eMachines EL1800
Service Guide

Service guide files and updates are available
on the AIPG/CSD web; for more information,
please refer to http://csd.acer.com.tw

Revision History

Please refer to the table below for the updates made on eMachines EL1800 series service guide.

Date	Chapter	Updated

Copyright

Disclaimer

Conventions

The following conventions are used in this manual:

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

Preface

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

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.

2. Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

Introducing the Motherboard

Introduction

Thank you for choosing the MCP73T-AD motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA775 socket for Intel® CoreTM 2 Quad/Intel® CoreTM 2 Duo/Pentium® D/Pentium® 4/Celeron® D processors for high-end business or personal desktop markets.

This motherboard is based on NVIDIA® MCP73PV for best desktop platform solution. MCP73PV is a single-chip, highly integrated, high performance Hyper-Threading peripheral controller, unmatched by any other single chip-device controller. This motherboard supports up to 8 GB of system memory with single channel DDR2 800/667 MHz. High resolution graphics via one PCI Express x16 slot, 10 USB 2.0 ports (4 USB ports and 3 USB 2.0 headers support additional 6 USB ports) and SATA support with RAID function.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, one HDMI port, one VGA1 port, one optical SPDIFO port, four USB ports, one ESATA port, one LAN1 port and audio jacks for microphone, line-in and 6/8-channel (optional) line-out.

Features

Processor

The motherboard uses an LGA775 type of Intel® CoreTM 2 Quad/Intel® CoreTM 2 Duo/Pentium® D/Pentium® 4/Celeron® D that carries the following features:

- Accommodates Intel® CoreTM 2 Quad/Intel® CoreTM 2 Duo/Pentium® D/Pentium® 4/Celeron® D processors
- Supports a system bus (FSB) of 1333/1066/800/533 MHz
- Supports "Hyper-Threading" technology CPU

"Hyper-Threading" technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate "logical" processors within the same physical processor.

Chipset

The NVIDIA® MCP73PV is a single-chip with proven reliability and performance.

- Supports 33-bit addressing for access to 8 GB of system memory
- PCI Express 16-lane link interface for external graphics processors
- Integrated SATA 3.0 Gb/s Host Controller
- USB 2.0 ports supported
- NVIDIA® MediaShieldTM RAID with support for RAID 0, RAID1 and JBOD

Memory

- DDR2 800/667 DDR2 SDRAM with single channel supported
- Accommodates two unbuffered DIMMs
- Up to 4 GB per DIMM with maximum memory size up to 8 GB

Audio

The onboard Audio provides the following features:

- All DACs support 192K/96K/48K/44.1KHz DAC sample rate
- High-quality analog differential CD input
- Software selectable 2.5V/3.75V VREFOUT
- Meets Microsoft WLP 3.08 audio requirements
- Direct Sound 3DTM compatible

Onboard LAN

The onboard LAN provides the following features:

- Compliant with 1000Base-T IEEE 802.3ab, 100Base-TX IEEE 802.3u, 10Base-T IEEE 802.3 Compliant
- Supports half/full duplex operation
- IEEE 802.3 compliant RGMII/MII

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphics Interface
- One PCI Express x1 slot
- Two 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 Mb/s.

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port
- One VGA port
- One HDMI port
- One ESATA port
- Four USB ports
- One LAN port
- One optical SPDIFO port
- Audio jacks for microphone, line-in and 6/8-channel (optional) line-out

BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

> *1. Some hardware specifications and software items are subject to change without prior notice.*
> *2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50 °C.*

Motherboard Components
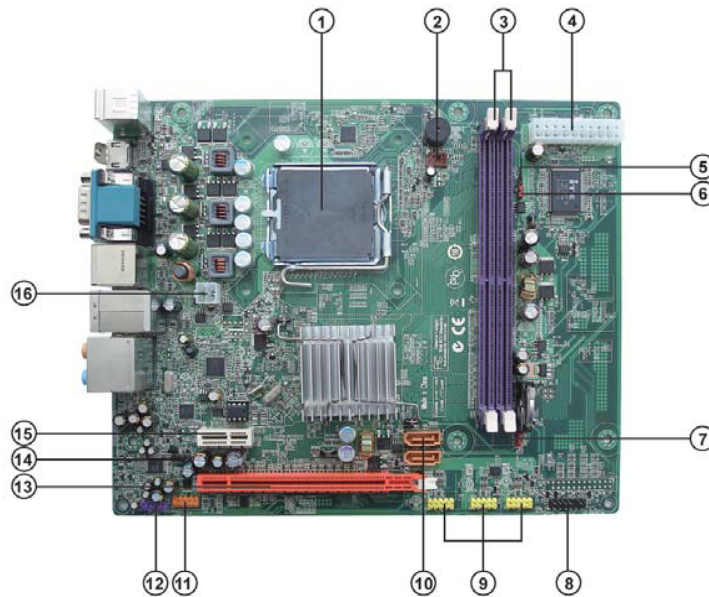
Table of Motherboard Components

No	Label	Component
1	CPU Socket	LGA775 socket for Intel® CoreTM2 Quad/Intel® CoreTM 2 Duo/Pentium® D/Pentium® 4/Celeron® D CPUs
2	CPU_FAN	CPU cooling fan connector
3	DIMM1~2	240-pin DDR2 SDRAM slots
4	ATX_POWER	Standard 24-pin ATX power connector
5	GPIO32	General Purpose Input/Output 32
6	GPIO33	General Purpose Input/Output 33
7	CLR_CMOS1	Clear CMOS jumper
8	PANEL1	Front Panel Switch/LED header
9	F_USB1~3	Front Panel USB headers
10	SATA1~2	Serial ATA connectors
11	1394A1*	IEEE 1394a header
12	F_AUDIO1	Front Panel Audio header
13	PCIE16X	PCI Express x16 graphics card slot
14	SPDIF1	SPDIF out header
15	PCIE1	PCI Express x1 slot
16	ATX12V1	4-pin +12V power connector

"" stands for optional components.*

This concludes Chapter 1. The next chapter explains how to install the motherboard.

Block Diagram
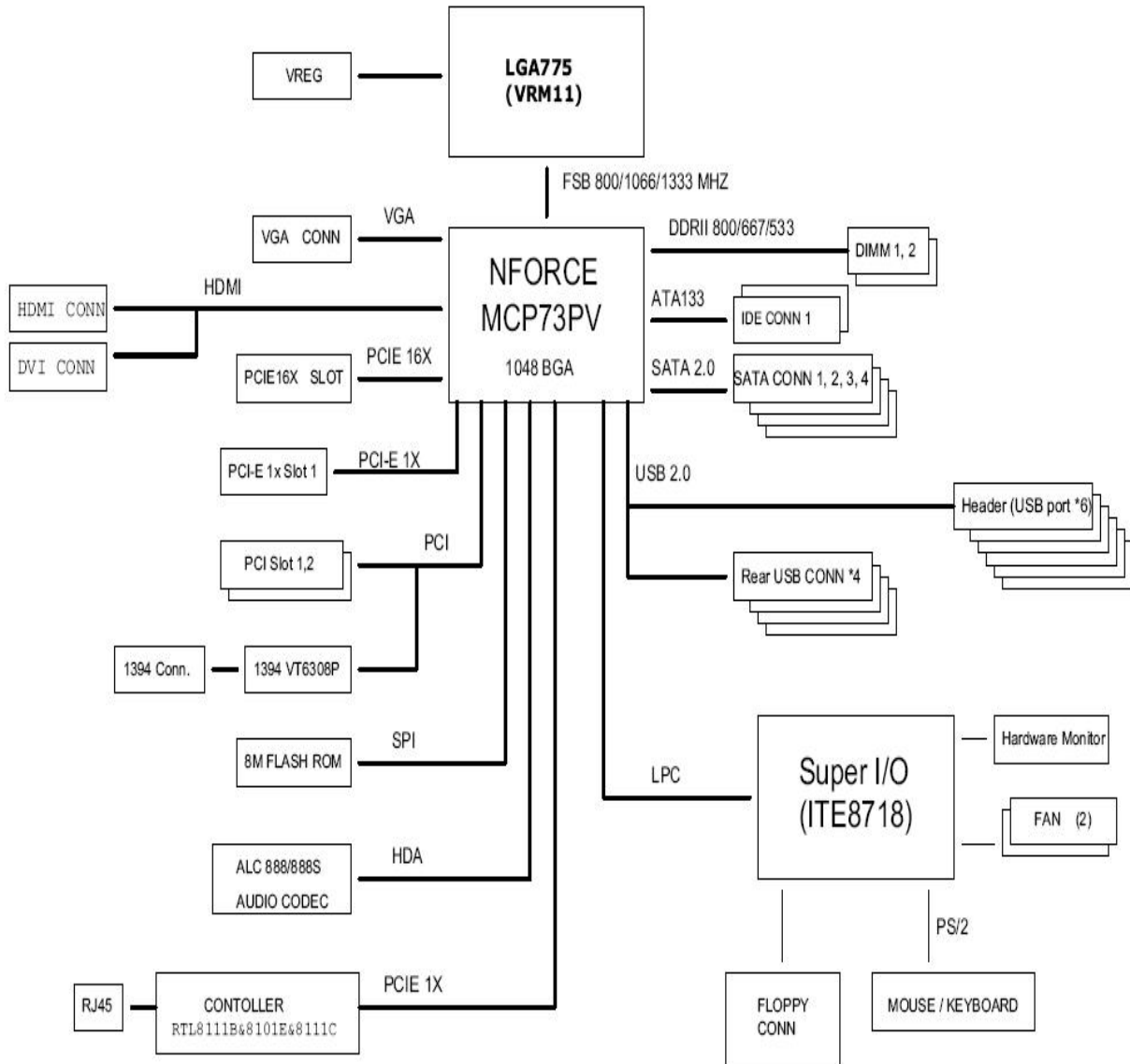
EL1800

The computer's front panel consists of the following：

Front view

No	Icon	Component	Description
1		USB ports	Connects to USB 2.0 devices (e.g.,USB mouse, USB camera).
2		Compact flash	CF I/II (CompactFlash Type I/II) slot
3		Microphone-in jack	Accepts input from external microphones.
4		Headphone/Speaker-out/line-out port.	Connects to audio line-in devices (e.g.,speakers,headphones).
5		Secure Digital	
6			
7		Memory Stick	
8		Memory Stick Pro	
9		Multi media card	

Rear view
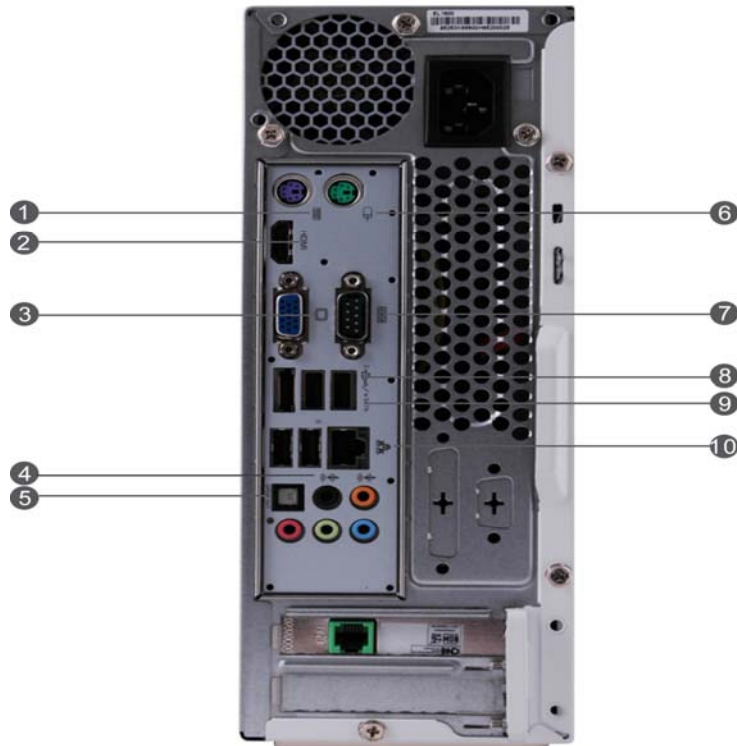
No	Icon	Component	Description
1		Keyboard connector	
2	HDMI	HDMI Port	High Definition Multimedia Interface
3		Monitor port	Connects to a display devices(e.g.,external monitor, LCD projector).
4		Line-out jack	Accepts audio line-out devices
5	SPDIF OUT	Optical SPDIF	Digital Audio Output
6		Mouse connector	
7		Serial port	
8		USB ports.	Connects to USB 2.0 devices(e.g.,USB mouse, USB camera).
9	e SATA	eSATA port	Connects to eSATA devices
10		Network port	Lights to indicate the status of wireless LAN communications.

Audio Jack Function Table

Color/Use	Headphone	2CH	2.1CH	5.1CH	7.1CH
Blue	Line-in	Line-in	Line-in	Line-in	Line-out
Green	Headphone	Headphone	Headphone	Headphone	Headphone
Pink	Mic-in	Mic-in	Mic-in	Mic-in	Mic-in
Orange	Center&woofer	Center&woofer	Center&woofer	Center&woofer	Center&woofer
Black	Rear	Rear	Rear	Rear	Rear

System Peripherals

The EL1800 series computer consist of the system itself, and system peripherals, like a mouse, keyboard, card reader and a set of speakers (optional). This section provides a brief description of the basic system peripherals.

Mouse (PS/2 or USB, manufacturing option)

The included mouse is a standard two-button wheel mouse. Connect the mouse to the PS/2 mouse port or USB port on the back panel of the system.

Keyboard (PS/2 or USB, manufacturing option)

Connect the keyboard to the PS/2 keyboard port or USB port on the back panel of the system.

Speakers

For systems bundled with speakers, before powering on the system, connect the speaker cable to the audio out (external speaker) port on the back panel of the system.
For more detailed information about the speakers, please refer to the included operating instructions.
NOTE: speakers are optional and the appearance might be different depending on the actual product.

Card Reader (Option)

Memory cards are used in a wide selection of digital cameras, PDAs, MP3 players and mobile phones. Selected computers include an "all-in-one" memory card reader that allows you read and write the most common types, such as MMC (Multi Media Card™), CF (Compact Flash®), IBM Microdrive™, SM (Smart Media™), SD (Secure Digital)™, or MS (Memory Stick®).

NOTE: Card reader are optional and the appearance might be different depending on the actual product.
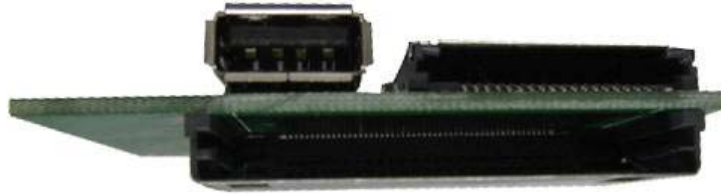
Hardware Specifications and Configurations

Processor

Item	Specification
Type	Accommodates Intel® CoreTM 2 Quad/Intel® CoreTM 2 Duo/Pentium® D/Pentium® 4/Celeron® D processors
Socket	LGA775
Speed	Depends on CPU which is configured
FSB	1333/1066/800/533 MHz

BIOS

Item	Specification
BIOS code programmer	AMI
BIOS version	R01-A1 (or newer version)
BIOS ROM type	Flash ROM
BIOS ROM size	8MB
BIOS ROM package	SPI DIP8P
Support protocol	ACPI 2.0, APM 1.2, SMBIOS 2.4, WFM support
Boot from CD-ROM feature	Yes
Support to LS-120 FDD drive	No

NOTE: The BIOS can be overwritten/upgraded by using the flash utility.

BIOS Hotkey List

Item	Specification	Specification
Del	Enter BIOS Setup Utility	Press while the system is booting to enter BIOS setup Utility.
F12	Enter Boot Menu	Press while the system is booting to enter Boot Menu.

Main Board Major Chips

Item	Specification
Chipset	NV MCP73PV
AGP controller	NV MCP73PV
Super I/O controller	ITE8718GX
Audio controller	Realtek ALC888S
LAN controller	Realtek RTL8211C
HDD controller	NV MCP73PV
Keyboard controller	ITE8718GX

System Memory

Item	Specification
Memory slot number	2 slots
Support memory size per socket	512MB to 4GB
Support maximum memory size	8GB
Support memory type	DDR2 SDRAM
Support memory interface	DDR2 800/667
Support memory module package	240-pin DIMM
Support parity check feature	Yes
Support to Error Correction Code (ECC) feature	Yes
Memory module combinations	You can install memory modules in any combination as long as they match the specifications.

Video Interface

Item	Specification
Video controller	NV MCP73PV
Video controller resident bus	PCIE
Video Interface	X16

Audio Interface

Item	Specification
Audio controller	Realtek
Audio controller Type	High Definition, ALC888S
Audio Channel	5.1ch
Audio function control	Enable/disable by BIOS Setup
Mono or stereo	Stereo
Sampling rate	DACs: 44.1k/48k/96k/192k Hz
Microphone jack	Supported
Headphone jack	Supported

IDE Interface

Item	Specification
IDE controller	No
IDE controller resident bus	No
Number of PATA connector	No
Number of SATA connector	3
Support bootable CD-ROM	Yes

USB Port

Item	Specification
Universal HCI	USB 2.0
USB Class	Support legacy keyboard for legacy mode
USB Number	support up to 10 ports

Power Management

Devices	S1	S3 (Suspend to RAM)	S4 (Suspend to DIsk)	S5 (Shut Down)
Power Button	Enabled	Enabled	Enabled	Enabled
USB Keyboard	Enabled	Enabled	Disabled	Disabled
LAN	Enabled	Enabled	Enabled	Disabled
RTC	Disabled	Disabled	Disabled	Disabled

Power Management Function (ACPI support function)

Device Standby Mode

- Independent power management timer for hard disk drive devices
  (0-15 minutes, time step=1 minute).
- Hard disk drive goes into Standby mode (for ATA standard interface).
- Disable V-sync to control the VESA DPMS monitor.
- Resume method: device activated (Keyboard for DOS, keyboard & mouse for Windows).
- Resume recovery time: 3-5 sec.

Global Standby Mode

- Global power management timer (2-120 minutes, time step=10 minute).
- Hard disk drive goes into Standby mode (for ATA standard interface).
- Disable H-sync and V-sync signals to control the VESA DPMS monitor.
- Resume method: Return to original state by pushing external switch button, modem ring in, keyboard and mouse for APM mode.
- Resume recovery time: 7-10 sec.

Suspend Mode

- Independent power management timer (2-120 minutes, time step=10 minutes) or pushing external
- switch button.
- CPU goes into SMM.
- CPU asserts STPCLK# and goes into the Stop Grant State.
- LED on the panel turns amber colour.
- Hard disk drive goes into SLEEP mode (for ATA standard interface).
- Disable H-sync and V-sync signals to control the VESA DPMS monitor.
- Ultra I/O and VGA chip go into power saving mode.
- Resume method: Return to original state by pushing external switch button, modem ring in, keyboard and mouse for APM mode.
- Return to original state by pushing external switch button, modem ring in and USB keyboard for ACPI mode.

ACPI

- ACPI specification 1.0b.
- S0, S1, S3 and S5 sleep state support.
- On board device power management support.
- On board device configuration support.

System Utilities

About the Setup Utility

The computer uses the latest "American Megatrends Inc." BIOS will support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:
- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- When making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.

Setup Utility Menus

Pressing the **del** key accesses the BIOS Setup Utility:

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.

 ▶ Product Information              ▶ PC Health Status

 ▶ Standard CMOS Features           ▶ Frequency/Voltage Control

 ▶ Advanced BIOS Features           ▶ BIOS Security Features

 ▶ Advanced Chipset Features           Load Default Settings

 ▶ Integrated Peripherals              Save & Exit Setup

 ▶ Power Management Setup              Exit Without Saving


   ↑ ↓ →← : Move   Enter : Select   +/- : Value   F10 : Save   Esc :  Exit
   F1 : General Help              F9 : Optimized Defaults


       V02.61( C )Copyright 1985-2008, American Megatrends, Inc.
```

BIOS Navigation Keys

The BIOS navigation keys are listed below:

Key	Function
←↑↓→	Move
Enter	Select
+/-/	Value
ESC	Exits the current menu
F1	General Help
F9	Optimized Defaults
F10	Save

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1   Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)

2   Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 1.

3   Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)

4   At the A:\ prompt, type the Flash Utility program name and the file name of the new bios and then press <Enter>. Example: AMINF340.EXE 040706.ROM

5   When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

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 triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶

Product Information

This option displays basic information about your system.

```
         CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                                    Product Information
    ┌─────────────────────────────────────────────────────┬──────────────────────┐
    │                                                       │      Item Help       │
    │   Processor Type                                      │                      │
    │   Intel ( R) Core( TM)2 Duo CPU      E7200   @ 2.53GHz│                      │
    │   Processor Speed          2.53 GHz                   │                      │
    │   System Memory            2048 MB                    │                      │
    │   System Manufacturer      eMachines                  │                      │
    │   Product Name             EL1800                     │                      │
    │   System Serial Number     Unknow                     │                      │
    │   System BIOS Version      R01-A0                     │                      │
    │   BIOS Release Date        10/24/2008                 │                      │
    │   Asset Tag Number         Unknow                     │                      │
    │                                                       │                      │
    │                                                       │                      │
    │                                                       │                      │
    └─────────────────────────────────────────────────────┴──────────────────────┘
          ↑ ↓ → ← : Move    Enter : Select    +/- : Value    F10 : Save    ESC : Exit
                    F1 : General Help              F9 : Optimized Defaults
```

Press <ESC> to return to the main menu setting page

Standard CMOS Features

This option displays basic information about your system.

```
        CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.:
                            Standard CMOS Features
┌─────────────────────────────────────────────────────┬──────────────────┐
│   System Date           Wed  12/17/2008              │                  │
│   System Time           0: 54 : 28                   │    Item Help     │
│                                                      │                  │
│ ▶ SATA Port1          Not Detected                   │                  │
│ ▶ SATA Port2          Not Detected                   │                  │
│ ▶ SATA Port3          Not Detected                   │                  │
│                                                      │                  │
│   Halt On             All ,But Keyboard              │                  │
│                                                      │                  │
│                                                      │                  │
│                                                      │                  │
│                                                      │                  │
│                                                      │                  │
│                                                      │                  │
├──────────────────────────────────────────────────────────────────────────┤
│   ↑ ↓ → ← : Move    Enter : Select    +/- : Value   F10 : Save   ESC : Exit│
│              F1 : General Help             F9 : Optimized Defaults         │
└──────────────────────────────────────────────────────────────────────────┘
```

System Date and System Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

▶SATA Port1~3
Your computer has three SATA ports. Each port allows one SATA device to install. Use these items to configure each device on the port.

Press <**Enter**> to display the IDE submenu:

```
╔══════════════════════════════════════════════════════════════════════╗
║  CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc. ║
║                           SATA Port1                                     ║
╠════════════════════════════════════════════════╦═══════════════════════╣
║                                                 ║      Item Help        ║
║  SATA 1                                         ║                       ║
║                                                 ║                       ║
║  Device         :        Not Detected           ║                       ║
║                                                 ║                       ║
║                                                 ║                       ║
║                                                 ║                       ║
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║  ↑ ↓ →← : Move    Enter : Select    +/- : Value   F10 : Save   ESC : Exit ║
║              F1 : General Help            F9 : Optimized Defaults          ║
╚══════════════════════════════════════════════════════════════════════╝
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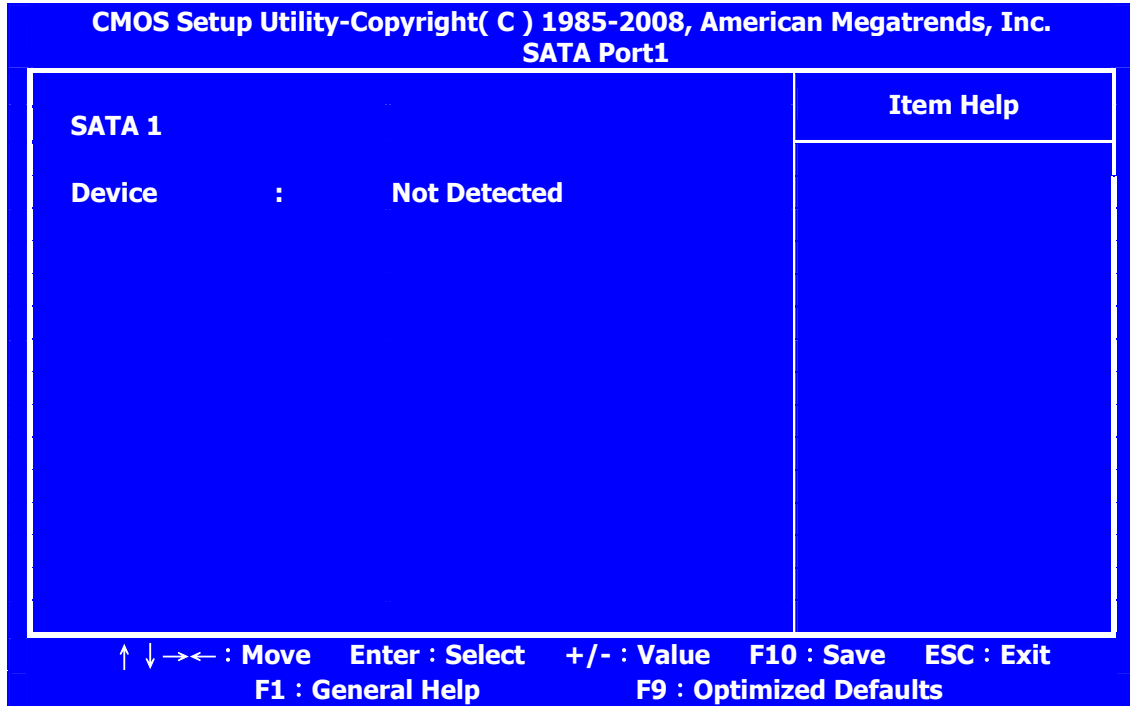
Press <Esc> to return to the Integrated Peripherals page.

Halt On (All, But Keyboard)
This item defines the operation of the system POST (Power On Self Test)routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

Press <ESC> to return to the main menu setting page

Advanced BIOS Features

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                        Advanced BIOS Feature

    Reset Configuration Data        NO
    Quick Boot                      Enabled          Item Help
    Quiet Boot                      Enables
    1st Boot Device                 Hard Drive       Clear NVRAM during
    2nd Boot Device                 CD/DVD           System Boot.
    3rd Boot Device                 Removable Dev.
    4th Boot Device                 Network
  ▶ Hard Disk Drive Priority        Press Enter
  ▶ Optical Disk Drive Priority     Press Enter
  ▶Removable Disk Drive Priority    Press Enter
    Boot up Num-Lock                On
    USB Beep Message                Disabled




    ↑ ↓ →← : Move    Enter : Select    +/- : Value   F10 : Save    ESC : Exit
              F1 : General Help              F9 : Optimized Defaults
```

▶ **Reset Configuration Data (NO)**

When you enable this item and restart the system, any Plug and Play Configuration data stored in the BIOS Setup is cleared from memory.

▶ **Quick Boot (Enabled)**

If you enable this item, the system starts up more quickly because of the elimination of some of the power on test rutines.

▶ **Quiet Boot (Enabled)**

If enabled, BIOS will show a full screen logo at boot; if disabled, BIOS will set the initial display mode to BIOS and show the diagnostic POST screen at boot.

▶ **1st/2nd/3rd/4th Boot Device (Hard Drive/CD/DVD/Removable Dev./Network)**

Use these items to determine the device order the computer users to look for an operating system to load at start-up time.

▶ **Hard Disk Drive Priority**

Specifies the Boot Device Priority sequence from available Hard Drives.

▶ **Optical Disk Drive Priority**

Specifies the Boot Device Priority sequence from available CD/DVD Drives.

▶ **Removable Disk Drive Priority**

Specifies the Boot Device Priority sequence from available Removable Drives.

▶ **Bootup Num-Lock (On)**

This item defines if the keyboard Num Lock key is active when your system is started..

▶ **USB Beep Message (Disabled)**

Use this item to enable or disable the USB beep message function.

Press <ESC> to return to the main menu setting page

Advanced Chipset Features

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

```
        CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                           Advanced Chipset Features

   Intel EIST                    Enabled                Item Help
   Intel XD Bit                  Enabled
   Intel Virtualization Technol  Enabled
   Memory Hole Remapping         Enabled          Disable: Disable EIST
   Primary Video                 Auto             Enable: Enable EIST
   UMA Frame Buffer Size         Auto
   Current UMA Size              64MB




   ↑ ↓ →← : Move    Enter：Select    +/-：Value    F10：Save    ESC：Exit
              F1：General Help              F9：Optimized Defaults
```

Intel EIST (Enabled)

This item allows users to enbale or disable the EIST(Enhanced Intel SpeedStep Technology) function. This item shows only if the CPU supports EIST.

Intel XD Bit (Enabled)

This item allows users to enable or disable the Intel XD bit.

Intel Virtualization Technol (Enabled)

This item allows VMM to utilize the additional HW Caps.

Memory Hole Remapping (Enabled)

This item allows users to enable or disable memory hole remapping.

Primary Video (Auto)

Use this item to select which graphics controller to use as the primary boot device.

UMA Frame Buffer Size (Auto)

This item allows users to manually adjust the UMA frame buffer size, from 32 MB to256 MB.

Current UMA Size (256MB)

This item shows the current UMA Frame Buffer Size.

Press <ESC> to return to the main menu setting page

Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                        Integrated Peripherals

  Onboard SATA Controller      Enabled
  Onboard SATA Mode            AHCI                   Item Help
  Legacy USB Support           Enabled
  Onboard Graphics Controller  Enabled                  Options
  Onboard Audio Controller     Enabled              Enabled
  Onboard LAN Controller       Enabled              Disabled
  OnBoard LAN Boot ROM         Disabled
  Serial Port1 Address         3F8/IRQ4




  ↑ ↓ →← : Move    Enter : Select    +/- : Value    F10 : Save    ESC : Exit
               F1 : General Help          F9 : Optimized Defaults
```

Onboard SATA Controller (Enabled)

Use this item to enable or disable the onboard SATA controller.

Onboard SATA Mode (AHCI)

Use this item to select the mode of the Serial ATA.

Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Onboard Graphics Controller (Enabled)

Use this item to enable or disable the onboard graphics controller.

Onboard Audio Controller (Enabled)

Use this item to enable or disable the onboard audio device.

Onboard LAN Controller (Enabled)

Use this item to enable or disable the onboard LAN device.

Onboard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network addincard with a remote boot ROM installed.

Serial Port1 Address (3F8/IRQ4)

Use this item to enable or disable the onboard COM1/2 serial port, and to assign a port address.

Press <ESC> to return to the main menu setting page

Power Management Setup

This page sets up some parameters for system power management operation.

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                     Power Management Setup

  ACPI Aware O/S              Yes                    Item Help
  ACPI Suspend Mode           S3 (STR)
  Power On by RTC Alarm       Disabled         Include ACPI APIC
  Power On by PCIE Devices    Enabled          Table pointer to
  Power On by Modem Ring      Enabled          RSDT pointer list.
  Wake Up by PS/2 KB/Mouse    Enabled
  Wake Up by USB KB/Mouse     Enabled
  Restore on AC Power Loss    Last State




  ↑ ↓ → ← : Move    Enter : Select    +/- : Value   F10 : Save    ESC : Exit
              F1 : General Help            F9 : Optimized Defaults
```

ACPI Aware O/S (YES)

This itme supports ACPI (Advanced Configuration and Power Management Interface). Use this item to enable or disable the ACPI feature.

ACPI Suspend Mode (S3 (STR))

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

Power On by RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (real time clock). Use the items below this one to set the date and time of the wakeup alarm. You must use an ATX power supply in order to use this feature.

Power On by PCIE Devices (Enabled)

This item allows you to enable or disable the PCIE devices to generate a wakevent.

Power On by Modem Ring (Enabled)

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Wake Up by PS/2 KB/Mouse (Enabled)

This item enable or disable you to allow keyboard or mouse activity to awaken the system from power saving mode.

Wake Up by USB KB/Mouse (Enabled)

This option allows the activity of the USB devices (keyboard and mouse) to wakeup the system from S1 and S3 sleep state.

Restore on AC Power Loss (Last State)

This item defines how the system will act after AC power loss during system operation. When you set to Off, it will keep the system in Off state until the power button is pressed.

Press <ESC> to return to the main menu setting page

PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                          PC Health Status

  System Temperature      30°C/86°F           Item Help
  CPU Fan Speed           1110 RPM
  CPU Core                1.216 V             Options
  +3.30V                  3.328 V           Disabled
  +5.00V                  5.026 V           Enabled
  +12.0V                  11.968 V
  5VSB                    5.080 V
  VBAT                    2.976 V
  Smart Fan               Enabled




  ↑ ↓ → ← : Move    Enter : Select    +/- : Value    F10 : Save    ESC : Exit
                 F1 : General Help          F9 : Optimized Defaults
```

System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- **System Temperature**
- **CPU Fan Speed**
- **CPU Core**
- **+3.30V**
- **+5.00V**
- **+12.0V**
- **5VSB**
- **VBAT**

Smart Fan (Enabled)

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

Press <ESC> to return to the main menu setting page

Frequency/Voltage Control

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                    Frequency/Voltage Control

  Spread Spectrum              Enabled              Item Help
  Processor Multiplier    9.5
                                                     Options
                                                Disabled
                                                Enabled














  ↑ ↓ → ← : Move    Enter : Select    +/- : Value    F10 : Save    ESC : Exit
              F1 : General Help             F9 : Optimized Defaults
```

Spread Spectrum (Enabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

Press <ESC> to return to the main menu setting page

BIOS Security Features

This item helps you install or change a password.

```
CMOS Setup Utility-Copyright( C ) 1985-2008, American Megatrends, Inc.
                        BIOS Security Features

   Supervisor Password          Not Installed              Item Help
   User Password                Not Installed
   Change Supervisor Password   Press Enter




   ↑ ↓ → ← : Move    Enter : Select    +/- : Value    F10 : Save    ESC : Exit
             F1 : General Help              F9 : Optimized Defaults
```
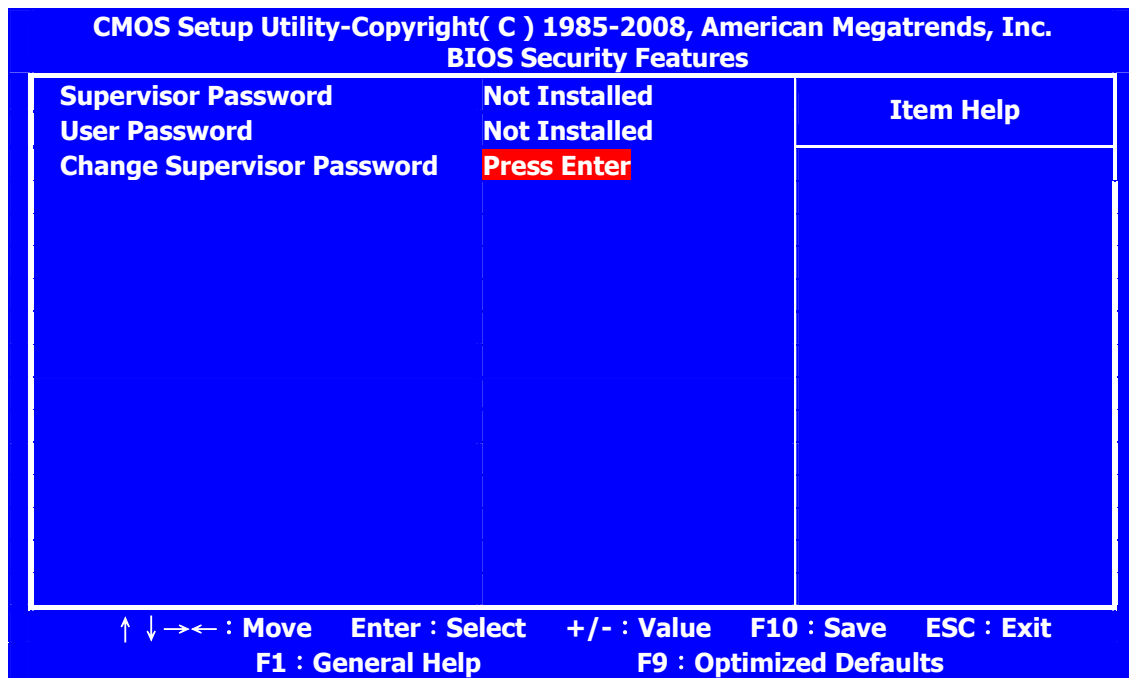
Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the submenu to change the supervisor password.

Press <ESC> to return to the main menu setting page

Load Default Settings

This option opens a dialog box that lets you install stability-oriented defaults for all appropriate items in the Setup Utility. Select <OK> and then press <Enter> to install the defaults. Select <Cancel> and then press <Enter> to not install the defaults..

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

If you have made settings that you do not want to save, use the "Exit Without Saving" item and press <Y> to discard any changes you have made.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

Machine Disassembly and Replacement

To disassemble the computer, you need the following tools:
- Wrist grounding strap and conductive mat for preventing electrostatic discharge.
- Wire cutter.
- Phillips screwdriver (may require different size).

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

General Information

Before You Begin

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

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

Disassembly Procedure

This section tells you how to disassemble the system when you need to perform system service.

CAUTION: Before you proceed, make sure you have turned off the system and all peripheral connected to it.

Standard Disassembly Process

1. **Opening the computer:**

   1.1. Remove the three screws fixed in the side-panel.

   1.2. Remove the side-panel.

2. **Removing the Front Bezel**

   2.1. Remove the Front Bezel.
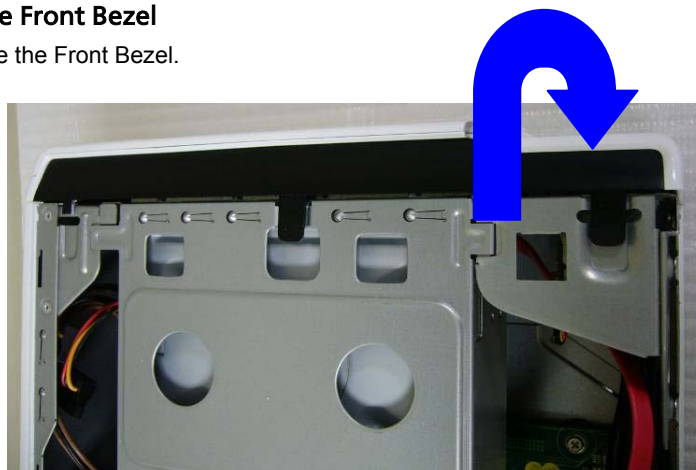
3.   Removing the ODD & HDD Bracket

3.1.   Remove the screw fixed in the ODD.
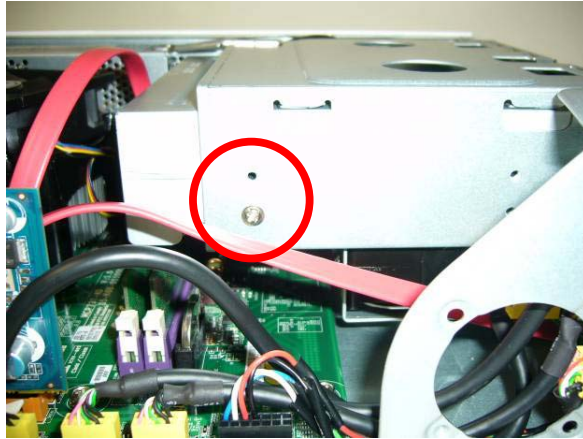
3.2.   Disconnect the SATA ODD cable and ODD power-cable from the rear of ODD and MB

3.3.   Remove the ODD
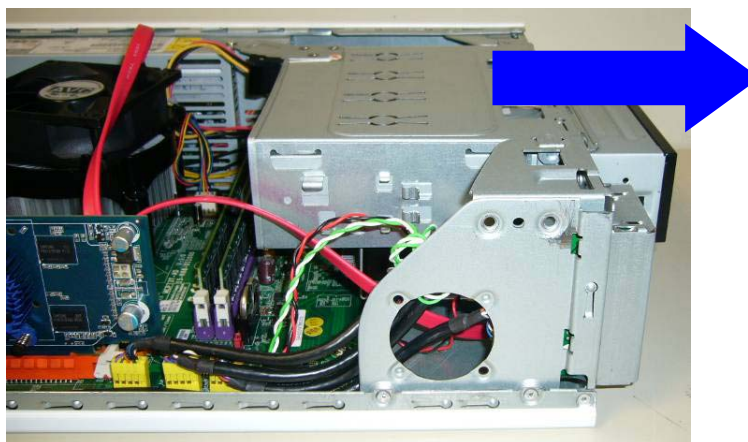
3.4. Remove the screw fixed in the PSU

3.5. Remove the two screws fixed in the front chassis.
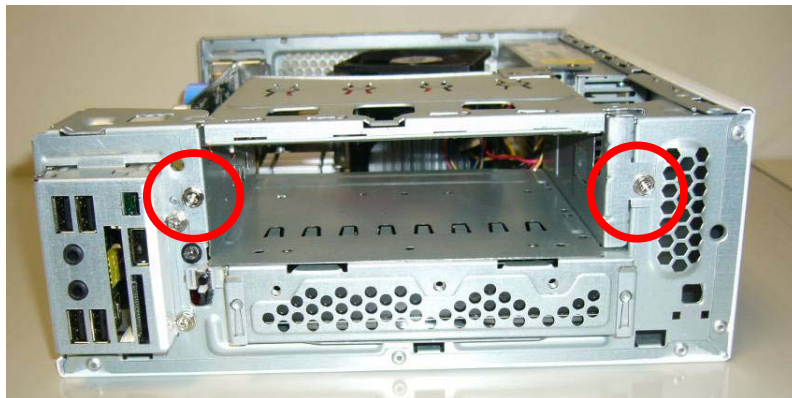
3.6. Disconnect the SATA ODD cable and SATA HDD cable

3.7. Remove the ODD bracket
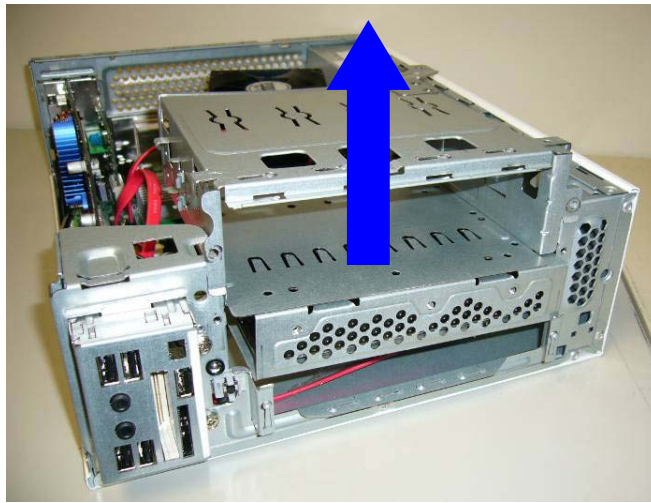
3.8. Disconnect the HDD power-cable

3.9. Remove the four screws fixed in the HDD

4. Removing the power-supply

4.1 Remove the screw fixed in the M/B support

4.2 Remove the three screws fixed in the rear chassis

4.3 Disconnect the 20pin power connector and 4 pin power connector

4.4   Remove the power-supply

5. Removing the VGA Card

5.1   Remove the screw fixed in the rear chassis. Press the PCI ear lever (highlighted in red) and pull
the leaver outwards a little to release the PCI latch then remove it.

6. Removing the Modem Card

6.1   Remove the screw fixed in the rear chassis.

7. Removing the Card Reader and Front IO Board

7.1 Disconnect the Card Reader and Front IO cable from the main board.
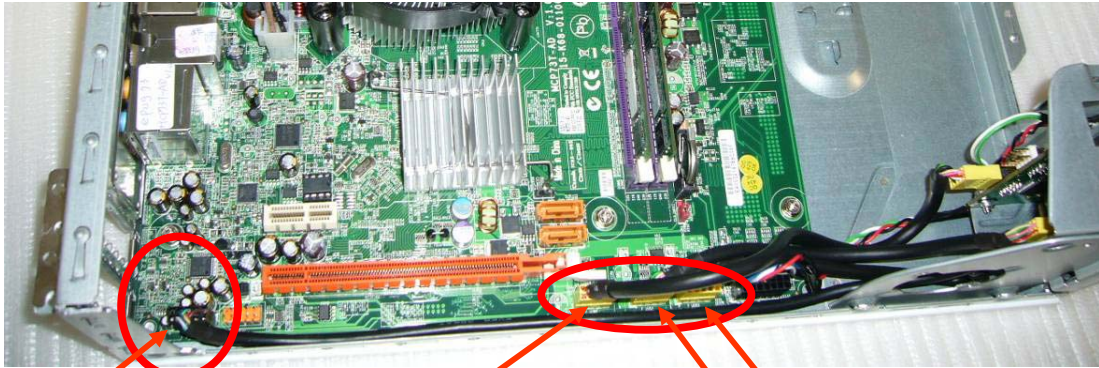
Audio for Front IO Board

USB cable for Card Reader

USB cable for Front IO Board

7.2 Remove the two screws fixed in the front chassis.
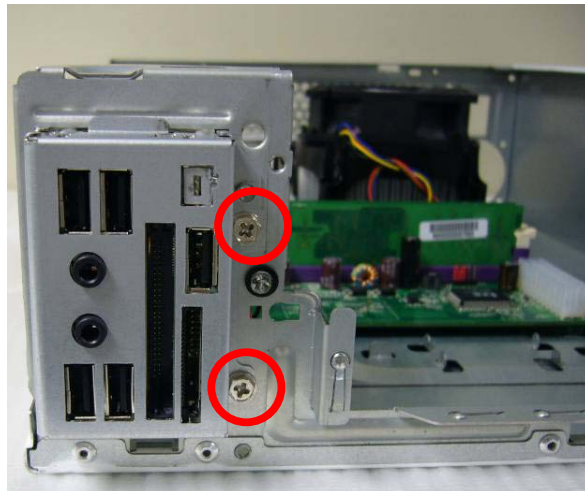
7.3 Remove the Front IO Bracket.
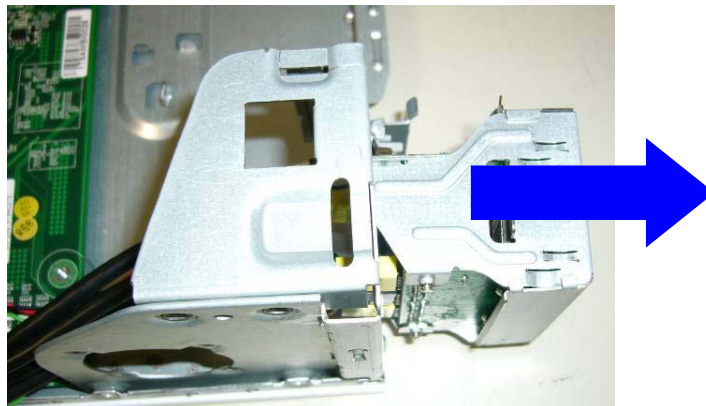
7.4   Remove the two screws fixed in the Front IO Bracket
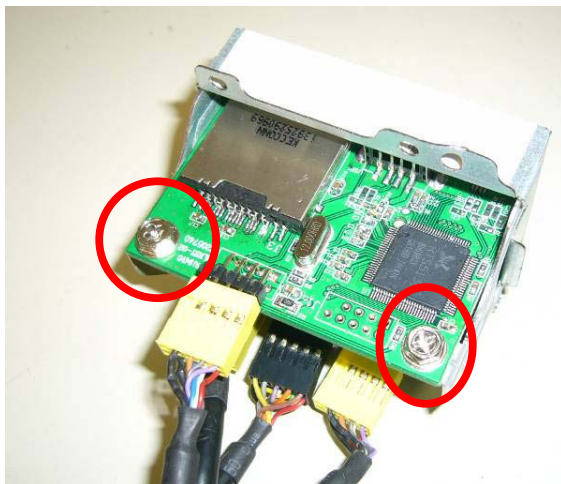
7.5   Remove the Card Reader.
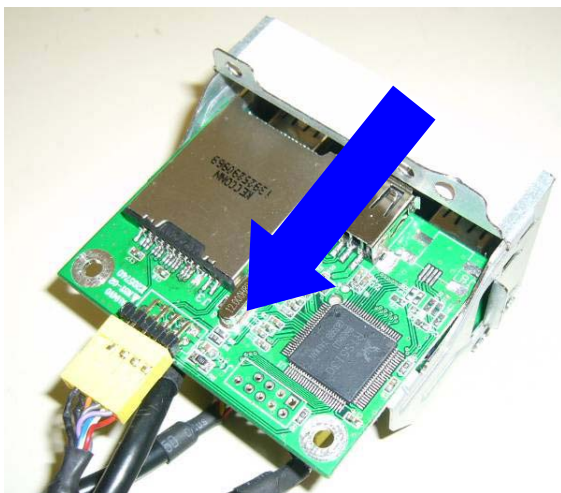
7.6   Disconnect the USB cable

7.7 Remove the two screws fixed in the Front IO Bracket
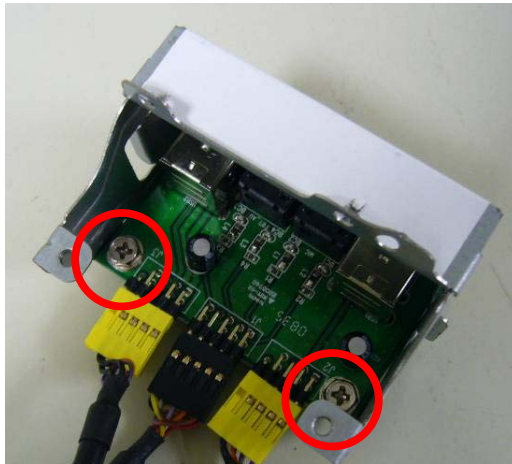
7.8 Remove the Front IO Board
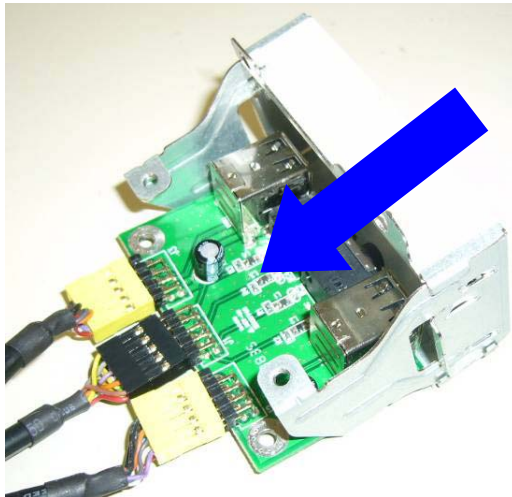
7.9 Disconnect the USB cable and Audio cable
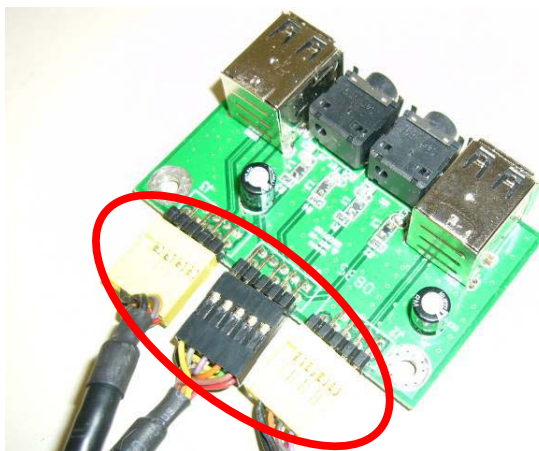
8. Removing the Main Board

8.1 Remove the six screws fastening the main board to the case.

8.2 Remove the six screws fastening the main board to the case
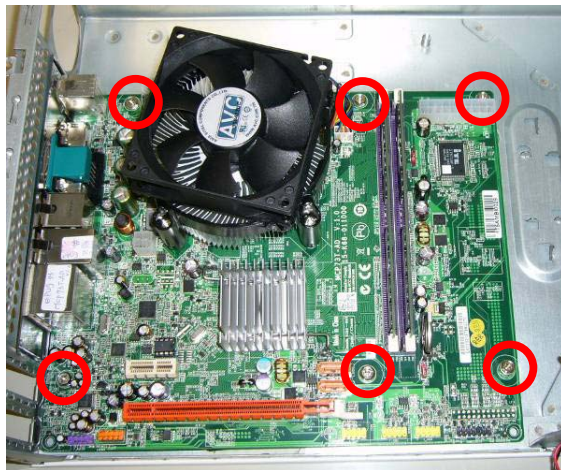
8.3 Remove the Main Board

8.4   Remove the Rear IO Shield.
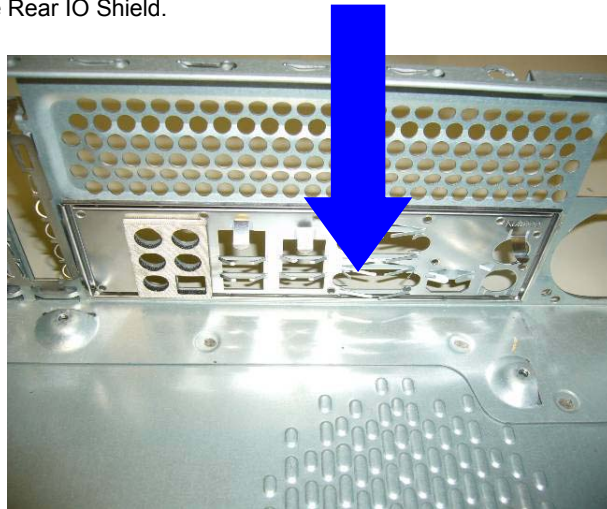
8.5   Release the two latch show bellow then remove the Memory

8.6   Disconnect the CPU cooler power-cable from the main board

8.7   Release the CPU Cooler screw x4 then remove it
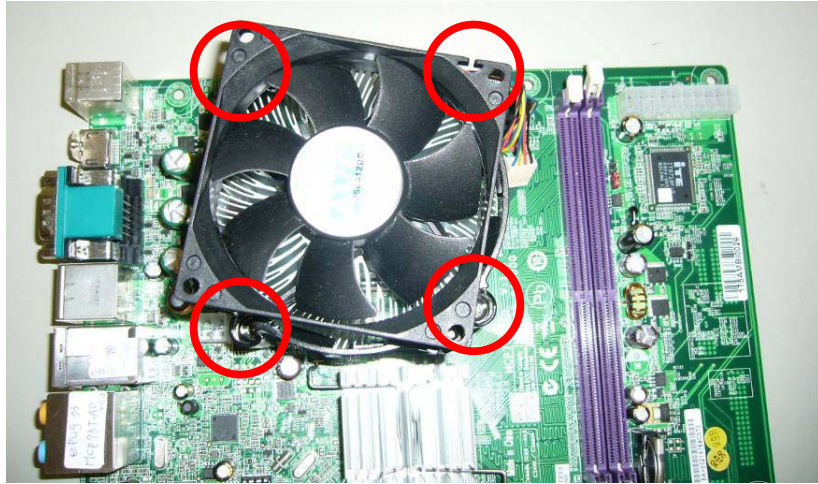
8.8   Remove the CPU

Troubleshooting

This chapter provides troubleshooting information for the EL1800 series Service Guide

- Power-On Self-Test (POST)
- Post Error Messages List
- Error Symptoms List
- Undetermined Problems

Power-On Self-Test (POST)

Each time you turn on the system, the Power-on Self Test (POST) is initiated. Several items are tested during POST, but is for the most part transparent to the user.

The Power-On Self Test (POST) is a BIOS procedure that boots the system, initializes and diagnoses the system components, and controls the operation of the power-on password option. If POST discovers errors in system operations at power-on, it displays error messages on screen, generates a check point code at Port 80h or even halts the system if the error is fatal.

The main components on the main board that must be diagnosed and/or initialized by POST to ensure system functionality are as follows:

- Microprocessor with built-in numeric co-processor and cache memory subsystem
- Direct Memory Access (DMA) controller
- Interrupt system
- Three programmable timer
- ROM subsystem
- RAM subsystem
- CMOS RAM subsystem and real time clock/calendar with battery backup
- Onboard parallel interface controller
- Embedded hard disk interface and one diskette drive interface
- Keyboard and auxiliary device controllers
- I/O ports
    - One parallel port
    - One PS/2-compatible mouse port
    - One PS/2-compatible keyboard port

NOTE: When Post executes a task, it uses a series of preset numbers called check points to be latched at port 80h, indicating the stages it is currently running. This latch can be read and shown on a debug board.
The following table describes the BIOS common tasks carried out by POST. Each task is denoted by an unique check point number. For other unique check point numbers that are not listed in the table, refer to the corresponding product service guide.
Post Checkpoints List: The list may vary accordingly depending on your BIOS

Checkpoint	Description
Before D0	If boot block debugger is enabled, CPU cache-as-RAM functionality is enabled at this point. Stack will be enabled from this point.
D0	Early Boot Strap Processor (BSP) initialization like microcode update, frequency and other CPU critical initialization. Early chipset initialization is done.
D1	Early super I/O initialization is done including RTC and keyboard controller. Serial port is enabled at this point if needed for debugging. NMI is disabled. Perform keyboard controller BAT test. Save power-on CPUID value in scratch CMOS. Go to flat mode with 4GB limit and GA20 enabled.
D2	Verify the boot block checksum. System will hang here if checksum is bad.
D3	Disable CACHE before memory detection. Execute full memory sizing module. If memory sizing module not executed, start memory refresh and do memory sizing in Boot block code. Do additional chipset initialization. Re-enable CACHE. Verify that flat mode is enabled.
D4	Test base 512KB 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. Copies compressed boot block code to memory in right segments. Copies BIOS from ROM to RAM for faster access. Performs main BIOS checksum and updates recovery status accordingly.
D6	Both key sequence and OEM specific method is checked to determine if BIOS recovery is forced. If BIOS recovery is necessary, control flows to checkpoint E0. See Bootblock Recovery Code Checkpoints section of document 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.
DA	Restore CPUID value back into register. Give control to BIOS POST (ExecutePOSTKernel). See POST Code Checkpoints section of document for more information.
DC	System is waking from ACPI S3 state
E1-E8 EC-EE	OEM memory detection/configuration error. This range is reserved for chipset vendors & system manufacturers. The error associated with this value may be different from one platform to the next.
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.

Checkpoint	Description
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.
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.
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.
20	Relocate System Management Interrupt vector for all CPU in the system.
24	Uncompress and initialize any platform specific BIOS modules. GPNV is initialized at this checkpoint.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.

Checkpoint	Description
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.
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 of document 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.
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.
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	Initialization of system management interrupt by invoking all handlers. Please note this checkpoint comes right after checkpoint 20h
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.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector.
AB	Prepare BBS for Int 19 boot. Init MP tables.
AC	End of POST initialization of chipset registers. De-initializes the ADM module.
B1	Save system context for ACPI. Prepare CPU for OS boot including final MTRR values.
00	Passes control to OS Loader (typically INT19h).

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.
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.
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 Messages List

If you cannot run the diagnostics program tests but did receive a POST error message, use "POST Error Messages List" to diagnose system problems. If you did not receive any error message, look for a description of your error symptoms in "Error Symptoms List" on page 66.

NOTE: When you have deemed it necessary to replace an FRU, and have done so, you must run a total system check to ensure that no other activity has been affected by the change. This system check can be done through the diagnostics program.

NOTE: Check all power supply voltages, switch, and jumper settings before you replace the main board. Also check the power supply voltages if you have a "system no-power" condition.

If you are unable to correct the problem by using the "BIOS Messages List" table and "Error Symptoms List" table, go to "Undetermined Problems".

To diagnose a problem, first find the BIOS error messages in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/FRU listed in right column is the most likely cause.

BIOS Messages	Action/FRU
BIOS ROM checksum error - System halted	The checksum of the BIOS code in the BIOS chip is incorrect, indicating the BIOS code may have become corrupt. Contact your system dealer to replace the BIOS.
CMOS Battery Failed	The CMOS battery is no longer functional. Contact your system dealer for a replacement the BIOS.
CMOS Checksum Error- defaults loaded	Checksum of CMOS is incorrect, so the system loads the default equipment configuration. A checksum error may indicate that CMOS has become corrupt. A weak battery may have caused this error. Check the battery and replace if necessary.
CPU at nnnn	Displays the running speed of CPU.
Display switch is set incorrectly	The display switch on the motherboard can be set to either monochrome or color. This message indicates the switch is set to a different setting than indicated in setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the Video selection.
Press ESC to skip memory test	The user may press Esc to skip the full memory test.
Floppy disk(s) fail	Cannot find or initialize the floppy drive controller or the drive. Make sure the controller is installed correctly, if no floppy drives are installed, be sure the Diskette Drive selection in Setup is set to NONE or AUTO.
HARD DISK initializing - Please	Some hard drives require extra time to initialize.
HARD DISK INSTALL FAILURE	Cannot find or initialize the hard drive controller or the drive. Make sure the controller is installed correctly. If no hard drives are installed, be sure the Hard Drive Selection in Setup is set to NONE.
Hard disk(s) diagnosis fail	The system may run specific disk diagnostic routines. This message appears if one or more hard disks return an error when the diagnostics run.

BIOS Messages	Action/FRU
Keyboard Error Or No Keyboard Present	Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are pressed during POST. To purposely configure the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. The BIOS then ignores the missing keyboard during POST.
Keyboard is locked out - Unlock the key	This message usually indicates that one or more keys have been pressed during the keyboard tests. Be sure no objects are resting on the keyboard.
Memory Test:	This message displays during a full memory test, counting down the memory areas being tested.
Memory test fail	If POST detects an error during memory testing, additional information appears giving specifics about the type and location of the memory error.
Override enabled - Defaults loaded	If the system cannot boot using the current CMOS configuration, the BIOS can override the current configuration with a set of BIOS defaults designed for the most stable, minimal-performance system operations.
Press TAB to show POST screen	System OEMs may replace the Phoenix Technologies Award BIOS POST display with their own proprietary display. Including this message in the OEM display permits the operator to switch between the OEM display and the default POST display.
Primary master hard disk fail	POST detects an error in the primary master IDE hard drive.
Primary slave hard disk fail	POST detects an error in the secondary master IDE hard drive.
Secondary master hard disk fail	POST detects an error in the primary slave IDE hard drive.
Secondary slave hard disk fail	POST detects an error in the secondary slave IDE hard drive.

Error Symptoms List

NOTE: To diagnose a problem, first find the error symptom in the left column. If directed to a check procedure, replace the FRU indicated in the check procedure. If no check procedure is indicated, the first Action/ FRU listed in right column is the most likely cause.

Error Symptom	Action/FRU
Processor / Processor Fan	
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.	
Processor fan does not run but power supply fan runs.	1. Ensure the system is not in power saving mode. See "Power Management" in chapter 2. 2. With the system power on, measure the voltage of processor fan connector. Its reading should be +12Vdc. Its reading should be +12Vdc. If the reading shows normal, but the fan still does not work, then replace a good fan. 3. Main board.
Processor test failed.	1. Processor. 2. Main board.
Main board and Memory	
NOTE: Ensure the memory modules are installed properly and the contact leads are clean before diagnosing any system problems.	
Memory test failed.	1. See "Memory" 2. Main board
Incorrect memory size shown or repeated during POST.	1. Insert the memory modules in the DIMM sockets properly, then reboot the system. 2. Memory module. 3. Main board.
System works but fails to enter power saving mode when the Power Management Mode is set to Enabled.	1. Enter BIOS Setup and load default settings. In Windows Systems, check settings in Power Management Property of Control Panel. 2. Reload software from Recovery CD.
Blinking cursor only; system does not work.	1. Diskette/IDE drive connection/cables 2. Diskette/IDE disk drives 3. See "Undetermined Problems". 4. Main board
Diskette Drive	
NOTE: Ensure the diskette drive is auto-setting in BIOS Setup and its read/write head is clean before diagnosing any diskette 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.)	
Media and drive are mismatched.	1. Ensure the diskette drive is configured correctly in the Disk Drives of BIOS Setup. 2. Ensure the diskette drive is correctly formatted. 3. Diskette drive connection/cable 4. Diskette drive 5. Main board
Diskette drive does not work.	1. Ensure the diskette drive is not set to Nonein the Disk Drives of BIOS Setup. 2. Diskette drive power 3. Diskette drive connection/cable 4. Diskette drive 5. Main board

Error Symptom	Action/FRU
Diskette drive read/write error.	1. Diskette. 2. Diskette drive cable. 3. Diskette drive. 4. Main board.
Diskette drive LED comes on for more than 2 minutes when reading data.	1. Diskette 2. Diskette drive connection/cable 3. Diskette drive 4. Main board
Diskette drive LED fails to light, and the drive is unable to access for more than 2 minutes.	1. Diskette 2. Diskette drive power 3. Diskette drive connection/cable 4. Diskette drive 5. Main board
Diskette drive test failed.	1. Diskette 2. Diskette drive 3. Diskette drive cable 4. Main board
Hard Disk Drive	
NOTE: Ensure hard disk drive is configured correctly in BIOS Setup, 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.)	
Hard disk drive test failed.	1. Enter BIOS Setup and Load default settings. 2. Hard disk drive cable. 3. Hard disk drive. 4. Main board.
Hard disk drive cannot format completely.	1. Enter BIOS Setup and Load default settings. 2. Hard disk drive cable. 3. Hard disk drive. 4. Main board.
Hard disk drive has write error.	1. Enter BIOS Setup and Load default settings. 2. Hard disk drive.
Hard disk drive LED fails to light, but system operates normally.	1. With the system power on, measure the voltage of hard disk LED connector. 2. Hard drive LED cable.
CD/DVD-ROM Drive	
NOTE: Ensure CD/DVD-ROM drive is configured correctly in BIOS Setup, cable/jumper are set correctly and its laser beam is clean before diagnosing any CD/DVD-ROM drive problems.	
CD/DVD-ROM drive LED doesn't come on but works normally.	1. CD/DVD-ROM drive
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.	1. CD/DVD-ROM may have dirt or foreign material on it. Check with a known good disc. 2. CD/DVD-ROM is not inserted properly. 3. 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.	1. Disconnect all cables from CD/DVD-ROM drive except power cable, then press eject button to try to unload the disk. 2. CD/DVD-ROM drive power. 3. CD/DVD-ROM drive

Error Symptom	Action/FRU
CD/DVD-ROM drive does not read and there are no messages are displayed.	1. CD may have dirt or foreign material on it. Check with a known good disc. 2. Ensure the CD/DVD-ROM driver is installed properly. 3. CD/DVD-ROM drive.
CD/DVD-ROM drive can play audio CD but no sound output.	1. Ensure the headphone jack of the CD/DVD-ROM has an output. 2. Turn up the sound volume. 3. Speaker power/connection/cable. 4. CD/DVD-ROM drive.
Real-Time Clock	
Real-time clock is inaccurate.	1. Ensure the information in the Standard CMOS Feature of BIOS Setup is set correctly. 2. RTC battery. 3. Main board
Audio	
Audio software program invokes but no sound comes from speakers.	1. Speaker power/connection/cable.
Modem	
Modem ring cannot wake up system from suspend mode.	1. For the 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. 2. If PCI modem card is used, reinsert the modem card to PCI slot firmly or replace the modem card. 3. 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 invokes but cannot receive/send data/ fax	1. Ensure the modem card is installed properly.
Fax/voice modem software program invokes but has no sound output. (Data files are received normally; voice from modem cannot be produced, but system sound feature works normally.)	1. Ensure the modem voice-in cable from modem adapter card to main board
Video and Monitor	
Video memory test failed. Video adapter failed.	1. Remove all non-factory-installed cards. 2. Load default settings (if screen is readable). 3. Main board
Display problem: - Incorrect colors No high intensity Missing, broken, or incorrect characters Blank monitor (dark) Blank monitor (bright) Distorted image Unreadable monitor Other monitor problems	1. Monitor signal connection/cable. 2. Monitor 3. Video adapter card 4. Main board

Error Symptom	Action/FRU
Display changing colors.	1. Monitor signal connection/cable 2. Monitor 3. Main board
Display problem not listed above (including blank or illegible monitor).	1. "Monitor" 2. Load default settings (if screen is readable). 3. Main board
Parallel/Serial Ports	
Execute "Load BIOS Default Settings" in BIOS Setup to confirm ports presence before diagnosing any parallel/serial ports problems.	
Serial or parallel port loop-back test failed.	1. Make sure that the LPT# or COM# you test is the same as the setting in BIOS Setup. 2. Loop-back. 3. Main board.
Printing failed.	1. Ensure the printer driver is properly installed. Refer to the printer service manual. 2. Printer. 3. Printer cable. 4. Main board.
Printer problems.	1. Refer to the service manual for the printer.
Keyboard	
Some or all keys on keyboard do not work.	1. Keyboard
Power Supply	
Pressing power switch does not turn off system. (Only unplugging the power cord from electrical outlet can turn off the system.)	1. Ensure the Soft-off by PWR-BTTN. in BIOS Setup of Power Management is not set to Instant-off. 2. Power switch cable assembly
Pressing power switch does not turn on the system.	1. Ensure the power override switch (situated at the back of the machine, just above the connector for the power cable) is not set to OFF. 2. Power switch cable assembly.
Executing software shutdown from Windows98 Start menu does not turn off the system. (Only pressing power switch can turn off the system).	1. Load default settings. 2. Reload software from Recovery CD.
No system power, or power supply fan is not running.	1. Power Supply 2. Main board
Other Problems	
Any other problems.	1. Undetermined Problems

Undetermined Problems

If an error message is present, go to "POST Error Messages List" on page 64. If you did not receive any messages, if the symptom is listed in "or "Error Symptoms List" on page 66. If you still cannot solve the problem, continue with this check:

1. Check the power supply voltages. If the voltages are correct continue with the following steps:
2. Power off the system unit.
3. Perform the following checks, one by one, until you have isolated the problem FRU.
4. Load default settings in setup.
5. Check all main board jumper positions and switch settings.
6. Check all adapter card jumper positions.
7. Check all device jumper positions.
8. Check all cables and connectors for proper installation.
9. If the jumpers, switches and voltage settings are correct, remove or disconnect the following, one at a time.
10. Non-Acer devices
    - External devices
    - Any adapter card (modem card, LAN card or video card, if installed)
    - CD/DVD-ROM drive
    - Diskette drive
    - Hard disk drive
    - DIMM
    - Processor
    - Main board
11. Power on the system unit.
12. Repeat steps 2 through 5 until you find the failing device or adapter.

Installing the Motherboard

Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. Some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required and has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

This motherboard carries an Micro ATX form factor of 200 x 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.
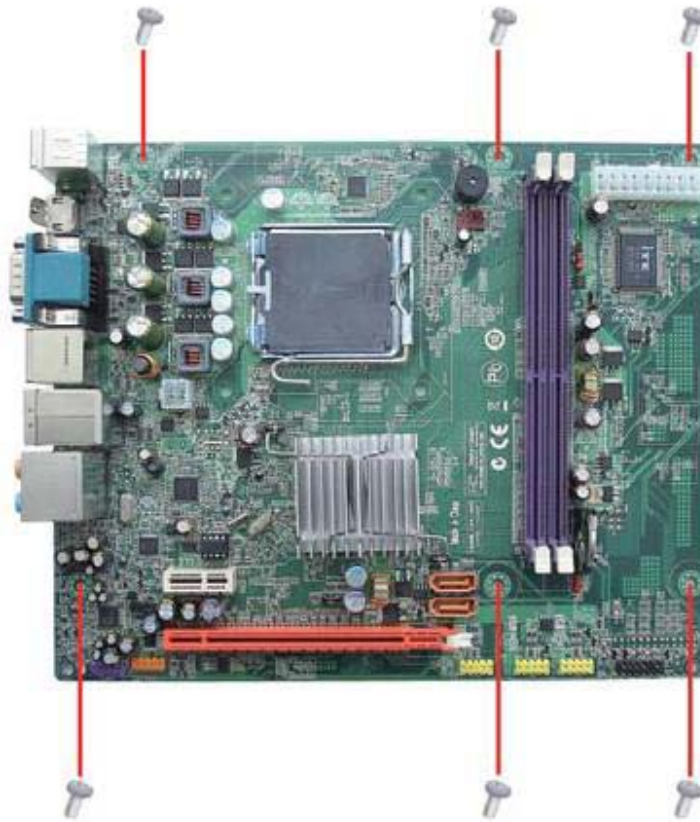
Do not over-tighten the screws as this can stress the motherboard.

Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

Setting Jumpers

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.

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 jumper cap on just one pin, the jumper is OPEN.
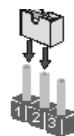
SHORT   OPEN

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

Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.

Jumper Settings

| Jumper	Type	Description	Setting (Default)	Illustration
CLR_CMOS	3-pin	CLEAR CMOS	1-2: NORMAL. 2-3: CLEAR Before clearing the CMOS, make sure to turn the system off	

To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save & Exit Setup".

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 auxiliary case power supply connector to **ATX12V1**.
    4   Connect the case switches and indicator LEDs to the **PANEL1**.
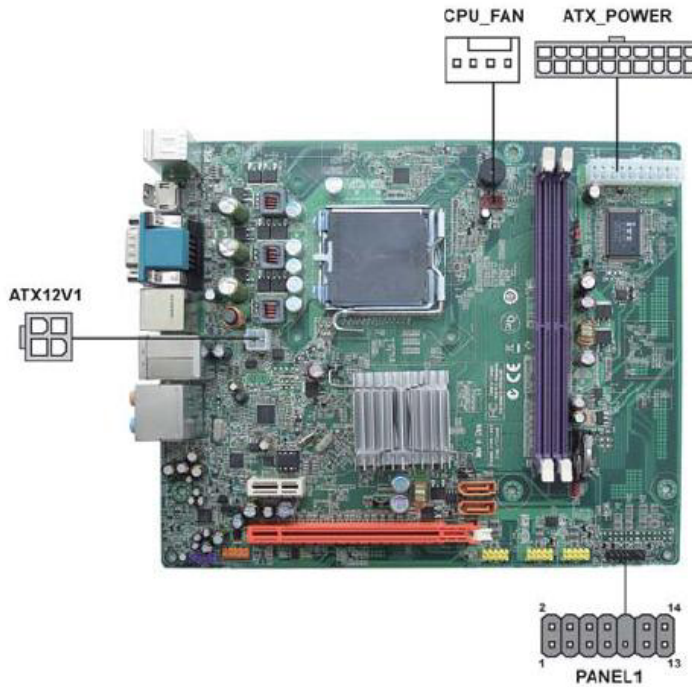
Connecting 20-pin power cable

The power 20-pin connector allows you to connect to ATX v2.x power supply.
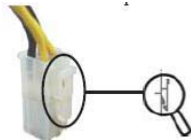

20-pin power cable

With ATX v1.x power supply, user please note that when installing 20-pin power cable, the latches of power cable falls on the left side of the ATX_POWER1 connector latch, just as the picture shows.

Connecting 4-pin power cable

The ATX12V1 power connector is used to provide power to the CPU.

4-pin power cable

When installing 4-pin power cable, the latches of power cable and the ATX12V1 match perfectly.

CPU_FAN: Cooling Fan Power Connectors

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control

Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

ATX_POWER1:ATX 20-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	11	+12v
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	Power ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	Power Good	18	NC
9	+5VSB	19	+5V
10	+12V	20	+5V

ATX12V1: ATX 12V Power Connector

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

Front Panel Header

The front panel header (PANEL1) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:
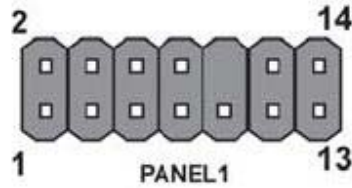
Pin	Signal Name	Function	Pin	Signal Name	Function
1	HD_LED_P	Hard disk LED(+)	2	FP PWR/SLP	*MSG LED(+)
3	HD_LED_N	Hard disk LED(-)	4	FP PWR/SLP	*MSG LED(-)
5	RST_SW_N	Reset Switch(-)	6	PWR_SW_P	Power Switch(+)
7	RST_SW_P	Reset Switch(+)	8	PWR_SW_N	Power Switch(-)
9	RSVD	Reserved	10	Key	No pin
11	RSVD	Reserved	12	LAN LED	LAN LED (+)
13	RSVD	Reserved	14	LAN LED	LAN LED (-)

*.MSG LED (dual color or single color)

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentarycontact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

LAN LED

Connecting pins 12 and 14 to a single or dual-color LAN LED provides messages waiting indication.

Installing Hardware

Installing the Processor

Caution: *When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.*

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system busfrequency for the processor. You may be able to change the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

Warning: 1. *Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.*
**2.** *Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.*

This motherboard has an LGA775 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components.

1   Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.

2   Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.

3   Press the lever down and apply thermal grease on top of the CPU.

4   Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.

5   Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.

6   Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.

7   Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.
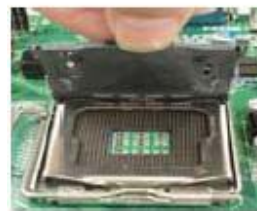
1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/ heatsink supplied. The form and size of fan/heatsink may also vary.
2. DO NOT remove the CPU cap from the socket before installing a CPU.
3. Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA775 socket.

Installing Memory Modules

This motherboard accommodates two 240-pin unbuffered DIMMs and supports DDR2 800/667 DDR2 SDRAM.

DDR2 SDRAM memory module table

Memory	Memory Bus
DDR2 667	333 MHz
DDR2 800	400 MHz

You must install at least one module in any of the two slots. Each module can be installed with 4 GB of memory; the total memory capacity is 8 GB.

Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

1. This motherboard supports unbuffered DDR2 SDRAM only.
2. Push the latches on each side of the DIMM slot down.
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
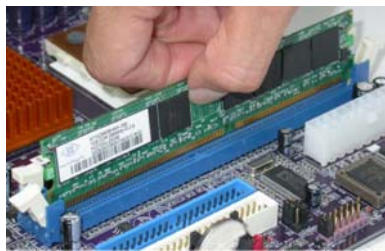6. Install any remaining DIMM modules.

Table A: DDR2(memory module)QVL(Qualified Vendor List)

The following DDR2 800/667 memory modules have been tested and qualified for use with this motherboard

Type	Size	Vendor	Module Name
DDR2 667	512MB	Apacer	78.91G92.9K5
		Micron	MT4HTF6464AY-667E1
		PSC	AL6E8E63J-6E1
		Ramxel	RML1520M38D6F-667
		Samsung	PC2-5300U-555-12-D3
	1GB	Apacer	AU01GE667C5KBGC
		Apacer	78.01G9O.9K5
		Apacer	1GB UNB PC2-5300 CL5
		Corsair	VS1GB667D2
		Hexon	HYNT7AUDR-30M48
		Kingston	KVR667D2N5
		Micron	MT8HTF12864AY-667E1
		PSC	AL7E8E63B-6E1T
			AL7E8F63J-6E1
			AL7E8F73C-6E1
		Samsung	Golden Bar M378T2863DZS 0742
	2GB	Aeneon	AET860UD00-30DB08X
		Apacer	78.A1G9O.9K4
		Hexon	HYNT8AUDR-30M88
		Hynix	HYMP125U64AP8-Y5 AB-A 0623
		Kingston	KVR667D2N5/2G
		LeadMax	PC2-5300U
		PSC	AL8E8F73C-6E1
		Qimonda	HYS64T256020EU-3S-C2
DDR2 800	512MB	Kingston	KVR800D2N5/512 1.8V 9905315-019.A02LF
		Micron	MT8HTF6464AY-80ED4
		Qimonda	HYS72T64000HU-2.5-B
	1GB	A-DATA	M2GVD6G3I41P0U1E5E
		Aeneon	AET760UD00-30DB97X
		Aeneon	AET760UD00-25DC08X
		Apacer	AU01GE800C5KBGC
		Apacer	78.01GAO.9K5
		APOGEE	AU1G082-800P000
		Geil	Geil Millenary
			Geil Platium Edition
		Hexon	ELPT7AUDR-25M48
		Infinity	04701G16CZ5U2G

Type	Size	Vendor	Module Name
DDR2 800	1GB	Kingston	KHX6400D2ULK2/2G 9905315-078.A00LF//Boxed
		Kingston	KVR800D2N5/1G 1.8V 9905316-054.A01LF
		PSC	AL7E8F73C-8E1
		Ramxel	RML1320EH38D7F-800
		Samsung	Golden Bar M378T2953EZ3-CE7 0726
		Silicon Power	SP001GBLRU800S01
		Transcend	507301-1571

Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

About SATA Connectors

Your motherboard features four SATA connectors supporting a total of four drives. MCP61SM -AM only has two SATA connectors supporting a total of two drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)   **SATA power cable (optional)**

Refer to the illustration below for proper installation:
1. Attach either cable end to the connector on the motherboard.
2. Attach the other cable end to the SATA hard drive.
3. Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

This motherboard does not support the "Hot-Plug" function.

Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.

PCIEX16 Slot   The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification. revision 1.1.

PCIEX1 Slot   The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.1 as well.

Before installing an add-on card, check the documentation for the card carefully. If the card not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

1. Remove a blanking plate from the system case corresponding to the slot you are going to use.
2. Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3. Secure the metal bracket of the card to the system case with a screw.

For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:
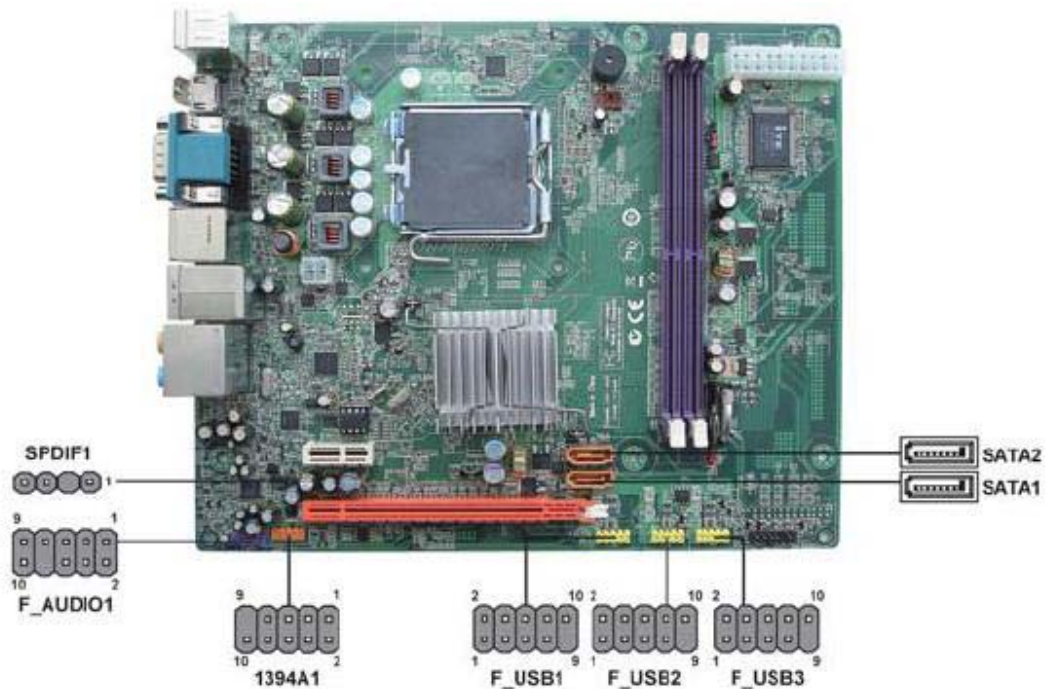
AUDIO1: Front Panel Audio header

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

SATA 1~2: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest date transfer rates (3 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. While MCP61SM-AM supports two SATA connectors.(SATA1~2).

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

F_USB1~3: Front Panel USB headers

The motherboard has four 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 Port0 Negative Signal
4	USB_FP_P1-	USB Port1 Negative Signal
5	USB_FP_P0+	USB Port0 Positive Signal
6	USB_FP_P1+	USB Port1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	NC	Not connected

Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

SPDIF1: 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.

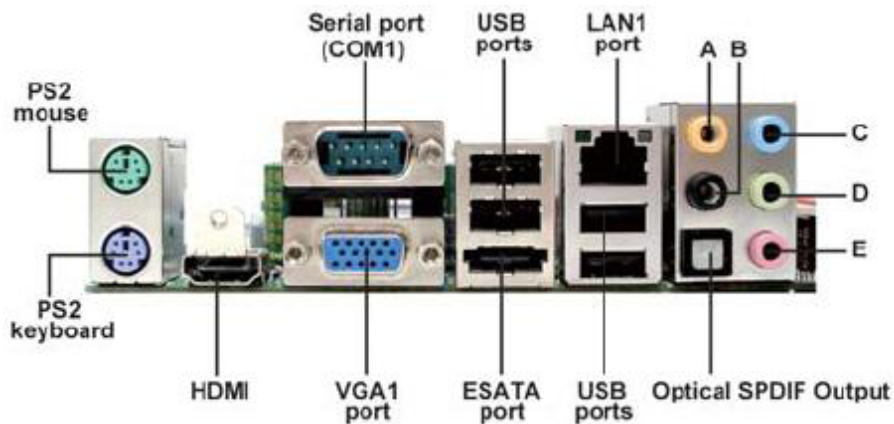| Pin	Signal Name
1	5V analog Power
2	No pin
3	SPDIF digital output
4	Ground

1394A1: Onboard IEEE 1394a header(Option)

Connect the header to any device with IEEE 1394a interface.

Pin	Signal Name	Pin	Signal Name
1	TPA+	2	TPA-
3	GND	4	GND
5	TPB+	6	TPB-
7	Cable-Power	8	Cable-Power
9	Key pin	10	GND

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:

PS2 Mouse   Use the upper PS/2 port to connect a PS/2 pointing device.

PS2 Keyboard   Use the lower PS/2 port to connect a PS/2 keyboard.

HDMI port   Connect HDMI connector to the HDMI device.

Serial Port (COM1)   Use the COM1 port to connect serial devices such as mice or fax/modems.

VGA1 Port   Connect your monitor to the VGA port.

ESATA port   Use this port to connect to an external SATA box or a Serial ATA port multiplier.

LAN1 Port   Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

USB Ports   Use the USB ports to connect USB devices.

Optical SPDIF Output   This jack connects to external optical digital audio output devices.

Audio Ports   Use the audio jacks to connect audio devices. The D port is for stereo line-in signal, while the F port is for microphone in signal. This motherboard supports 8-channel audio devices that correspond to the A, B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

A: Center & Woofer	D: Line-in
B: Back Surround	E: Front Out
C: Side Surround	

The above port definition can be changed to audio input or audio output by changing the driver utility setting

This concludes Chapter 2. The next chapter covers the BIOS.

FRU (Field Replaceable Unit) List

Exploded Diagram

Chassis_H231(eBoxer2.0) ME BOM

Item	Description	Item	Description
1	BOX1_METAL_COVER-1	18	PUG2_INNER_BEZEL_BASE
2	BOX1_PCI_COVER	19	PUG2_ODD_BUTTON
3	PUGII-RUBBER_FOOT	20	PUG2_ODD-BTN_BAR
4	PSU BKT	21	PUG2_ODD_EJECT-FOAM_RUBBER
5	BOX1_ODD_BKT-1	22	PUG2_UPPER_BEZEL
6	BOX1_HDD_BKT-1	23	PUG2_ODD_COVER
7	PCI-Slot	24	PUG2_LOWER_BEZEL
8	PCI-EMI-ACE-BOXER1	25	PUG2_LIGHT_PIPE
9	BOX1_MAIN_CHASSIS-1	26	PUG2_POWER_BUTTON
10	BOX1_REAR_CHASSIS-1	27	SPRING_ODD_DOOR
11	BOX1_MB_SUPPORT-1	28	SCREW_6-32*5L
12	MB_STANDOFF	29	RIVET(flat)
13	STANDOFF-D5_4-H8_5	30	RIVET
14	BOX1_FRONT_CHASSIS-1		
15	BOX1_CARDREADER_Front IO BKT		
16	PUG2_SWITCH_HOLDER		
17	Power Switch & LED		
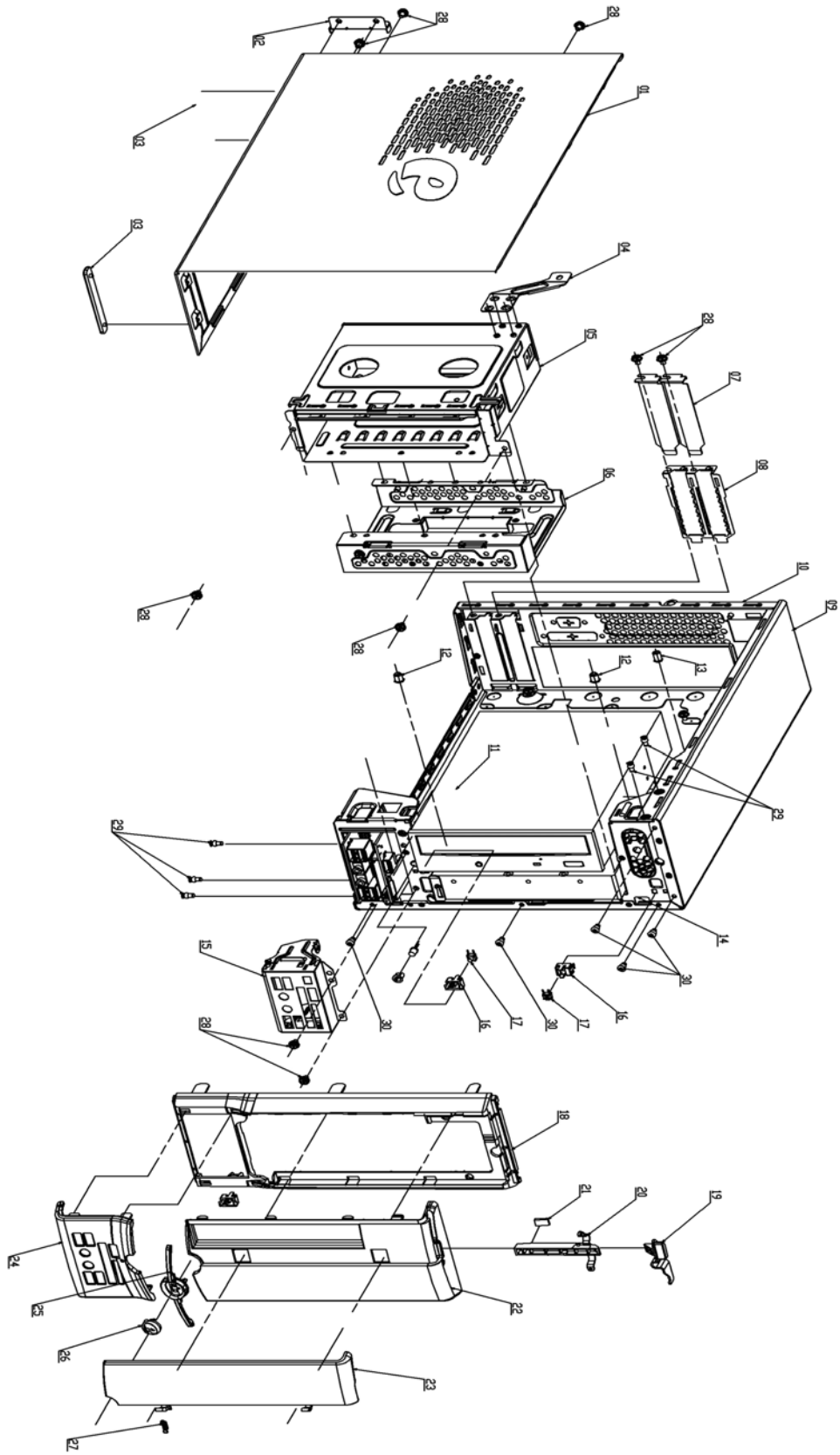
FRU List

The FRU list will be updated later.