Battery Pack

Item	Specification							
Type	Lithium-ion (Li-ion)							
Vendor	Panasonic		Sanyo		Sony		Simplo	
Number of cells	6	8	6	8	6	8	6	8
Capacity (mAh)	4000	4800	4000	4800	4000	4800	4000	4800

AC Adapter

Item	Specification		Specification	
Vendor	Delta		Lite-On	
Model Name	SADP-65KB DBE	ADP-90SB BBEA LF	PA-1650-02WR	PA-1900-24AR
DC output power	65W	90W	65W	90W
AC input voltage	100V	100-240V	100V	100-240V
DC output voltage	19 VDC			
AC input frequency	50-60 Hz			

Hard Disk Drive

Specification	Capacity		
	80 GB	120 GB	160
Provider	Seagate	Toshiba	Seagate
Model			
Part number	ST980811AS	MK1237GSX	ST9160821AS
Formatted capacity		120 GB	
Number of disks		2	
Number of data heads		4	
Interface		ATA7/Serial ATA 1.0a	
Seek time (average)		12ms	
Rotational speed		5,400 (±0.1%) rpm	
Data transfer rate Internal Buffer to Host		 335 to 613 Mb/s 300 MB/s	
Buffer		8 MB	
Dimensions (mm) Height Width Depth		 9.5 69.85 100.0	
Weight		102g (max)	
Allowable voltage		5V ±5%	
Temperature Operating Non-operating		 5 to 55° C -40 to 60° C	
Humidity (non-condensing)		8–90%R.H.	
Vibration Operating Non-operating		 9.8m/s2 (1G) 49m/s2 (5G)	

Optical Disc Drive

Item	Specification		
Provider	HLDS	Sony	Pioneer
Model	GSA-T20N	AD-7560A	DVR-K17RS
Drive type			Internal Slim DVD/CD writer
Data transfer rate			Write: • CD-R: 24X • CD-RW: 24X • DVD-RW: 6X • DVD-R/+R/+RW: 8X Write • DVD-RAM: 5x
Interface			Enhanced IDE(ATAPI) compatible
Supported disc formats			DVD-RAM, DVD-R/RW, DVD+R (SL, DL)/RW, CD-R/RW, DVD-ROM, DVD-RAM, DVD-R, DVD-RW, DVD+R (SL, DL), DVD+RW; CD-R, CD-RW, CD-ROM, CD-ROM XA, CD-DA, CD-I, CD-Extra, CD-Text, Photo CD, Video CD
Buffer memory			2 MB
Power supply			5V DC

LCD Panel

Specification	Provider		
	CMO	AUO	Samsung
Model name	N154I2	B154EW02 V1	LTN154AT01-001 G <can't locate this model>
Screen size	15.4" (wide)	15.4" (wide)	
Resolution (H x V)	1280x800 WXGA	1280x800 WXGA	
Color support	262K	262K	
Brightness (nits)	200	200	
Contrast ratio	400:1	400:1	
Viewing angle	20/45/45/45 (U/D/R/L))	80/40 (H/V)	
Power consumption (without inv)	5.2 W	6.5 W	
Outlines (W x H x D, mm)	344x 222x6.2	344.0 x 222.0 x 5.8	
Weight	540 g	500 g	
Response time	16 ms	16 ms	
Electrical interface	LVDS	1ch LVDS	

LCD Inverter

Item	Specification
Vendor & model name	Darfon/V189-301GP
Brightness conditions	N/A
Input voltage (V)	9~21
Input current (mA)	2.56 (max)
Output voltage (V, rms)	780V (2000V for kick off)
Output current (mA, rms)	6.5 (max)
Output voltage frequency (k Hz)	65K Hz (max)

System BIOS

Item	Specification
BIOS vendor	Phoenix
BIOS version	v0.14
BIOS ROM	Winbond W25X80 spiFlash Memory
BIOS ROM size	1M byte fLASH ROM SST
BIOS package	8-pin SOIC 208mil
Supported industry standards	❑ PCI 2.2 or later ❑ System/HDD Password Security Control ❑ INT 13h Extensions ❑ PnP BIOS 1.0a ❑ SMBIOS 2.4 or later ❑ BIOS Boot Specification (Compal, Phoenix, Intel). ❑ Simple Boot Flag 1.0 ❑ Boot Block ❑ PCI Bus Power Management Interface Specification ❑ USB Specification 1.1/2.0 ❑ IEEE 1394 1.0 ❑ USB/1394 CD-ROM Boot Up support ❑ PC Card Standard 1995 (PCMCIA 3.0 Compliant Device) ❑ IrDA 1.0 ❑ Support Intel HD Audio ❑ WfM 2.0 ❑ Preboot Execution Environment (PXE) 2.1 ❑ Boot Integrity Service Application Program Interface (BIS) 1.0 ❑ PC2002/2005 compliant ❑ Intel Enhanced SpeedStep Technology ❑ AHCI support
BIOS password control	Via Setup Utility's Security menu (Set Supervisor Password)

Power Management

Item	Specification
Power management standard	ACPI 1.0b/2.0/3.0

System power management states	❑ Mechanical Off (G3) – All system devices are turned off completely.
	❑ Soft Off (G2/S5) – OS initiated shutdown. All devices in the system are turned off completely.
	❑ Working (G0/S0) – Individual devices such as the processor and hard disk may be power managed in this state.
	❑ S3 Sleeping State
	  ❑ CPU set power down
	  ❑ VGA suspend
	  ❑ Audio power down
	  ❑ Hard disk power down
	  ❑ Optical drive power down
	  ❑ Card reader function suspend
	❑ S4 Sleeping State (hibernation mode) – All system states and data are saved onto disk before power shutdown. The same session is restored the next time the system is powered on.

Processor power management states	To further conserve power in a Working state, the processor enters a low-power state when the OS is idle. ❑ C1 state – CPU halt instruction ❑ C2 state – CPU stop grant state ❑ C3 state – CPU stop clock state