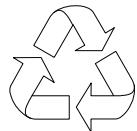


eMachines

EL1852 Service Guide



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Revision History

Refer to the table below for changes made on this version of the EL1852 Desktop 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 our "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 AUTHORIZED SERVICE PROVIDERS, your 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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Features and Specifications

This chapter lists the features and specifications of the EL1852 computer.

NOTE The items listed in this section are for reference only. The exact configuration of your PC depends on the model purchased. Refer to the FRU list chapter on page 75 for a detailed list of models supported by each hardware component.

System Features

Component	Description
Operating system support	<ul style="list-style-type: none"> Microsoft Windows 7 Home Premium ×64 Microsoft Windows 7 Home Basic ×32 Microsoft Windows 7 Starter (×32 / ×64) Ubuntu X-windows version Linpus X-Windows FreeDOS
Processor	<ul style="list-style-type: none"> LGA775 socket, 775 pin contacts Supports the following multi-core Intel® processors: <ul style="list-style-type: none"> Intel® Core™ 2 Quad Q9550s, Q9400s and Q8400s Series Intel® Core™ 2 Duo E8600, E8500 and E8400 Series Intel® Core™ 2 Duo E7600 and E7500 Series Intel® Pentium® Dual-Core E6800, E6700, E5800 and E5700 Series Intel® Celeron® Dual core E3500 and E3400 Series, and Celeron 450
Core logic	<ul style="list-style-type: none"> North bridge: Intel® G41 Express Chipset South bridge: Intel® 82801GB I/O Controller Hub (ICH7)
Graphics controller	Integrated in the Intel® G41 Express Chipset
Memory	<ul style="list-style-type: none"> Two DIMM slots supporting 240-pin unbuffered DDR3 SDRAM modules Data rate supported: 1066/1333 MT/s Maximum memory: 4 GB (using two 2 GB modules)
Expansion options	<ul style="list-style-type: none"> One PCI Express x16 slot One PCI Express x1 slot
Connectivity	<ul style="list-style-type: none"> Wired LAN: Realtek RTL8111DL Gigabit Ethernet Controller WLAN option: 802.11 b/g/n wireless network adapter
Hard disk drive (HDD)	<ul style="list-style-type: none"> One HDD bay supporting 3.5-inch 25.4 mm SATA HDDs Support SATA HDD in 160 – 1500 GB capacities
Optical disc drive (ODD)	<ul style="list-style-type: none"> One ODD bay supporting 5.25-inch standard SATA ODD Supports DVD-R/RW drive or DVD-Super Multi double-layer drive

Component	Description
Card reader (optional)	<ul style="list-style-type: none"> Multi-in-1 card reader The following memory cards are supported: <ul style="list-style-type: none"> Memory Stick (MS) xD-Picture Card (xD) Secure Digital (SD), MultiMediaCard (MMC), Reduced-Size MultiMediaCard (RS-MMC) CompactFlash (CF) Types I and II Memory Stick PRO (MS PRO)
Power supply	220 W power supply unit (non-PFC 110V and 220V with select switch; Active PFC 220V)
Antivirus software	Symantec NTI 2009
System BIOS	<ul style="list-style-type: none"> AMI BIOS with 8 MB SPI ROM Supports ACPI revision 2.0 standard Supports Plug and Play, STR(S3)/STD(S4), hardware monitor, Multi Boot, and DMI protocols
Power management	<ul style="list-style-type: none"> ACPI 2.0 or 1.0b (Advanced Configuration Power Interface) standard S0, S1, S2 and S5 sleep states support On-board device power management support On-board device configuration support

Audio

Item	Description
Audio codec	<ul style="list-style-type: none"> Realtek ALC662 5.1 Channel High Definition Audio Codec
Audio jacks	<ul style="list-style-type: none"> Front panel: Headphone and microphone jacks Rear panel: Microphone, line-out, and line-in jacks

I/O Ports and LED Indicators

Component	Description
I/O ports	<ul style="list-style-type: none"> Front panel <ul style="list-style-type: none"> USB ports (two) Headphone jack Microphone jack Card reader Rear panel <ul style="list-style-type: none"> PS/2 keyboard and mouse ports External display (VGA) port USB ports (two) Ethernet jack (RJ45) Microphone, line-out, and line-in jacks Kensington lock Key lock
LED indicators	<ul style="list-style-type: none"> Power LED Power button

Physical Specifications

Aspect	Description
Chassis dimension (W × D × H)	100 mm (W) X 361.8 mm (D) x 265 mm (H)
System weight	5.382 Kg.
Mainboard form factor	microATX (μATX)
Mainboard dimensions (W × H)	244 × 200 mm

Environmental Requirements

Aspect	Description
Operating temperature	5 to 35 °C (41 to 95 °F)
Operating humidity	15% to 80% RH non-condensing

System Tour

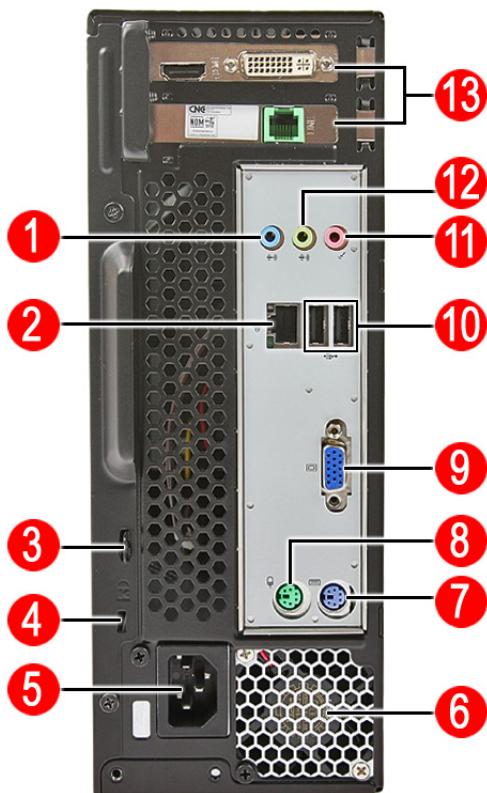
The pictures and tables in this section illustrate the physical outlook of the computer.

Front View



No.	Component
1	Optical drive eject button
2	Optical drive cover
3	Power button/indicator
4	Microphone-in jack
5	Headphone jack
6	Multi-in-1 card reader
7	USB 2.0 ports

Rear Panel



No.	Component
1	Line-in jack
2	LAN connector
3	Key lock
4	Kensington lock
5	Power connector
6	Fan aperture
7	PS/2 keyboard connector
8	PS/2 mouse connector
9	Monitor port
10	USB 2.0 ports
11	Microphone jack
12	Line-out jack
13	Expansion slots

NOTE The I/O ports on the upper chassis area are additional items made possible with the installation of an expansion card option.

System Utilities

CMOS Setup Utility

CMOS Setup Utility is a hardware configuration program built into the system ROM. 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 system drives and peripherals
 - Specifying the boot device sequence
 - Configuring the power management modes
 - Setting up system passwords or making other changes to the security setup
- When trying to resolve IRQ conflicts
- When a configuration error is detected by the system and you are prompted ("Run Setup" message) to make changes to the BIOS 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. 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 hardware settings from the default or current configuration.

IMPORTANT If you repeatedly receive "Run Setup" messages, the RTC battery located on the mainboard (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, CMOS Setup Utility will be simply referred to as "Setup" or "Setup Utility" in this Service Guide.

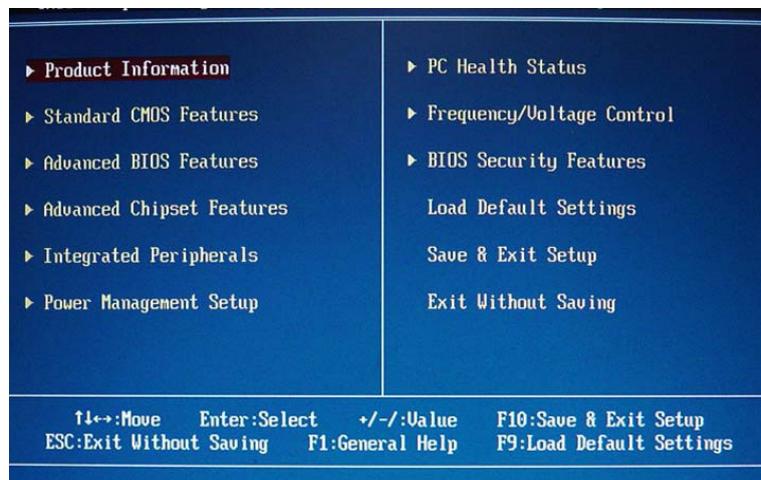
Accessing the Setup Utility

1. Turn on the server and the monitor.

If the server is already turned on, close all open applications, then restart the server.

2. During POST, press **Delete**.

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



Use the **Up/Down/Left/Right** arrow keys to move between the menu options, then press **Enter** to execute that option.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a ►) lead to submenus that enable you to change the values for the option. Use the **Up/Down/Left/Right** arrow keys to scroll through the items in the submenu

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
Up/Down/Left/ Right arrow keys	Move the cursor to the menu/field you want. The currently selected field will be highlighted.
Enter	<ul style="list-style-type: none">To open the page for the currently selected menu/submenuTo apply a field value.
PgUp and PgDn	Move the cursor to the previous and next page of a multipage menu.
Home	Move the cursor to the first page of a multipage menu.
End	Move the cursor to the last page of a multipage menu.
+ and -	To select a value for the currently selected field (only if it is user-configurable). Press these keys repeatedly to display all possible entries. A parameter that is enclosed in square brackets [] is user-configurable. Grayed-out parameters are not user-configurable for one of the following reasons: <ul style="list-style-type: none">The field value is auto-configured or auto-detected.The field value is informational only.The field is password-protected.
Esc	If you press this key: <ul style="list-style-type: none">On one of the primary menu screens, the <u>Exit</u> menu displays.On a submenu screen, the previous screen displays.When you are making selections from a pop-up menu, closes the pop-up without making a selection.
F1	To bring up the <u>General Help</u> window. The <u>General Help</u> window describes 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.

Setup Utility Menus

The Setup Utility has twelve menus for configuring the various system functions. These include:

- Product Information
- Standard CMOS Features
- Advanced BIOS Features
- Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PC Health Status
- Frequency/Voltage Control
- BIOS Security Features
- Load Default Settings
- Save & Exit Setup
- Exit Without Saving

- NOTES**
- The screenshots used in this section are for illustration only. The values displayed 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 settings.

Product Information

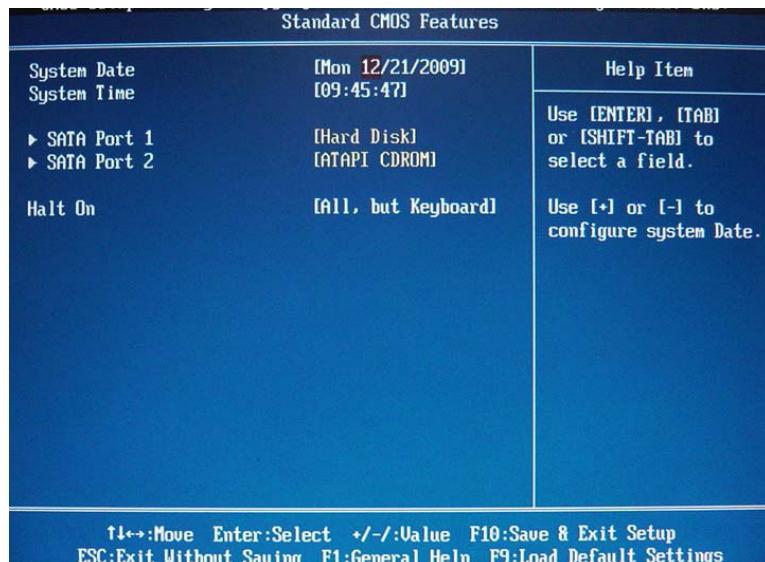
The Product Information menu displays basic information about the system. These entries are for your reference only and are not user-configurable.

Product Information	
Parameter	Help Item
Processor Type : Pentium(R) Dual-Core CPU E6800 @ 3.33GHz	
Processor Speed : 3.33 GHz	
System Memory : 2048 MB	
Product Name : EL1852	
System Serial Number: 813FK010031090330E3000	
System BIOS Version : P01-B0	
BIOS Release Date : 01/28/2011	
Asset Tag Number :	

**↑↓←→:Move Enter:Select ↵/-/:Value F10:Save & Exit Setup
ESC:Exit Without Saving F1:General Help F9:Load Default Settings**

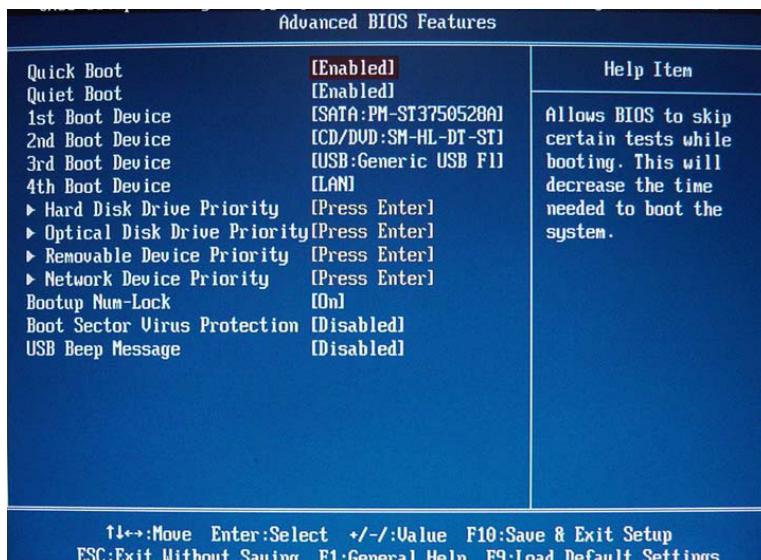
Parameter	Description
Processor Type	Type of processor installed on the system
Processor Speed	Speed of the processor installed on the system
System Memory	Size of system memory detected during boot-up
Product Name	Official model name of the computer.
System Serial Number	System serial number.
System BIOS Version	Current system BIOS version
BIOS Release Date	Date when the CMOS setup utility was released.
Asset Tag Number	System asset tag number

Standard CMOS Features



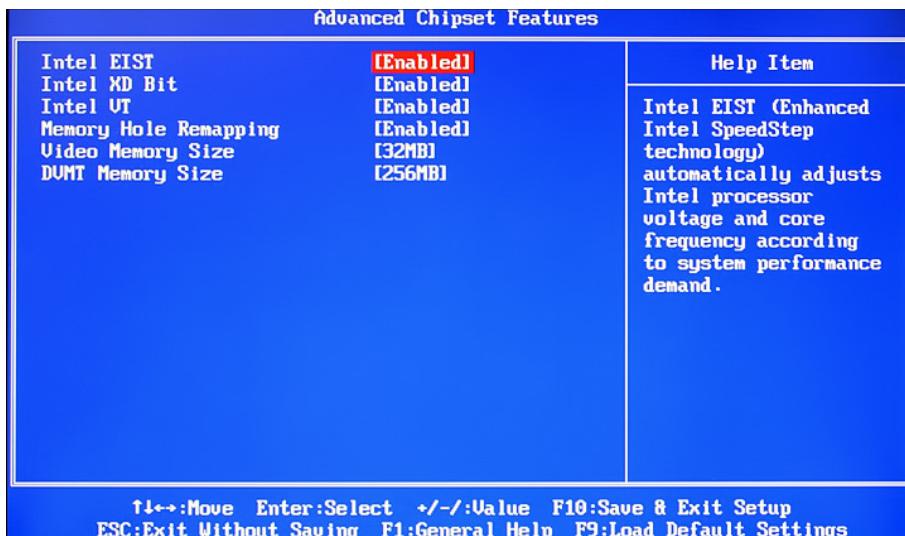
Field	Description	Value
System Date	Sets the system date.	MM/DD/YYYY (month/day/year)
System Time	Sets the system time.	HH:MM:SS (hour:minute:second)
SATA Port 1–2	Your Aspire computer supports two SATA channels, each channel allows one SATA device to be installed. Press Enter to display the individual configuration screen of installed SATA drive(s).	
Halt On	Determines whether the system will stop for an error during the POST.	All, But Keyboard No Errors All Errors

Advanced BIOS Feature



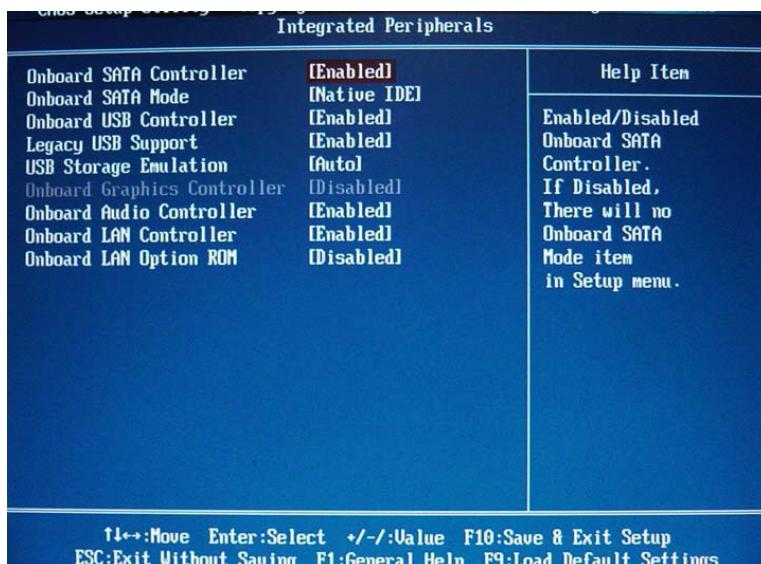
Field	Description	Value
Quick Boot	When enabled, the system starts up more quickly by eliminating some of the POST routines.	Enabled Disabled
Quiet Boot	When enabled, BIOS will show a full screen logo when booting; if disabled, BIOS will show the diagnostic POST screen when booting.	Enabled Disabled
1st/2nd/3rd/4th Boot Device	Displays the device assigned to the specified boot sequence. The Setup Utility attempts to boot the operating system in this order. By default, the computer searches for boot devices in the following order: <ul style="list-style-type: none">• Hard disk• Optical drive (CD/DVD)• Removable device• Network boot (LAN)	
Hard Disk Drive Priority	Press Enter to specify the boot device priority sequence for the installed hard drive(s).	
Optical Disk Drive Priority	Press Enter to specify the boot device priority sequence for the installed optical drive.	
Removable Device Priority	Press Enter to specify the boot device priority sequence for removable drives.	
Network Device Priority	Press Enter to specify the boot device priority sequence for available network drives.	
Bootup Num-Lock	If you set this item to On, the keyboard Num Lock key will be active when the computer boots up.	On Off
Boot Sector Virus Protection	If set to Disabled, when anything attempts to access the boot sector or hard disk partition table, there will be no warning message.	Enabled Disabled
USB Beep Message	Select whether to allow the BIOS to emit error beeps or display error messages during USB device enumeration.	Enabled Disabled

Advanced Chipset Features



Field	Description	Value
Intel EIST	Select whether to enable the Enhanced Intel SpeedStep Technology. EIST allows a compliant OS to dynamically adjust the processor voltage and core frequency based on system usage. This can result in decreased average power consumption and decreased average heat production. Note: After enabling EIST in BIOS Setup, you need to enable it on your operating system as well. Consult your OS documentation for related instructions.	Enabled Disabled
Intel XD Bit	Select whether to enable the Intel Execute Disable Bit Technology. XD Bit is a hardware-based security feature that can reduce exposure to viruses and malicious-code attacks and prevent harmful software from executing and propagating on the computer or network.	Enabled Disabled
Intel VT	Select whether to enable the Intel Virtualization Technology. VT allows a single platform to run multiple operating systems in independent partitions.	Enabled Disabled
Memory Hole Remapping	When enabled, some or all of the memory between the 2 GB and 4 GB limits to addresses above 4 GB. This is a workaround for the PCI hole or PCI memory hole which is a limitation of 32-bit hardware and 32-bit operating systems that causes a computer to appear to have less memory available than is physically installed. Note: This feature is useful for systems running on 64-bit OS and those 32-bit systems that support the Physical Address Extension method.	Enabled Disabled
Video Memory Size	Select the amount of system memory used by the internal graphics device.	32MB 64MB 128MB
DVMT Memory Size	This setting is only available for WinXp.	256MB 128MB Maximum

Integrated Peripherals



Field	Description	Value
Onboard SATA Controller	Enables or disables the onboard SATA controller.	Enabled Disabled
Onboard SATA Mode	Select an operating mode for the onboard SATA.	RAID Native IDE
Onboard USB Controller	Enables or disables the onboard USB controller.	Enabled Disabled
Legacy USB Support	Enables or disables support for legacy USB devices.	Enabled Disabled
USB Storage Emulation	If Auto, USB device equal or less than 2GB will be emulated as Floppy and remaining as harddrive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD (Ex.ZIP drive).	Auto Floppy Hard Disk
Onboard Audio Controller	Enables or disables the onboard audio controller.	Enabled Disabled
Onboard LAN Controller	Enables or disables the onboard LAN controller.	Enabled Disabled
Onboard LAN Option ROM	Enables or disables the load of embedded option ROM for onboard network controller.	Enabled Disabled

Power Management Setup



Field	Description	Value
ACPI Suspend Mode	Use this item to define how your system suspends. Default value is S3 (STR), the suspend mode is suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.	S3 (STR) S1 (POS)
Deep power off mode	Enables or disables compliance to the Energy-using Products Lot 6 Directives (EuP Lot 6).	Enabled Disabled
Power On by RTC Alarm	Enables or disables the system to wake up from a power-saving mode when an RTC alarm occurs.	Enabled Disabled
Power On by PCIE Devices	Enables or disables the system to wake up from a power-saving mode when an event occurs on an installed PCI Express device.	Enabled Disabled
Wake Up by PS/2 KB/ Mouse	Enables or disables the system to wake up from a power-saving mode when a PS/2 keyboard or mouse is used.	Enabled Disabled
Wake Up by USB KB/Mouse	Enables or disables the system to wake up from a power-saving mode when a USB keyboard or mouse is used.	Enabled Disabled
Restore On AC Power Loss	Select the power state when an AC power loss occurs. <ul style="list-style-type: none">• Off - The computer remains off until the power button is pressed.• Last State - The computer reverts to the last power state before the power loss occurred.• On - The computer switches back on after the AC power loss.	Power Off Power On Last State

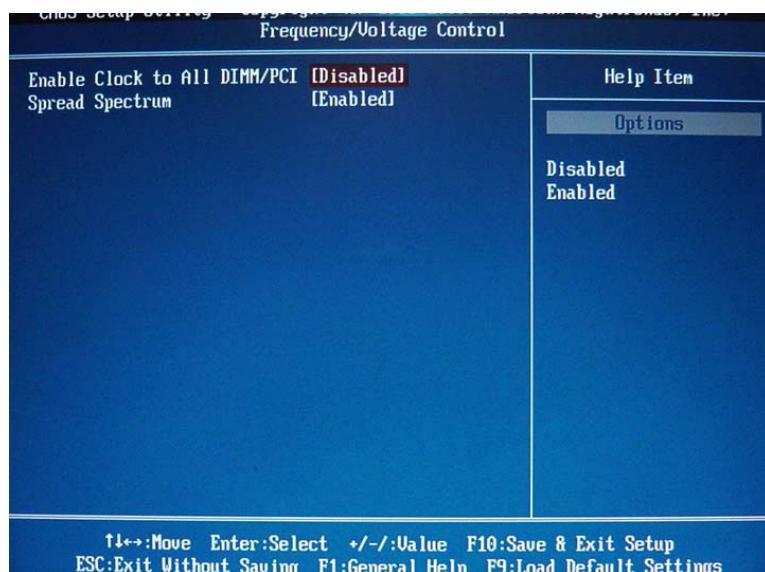
PC Health Status

PC Health Status	
CPU Temperature (PECI Mode)	:48
System Temperature	:46°C/114°F
CPU Fan Speed	:1119 RPM
System Fan Speed	:N/A
CPU Core	:1.149 V
+1.1V	:1.104 V
+3.30V	:3.408 V
+5.00V	:5.024 V
+12.0V	:11.850 V
5VSB	:5.110 V
VBAT	:3.279 V
Smart Fan	[Enabled]

↑↓←→:Move Enter:Select +/−/:Value F10:Save & Exit Setup
ESC:Exit Without Saving F1:General Help F9:Load Default Settings

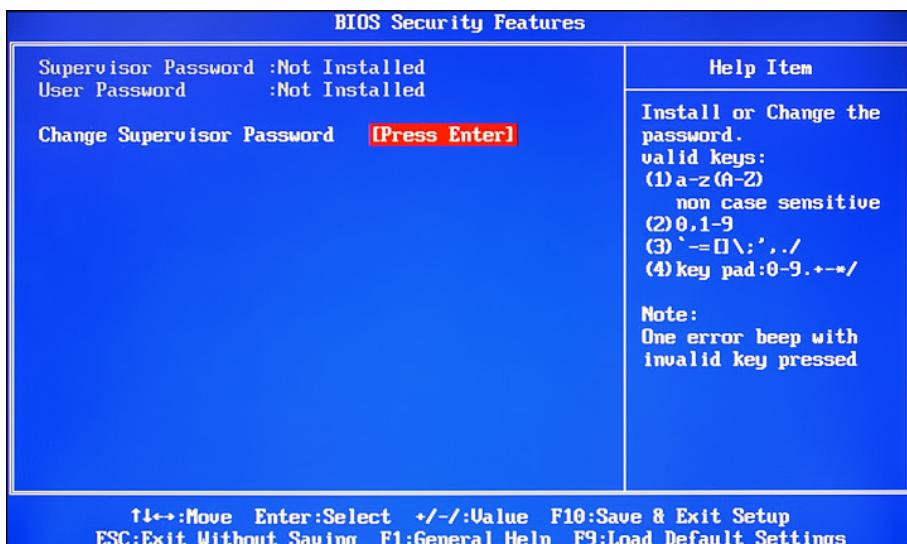
Field	Description	Value
CPU Temperature (PECI Mode) System Temperature CPU Fan Speed System Fan Speed CPU Core +1.1V +3.30V +5.00V +12.0V 5VSB VBAT	These items lets you monitor the parameters for critical voltages, temperatures and fan speeds.	
Smart Fan	When enabled, fan speed will speed up or slow down depending on the system temperature.	Enabled Disabled

Frequency/Voltage Control



Field	Description	Value
Enable Clock to All DIMM/ PCI	When enabled, clock signals will be sent to the PCI and memory slots regardless of whether the slot is occupied or not.	Enabled Disabled
Spread Spectrum	When the mainboard's clock generator pulses, the extreme values of the pulses creates EMI (electromagnetic interference). Set this field to Enabled to reduce this EMI level. This reduces interference problems with other electronics in the area. Note: Remember to disable the Spread Spectrum feature if you are overclocking. A slight jitter can introduce a temporary boost in clock speed causing the overclocked processor to lock up.	Enabled Disabled

BIOS Security Features



Field	Description	Value
Supervisor Password	Displays the supervisor password status. When set to Installed, this password will allow the user to access and change all settings in the Setup Utility.	Installed Not Installed
User Password	Displays the user password status. Only the following menus will be accessible when this password is set as Installed: <ul style="list-style-type: none">• System Time and System Date• Exit Without Saving	
Change Supervisor Password	Press Enter to change the supervisor password.	
Change User Password	Press Enter to change the user password.	

Setting a supervisor password

Note the following before you define a system password:

- The maximum length of password contains 8 alphanumeric characters—A - Z, 0 - 9, and ‘;’ (for French keyboard).
- System passwords are case-insensitive.
- When you are prompted to enter a password, you have three tries before the system halts. Do not forget your password. If you forget your password, you may have to return your computer to your dealer to reset it.

To set a system password:

1. Select Change Supervisor Password or Change User Password, 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**.

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

To change a system password:

1. Select Change Supervisor Password or Change User Password, 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. Select Change Supervisor Password or Change User Password, 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.

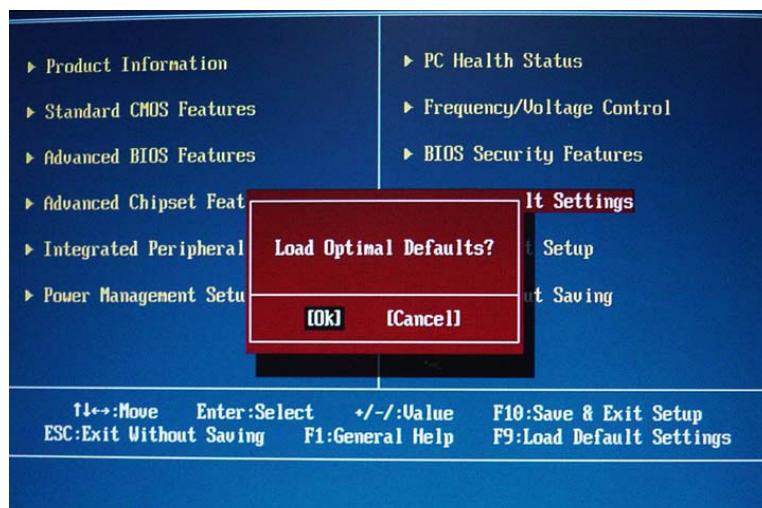
You will be prompted to confirm the password removal.

4. Press **Enter**.

5. Press **F10** to save the changes you made and close the Setup Utility.

Load Default Settings

Execute this menu to load the factory-default settings for all Setup parameters. Keyboard shortcut: F9

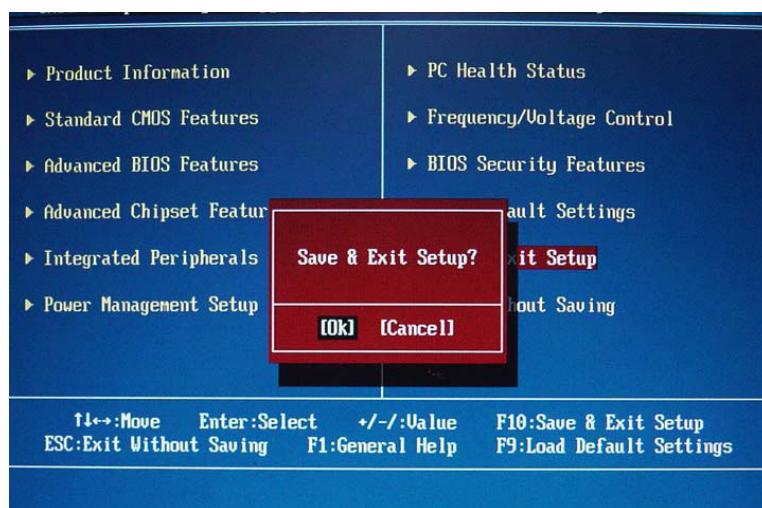


Perform the steps below to load the system default settings:

1. Select Load Default Settings, then press **Enter**.
You will be prompted to load the system defaults.
2. Select **OK**, then press **Enter**.
3. Press **F10** to save the changes you made and close the Setup Utility.

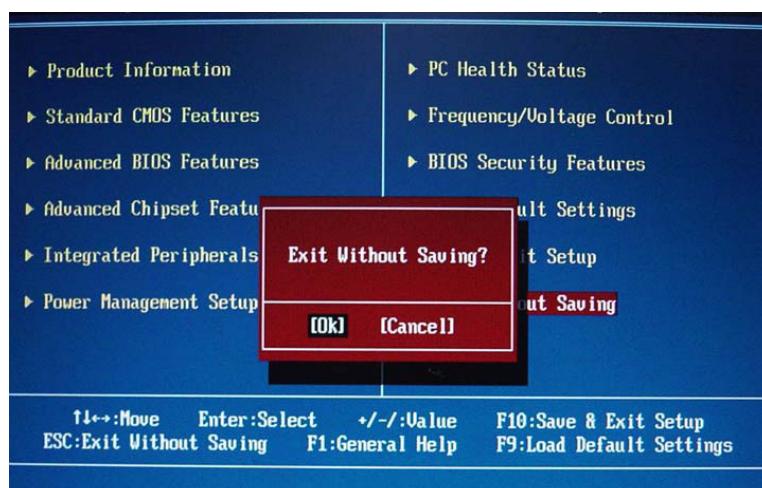
Save & Exit Setup

Execute this menu to save the changes made and closes the Setup Utility. Keyboard shortcut: F10



Exit Without Saving

The Exit Without Saving menu allows you to discard changes made and close the Setup Utility.



System Disassembly

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

Disassembly Requirements

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

- q Wrist-grounding strap and conductive mat for preventing electrostatic discharge
- q Philips screwdriver
- q Flat screwdriver
- q Plastic flat-blade screwdriver
- q Plastic tweezers

- NOTES**
- To reinstall the system components and assemble the unit, perform the disassembly procedures in reverse.
 - 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.

Pre-disassembly Procedure

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

1. Make sure that the optical disc drive and the optional card reader slots are empty.
2. Turn off the power to the computer and all peripherals.
3. Unplug the power cord from the computer.
4. Unplug the network cable and all connected peripheral devices from the computer.
5. Place the computer on a flat, steady surface.

Disassembly Procedures

Removing the Side Panel

1. Put the computer on a flat surface.
2. Remove the two screws located on the rear edge of the side panel.



3. Slide the side panel toward the back of the chassis until the tabs on the cover disengage with the slots on the chassis.



4. Detach the side panel from the unit and put it aside for reinstallation later.

Removing the Front Bezel

1. Release the front bezel retention tabs from the chassis interior.



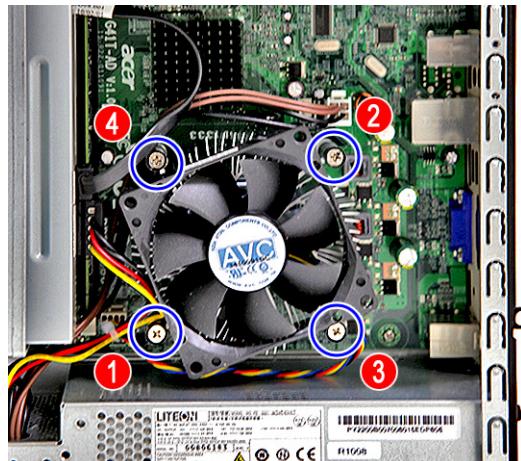
2. Detach front bezel from the chassis.



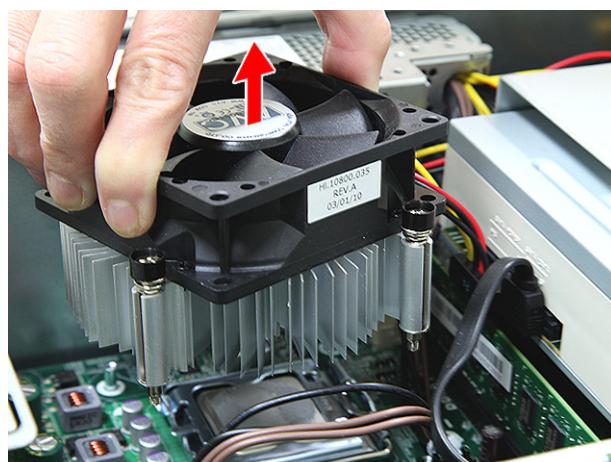
Removing the Heat Sink Fan Assembly

WARNING: The heat sink becomes very hot when the system is on. NEVER touch the heat sink with any metal or with your hands.

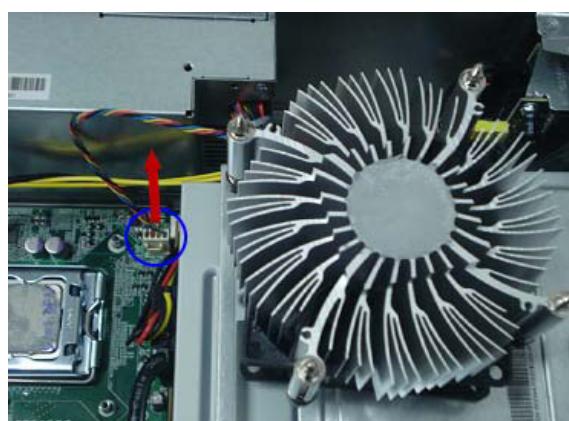
1. Use a screwdriver to loosen the four screws on the heat sink, in the order as shown below.



2. Lift the heat sink fan assembly away from the mainboard.



3. Lay down the heat sink fan assembly in an upright position, on top of the optical drive, as shown below, then disconnect the fan cable from the mainboard.

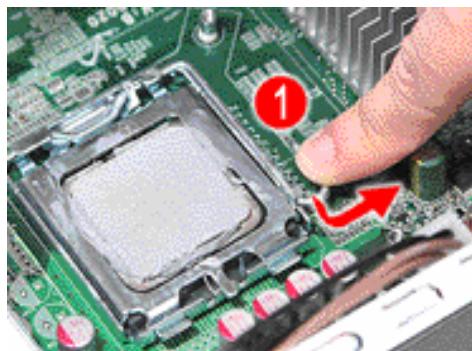


Removing the Processor

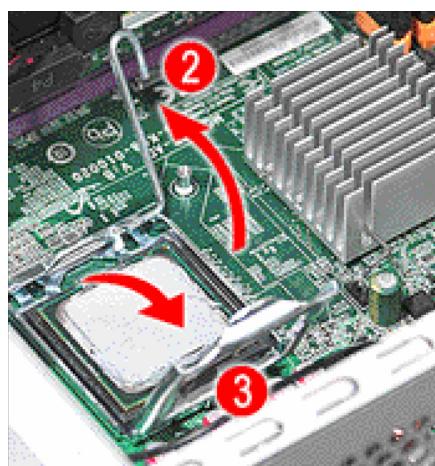
IMPORTANT: Before removing a processor from the mainboard, make sure to create a backup file of all important data.

WARNING: The processor becomes very hot when the system is on. Allow it to cool off first before handling.

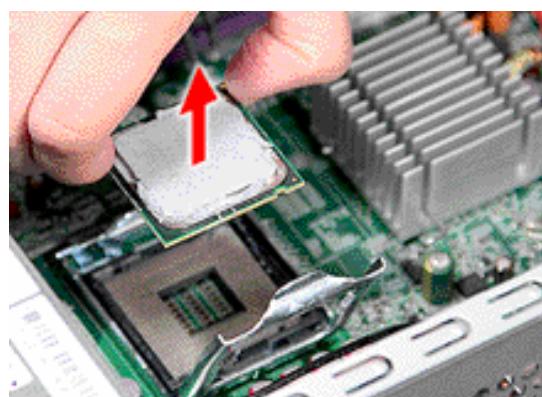
1. Release the load lever (1).



2. Pull the load lever to the fully open, upright position.
3. Open the retention plate to expose the socket body.



4. Gently lift the processor out of its socket. .



IMPORTANT:If you are going to install a new processor, note the arrow on the corner to make sure the processor is properly oriented over the socket.

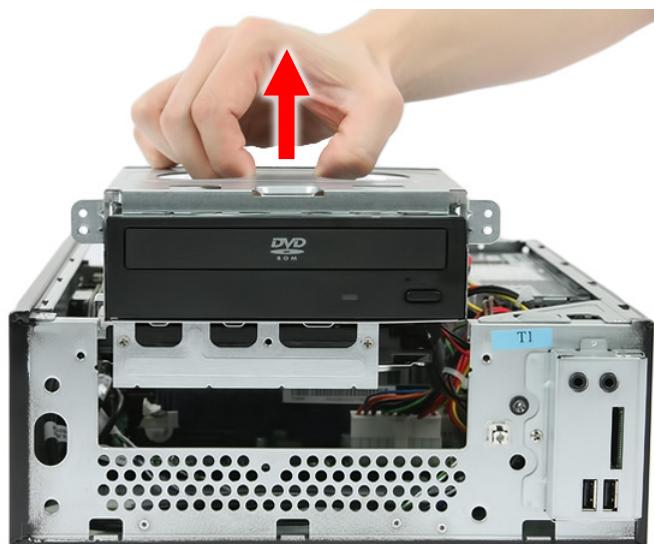


Removing the HDD-ODD Bracket

1. Remove the two screws that secure the HDD-ODD bracket to the chassis.

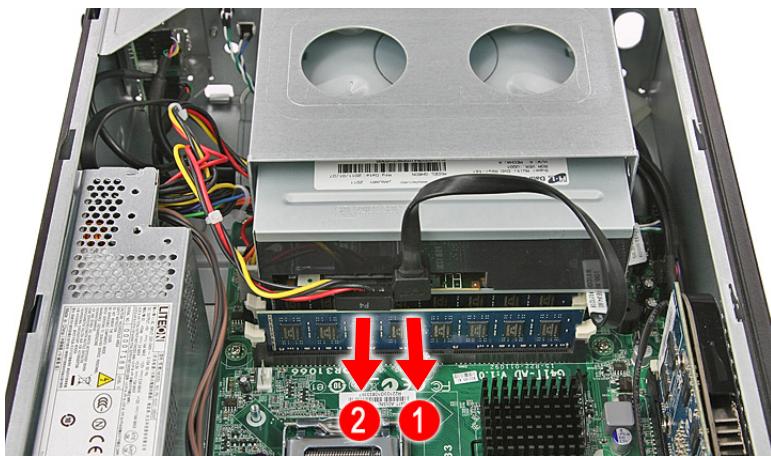


2. Lift up the HDD-ODD bracket.

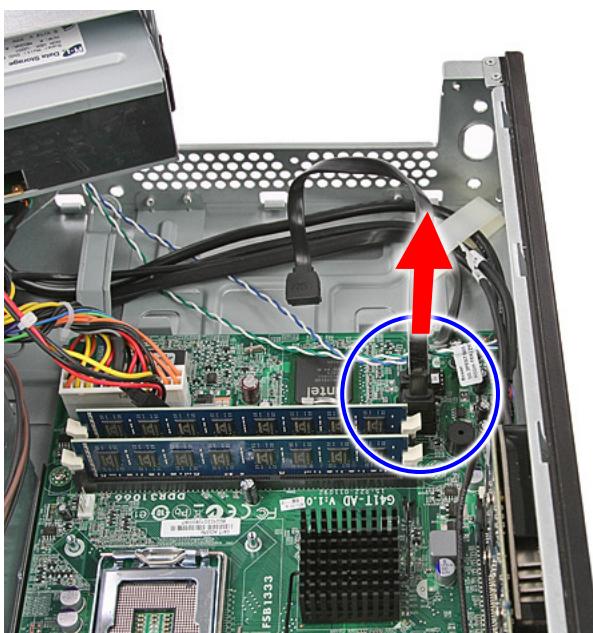


Removing the Optical Drive and the Hard Disk Drive

1. Disconnect the data and power cables from the rear of the optical drive.



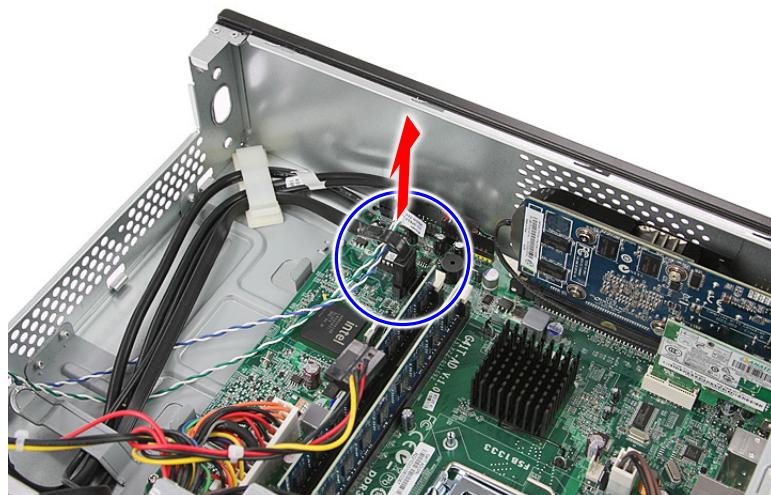
2. Disconnect the other end of the data cable from the mainboard.



-
3. Disconnect the data and power cables from the rear of the hard disk drive.



4. Disconnect the other end of the data cable from the mainboard.



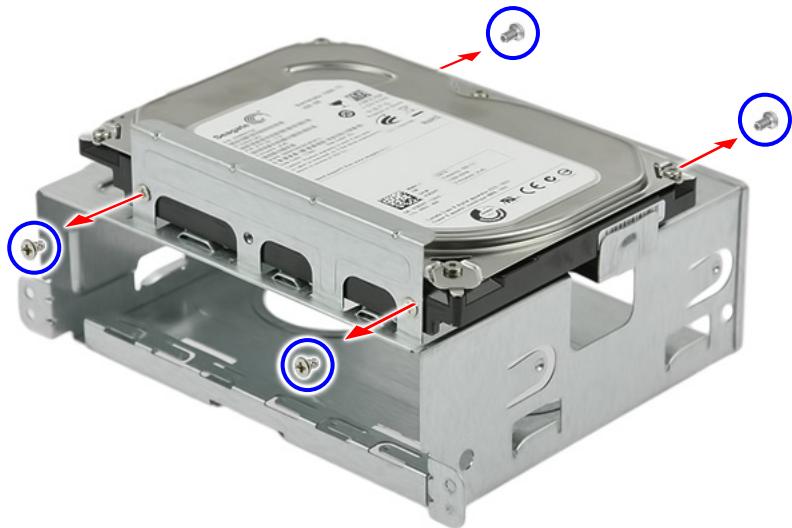
-
5. Remove the screws that secure the optical drive to the HDD-ODD bracket.



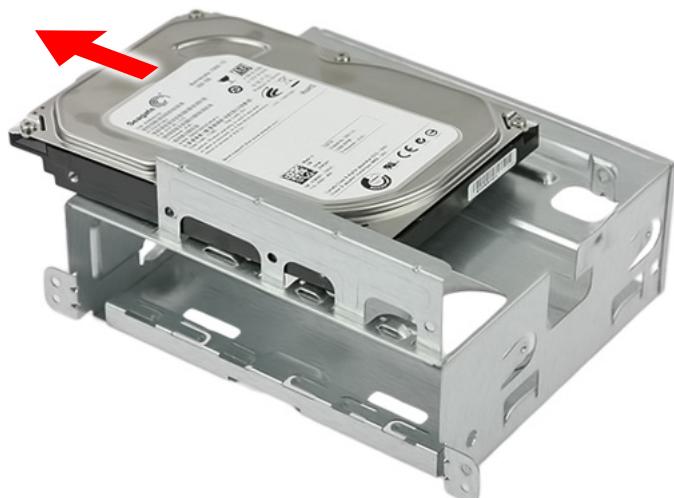
6. Pull the optical drive out of the drive bay.



-
7. Remove the four screws that secure the hard disk drive to the HDD bracket.



8. Slide the hard disk drive out of the bracket.



Removing the Expansion Boards

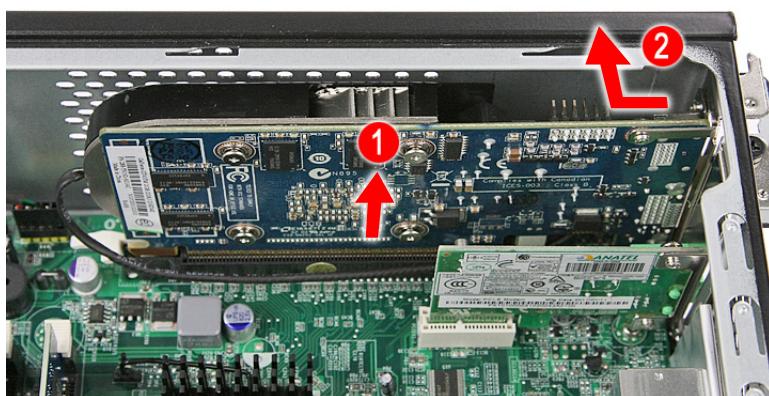
1. Remove the screw from the expansion card bracket opposite the PCI_1 slot.



2. Push to open the expansion slot lock in the direction indicated.



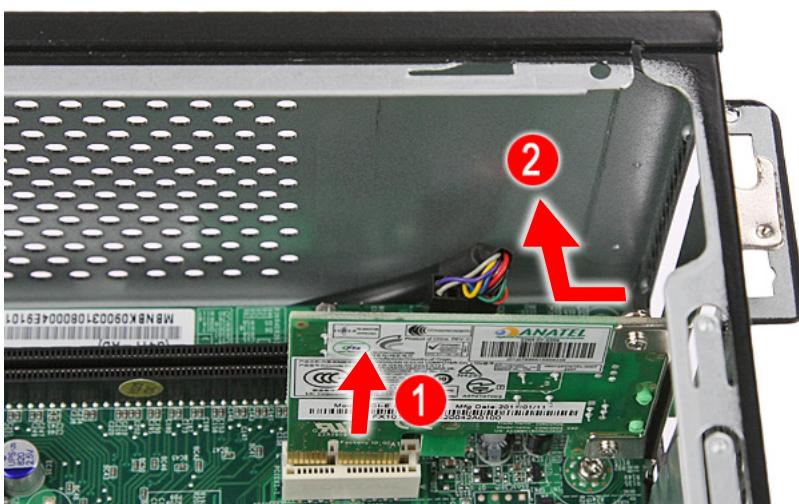
3. Gently pull up the expansion board (1), move it slightly to the left and remove (2) from the slot.



-
4. Remove the screw from the expansion card bracket opposite the PCIEX2 slot.

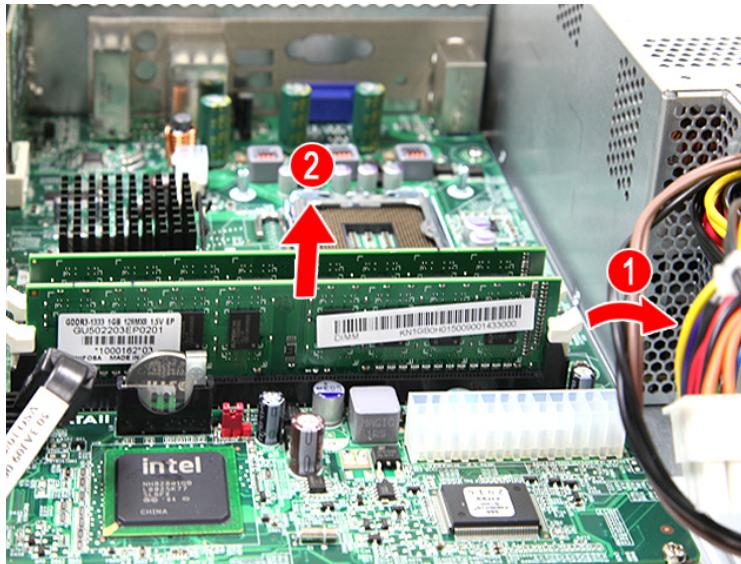


5. Gently pull up the TV tuner board (1), move it slightly to the left and remove (2) from the slot.



Removing the Memory Modules

1. Press the holding clips on both sides of the DIMM slot outward to release the DIMM (1).
2. Gently pull the DIMM upward to remove it from the chassis (2).



Removing the Power Supply Unit

1. Disconnect the 4-pin and 24-pin ATX power supply cables from the mainboard.



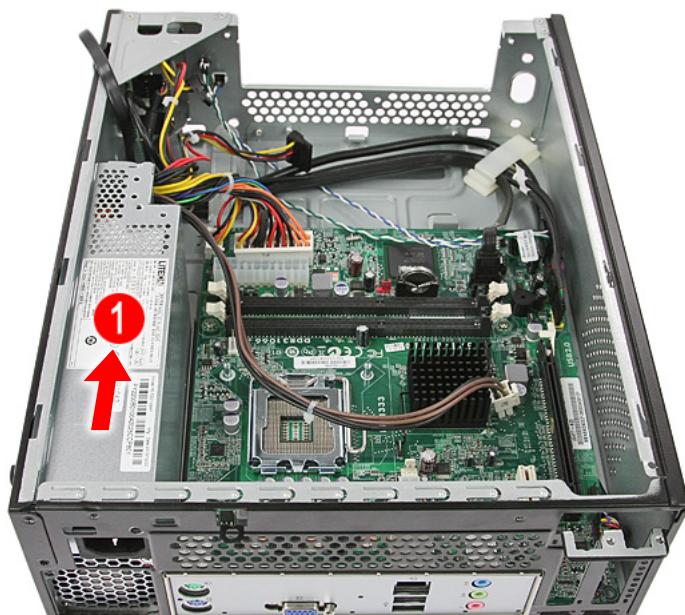
-
2. Remove the screw that secures the power supply to the chassis.



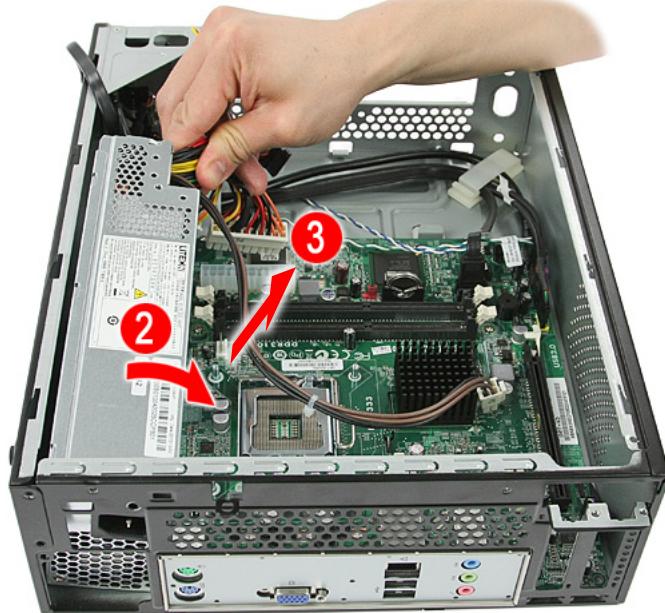
3. Remove the screws that secure the power supply to the rear panel.



4. Push the power supply module toward the front.

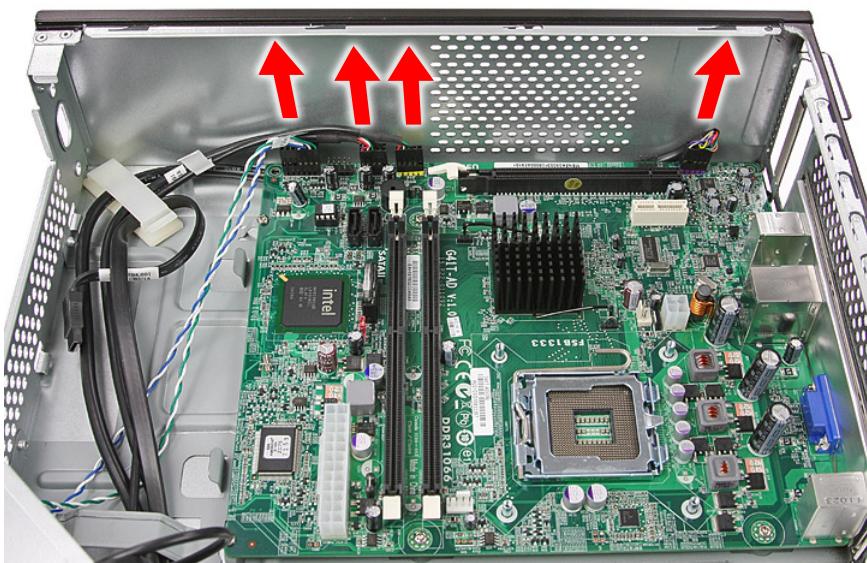


-
5. Tilt the power supply module slightly to the right and lift it out of the chassis.

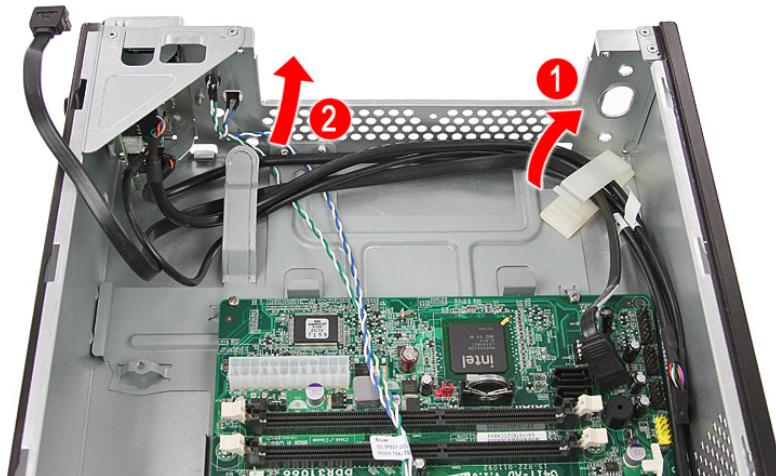


Removing the Front I/O and Card Reader Assembly

1. Disconnect the power button/LED, front I/O and card reader cables from their mainboard connectors.



-
2. Open the plastic clip (1) and release the cables from the metal clip (2) in the direction indicated.



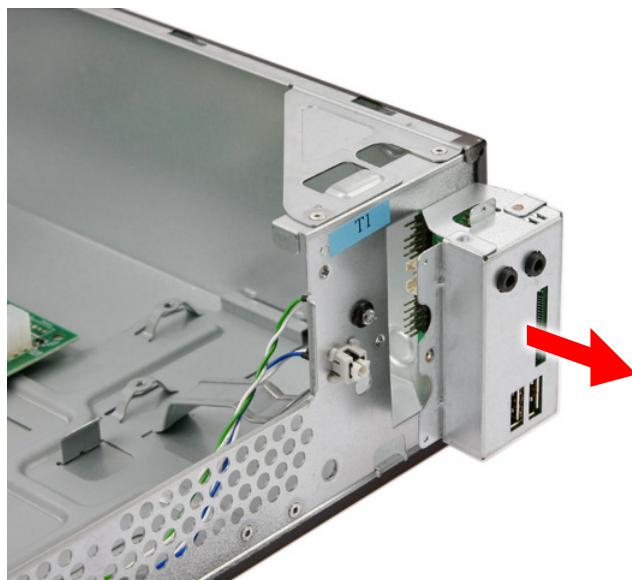
3. Detach the cables from the card. Remove the cables.



4. Remove the screw that secures the bracket to the chassis.



-
5. Pull the bracket out from the chassis.



6. Remove the two screws that secure the front I/O and card reader assembly to the bracket.

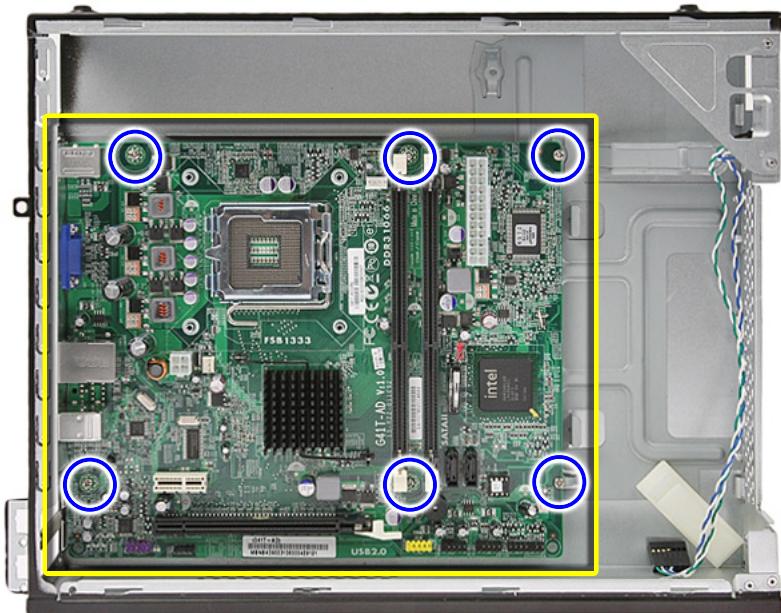


7. Remove the front I/O and card reader assembly from the bracket.



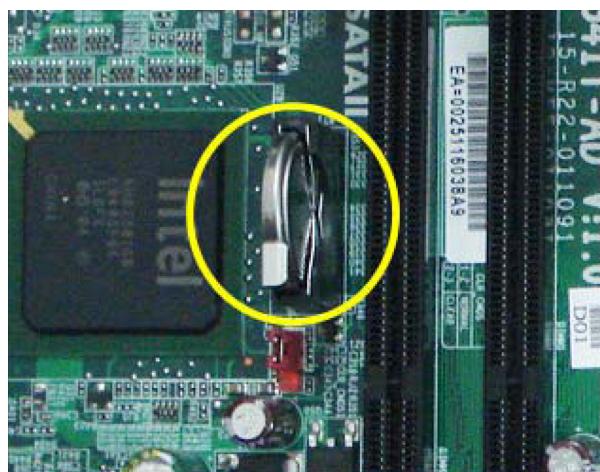
Removing the Mainboard

1. Remove the six screws that secure the mainboard to the chassis.



Note: Circuit board >10 cm² has been highlighted with the yellow rectangle as shown above.
Please follow local regulations for disposal of detached circuit boards.

2. Lift the mainboard from the chassis.
3. Remove the RTC battery.



Note: The RTC battery has been highlighted with a yellow circle as shown above. Please follow local regulations for disposal of used RTC batteries.

Troubleshooting

This chapter lists the POST error indicators and BIOS beep codes, as well general troubleshooting instructions.

Hardware Diagnostic Procedure

1. Obtain as much detail as possible about the symptoms of the system failure.
2. Verify the symptoms by attempting to recreate the failure by running the diagnostic tests or repeating the same operation.
3. Refer to Power System Checkprocedure on the next section and the Beep Codessection on page 56 to determine which corrective action to take.

System Check Procedures

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.

Power System Check

If the system can be powered on, skip this section. Proceed to the System Internal Inspectionprocedure.

If the system will not power on, do the following:

- Check if the power cable is properly connected to the AC power jack and a functional AC power source.
- Check if the voltage selector switch is set to the correct voltage setting.

System External Inspection

1. Inspect the power and LED indicators on the front panel. Go to Front Viewsection on page 4 for the location and description of the LED behaviour.
2. Make sure that the ventilation slots on the rear panel are not blocked.
3. Make sure that there is no point of contact in the system that can cause a power short.

If the cause of the failure is still can not be determined, perform the System Internal Inspectionprocedure.

System Internal Inspection

1. Turn off the power to the computer and all peripherals.
2. Unplug the power cord from the computer.
3. Unplug the network cable and all connected peripheral devices from the computer.
4. Place the computer on a flat, steady surface.
5. Remove the side panel as described in page 24.
6. Verify that the processor, memory module(s), and expansion board(s) are properly seated.
7. Verify that all power and data cables are firmly and properly attached to the installed drives.
8. Verify that all cable connections inside the system are firmly and properly attached to their appropriate mainboard connectors.
9. Verify that all components are Acer-qualified and supported.
10. Reinstall the side panel.
11. Power on the system.

If the cause of the failure is still can not be determined, review the POST messages and BIOS checkpoints during the system startup.

Checkpoints

A checkpoint is either a byte or word value output to I/O port 80h. The BIOS outputs checkpoints during bootblock and Power-On Self Test (POST) to indicate the task the system is currently executing. Checkpoints are very useful in aiding software developers or technicians in debugging problems that occur during the pre-boot process.

Viewing BIOS Checkpoints

Viewing all checkpoints generated by the BIOS requires a checkpoint card, also referred to as a POST card or POST diagnostic card. These are ISA or PCI add-in cards that show the value of I/O port 80h on a LED display. Checkpoints may appear on the bottom right corner of the screen during POST. This display method is limited, since it only displays checkpoints that occur after the video card has been activated.

NOTE Please note that checkpoints may differ between different platforms based on system configuration. Checkpoints may change due to vendor requirements, system chipset or option ROMs from add-in PCI devices.

Bootblock Initialization Code Checkpoints

The Bootblock initialization code sets up the chipset, memory, and other components before system memory is available. The following table describes the type of checkpoints that may occur during the bootblock initialization portion of the BIOS.

Please note that checkpoints may differ between different platforms based on system configuration. Checkpoints may change due to vendor requirements, system chipset or option ROMs from add-in PCI devices.

Checkpoint	Description
Before D1	Early chipset initialization is done. Early super I/O initialization is done including RTC and keyboard controller. NMI is disabled.
D0	Go to flat mode with 4GB limit and GA20 enabled. Verify the bootblock checksum.
D1	Perform keyboard controller BAT test. Check if waking up from power management suspend state. Save power-onCPUID value in scratch CMOS.
D2	Disable CACHE before memory detection. Execute full memory sizing module. Verify that flat mode is enabled.
D3	If memory sizing module not executed, start memory refresh and do memory sizing in Bootblock code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 512 KB memory. Adjust policies and cache first 8MB. Set stack.
D5	Bootblock code is copied from ROM to lower system memory and control is given to it. BIOS now executes out of RAM.
D6	Both key sequence and OEM specific method is checked to determine if BIOS recovery is forced. Main BIOS checksum is tested. If BIOS recovery is necessary, control flows to checkpoint E0. See Bootblock Recovery Code Checkpoints section for more information.
D7	Restore CPUID value back into register. The Bootblock-Runtime interface module is moved to system memory and control is given to it. Determine whether to execute serial flash.
D8	The Runtime module is uncompressed into memory. CPUID information is stored in memory.
D9	Store the Uncompressed pointer for future use in PMM. Copying Main BIOS into memory. Leaves all RAM below 1MB Read-Write including E000 and F000 shadow areas but closing SMRAM.

Checkpoint	Description
DA	Restore CPUID value back into register. Give control to BIOS POST (ExecutePOSTKernel). See POST Code Checkpoints section of document for more information.

Bootblock Recovery Code Checkpoints

The Bootblock recovery code gets control when the BIOS determines that a BIOS recovery needs to occur because the user has forced the update or the BIOS checksum is corrupt. The following table describes the type of checkpoints that may occur during the Bootblock recovery portion of the BIOS.

NOTE: Checkpoints may differ between different platforms based on system configuration. Checkpoints may change due to vendor requirements, system chipset or option ROMs from add-in PCI devices.

Checkpoint	Description
E0	Initialize the floppy controller in the super I/O. Some interrupt vectors are initialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled.
E9	Set up floppy controller and data. Attempt to read from floppy.
EA	Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CDROM.
EB	Disable ATAPI hardware. Jump back to checkpoint E9.
EF	Read error occurred on media. Jump back to checkpoint EB.
F0	Search for pre-defined recovery file name in root directory.
F1	Recovery file not found.
F2	Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file.
F3	Start reading the recovery file cluster by cluster.
F5	Disable L1 cache.
FA	Check the validity of the recovery file configuration to the current configuration of the flash part.
FB	Make flash write enabled through chipset and OEM specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size.
F4	The recovery file size does not equal the found flash part size.
FC	Erase the flash part
FD	Program the flash part.
FF	The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM at F000:FFF0h.

POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS preboot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS.

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.

Checkpoint	Description
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
07	Fixes CPU POST interface calling pointer.
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache – Init Local APIC
C1	Set up boot strap processor Information
C2	Set up boot strap processor for POST
C5	Enumerate and set up application processors
C6	Re-enable cache for boot strap processor
C7	Early CPU Init Exit
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules. GPNV is initialized at this checkpoint.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.

Checkpoint	Description
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section for more information. USB controllers are initialized at this point.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, ... etc.) successfully installed in the system and update the BDA, EBDA...etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.

Checkpoint	Description
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory. Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested. Check boot password if installed.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported)
8E	Program the peripheral parameters. Enable/Disable NMI as selected.
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module. Display boot option popup menu.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).
61-70	OEM POST Error. This range is reserved for chipset vendors and system manufacturers. The error associated with this value may be different from one platform to the next.

DIM Code Checkpoints

The Device Initialization Manager (DIM) gets control at various times during BIOS POST to initialize different system busses. The following table describes the main checkpoints where the DIM module is accessed.

Checkpoint	Description
2A	Initialize different buses and perform the following functions: Reset, Detect, and Disable (function 0); Static Device Initialization (function 1); Boot Output Device Initialization (function 2). Function 0 disables all device nodes, PCI devices, and PnP ISA cards. It also assigns PCI bus numbers. Function 1 initializes all static devices that include manual configured onboard peripherals, memory and I/O decode windows in PCI-PCI bridges, and noncompliant PCI devices. Static resources are also reserved. Function 2 searches for and initializes any PnP, PCI, or AGP video devices.

Checkpoint	Description
38	Initialize different buses and perform the following functions: Boot Input Device Initialization (function 3); IPL Device Initialization (function 4); General Device Initialization (function 5). Function 3 searches for and configures PCI input devices and detects if system has standard keyboard controller. Function 4 searches for and configures all PnP and PCI boot devices. Function 5 configures all onboard peripherals that are set to an automatic configuration and configures all remaining PnP and PCI devices.

ACPI Runtime Checkpoints

Checkpoint	Description
AC	First ASL check point. Indicates the system is running in ACPI mode.
AA	System is running in APIC mode
01, 02, 03, 04, 05	Entering sleep state S1, S2, S3, S4, or S5.
10, 20, 30, 40, 50	Waking from sleep state S1, S2, S3, S4, or S5

POST Error Indicators

When a system error is detected during POST (Power On Self Test), the Setup utility will switch to diagnostic mode and will either:

- Displays a POST error message, or
- Emits a series of beep codes

POST Error Messages

POST error messages tell users what failure the system has detected. Some error messages could be related to a hardware device. Others may indicate a problem with a device configuration. In some cases an error message may include recommendations for troubleshooting or require that you press the **Enter** key to display recommendations. Follow the instructions on the screen. It is recommended that you correct the error before proceeding, even if the computer appears to boot successfully.

IMPORTANT If your system fails after you make changes in the Setup menus, reboot the computer, enter Setup again and load Setup defaults to correct the error.

Memory

Message	Description
Gate20 Error	The BIOS is unable to properly control the mainboard's Gate A20 function, which controls access of memory over 1 MB. This may indicate a problem with the mainboard.
Multi-Bit ECC Error	This message will only occur on systems using ECC enabled memory modules. ECC memory has the ability to correct single-bit errors that may occur from faulty memory modules. A multiple bit corruption of memory has occurred, and the ECC memory algorithm cannot correct it. This may indicate a defective memory module.
Parity Error	Fatal Memory Parity Error. System halts after displaying this message.
RAM R/W test failed	This message is displayed by the AMIBIOS8 when the RAM read/write test fails.
CMOS Memory Size Wrong	The base memory (memory below 1MB) size that is reported in the CMOS (offset 15h) mismatches with the actual size detected. This condition may occur when the hole is set at 512K base memory or when CMOS is corrupted.

Boot

Message	Description
Boot Failure...	This is a generic message indicating the BIOS could not boot from a particular device. This message is usually followed by other information concerning the device.
Invalid Boot Diskette	A diskette was found in the drive, but it is not configured as a bootable diskette.
Drive Not Ready	The BIOS was unable to access the drive because it indicated it was not ready for data transfer. This is often reported by drives when no media is present.
A: Drive Error	The BIOS attempted to configure the A: drive during POST, but was unable to properly configure the device. This may be due to a bad cable or faulty diskette drive.
B: Drive Error	The BIOS attempted to configure the B: drive during POST, but was unable to properly configure the device. This may be due to a bad cable or faulty diskette drive.
Insert BOOT diskette in A:	The BIOS attempted to boot from the A: drive, but could not find a proper boot diskette. Reboot and Select proper Boot device or Insert Boot Media in selected Boot device BIOS could not find a bootable device in the system and/or removable media drive does not contain media.
Reboot and select proper boot device or Insert boot media in selected boot device	BIOS could not find a bootable device in the system and/or removable media drive does not contain media.
NO ROM BASIC	This message occurs on some systems when no bootable device can be detected.

Storage Device

Message	Description
Primary Master Hard Disk Error	The IDE/ATAPI device configured as Primary Master could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Primary Slave Hard Disk Error	The IDE/ATAPI device configured as Primary Slave could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Master Hard Disk Error	The IDE/ATAPI device configured as Secondary Master could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Slave Hard Disk Error	The IDE/ATAPI device configured as Secondary Slave could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 3rd IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 3rd IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 4th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 4th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 5th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 5th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Master Hard Disk Error	The IDE/ATAPI device configured as Master in the 6th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Slave Hard Disk Error	The IDE/ATAPI device configured as Slave in the 6th IDE controller could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Primary Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Primary Master failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Primary Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Primary Slave failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Secondary Master failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
Secondary Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Secondary Slave failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
3rd Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 3rd IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.

Message	Description
3rd Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 3rd IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 4th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
4th Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 4th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 5th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
5th Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 5th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Master Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Master in the 6th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
6th Slave Drive - ATAPI Incompatible	The IDE/ATAPI device configured as Slave in the 6th IDE controller failed an ATAPI compatibility test. This message is typically displayed when the BIOS is trying to detect and configure IDE/ATAPI devices in POST.
S.M.A.R.T. Capable but Command Failed	<p>The BIOS tried to send a S.M.A.R.T. message to a hard disk, but the command transaction failed.</p> <p>This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.</p>
S.M.A.R.T. Command Failed	<p>The BIOS tried to send a S.M.A.R.T. message to a hard disk, but the command transaction failed.</p> <p>This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.</p>
S.M.A.R.T. Status BAD, Backup and Replace	A S.M.A.R.T. capable hard disk sends this message when it detects an imminent failure. This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.
S.M.A.R.T. Capable and Status BAD	<p>A S.M.A.R.T. capable hard disk sends this message when it detects an imminent failure.</p> <p>This message can be reported by an ATAPI device using the S.M.A.R.T. error reporting standard. S.M.A.R.T. failure messages may indicate the need to replace the hard disk.</p>

Virus-related

Message	Description
BootSector Write!!	The BIOS has detected software attempting to write to a drive's boot sector. This is flagged as possible virus activity. This message will only be displayed if Virus Detection is enabled in AMIBIOS setup.
VIRUS: Continue (Y/N)?	If the BIOS detects possible virus activity, it will prompt the user. This message will only be displayed if Virus Detection is enabled in AMIBIOS setup.

System Configuration

Message	Description
DMA-1 Error	Error initializing primary DMA controller. This is a fatal error, often indication a problem with system hardware.
DMA-2 Error	Error initializing secondary DMA controller. This is a fatal error, often indication a problem with system hardware.
DMA Controller Error	POST error while trying to initialize the DMA controller. This is a fatal error, often indication a problem with system hardware.
Checking NVRAM... Update Failed	BIOS could not write to the NVRAM block. This message appears when the FLASH part is write-protected or if there is no FLASH part (System uses a PROM or EPROM).
Microcode Error	BIOS could not find or load the CPU Microcode Update to the CPU. This message only applies to INTEL CPUs. The message is most likely to appear when a brand new CPU is installed in a mainboard with an outdated BIOS. In this case, the BIOS must be updated to include the Microcode Update for the new CPU.
NVRAM Checksum Bad, NVRAM Cleared	There was an error in while validating the NVRAM data. This causes POST to clear the NVRAM data.
Resource Conflict	More than one system device is trying to use the same non-shareable resources (Memory or I/O).
NVRAM Ignored	The NVRAM data used to store Plug'n'Play (PnP) data was not used for system configuration in POST.
NVRAM Bad	The NVRAM data used to store Plug'n'Play (PnP) data was not used for system configuration in POST due to a data error.
Static Resource Conflict	Two or more Static Devices are trying to use the same resource space (usually Memory or I/O).
PCI I/O conflict	A PCI adapter generated an I/O resource conflict when configured by BIOS POST.
PCI ROM conflict	A PCI adapter generated an I/O resource conflict when configured by BIOS POST.
PCI IRQ conflict	A PCI adapter generated an I/O resource conflict when configured by BIOS POST.
PCI IRQ routing table error	BIOS POST (DIM code) found a PCI device in the system but was unable to figure out how to route an IRQ to the device. Usually this error is causing by an incomplete description of the PCI Interrupt Routing of the system.
Timer Error	Indicates an error while programming the count register of channel 2 of the 8254 timer. This may indicate a problem with system hardware.
Refresh timer test failed	BIOS POST found that the refresh timer hardware failed to pass the Refresh Retrace Test.
Interrupt Controller-1 error	BIOS POST could not initialize the Master Interrupt Controller. This may indicate a problem with system hardware.
Interrupt Controller-2 error	BIOS POST could not initialize the Slave Interrupt Controller. This may indicate a problem with system hardware.

CMOS

Message Displayed	Description
CMOS Date/Time Not Set	The CMOS date and/or time are invalid. This error can be resolved by readjusting the system time in AMIBIOS Setup.
CMOS Battery Low	CMOS battery is low. This message usually indicates that the CMOS battery needs to be replaced. It could also appear when the user intentionally discharges the CMOS battery.
CMOS Settings Wrong	CMOS settings are invalid. This error can be resolved by using AMIBIOS Setup.
CMOS Checksum Bad	CMOS contents failed the Checksum check. Indicates that the CMOS data has been changed by a program other than the BIOS or that the CMOS is not retaining its data due to malfunction. This error can typically be resolved by using AMIBIOS Setup.

Miscellaneous

Message Displayed	Description
KBC BAT Test failed	Keyboard controller BAT test failed. This may indicate a problem with keyboard controller initialization.
Keyboard Error	Keyboard is not present or the hardware is not responding when the keyboard controller is initialized.
PS/2 Keyboard not found	PS/2 keyboard support is enabled in the BIOS setup but the device is not detected.
PS/2 Mouse not found	PS/2 mouse support is enabled in the BIOS setup but the device is not detected.
Keyboard/Interface Error	Keyboard controller failure. This may indicate a problem with system hardware.
Unlock Keyboard	PS/2 keyboard is locked. User needs to unlock the keyboard to continue the BIOS POST.
System Halted	The system has been halted. A reset or power cycle is required to reboot the machine. This message appears after a fatal error has been detected.
<INS> Pressed	Indicates that <INS> key is pressed during the BIOS POST. The POST will load and use default CMOS settings.
Password check failed	The password entered does not match the password set in the setup. This condition may occur for both Supervisor and User password verification.
Unknown BIOS error. Error code = 004Ah	This message is displayed when ADM module is not present in the AMIBIOS8 ROM.
Unknown BIOS error. Error code = 004Bh	This message is displayed when language module is not present in the AMIBIOS8 ROM.
Floppy Controller Failure	Error in initializing legacy Floppy Controller.

Index of Symptom-to-FRU Error Messages

To use the information in this section to diagnose a problem:

1. Find the error symptom in the left column.
2. If directed to a check procedure, replace the FRU indicated in the check procedure.

If no check procedure is indicated, the first Action/FRU item listed in the right column is the most likely cause.

NOTE If you cannot find a symptom or an error in this list and the problem remains, see “Undetermined Problems” on page 65.

Processor/Processor Fan-related Symptoms

Symptom/Error	Action/FRU
Processor fan does not run but power supply fan runs.	<ul style="list-style-type: none">• Ensure the system is not in power saving mode.• With the system powered on, measure the voltage of the processor fan connector. Its reading should be +12Vdc. If the reading shows normal, but the fan still does not work, then replace the heat sink fan.• Mainboard
Processor test failed.	<ul style="list-style-type: none">• Processor• Mainboard

NOTE Normally, the processor fan should be operative, and the processor clock setting should be exactly set to match its speed requirement before diagnosing any processor problems.

Mainboard and Memory-related Symptoms

Symptom/Error	Action/FRU
Memory test failed.	<ul style="list-style-type: none">• Memory module• Mainboard
Incorrect memory size shown or repeated during POST.	<ul style="list-style-type: none">• Insert the memory modules in the DIMM sockets properly, then reboot the system.• Memory module• Mainboard
System works but fails to enter power saving mode when the Power Management Mode is set to Enabled.	<ul style="list-style-type: none">• Enter CMOS Setup and load the default settings. In Windows systems, check settings in Power Management Property of the Control Panel.• Reload software from Recovery CD.
Blinking cursor only; system does not work.	<ul style="list-style-type: none">• IDE drive connection/cables• IDE disk drives• See “Undetermined Problems”.• Mainboard

NOTE Ensure the memory modules are installed properly and the contact leads are clean before diagnosing any system problems.

Hard Disk Drive-related Symptoms

Symptom/Error	Action/FRU
Hard disk drive test failed.	<ul style="list-style-type: none"> Enter CMOS Setup and load the default settings. Hard disk drive cable Hard disk drive Mainboard
Hard disk drive cannot format completely.	<ul style="list-style-type: none"> Enter CMOS Setup and load the default settings. Hard disk drive cable Hard disk drive Mainboard
Hard disk drive has write error.	<ul style="list-style-type: none"> Enter CMOS Setup and load the default settings. Hard disk drive
Hard disk drive LED fails to light, but system operates normally.	<ul style="list-style-type: none"> With the system power on, measure the voltage of the HDD LED connector. HDD LED cable

NOTE Make sure the hard disk drive is configured correctly in CMOS Setup and that cable/jumper are set correctly before diagnosing any hard disk drive problems. (If only one drive is installed, please make sure the drive is connected to master connector or the drive is set to master.)

Optical Disc Drive-related Symptoms

Symptom/Error	Action/FRU
CD/DVD-ROM drive LED doesn't come on but works normally.	<ul style="list-style-type: none"> Enter CMOS Setup and load the default settings. DIMM Mainboard
CD/DVD-ROM drive LED flashes for more than 30 seconds before LED shutting off. Software asks to reinstall disc. Software displays a reading CD/DVD error.	<ul style="list-style-type: none"> CD/DVD-ROM may have dirt or foreign material on it. Check with a known good disc. CD/DVD-ROM is not inserted properly. CD/DVD-ROM is damaged.
CD/DVD-ROM drive cannot load or eject when the system is turned on and its eject button is pressed and held.	<ul style="list-style-type: none"> Disconnect all cables from CD/DVD-ROM drive except power cable, then press the eject button to try to unload the disc. CD/DVD-ROM drive power cable CD/DVD-ROM drive
CD/DVD-ROM drive does not read and there are no messages are displayed.	<ul style="list-style-type: none"> CD may have dirt or foreign material on it. Check with a known good disc. Ensure the CD/DVD-ROM driver is installed properly. CD/DVD-ROM drive.
CD/DVD-ROM drive can play audio CD but no sound output.	<ul style="list-style-type: none"> Ensure the headphone jack of the CD/DVD-ROM has an output. Turn up the sound volume. Speaker power/connection/cable. CD/DVD-ROM drive.

NOTE Make sure the optical disc drive is configured correctly in CMOS Setup, the cable/jumper are set correctly and the drive's optical lens is clean before diagnosing any optical drive problems.

Real-Time Clock-related Symptoms

Symptom/Error	Action/FRU
Real-time clock is inaccurate.	<ul style="list-style-type: none">• Ensure the information in the Standard CMOS Feature of BIOS Setup is set correctly.• RTC battery• Mainboard

Audio-related Symptoms

Symptom/Error	Action/FRU
Audio software program invoked but no sound comes from speakers.	<ul style="list-style-type: none">• Speaker power/connection/cable

Modem-related Symptoms

Symptom/Error	Action/FRU
Modem ring cannot wake up system from suspend mode.	<ul style="list-style-type: none">• For an external modem, make sure Power on By Ring in BIOS Setup or Power Management is set to Enabled. For the PCI modem, make sure Wake up by PCI card is set to Enabled.• If a PCI modem card is used, reinsert the modem card to the PCI slot firmly or replace the modem card.• In Win 98, ensure the telephone application is configured correctly for your modem and set to receive messages and/or fax.
Data/fax modem software program invoked but cannot receive/send data/fax	<ul style="list-style-type: none">• Ensure the modem card is installed properly.
Fax/voice modem software program invoked but has no sound output. (Data files are received normally; voice from modem cannot be produced, but system sound feature works normally.)	<ul style="list-style-type: none">• Ensure the modem voice-in cable from modem adapter card is connected to the mainboard

Video and Monitor-related Symptoms

Symptom/Error	Action/FRU
Video memory test failed. Video adapter failed.	<ul style="list-style-type: none">• Remove all non-factory-installed cards.• Load default settings (if screen is readable).• Mainboard
Display problem <ul style="list-style-type: none">• Incorrect colors• No high intensity• Missing, broken, or incorrect characters• Blank monitor (dark)• Blank monitor (bright)• Distorted image• Unreadable monitor	<ul style="list-style-type: none">• Monitor signal connection/cable• Monitor• Video adapter card• Mainboard
Display changing colors.	<ul style="list-style-type: none">• Monitor signal connection/cable• Video adapter card• Mainboard

Printer-related Symptoms

Symptom/Error	Action/FRU
Printing failed.	<ul style="list-style-type: none">• Ensure the printer driver is properly installed. Refer to the printer service manual.• Printer• Printer cable• Mainboard.
Printer problems.	<ul style="list-style-type: none">• Refer to the service manual for the printer.

Keyboard-related Symptoms

Symptom/Error	Action/FRU
Some or all keys on keyboard do not work.	<ul style="list-style-type: none">• Keyboard

Power Supply-related Symptoms

Symptom/Error	Action/FRU
Pressing the power button does not turn off the system. (Only unplugging the power cord from electrical outlet can turn off the system.)	<ul style="list-style-type: none">• Ensure the Soft-off by PWR-BTTN in CMOS Setup (under Power Management) is not set to Instant-off.• Power switch cable assembly
Pressing the power button does not turn on the system	<ul style="list-style-type: none">• Ensure the power override switch (located at the back of the computer, just above the connector for the power cable) is not set to OFF.• Power switch cable assembly.
Executing software shutdown from Windows98 Start menu does not turn off the system. (Only pressing power button can turn off the system).	<ul style="list-style-type: none">• Enter CMOS Setup and load the default settings.• Reload software from Recovery CD.
No system power, or power supply fan is not running.	<ul style="list-style-type: none">• Power supply• Mainboard

Beep Codes

When no error message is displayed but the computer stops during POST, listen for beep codes.

Boot Block Beep Codes

Number of Beeps	Description
1	No media present. (Insert diskette in floppy drive A:)
2	'AMIBOOT.ROM' file not found in root directory of diskette in A:
3	Insert next diskette if multiple diskettes are used for recovery
4	Flash Programming successful
5	File read error
7	No Flash EPROM detected
10	Flash Erase error
11	Flash Program error
12	'AMIBOOT.ROM' file size error
13	BIOS ROM image mismatch (file layout does not match image present in flash device)

POST BIOS Beep Codes

Number of Beeps	Description
1	Memory refresh timer error.
3	Base memory read/write test error
6	Keyboard controller BAT command failed
7	General exception error (processor exception interrupt error)
8	Display memory error (system video adapter)

Troubleshooting POST BIOS Beep Codes

Number of Beeps	Description
1, 3	Reseat the memory, or replace with known good modules.
6, 7	Fatal error indicating a serious problem with the system. Consult your system manufacturer. Before declaring the main beyond all hope, eliminate the possibility of interference by a malfunctioning add-in card. Remove all expansion boards except the video adapter. <ul style="list-style-type: none">• If beep codes are generated when all other expansion boards are absent, consult your system manufacturer's technical support.• If beep codes are not generated when all other expansion boards are absent, one of the add-in boards is causing the malfunction. Insert the boards back into the system one at a time until the problem happens again. This will reveal the malfunctioning board.
8	If the system video adapter is an add-in board, replace or reseat

Undetermined Problems

- NOTE**
- Verify that all attached devices are supported by the computer.
 - Verify that the power supply being used at the time of the failure is operating correctly. (See "Power System Check" on page 41)

Follow the procedures below to isolate the failing FRU. Do not isolate non-defective FRU.

1. Power off the computer.
2. Visually check them for damage. If any problems are found, replace the FRU.
3. Remove or disconnect all of the following devices:
 - Non-Acer devices
 - Printer, mouse, and other external devices
 - Hard disk drive
 - DIMM
 - CD/DVD-ROM drive
 - Expansion boards
4. Power on the computer.
5. Determine if the problem has been resolved.
6. If the problem does not recur, reconnect the removed devices one at a time until you find the failed FRU.

If the problem persists, replace the mainboard, and then LCD assembly (one at a time). Do not replace a non-defective FRU.

BIOS Recovery

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

Note the following when restoring the BIOS settings:

- Make sure the computer is connected to a UPS unit during the BIOS recovery process.
- The BIOS crisis recovery disk should be prepared in a computer running the Windows XP or Windows Vista OS.

Creating the BIOS Crisis Recovery Disk

1. Prepare a removable USB storage device with a capacity size greater than 10 MB.

Note that all data on the USB storage device will be cleared during the creation of the crisis disk.

2. Set up a computer running the Windows XP or Windows Vista operating system and plug in the USB storage device into an available USB port.
3. Copy the target BIOS ROM file to the USB storage device and rename it as "amiboot.rom".
4. Unplug the USB storage device.
5. Eject the removable USB storage device from the computer.

Performing a BIOS Recovery

1. Shut down the BIOS failed-computer.
 2. Connect the USB storage device containing the "amiboot.rom" file to the failed computer.
 3. Press the power button to turn on the computer.
- The system will now execute the BIOS recovery process. When the process is complete the computer will automatically reboot.
4. Disconnect the USB storage device from the computer.
 5. Press **Delete** to run the CMOS Setup Utility.
 6. Press **F9** to load the system default settings.
 7. Select **Ok**, then press **Enter**.
 8. Press **F9** to save the default settings and close the Setup utility.
 9. Select **Ok**, then press **Enter**.

BIOS Update

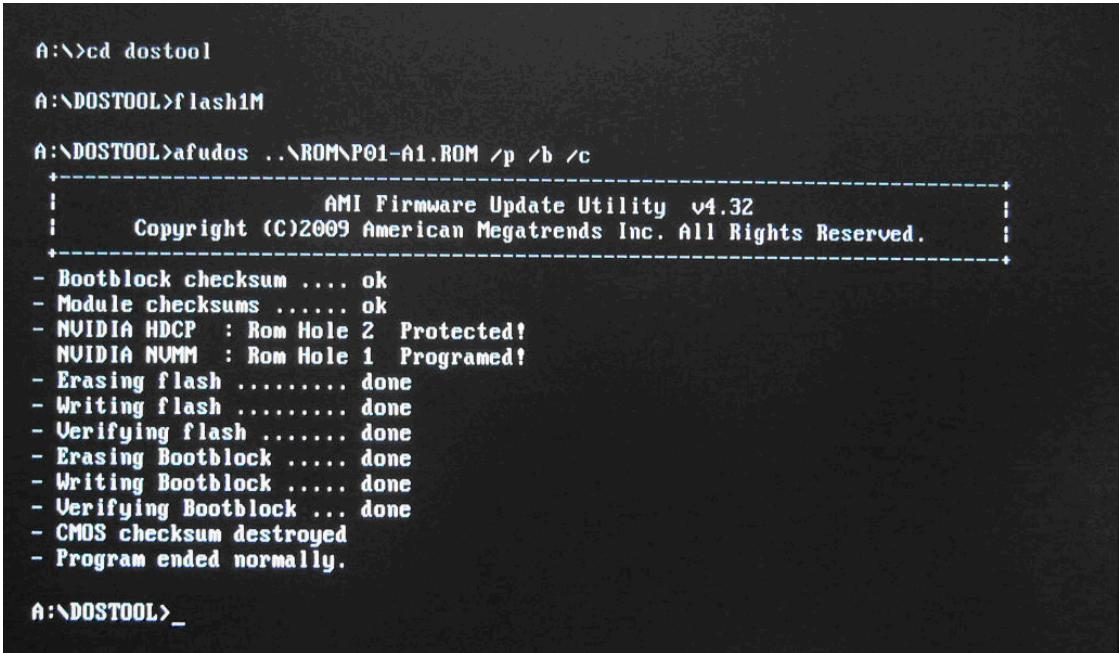
Updating the BIOS in DOS Mode

1. Press the power button to turn on the computer and boot to DOS mode.
2. Key in 'cd dostool'. (Go to BIOS path like "A:\DOSTOOL")
3. Key in 'flash1M.bat' or 'flash1M'.



```
A:\>cd dostool
A:\DOSTOOL>flash1M
```

4. Press **Enter** to flash the system BIOS.



```
A:\>cd dostool
A:\DOSTOOL>flash1M
A:\DOSTOOL>afudos ..\NROM\P01-A1.ROM /p /b /c
+
|           AMI Firmware Update Utility v4.32
|   Copyright (C)2009 American Megatrends Inc. All Rights Reserved.
|
- Bootblock checksum .... ok
- Module checksums ..... ok
- NVIDIA HDCP : Rom Hole 2 Protected!
  NVIDIA NUMM : Rom Hole 1 Programed!
- Erasing flash ....... done
- Writing flash ....... done
- Verifying flash ..... done
- Erasing Bootblock ..... done
- Writing Bootblock ..... done
- Verifying Bootblock ... done
- CMOS checksum destroyed
- Program ended normally.

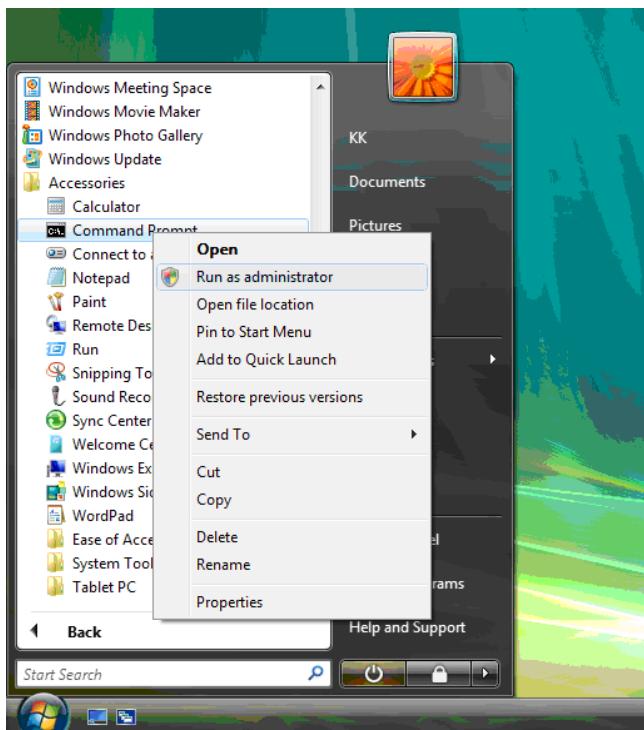
A:\DOSTOOL>_
```

5. Reboot the computer.
6. Press **Delete** to run the CMOS Setup Utility.
7. Press **F9** to load the system default settings.
8. Select **Ok**, then press **Enter**.
9. Press **F9** to save the default settings and close the Setup utility.
10. Select **Ok**, then press **Enter**.

Updating the BIOS in Windows Mode

This BIOS updating procedure is for a computer running a 32- or 64-bit Windows OS.

1. Press the power button to turn on the computer.
2. Click **Start | Command Prompt | Run as administrator.**



3. Perform the steps below if your computer is running 32-bit Windows.
 - a. Key in 'cd wintool\32'. (Go to BIOS path like "D:\WinTool\32")

A screenshot of an Administrator Command Prompt window. The title bar says 'Administrator: Command Prompt'. The window displays the following text:

```
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\1>d:
D:>cd wintool\32
D:\WinTool\32>
```

The command 'cd wintool\32' has been typed and is being processed by the command prompt.

- b. Key in 'flash1M.bat' or 'flash1M'.

A screenshot of an Administrator Command Prompt window. The title bar says 'Administrator: Command Prompt'. The window displays the following text:

```
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\1>d:
D:>cd wintool\32
D:\WinTool\32>flash1M
```

The command 'flash1M' has been typed and is being processed by the command prompt.

- c. Press **Enter** to flash the system BIOS.

The screenshot shows a command-line window titled "afuwin.exe ..\ROM\P01-A1.ROM /p/b/c". The output text is as follows:

```
AMI Firmware Update Utility v4.41
Copyright (C)2009 American Megatrends Inc. All Rights Reserved.

- Bootblock checksum ..... ok
- Module checksums ..... ok
- NVIDIA HDCP : Rom Hole 2 Protected!
  NVIDIA NUMM : Rom Hole 1 Programed!
- Erasing flash ..... done
- Writing flash ..... done
- Verifying flash ..... done
- Erasing Bootblock ..... done
- Writing Bootblock ..... done
- Verifying Bootblock ... done
- CMOS checksum destroyed
- Program ended normally.

<Press Any Key....>
```

4. Perform the steps below if your computer is running 64-bit Windows.

- a. Key in 'cd wintool\64'. (Go to BIOS path like "D:\WinTool\64")

The screenshot shows a command-line window titled "Administrator: Command Prompt". The output text is as follows:

```
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Windows\system32>d:
D:>cd wintool\64
D:\WinTool\64>
```

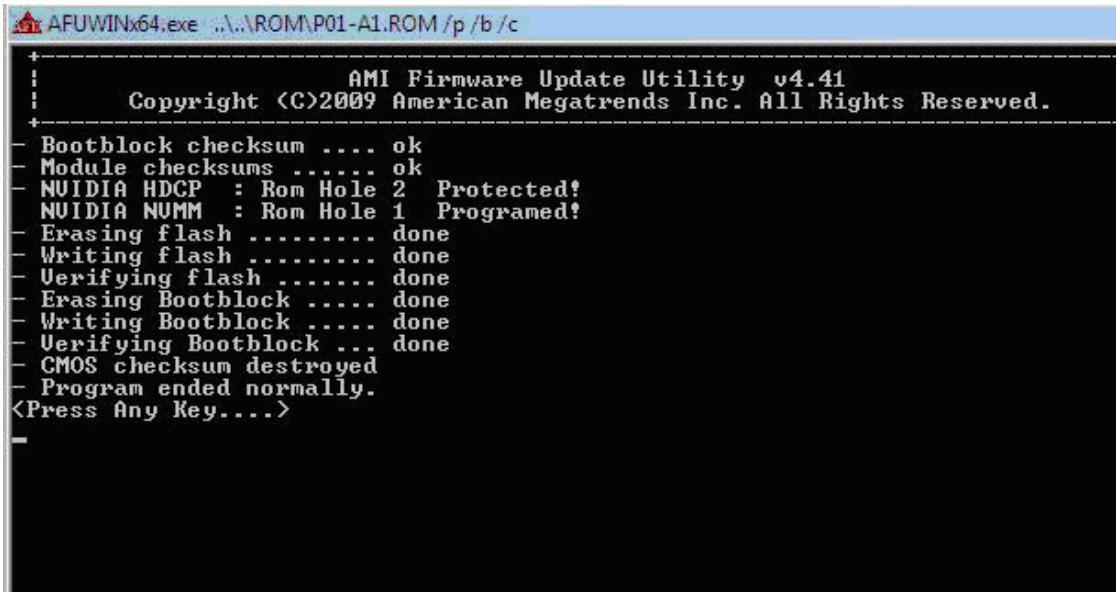
- b. Key in 'flash1M.bat' or 'flash1M'.

The screenshot shows a command-line window titled "Administrator: Command Prompt". The output text is as follows:

```
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Windows\system32>d:
D:>cd wintool\64
D:\WinTool\64>flash1M
```

-
- c. Press **Enter** to flash the system BIOS.



```
AFUWINx64.exe ..\..\ROM\P01-A1.ROM /p /b /c
+
AMI Firmware Update Utility v4.41
Copyright (C)2009 American Megatrends Inc. All Rights Reserved.
+
- Bootblock checksum .... ok
- Module checksums ..... ok
- NVIDIA HDCP : Rom Hole 2 Protected!
- NVIDIA NUMM : Rom Hole 1 Programmed!
- Erasing flash ..... done
- Writing flash ..... done
- Verifying flash ..... done
- Erasing Bootblock ..... done
- Writing Bootblock ..... done
- Verifying Bootblock ... done
- CMOS checksum destroyed
- Program ended normally.
<Press Any Key....>
```

- 5. Reboot the computer.
- 6. Press **Delete** to run the CMOS Setup Utility.
- 7. Press **F9** to load the system default settings.
- 8. Select **Ok**, then press **Enter**.
- 9. Press **F9** to save the default settings and close the Setup utility.
- 10. Select **Ok**, then press **Enter**.

Clearing CMOS

You may need to clear the Setup configuration values (CMOS) if the configuration has been corrupted, or if incorrect settings made in the Setup Utility caused error messages to be unreadable. This procedure will clear the BIOS supervisor password as well.

Use the CLR_CMOS jumper to clear the CMOS data.

- 1-2 position: Normal operation (default)
- 2-3 position: Clear CMOS data

To clear the CMOS data:

1. Turn off the power to the computer and all peripherals.
2. Unplug the power cord from the computer.
3. Unplug the network cable and all connected peripheral devices from the computer.
4. Place the computer on a flat, steady surface.
5. Remove the side panel.
6. If necessary, remove any expansion boards, assemblies or cables that prevent access to the CMOS clear jumper.
7. Locate the clear CMOS jumper on the mainboard.



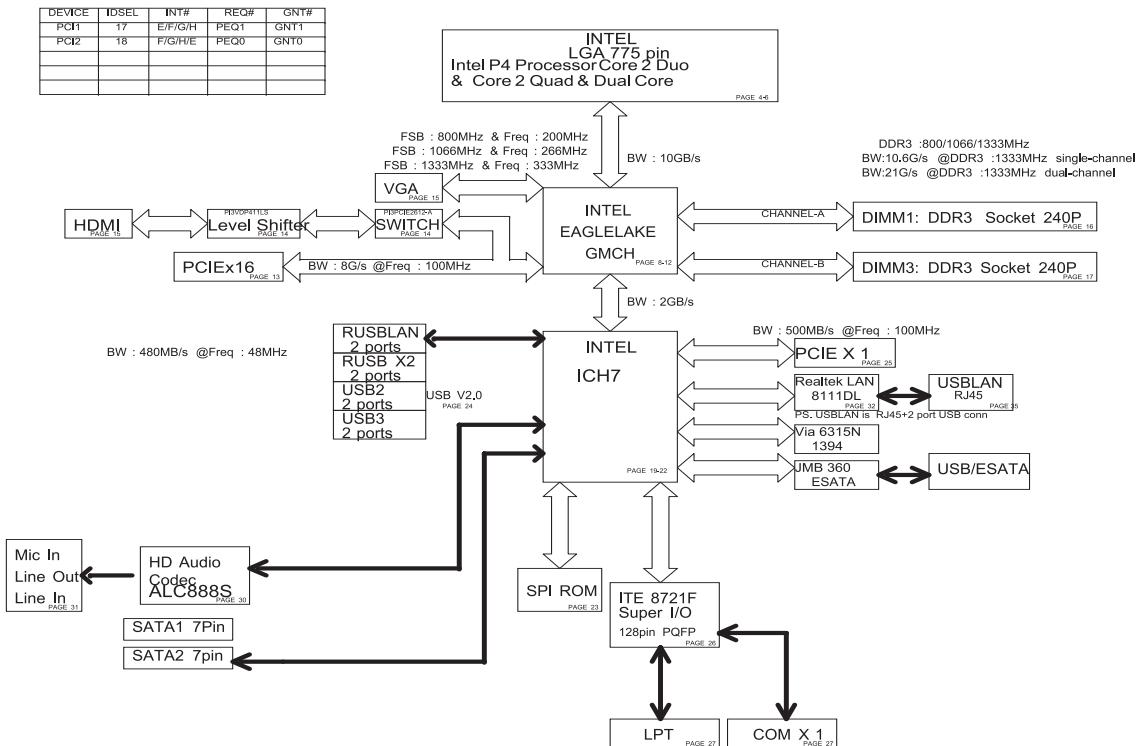
8. Remove the jumper block and set it over the 2-3 pins for 20 to 30 seconds.
9. Return the jumper block to its default 1-2 position.
10. Reinstall any expansion board, peripheral, and system cables that have previously been removed.
11. Reinstall the side panel.
12. Connect the AC power cord to the system.
13. Press the power button  to turn on the computer.
14. During POST, press **Delete** to access the Setup Utility.
15. Press **F9** to load the system default values.
16. Press **F10** to save the changes you made and close the Setup Utility.

System Architecture

This chapter shows the block diagram and board layout of the EL1852 computer.

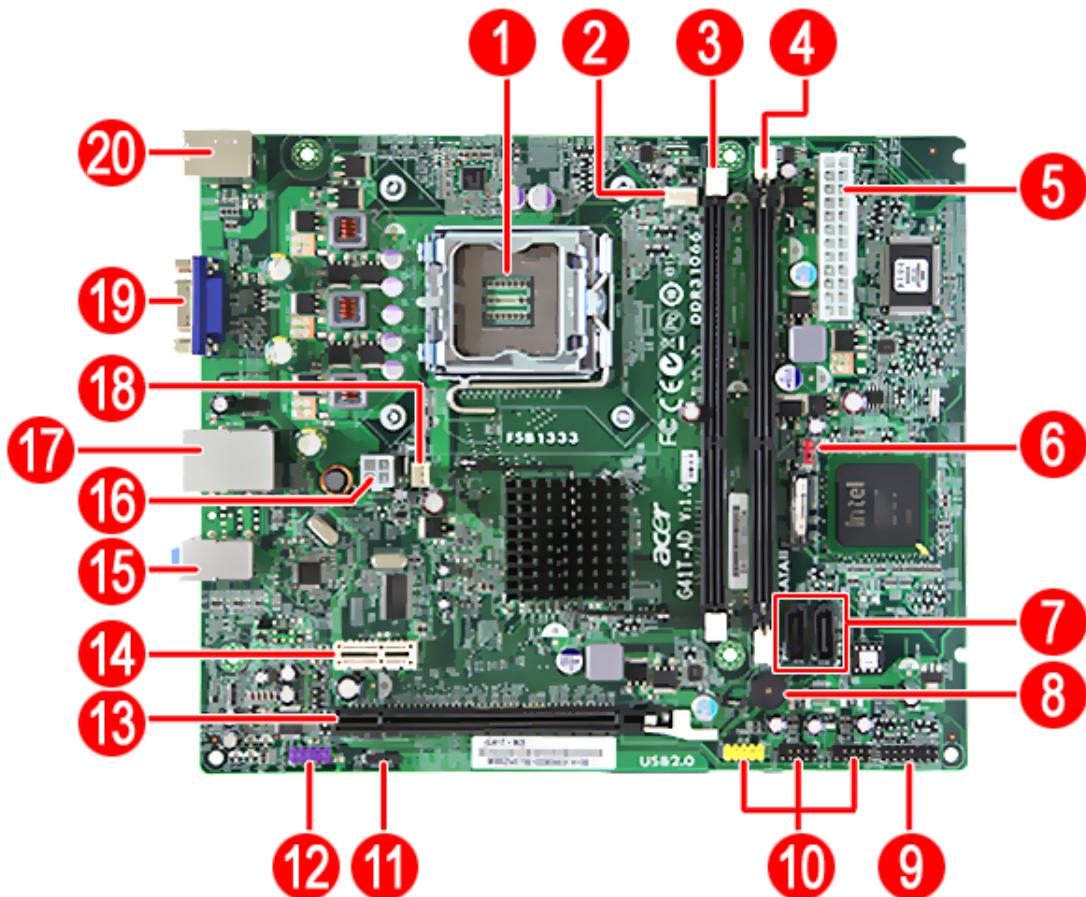
Block Diagram

The core subsystems of the computer are depicted in the following block diagram.



Mainboard Layout

This section shows the major mainboard components.



Item	Code	Component
1	LGA775	Processor socket
2	CPU_FAN	Heat sink fan cable connector
3	DIMM1	240-pin DDR3 SDRAM slot
4	DIMM2	240-pin DDR3 SDRAM slot
5	ATX_POWER	24-pin ATX power connector
6	CLR_CMOS1	Clear CMOS jumper
7	SATA1~2	SATA cable connector
8	BZ1	Internal buzzer
9	F_PANEL1	Power button/LED cable connector
10	F_USB1~3	Front panel USB headers
11	SPDIF_OUT1	SPDIF out header
12	FP_AUDIO1	Front panel audio header
13	PCIE1	PCI Express x16 expansion slot
14	PCIEX1-1	PCI Express x1 expansion slot

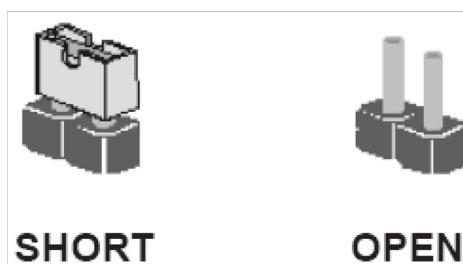
Item	Code	Component
15	AUDIO1	Rear audio jacks (microphone, line-out, and line-in jacks)
16	SYS_FAN1	System fan cable connector
17	ATX12V1	4-pin ATX power connector
18	USBLAN1	USB 2.0 and Ethernet ports
19	VGA1	Monitor port
20	PSKBM2	PS/2 keyboard and mouse ports

Jumper Setting

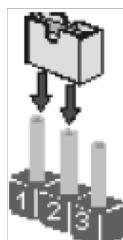
The section explains how to set jumper for correct configuration of the mainboard.

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumpercaps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumpercap on just one pin, the jumper is OPEN.



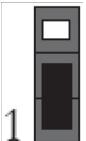
This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.



Setting Jumper

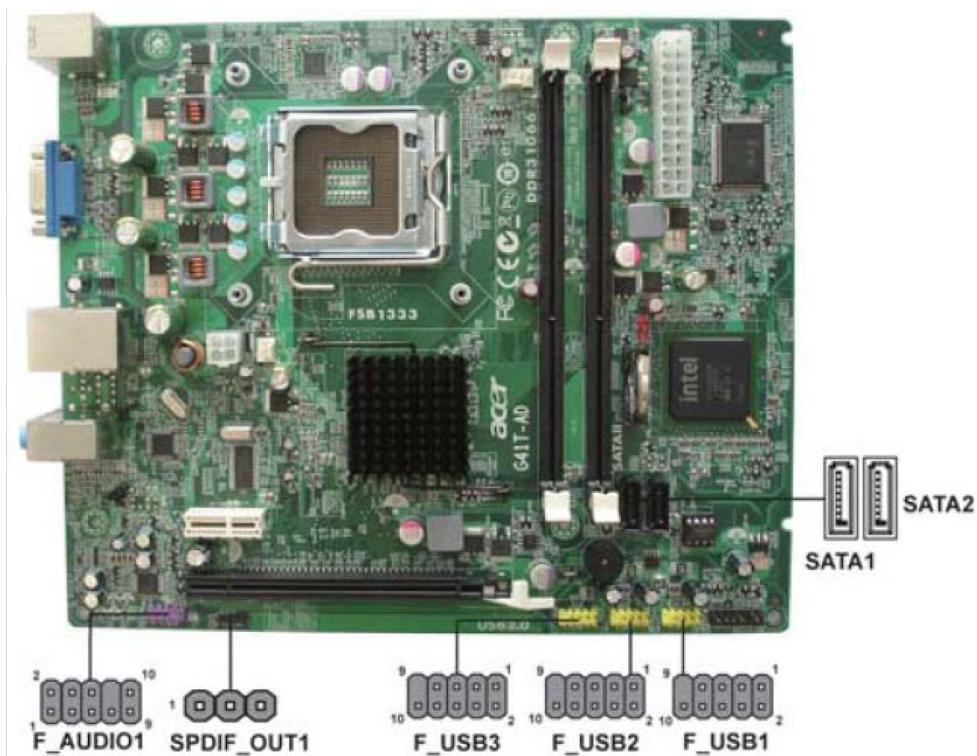
Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. Pin 1 is label



Jumper	Type	Description	Setting (default)	
CLR_CMOS1	3-pin	Clear CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn off the system.	 1 CLR_CMOS1

Connecting Optional Devices

Refer to the following for information on connecting the main board's optional devices:



SATA1~2: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest datatransfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground		

F_AUDIO1: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

F_USB1~3: Front Panel USB headers

The motherboard has two USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal

SPDIF_OUT1: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

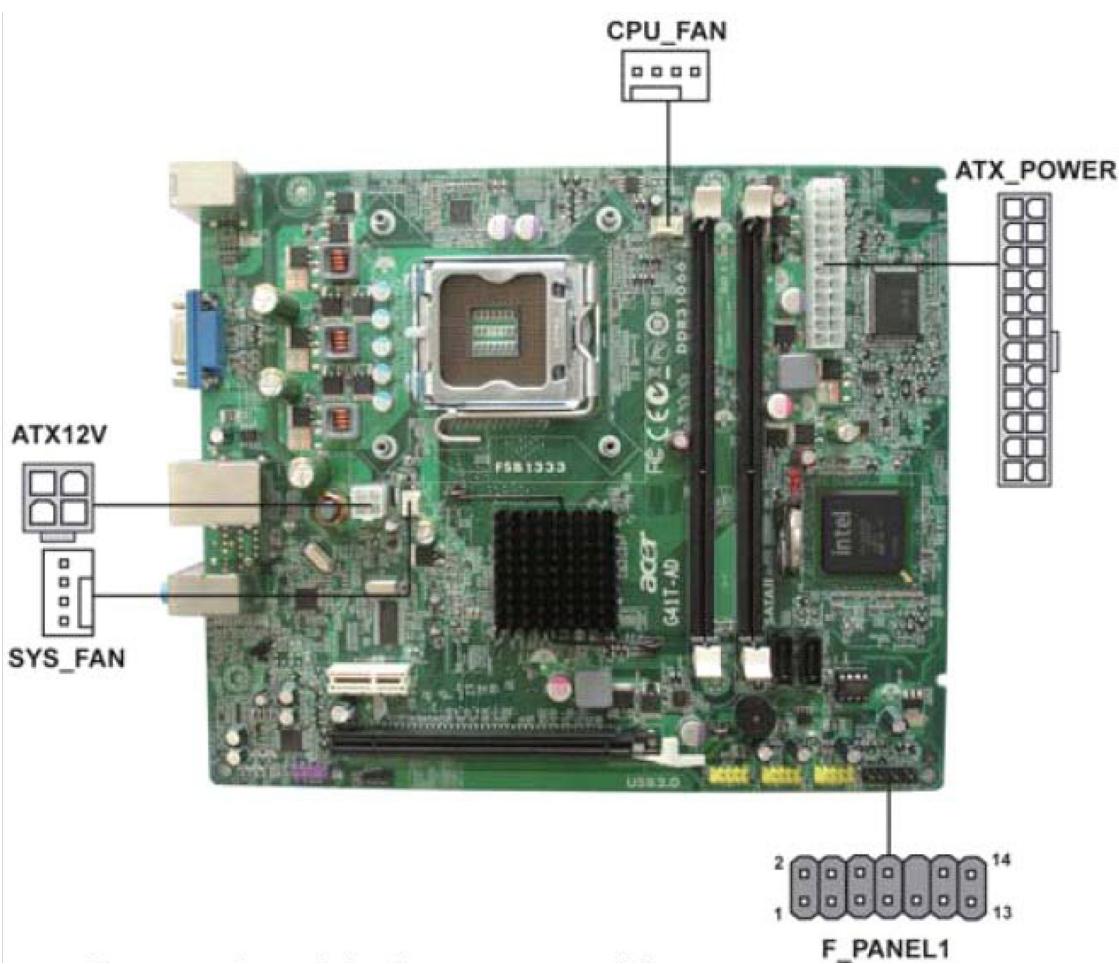
Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog Power
3	Key	No pin
4	GND	Ground

Connecting Case Components

After you have installed the motherboard into a case, you can begin connecting the motherboard components.

Refer to the following:

1. Connect the CPU cooling fan cable to CPU_FAN.
2. Connect the standard power supply connector to ATX_POWER.
3. Connect the case switches and indicator LEDs to the F_PANEL.
4. Connect the system cooling fan connector to SYS_FAN.
5. Connect the auxiliary case power supply connector to ATX12V.



CPU_FAN: CPU Cooling FAN Power Connector

Pin	Signal Name	Function
1	GND	System ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	PWM

ATX_POWER: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	Ground
4	+5V	16	PS_ON
5	Ground	17	Ground
6	+5V	18	Ground
7	Ground	19	Ground
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Ground

SYS_FAN: System Cooling FAN Power Connector

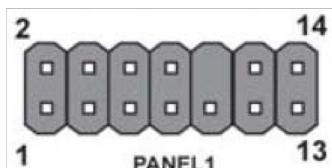
Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

ATX12V: ATX 12V Power Connector

Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LEDheaders commonly found on ATX or micro-ATX cases. Refer to the table below for information:



Pin	Signal Name	Function	Pin	Signal Name	Function
1	VCC	Reset Switch (+)	2	GLED0	*MSG LED (+)
3	HDD_LEDN	Hard disk LED (-)	4	GLED1	*MSG LED (-)
5	GND	Reset Switch (-)	6	PWRSW	Power Switch (+)
7	HWRST_L	Reset Switch (+)	8	GND	Power Switch (-)
9	F_PANEL_DET	Reserved	10	KEY	No pin
11	NC	Reserved	12	VCC	Reset Switch (+)
13	NC	Reserved	14	F_LAN_LED	Reset Switch (+)

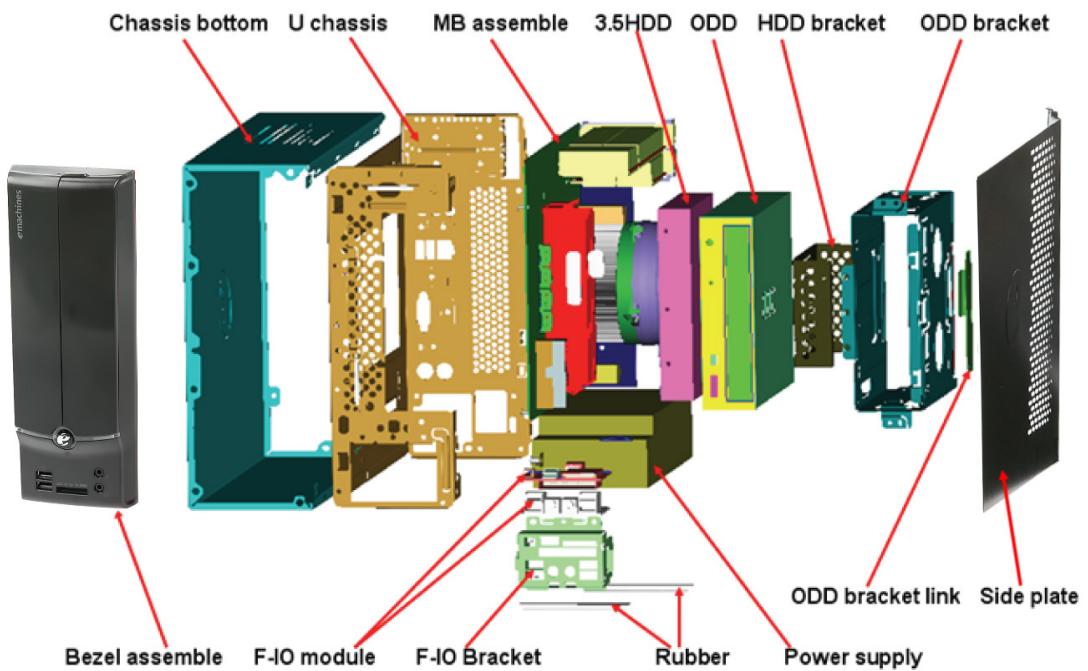
Field Replaceable Unit (FRU) List

This chapter gives you the FRU (Field Replaceable Unit) listing of the EL1852 computer global configurations. Refer to this list when ordering for repair parts or for RMA (Return Merchandise Authorization).

IMPORTANT When ordering FRU parts, check the most up-to-date information available on your regional web or channel. For whatever reasons a part number is changed, it will NOT be noted on the printed Service Guide. For Acer authorized service providers, your Acer office may have a different part number code from those given in the FRU list of this printed Service Guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for service.

NOTE Follow the local government regulations, or the rules set by your regional office on how to return or dispose of defective parts.

Exploded Diagram



EL1852 FRU List

ACER_EL1852_W_EARCHER

Category	Part Name	Description	Acer Part No.
BOARDS	FRONT IO & CARD READER BOARD USB 2.0 2 USB PORT 2 AUDIO PORT	CARD READER 6 IN 1 USB 2.0 2 USB PORT 2	55.NCM01.002
	FRONT IO BOARD USB 2.0 2 USB PORT 2 AUDIO PORT W/O CARD READER	F-IO BD USB 2.0 2 USB PORT 2 AUDIO PORT	55.NCM01.001
	MODEM CARD LITE-ON D- 1156E#A10A LOW-PROFILE PCI-E 56K V.92	MODEM 56K ATX LSI UNIVERSAL (PCI-E) 56K	FX.10100.003
	MODEM CARD 56K PRO-NETS LSI HPE56L6 LOW-PROFILE	MODEM PRO-NETS LSI HPE56L6 (LO)	FX.10100.021
	VGA CARD ECS 89D386-303408 HD5450 512MB (64BIT) DDR3 DVI HDMI VGA LP BRACKET ROHS	RADEON HD5450 512MB DDR3 DVI/HDMI/VGA LP	VG.ECS54.511
	VGA CARD 288-1E145-001AC HD5450 512MB SDDR 3 (64BITS) SAMSUNG DVI HDMI VGA W/ATX BKT ROHS	VGA HD5450 512MB SDDR 3 (64BITS) SAMSUNG	VG.APC54.501
	VGA CARD 288-1E180-A00AC HD6450 512MB SDDR3 64BITS DVI-I + HDMI SAMSUNG (LP)	VGA CARD HD6450 512MB SDDR3 SDI DVI-I/ HD	VG.APC64.502
	VGA CARD 288-5E153-A00AC HD6450 1GB SDDR3 64BITS DVI-I + HDMI SAMSUNG (LP)	VGA CARD HD6450 1GB SDDR3 SDI DVI-I/HDMI	VG.APC64.521
	VGA CARD 288-5E142-A01AC HD6570 1GB DDR3 128BITS DVI-I (SL) HDMI SAMSUNG LP BRACKET	VGA CARD HD6570 1GB DDR3 SDI DVI-I(SL)	VG.APC65.702
	VGA CARD PCPARTNER 288-10N44-B20AC NVIDIA G310 512MB DDR2 64BITS HYNIX DVI HDMI LP BRACKET ROHS	PCP NV G310 512MB DDR2 HYNIX	VG.PCPT3.112
	VGA CARD 288-1N158-A20AC 315 1GB 64bit DVI+DP+VGA LP *2 (SAMSUNG)	PCP NV GT315 1GB SDI DP/DVI/VGA LP	VG.PCPT3.183
	VGA CARD 288-1N158-B20AC 315 1GB 64bit DVI+DP+VGA LP *2 (HYNIX)	PCP NV GT315 1GB HYNIX DP/DVI/VGA LP	VG.PCPT3.184
	VGA CARD PCPARTNER 288-1N141-B00AC NVIDIA GT315 512MB SDDR3 DVI+HDMI LP (HYNIX)	PCP NV GT315 512MB SDDR3 HYNIX	VG.PCPT3.154
	VGA CARD PCPARTNER NV 315 512MB 64BITS SDDR3 DVI+HDMI LP NEW HYNIX-1.2	PCP NV GT315 512MB SDDR3 HYNIX-1.2 DVI	VG.PCPT3.164
	VGA CARD 288-5N158-A01AC NV 405 512MB 64BITS DDR3 DVI + HDMI SAMSUNG LP	PCP NV GT405 512MB DDR3 SDI DVI/DP/LP	VG.PCPT4.002

Category	Part Name	Description	Acer Part No.
BOARDS	VGA CARD 288-5N158-A20AC NV 405 1GB 64BITS DDR3 DVI + DP SAMSUNG LP	PCP NV GT405 1GB DDR3 SDI DVI/DP	VG.PCPT4.004
	VGA CARD 288-5N158-B20AC NV 405 1GB 64BITS DDR3 DVI + DP HYNIX LP	PCP NV GT405 1GB DDR3 HYNIX DVI/DP	VG.PCPT4.006
	VGA CARD 288-1N162-A01AC GT420 1GB 128BIT DVI-I+HDMI LP SAMSUNG	PCP NV GT420 1GB DDR3 SDI DVI/HDMI/LP	VG.PCPT4.211
	VGA CARD 288-1N162-B01AC GT420 1GB 128BIT DVI-I+HDMI LP HYNIX	PCP NV GT420 1GB DDR3 HYNIX DVI/HDMI/LP	VG.PCPT4.212
	VGA CARD 288-2N162-B01AC GT420 2GB 128 BIT DVI-I+HDMI LP HYNIX	PCP NV GT420 2GB HYNIX DVI/HDMI/LP	VG.PCPT4.261
	VGA CARD 288-2N162-A01AC GT420 2GB SDDR3 128BIT SAMSUNG DVI+HDMI LP	PCP NV GT420 2GB SDDR3 SDI DVI/HDMI/LP	VG.PCPT4.262
	VGA CARD 288-5N162-B01AC GT435M 2GB SDDR3 128BIT HYNIX DVI + HDMI LP BRACKET	IC VGA GT435M 2GB SDDR3 HYNIX DVI/HDMI	VG.PCPT4.352
	VGA CARD 288-5N162-A01AC GT435M 2GB SDDR3 128BIT SAMSUNG DVI+HDMI LP BRACKET	IC VGA GT435M 2GB SDDR3 DVI/HDMI/LP SDI	VG.PCPT4.354
	WIRELESS LAN BOARD 802.11BGN 1X1 RALINK RT3090 LOW-PROFILE	WLAN 802.11BGN 1X1 RALINK RT3090 (LOW-PR)	NI.10200.038
	WIRELESS LAN BOARD 802.11BGN LITEON WN7600R	WLAN 802.11BGN RALINK MC 1*2	NI.10200.009
CABLES	DVI TO VGA DONGLE CONNECTOR	DVI TO VGA DONGLE	D0.VGA26.P01
	HDD SATA CABLE	C.A. SATA HDD VSO APITBULL	50.SD101.002
	LED SWITCH CABLE	C.A. LED SWITCH HT BOXER-EM	50.NCM01.001
	ODD CABLE SATA	C.A. SATA ODD GTL ELENA	50.SFF01.003
	ODD CABLE SATA	C.A. SATA ODD VSO ELENA	50.SFF01.004
	POWER CORD 110V 3PIN UL USA	POWER CORD 110V UL USA	27.01518.0I1
	POWER CORD 1800MM 250V EURO	POWER CORD 1800MM 250V EURO	27.01518.0J1
	POWER CORD 1800MM 250V CHINA	POWER CORD 250V CCC 1800MM PRC	27.01518.0K1
	POWER CORD 250V SWISS	POWER CORD 250V SWISS	27.01518.0L1
	POWER CORD 1830MM BLACK TW I-SHENG	POWER CORD 110V TW	27.01518.0M1
	POWER CORD AUSTRALIA WITH TESTED TAG	POWER CORD ACA WITH TESTED TAG	27.01518.0N1
	POWER CORD 250V 3PIN INDIA	POWER CORD 250V INDIA	27.01518.0P1

Category	Part Name	Description	Acer Part No.
CABLES	POWER CORD 1800MM BLACK S.AFRAICA	POWER CORD 250V S AFRAICA	27.01518.0Q1
	POWER CORD 250V 3PIN BRAZIL	POWER CORD 250V BRAZIL	27.01518.0R1
	POWER CORD 230V DENMARK	POWER CORD FOR DENMARK	27.01518.0S1
	POWER CORD 16A 250V 1800MM ISRAEL BLACK	POWER CORD 16A 250V ISRAEL BLK	27.01518.0Z1
	POWER CORD 125V 7A 3G JAPAN	CORD VCTF 3G 7A/ 125V(JAPAN)	27.01518.181
	POWER CORD 125V 10A BLACK MEXICO	POWER CORD 10A125V MEXICO BLK	27.01518.A01
	POWER CORD 250V 3PIN 1830MM BLACK THAILAND	POWER CORD FOR THAILAND 1830MM	27.01518.I51
	POWER CORD 250V 3PIN 1800MM UK	POWER CORD 1800MM 250V UK	27.03118.031
	TELEPHONE CABLE 1500MM BLACK	TELEPHONE CABLE	50.GB001.001
CASE/COVER/BRACKET ASSEMBLY 	CRT COVER	CVR CRT BOXER II	42.SF601.001
	FRONT IO BRACKET	BRKT F-IO BOXER EM	33.NCM01.001
	HDD&ODD BRACKET	BRKT HDD BOXER EM	33.NCM01.002
	UPPER CASE	CAS UP BOXER EM	60.NCM01.001

Category	Part Name	Description	Acer Part No.
	ASSEMBLY LOWER CASE W/LED SWITCH CABLE	ASSY LCASE-ASM BOXER EM	60.NCM01.002
	ASSEMBLY FRONT BEZEL FOR CARD READER	ASSY MAIN-BEZEL A BOXER EM	60.NCM01.003
	ASSEMBLY FRONT BEZEL FOR NONE CARD READER	ASSY MAIN-BEZEL B BOXER EM	60.NCM01.004
CPU/PROCESSOR	CPU INTEL CELERON DUA CORE E1400 2.0G 512K 800FSB CDE1400 893845 SLAR2 M0	IC CELERON DUA CORE E1400 2.0G	KC.14001.CDE
	CPU INTEL CELERON DUAL CORE E3200 2.4G 1M 800FSB 65W R-0	IC CPU CELERON E3200 LGA 2.4G	KC.32001.CDE
	CPU INTEL CELERON DUAL CORE E3300 2.5G 1M 800FSB 65W R-0	IC CPU CELERON E3300 LGA 2.5G	KC.33001.CDE
	CPU INTEL CELERON E3400 LGA 2.6G 1M 800 775 65W R-0 DUAL CORE	IC CPU CELERON 2.6G E3400 800M 65W	KC.34001.CDE
	CPU INTEL CELERON E3500 LGA 2.7G 1M 800 775 65W DUAL CORE	IC CPU CONROE CELERON DC E3500 2.7G PGA	KC.35001.CDE
	CPU INTEL PENTIUM DUAL CORE E5300 2.6G 65W 800M PGA R-0	IC CPU PENTIUM DUALCORE E5300	KC.53001.DEV
	CPU INTEL PENTIUM DUAL CORE E5400 2.7G 65W 800M PGA R-0	IC CPU PENTIUM DUALCORE E5400	KC.54001.DEV
	CPU INTEL PENTIUM E5500 2.80G 2M 2625 SLGTJ AT80571PG0722ML	IC CPU PENTIUM E5500 2.80G 2M R0 PGA	KC.55001.DEV
	CPU INTEL PENTIUM DUAL-CORE E5700 LGA 3.0G 2M 800 775 65W DUAL CORE	IC CPU PENTIUM DUAL CORE E5700 3.0G 2M 8	KC.57001.DEV
	CPU PENTIUM DC E5800 3.2G 2M R-0 PGA	IC CPU PENTIUM DC E5800 3.2G 2M R-0 PGA	KC.58001.DEV
	CPU INTEL PENTIUM DUAL-CORE E6300 LGA 2.8G 2M 1066 775 65W R-0	IC CPU PENTIUM DUAL-CORE E6300	KC.63001.DEM
	CPU INTEL PENTIUM DUAL CORE E6500 LGA 2.93G 2M 1066FSB 775 65W R-0	IC CPU PENTIUM E6500 LGA 2.93G	KC.65001.DEM
	CPU INTEL PENTIUM WOLFDALE E6600 3.06G 1066M 65W R-0	IC CPU PENTIUM WOLFDALE E6600 3.06G 1066	KC.66001.DEM
	CPU INTEL PENTIUM DUALCORE E6700 3.20G 2M 1066FSB	IC CPU PENTIUM DUALCORE E6700 3.20G 2M 1	KC.67001.DEM

Category	Part Name	Description	Acer Part No.
CPU	CPU INTEL PENTIUM DUAL-CORE E6800 LGA 3.33G 2M 1066 775 65W DUAL CORE	IC CPU WOLFDALE PENTIUM DC E6800 3.33G 2	KC.68001.DE M
	CPU INTEL CORE2DUAL WOLFDALE E7500 2.93G 65W 1066M 3M PGA R-0	IC CPU CORE2DUAL WOLFDALE E750	KC.75001.DEV
	CPU INTEL CORE2DUAL E7600 LGA 3.06G 3M 1066 775 65W R-0	IC CPU CORE2DUAL E7600 LGA 3.0	KC.76001.DE0
	CPU INTEL CORE 2 DUO WOLFDALE E8400 3.0G 6M 1333FSB E-0	IC CPU WOLFDALE E8400 3.0G PGA	KC.84001.DEE
	CPU INTEL WOLFDALE E8500 3.16G 6M 1333FSB 65W	IC CPU WOLFDALE E8500 3.16G	KC.85001.DEE
	CPU INTEL WOLFDALE E8600 3.33G 6M 1333FSB 65W	IC CPU WOLFDALE E8600 3.33G	KC.86001.DEE
	CPU INTEL CEL-D 420 1.6G HH80557RG025512 886892 SL9XP	IC CPU CEL-D 420 1.6G	KC.D0001.420
	CPU INTEL CELERON 450 2.XG 512K 800FSB 35W HH80557RG049512 891507 SLAFZ	IC CPU CONROE LITE 450 2.2G	KC.D0001.450
DVD-RW DRIVE	ODD HLDS SUPER-MULTI DRIVE HH 16X GH41N BLACK BEZEL SATA HF + WIN 7	ODD HH SM HF+W7 HLDS GH-41N	KU.0160D.049
	ODD PLDS SUPER-MULTI DRIVE HH 16X DH-16AASH BLACK BEZEL SATA FOR HF+WINDOWS7	ODD HH SM HF+W7 PLDS DH-16AASH	KU.0160F.009
	ODD HLDS DVD-ROM HH 16X TRAY DH20N LF BLACK BEZEL SATA HF+WIN 7	DVD ROM HH HF+W7 HLDS DH20N	KV.0160D.016
	ODD HLDS DVD-ROM HH DL 16X DH40N LF+HF Black Bezel (HF+Win7) SATA	ODD DVD ROM SATA HH TL HLDS DH40N	KV.0160D.017
	ODD PLDS DVD-ROM HH DL 16X TRAY DH-16D5SH LF BLACK BEZEL SATA HF+WIN 7	DVD ROM HH HF+W7 DH-16D5SH	KV.0160F.002
HDD/HARD DISK DRIVE	HDD 1TB 3.5" 5400RPM SATAII WD10EADS-22M4B0 8MB GP	HDD 1TB WD10EADS-22M2B0 GP	KH.01K08.005
	HDD 3.5" 1000GB 7200RPM SATA SEAGATE SEAGATE ST31000528AS LF	HDD 1TB SGT ST31000528AS 7.2KR	KH.01K01.007
	HDD 1TB 3.5" 7200RPM SATA HGST SATURN HDT721010SLA360	HDD 1TB HGST HDT721010SLA360	KH.01K07.002
	HDD 1TB 3.5" 7200RPM SATA II 32MB HGST HDS721010CLA332 JUPITER	HDD 1TB HGST HDS721010CLA332	KH.01K07.003
	HDD 160GB 3.5" 7200RPM SATA II SEAGATE PHARAOH 8MB NCQ	HDD 160G 3.5" SEAGATE PHARAOH	KH.16001.041
	HDD 160GB 3.5" 7200RPM SATA II HGST HDT721016SLA380	HDD 160GB HGST HDT721016SLA380	KH.16007.023
	HDD 160GB 3.5" 7200RPM HITACHI HDS721016CLA382 7.2K	HDD 160GB 3.5" HGST HDS721016CLA382 7.2K	KH.16007.027
	HDD 160GB 3.5" 7200RPM SATA II WD WD1600AAJS-22L7A0 XL320S-3	HDD 160GB WD WD1600AAJS-22L7A0	KH.16008.025
	HDD 320GB 3.5" 7200RPM SATA II SEAGATE PHARAOH 8MB NCQ	HDD 320G 3.5" SEAGATE PHARAOH	KH.32001.015

Category	Part Name	Description	Acer Part No.
HDD/HARD DISK DRIVE	HDD 320GB 3.5" 7200RPM SATA II 8MB HGST HDT721032SLA380 SATURN	HDD 320GB HGST HDT721032SLA380	KH.32007.006
	HDD 320GB 3.5" 7200RPM SATA II 16MB HGST HDS721032CLA362 JUPITER	HDD 320GB 3.5" HGST HDS721032CLA362 7.2K	KH.32007.011
	HDD 320GB 3.5" 7200RPM SATA II WD WD3200AAJS-22L7A0 XL320S	HDD 320GB WD WD3200AAJS-22L7A0	KH.32008.016
	HDD 3.5" 500GB 7200RPM SATA SEAGATE PHARAOH ST3500418AS	HDD 500GB SGT ST3500418AS 7.2K	KH.50001.012
	HDD 500GB 3.5" 7200RPM SATA II 16MB HGST HDS721050CLA362 JUPITER	HDD 500GB HGST HDS721050CLA362	KH.50007.012
	HDD 3.5" 500GB 7200RPM SATA WD XL320M WD5000AAKS-22M9A0	HDD 500GB WD WD5000AAKS-22V1A0	KH.50008.014
	HDD 640GB 3.5" 7200RPM HGST HDT721064SLA360 SATURN SATA	HDD 640GB HGST HDT721064SLA360	KH.64007.001
	HDD 640GB 3.5" 7200RPM SATA II 32MB HGST HDS721064CLA332 JUPITER	HDD 640GB HGST HDS721064CLA332	KH.64007.002
	HDD 640GB 3.5" 7200RPM SATA II WD WD6400AAKS-22A7B2 XL320-M	HDD 640GB WD WD6400AAKS-22A7B2	KH.64008.003
	HDD 750GB 3.5" 7200RPM SATA II SEAGATE PHARAOH ST3750528AS	HDD 750GB SGT ST3750528AS 7.2K	KH.75001.008
	HDD 750GB 7200RPM HITACHI HDS721075CLA332	HDD 750GB HGST HDS721075CLA332	KH.75007.003
HEATSINK	CPU HEATSINK AIR COOLER LGA775 72*72 65W AVC 	COOLER LGA775 72*72 65W AVC	HI.10800.035
KEYBOARD	KEYBOARD PS2 104KEY CHICONY KB-07053RD1976V TRADITIONAL CHINESE ECOOPER 	KB PS2 KB-07053RD1976V T-C 104	KB.PS203.139
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 104KEY BLACK SIMPLIFIED CHINESE ECOOPER W/ VISTA	KB PS2 KB-07053RE1976V S-CN 10	KB.PS203.140
	KEYBOARD PS2 104KEY CHICONY KB-07053U41976V BLACK US INTERNATIONAL ECOOPER	KB PS2 KB-07053U41976V US-I 10	KB.PS203.141
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 104KEY BLACK ARABIC/ ENGLISH ECOOPER W/VISTA	KB PS2 KB-07053A01976V ARABIC/ ENGLISH ECOOPER W/VISTA	KB.PS203.142
	KEYBOARD PS2 104KEY CHICONY KB-07053T01976V BLACK THAI ECOOPER	KB PS2 KB-07053T01976V THAI 10	KB.PS203.143
	KEYBOARD PS2 105KEY CHICONY KB-07056E11976V BLACK SPANISH ECOOPER	KB PS2 KB-07056E11976V SPANISH ECOOPER	KB.PS203.144

Category	Part Name	Description	Acer Part No.
KEYBOARD	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK PORTUGUESE ECOOPER W/VISTA	KB PS2 KB-07056P01976V PORTUGU	KB.PS203.145
	KEYBOARD PS2 105KEY CHICONY KB-07056CU1976V BLACK CANADIAN FRENCH ECOOPER	KB PS2 KB-07056CU1976V EN/CA 1	KB.PS203.146
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK GERMAN ECOOPER W/VISTA	KB PS2 KB-07056D11976V GERMAN	KB.PS203.147
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK ITALIAN ECOOPER W/VISTA	KB PS2 KB-07056I11976V ITALIAN	KB.PS203.148
	KEYBOARD PS2 105KEY CHICONY KB-07056F11976V BLACK FRENCH ECOOPER	KB PS2 KB-07056F11976V FRENCH	KB.PS203.149
	KEYBOARD PS2 105KEY CHICONY KB-07056S01976V BLACK SWEDISH ECOOPER	KB PS2 KB-07056S01976V SWEDISH	KB.PS203.150
	KEYBOARD PS2 105KEY CHICONY KB-07056GB1976V BLACK UK ECOOPER	KB PS2 KB-07056GB1976V UK 105K	KB.PS203.151
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK DUTCH ECOOPER W/VISTA	KB PS2 KB-07056NL1976V DUTCH 1	KB.PS203.152
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK SWISS/G ECOOPER W/VISTA	KB PS2 KB-07056CH1976V SWISS/G	KB.PS203.153
	KEYBOARD PS2 105KEY CHICONY KB-07056B01976V BLACK BELGIUM ECOOPER	KB PS2 KB-07056B01976V BELGIUM	KB.PS203.154
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK ICELANDIC ECOOPER W/VISTA	KB PS2 KB-07056IC1976V ICELAND	KB.PS203.155
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK NORWEGIAN ECOOPER W/VISTA	KB PS2 KB-07056N01976V NORWEGI	KB.PS203.156
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 104KEY BLACK HEBREW ECOOPER W/VISTA	KB PS2 KB-07053HB1976V HEBREW	KB.PS203.157
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK POLISH ECOOPER W/VISTA	KB PS2 KB-07056PL1976V POLISH	KB.PS203.158
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK SLOVENIAN ECOOPER W/VISTA	KB PS2 KB-07056YU1976V SLOVENI	KB.PS203.159
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK SLOVAK ECOOPER W/VISTA	KB PS2 KB-07056CL1976V SLOVAK	KB.PS203.160
	KEYBOARD PS2 104K CHICONY KB-07053S31976V BLACK RUSSIAN	KB PS2 KB-07053S31976V RUSSIAN	KB.PS203.161
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK HUNGARIAN ECOOPER W/VISTA	KB PS2 KB-07056HU1976V HUNGARI	KB.PS203.162

Category	Part Name	Description	Acer Part No.
KEYBOARD	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 104KEY BLACK GREEK ECOOPER W/VISTA	KB PS2 KB-07053GR1976V GREEK 1	KB.PS203.163
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK DANISH ECOOPER W/VISTA	KB PS2 KB-07056DK1976V DANISH	KB.PS203.164
	KEYBOARD PS2 104KEY CHICONY KB-07053C01976V BLACK CZECH ECOOPER	KB PS2 KB-07053C01976V CZECH 1	KB.PS203.165
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KEY BLACK ROMANIAN ECOOPER W/VISTA	KB PS2 KB-07056R01976V ROMANIA	KB.PS203.166
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KS BLACK TURKISH ECOOPER W/VISTA	KB PS2 KB-07056TF1976V TURKISH	KB.PS203.167
	KEYBOARD PS2 105KEY CHICONY KB-07056LA1976V BLACK SPANISH LATIN ECOOPER	KB PS2 KB-07056LA1976V MX 105K	KB.PS203.168
	KEYBOARD PS2 104KEY CHICONY KB-07053US1976V BLACK US ECOOPER	KB PS2 KB-07053US1976V US 104K	KB.PS203.169
	KEYBOARD PS2 109KEY CHICONY KB-07050J11976V BLACK JAPANESE ECOOPER	KB PS2 KB-07050J11976V JP 109K	KB.PS203.170
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KS BLACK NORDIC ECOOPER W/VISTA	KB CHICONY KB-0705 PS/2 STANDARD 105KS B	KB.PS203.171
	KEYBOARD CHICONY KB-0705 PS/2 STANDARD 105KS BLACK CZECH/ SLOVAK	KB CHICONY KB-0705 PS/2 STANDARD 105KS B	KB.PS203.350
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK TRADITIONAL CHINESE	KB PS2 KB-0511 29-10504A711	KB.PS20P.001
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KS BLACK SIMPLIFIED CHINESE	KB PRIMAX KB-0511 PS/2 STANDARD 104KS BL	KB.PS20P.002
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK US INTERNATIONAL	KB PS2 KB-0511 29-10506A711	KB.PS20P.003
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK ARABIC/ ENGLISH	KB PS2 KB-0511 29-10517A711	KB.PS20P.004
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK THAILAND	KB PS2 KB-0511 29-10536A711	KB.PS20P.005
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK SPANISH	KB PS2 29-10510A711 Spanish	KB.PS20P.006
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK PORTUGUESE	KB PS2 KB-0511 29-10515A711	KB.PS20P.007
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK CANADIAN FRENCH	KB PS2 KB-0511 29-10553A711	KB.PS20P.008
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK GERMAN	KB PS2 29-10508A711 German	KB.PS20P.009

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KEYBOARD	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK ITALIAN	KB PS2 KB-0511 29-10509A711	KB.PS20P.010
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK FRENCH	KB PS2 KB-0511 29-10507A711	KB.PS20P.011
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK SWEDISH	KB PS2 KB-0511 29-10552A711	KB.PS20P.012
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK UK	KB PS2 KB-0511 29-10520A711	KB.PS20P.013
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK DUTCH	KB PS2 KB-0511 29-10538A711	KB.PS20P.014
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK SWISS/G	KB PS2 KB-0511 29-10533A711	KB.PS20P.015
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK BELGIUM	KB PS2 KB-0511 29-10521A711	KB.PS20P.016
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK ICELANDIC	KB PS2 KB-0511 29-10545A711	KB.PS20P.017
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK NORWEGIAN	KB PS2 KB-0511 29-10513A711	KB.PS20P.018
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK HEBREW	KB PS2 KB-0511 29-10519A711	KB.PS20P.019
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK POLISH	KB PS2 KB-0511 29-10523A711	KB.PS20P.020
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK SLOVENIAN	KB PS2 KB-0511 29-10532A711	KB.PS20P.021
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK SLOVAK	KB PS2 KB-0511 29-10544A711	KB.PS20P.022
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK RUSSIAN	KB PS2 KB-0511 29-10516A711	KB.PS20P.023
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK HUNGARIAN	KB PS2 KB-0511 29-10524A711	KB.PS20P.024
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK GREEK	KB PS2 KB-0511 29-10518A711	KB.PS20P.025
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK DANISH	KB PS2 KB-0511 29-10512A711	KB.PS20P.026
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK CZECH	KB PS2 KB-0511 29-10525A711	KB.PS20P.027
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK ROMANIAN	KB PS2 KB-0511 29-10543A711	KB.PS20P.028
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK TURKISH	KB PS2 KB-0511 29-10522A711	KB.PS20P.029
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK SPANISH LATIN	KB PS2 KB-0511 29-10550A711	KB.PS20P.030
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK TURKISH-Q	KB PS2 KB-0511 29-10546A711	KB.PS20P.031
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KEY BLACK NORDIC	KB PS2 KB-0511 29-10540A711	KB.PS20P.032

Category	Part Name	Description	Acer Part No.
KEYBOARD	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 107KEY BLACK BRAZILIAN PORTUGUESE	KB PS2 KB-0511 29-10503A711	KB.PS20P.033
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 104KEY BLACK US	KB PS2 KB-0511 29-10501G111	KB.PS20P.034
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KS BLACK YUGOSLAVIA	KB KB-0511 PS/2 105KS BLACK YUGOSLAVIA	KB.PS20P.069
	KEYBOARD PRIMAX KB-0511 PS/2 STANDARD 105KS BLACK CZECH/SLOVAK	KB PRIMAX KB-0511 PS/2 STANDARD 105KS BL	KB.PS20P.070
MAINBOARD	MB KIT EL1850 INTEL G41 ICH7 REALTEK RTL8111DL W/O 1394 LF AUDIO IS REALTEK ALC662 	MB KIT EL1852 INTEL G41 ICH7 GMA X4500	MB.NBK09.003
MEMORY	MEMORY APACER DDR3 1333MHZ 1G UNB-DIMM GU502203EP0201 LF 128*8 0.065UM	DIMM 1G 75.073C1.G02 DDR3 1333MHZ	KN.1GB01.031
	MEMORY DDR3 1333MHZ 1G UNBUFFERED DIMM W/O ECC F DIE (46NM)	DIMM 1G M378B2873FHS-CH9	KN.1GB0B.036
	MEMORY UNIFOSA DDR3 1333MHZ 1G UNB-DIMM GU502203EP0201 LF 128*8 0.065UM	M 1G GU502203EP0201 UNB.	KN.1GB0H.015
	MEMORY APACER DDR3 1333MHZ 2G UNBUFFERED DIMM W/O ECC	DIMM 2G 75.A73C1.G02 DDR3 1333MHZ	KN.2GB01.025
	MEMORY KINGSTON DDR3 1333MHZ 2G UNB ACR256X64D3U1333C9	DIMM 2G ACR256X64D3U1333C9	KN.2GB07.002
	MEMORY SAMSUNG DDR3 1333MHZ 2G M378B5673FH0-CH9	DIMM 2G M378B5673FH0-CH9	KN.2GB0B.024
	MEMORY UNIFOSA DDR3 1333MHZ 2G UNB-DIMM GU512303EP0202 LF 128*8 0.065UM	DIMM 2G GU512303EP0202 UNB.	KN.2GB0H.009
POINTING DEVICE	MOUSE LOGITECH OPTICAL MOUSE PS2 M-S0004-O 	MOUSE PS2 OPT M-S0004-O FOR ASPIRE/EM/PB	MS.11200.080
	MOUSE PRIMAX OPTICAL MOUSE PS2 MOFGKO	MOUSE PRIMAX OPTICAL PS2 MOFGKO	MS.11200.082
	MOUSE LOGITECH PS2OPTICAL SBF96	MOUSE PS2 OPT M-SBF96 910-0000	MS.11200.032

Category	Part Name	Description	Acer Part No.
 POWER SUPPLY	POWER SUPPLY 220W EUP 115VAC/230V NPFC DELTA DPS-220UB A EUP	SPS 220W EUP 115VAC/230V NPFC	PY.22009.006
	POWER SUPPLY 220W EUP 115VAC/230V NPFC DELTA DPS-220UB-3A EUP	SPS 220W EUP 115VAC/230V NPFC EUP DPS-22	PY.22009.009
	POWER SUPPLY 220W NPFC 115V/230V LITEON PS-5221-06A1-ROHS EUP	SPS 220W NPFC EUP 115V/230V LI	PY.2200B.006
	POWER SUPPLY 220W LITE-ON NPFC 115V/230V PS-5221-06A2 EUP	SPS NON-PFC 220W (8.5L) EUP PS-5221-06A2	PY.2200B.009
	POWER SUPPLY 220W NPFC CHICONYPOWER CPB09-D220R EUP	SPS 220W NPFC EUP CPB09-D220R	PY.2200F.002
	POWER SUPPLY 220W CHICONYPOWER REGULAR CPB09-D220R AAGASSI	SPS 220W REGULAR CPB09-D220R AAGASSI	PY.2200F.004
	POWER SUPPLY 220W PFC 230V DELTA DPS-220UB-1 A EUP	SPS 220W EUP PFC 230V DPS-220	PY.22009.007
	POWER SUPPLY 220W PFC 230V DELTA DPS-220UB-4A EUP	SPS 220W EUP PFC 230V DPS-220UB-4A(NEW)	PY.22009.010
	POWER SUPPLY 220W PFC 230V LITEON PE-5221-08AP-ROHS EUP	SPS 220W PFC EUP 230V LITEON P	PY.2200B.007
	POWER SUPPLY 220W LITE-ON PFC 230V PE-5221-08AF EUP	SPS PFC 220W (8.5L) EUP PE-5221-08AF ABO	PY.2200B.010
	POWER SUPPLY 220W PFC CHICONY POWER CPB09-D220A EUP	SPS 220W PFC EUP CPB09-D220A A	PY.2200F.001
	POWER SUPPLY 220W CHICONYPOWER PFC CPB09-D220A AAGASSI	SPS 220W PFC CPB09-D220A AAGASSI	PY.2200F.005
SCREWS	SCREW #6-32 L5 PAN NI	SCRW #6-32 L5 PAN NI	86.00J90.B60
	SCREW I NO6-32 L5 BZN	SCRW I NO6-32 L5 BZN	86.00J07.B60
	SCREW PAN #6-32 L6 NI BOXER WZS	SCRW PAN #6-32 L6 NI BOXER WZS	86.00J44.C60
	SCREW NO4-40 L6.5 PAN NI	SCRW NO4-40 L6.5 PAN NI	86.00N03.B40
	SCREW PAN M3 L5 BZN	SCRW PAN M3 L5 BZN	86.1A324.5R0
	SCREW FLAT #6-32*3/16 NI	SCREW FLAT #6-32*3/16 NI	86.5A5B6.012
SPEAKER	SPEAKER ASI USB 2.0 Q4-08 USB	SPEAKER ASI USB 2.0 Q4-08 USB	SP.10600.019
	SPEAKER NEOSONICA USB NEO 2003 WITH BLACK COLOR	SPK USB NEO 2003B WITH BLACK	SP.10600.032

Technical Specifications

This appendix lists the technical specifications of the EL1852 hardware components.

Processor

- Socket: LGA775 socket, 775 pin contacts

Item	Specification		
Intel® Core™ 2 Quad Processors, 65 W TDP			
Model	Q9550s	Q9400s	Q8400s
CPU speed	2.83 GHz	2.66 GHz	2.66 GHz
Bus speed	1333 MHz	1333 MHz	1333 MHz
Bus/core ratio	8.5	8.0	8.0
L2 cache size	12 MB	6 MB	6 MB
Package type	45 nm	45 nm	45 nm
Thermal design power	65 W	65 W	65 W

Item	Specification				
Intel® Core™ 2 Duo Desktop Processors					
Model	E8600	E8500	E8400	E7600	E7500
CPU speed	3.33 GHz	3.16 GHz	3.0 GHz	3.06 GHz	2.66 GHz
Bus speed	1333 MHz	1333 MHz	1333 MHz	1066 MHz	1066 MHz
Bus/core ratio	10.0	9.5	9.0	11.5	11.0
L2 cache size	6 MB	6 MB	6 MB	3 MB	3 MB
Package type	45 nm	45 nm	45 nm	45 nm	45 nm
Thermal design power	65 W	65 W	65 W	65 W	65 W

Item	Specification			
Intel® Pentium® Dual-Core Processors for Desktop				
Model	E6800	E6700	E5800	E5700
CPU speed	3.33 GHz	3.2 GHz	3.2 GHz	3.0 GHz
Bus speed	1066 MHz	1066 MHz	800 MHz	800 MHz
Bus/core ratio	12.5	10	16	15
L2 cache size	2 MB	2 MB	2 MB	2 MB
Package type	45 nm	45 nm	45 nm	45 nm
Thermal design power	65 W	65 W	65 W	65 W

Item	Specification		
Intel® Celeron® Dual-Core Processors			
Model	E3400	E3500	450
CPU speed	2.60 GHz	2.70 GHz	2.20 GHz
Bus speed	800 MHz	800 MHz	800 MHz
Bus/core ratio	13.0	13	11
L2 cache size	1 MB	1 MB	512 KB
Package type	45 nm	45 nm	65 nm
Thermal design power	65 W	65 W	35 W
Dual-Core	Yes	Yes	No

Chipsets

Item	Specification
North bridge	Intel® G41 Express Chipset
South bridge	Intel® ICH7

BIOS

Item	Specification
BIOS chip	AMI BIOS
Setup utility	CMOS Setup Utility

Memory

Item	Specification
Controller	Integrated in the Intel® G41 Express Chipset
Number of DIMM slot	2
Maximum memory	4 GB (using two 2 GB modules)
Data rate	1066/1333 MT/s
Supported capacities	1-, or 2 GB
DIMM type	240-pin DDR3 SO-DIMM
Supported brands	Kingston, A-Data, Unifosa
Population rule	You can install memory modules in any combination as long as they match the above specifications.

Hard Disk Drive

Item	Specification
Controller	Integrated in the Intel® ICH7
Number of HDD bays	1
Form factor	3.5-inch 25.4 mm
Interface	SATA 3.0
Supported capacities	
160 GB	<ul style="list-style-type: none">• HGST Jupiter – HDS721016CLA382• Seagate Pharoah – ST3160313AS
320 GB	<ul style="list-style-type: none">• HGST Jupiter – HDS721032CLA362• Seagate Pharoah – ST3320413AS• WD – WD3200AAKX-221CA0
500 GB	<ul style="list-style-type: none">• HGST Jupiter – HDS721050CLA362• Seagate Pharoah – ST3500413AS• WD – WD5000AAKX-221CA0
1000 GB	<ul style="list-style-type: none">• HGST Jupiter – HDS721010CLA332• Seagate Pharoah – ST31000524AS• WD – WD10EALX-229BA0• WD – WD10EADX-22TDHB0• WD – WD10EARS-22Y5B1
1500 GB	<ul style="list-style-type: none">• Seagate Brinks – ST31500341AS• WD – WD15EARS-22MVWB0

Optical Disc Drive

Item	Specification
Controller	Integrated in the Integrated in the Intel® ICH7
Type	Supports DVD-R/RW drive or DVD-Super Multi double-layer drive
Form factor	5.25-inch standard
Interface	SATA
Write/read speed	16x
Supported models	<ul style="list-style-type: none">• HLDS – DH40N• HLDS – GH60N• PLDS – DH-16D5SH• PLDS – DH-16ABSH

Card Reader

Item	Specification
Controller	Multi-in1
Card compatibility	<ul style="list-style-type: none">Memory Stick (MS) - supports up to 32 GBxD-Picture Card (xD) - supports up to 2 GBSecure Digital (SD) - supports up to 2 TBMultiMedia Card (MMC) - supports up to 32 GBReduced-Size MultiMediaCard (RS-MMC) - supports up to 2 TBCompactFlash, Type I/II (CF, Type I and II) - supports up to 2 TBMemory Stick PRO (MS PRO) - supports up to 32 GB

Gigabit Ethernet

Item	Specification
Controller	Realtek RTL8111DL Gigabit Ethernet Controller
LAN protocol	10/100/1000 Mbit
LAN connector type	RJ-45

Audio

Item	Specification
Controller	<ul style="list-style-type: none">Realtek ALC662 5.1 Channel High Definition Audio Codec
Audio jacks	<ul style="list-style-type: none">Front panel: Headphone and microphone jacksRear panel: Microphone, line-out, and line-in jacks

Power Supply Unit

Item	Specification
Vendor and Model	<ul style="list-style-type: none">Delta - DPS-220UB 3A (non-PFC)Delta - DPS-220UB-4A (PFC)Delta - DPS-220UB-5A (FR)Lite-On - PS-5221-06A2 (non-PFC)Lite-On - PE-5221-08AF (PFC)Lite-On - PS-5221-9AB (FR)CP - CPB09-D220R (non-PFC)CP - CPB09-D220A (PFC)CP - CPB09-D220E (FR)
Input	100-127V ~/6A - 220V-240V ~/3.15A 50-60 Hz
Output (max.)	220 W
Connectors	<ul style="list-style-type: none">1 x 20/24-pin ATX connector1 x 4-pin ATX connector2 x SATA connectors

Power Management

Devices	S1	S3	S4	S5
Power Button	V	V	V	V
USB Keyboard/Mouse	V	V	N/A	N/A
PME	Disabled	Disabled	Disabled	Disabled
RCT	Disabled	Disabled	Disabled	Disabled
WOR	Disabled	Disabled	Disabled	Disabled

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wireless LAN

 board, remove 34

