E45M1-I DELUXE

Motherboard

E6743

First Edition
July 2011

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Contents

Contents

Contents

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and

- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

> The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

ASUS Recycling/Takeback Services

ASUS recycling and takeback programs come from our commitment to the highest standards for protecting our environment. We believe in providing solutions for you to be able to responsibly recycle our products, batteries, other components as well as the packaging materials. Please go to http://csr.asus.com/english/Takeback.htm for the detailed recycling information in different regions.

REACH

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at http://csr.asus.com/english/REACH.htm.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

Safety information

Electrical safety

- To prevent electric shock hazard, disconnect the power cable from the electric outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, ensure that all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This guide contains the following parts:

*   **Chapter 1: Product introduction**

    This chapter describes the features of the motherboard and the new technology it supports.

*   **Chapter 2: BIOS information**

    This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**

    The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

    Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key.
<Key1>+<Key2>+<Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: <Ctrl>+<Alt>+<D>

E45M1-I DELUXE specifications summary

CPU	AMD® Dual-Core processor E-450 with AMD Radeon™ HD 6320 Discrete-Class Graphics Support AMD® Turbo Core Technology
Chipset	AMD® FCH A50M (Hudson M1)
Memory	2 x DDR3 1333/1066 MHz, max. 8GB, non-ECC, un-buffered memory Single-channel memory architecture * Refer to www.asus.com for the latest Memory QVL (Qualified Vendors List). ** When you install a total memory of 4GB capacity or more, Windows® 32-bit operating system may only recognize less than 3GB. We recommend a maximum of 3GB system memory if you are using a Windows® 32-bit operating system.
Expansion slots	1 x PCI Express 2.0 x16 slot (at x4 mode, with latch)
Graphics	Integrated AMD® Radeon HD 6320 Discrete-Class Graphics Supports DVI with max. resolution up to 1920 x 1200 @60Hz Supports HDMI with max. resolution up to 1920 x 1080 @60Hz
Storage	5 x Serial ATA 6.0 Gb/s connectors support AHCI mode 1 x eSATA 6.0 Gb/s connectors
LAN	Realtek® 8111E PCIe Gigabit LAN controller
Bluetooth	Bluetooth V3.0+ HS ASUS BT GO! Utility
Audio	ALC892 8-channel* High Definition Audio CODEC Supports DTS Surround Sensation Ultra-PC * Use a chassis with HD audio module in the front panel to support an 8-channel audio output.
USB	**NEC® USB 3.0 controller :** 4 x USB 3.0/2.0 ports (2 ports at the mid-board, 2 ports at the back panel [blue]) **AMD® FCH A50M Chipset:** 8 x USB 2.0 ports (4 ports at the mid-board, 4 ports at the back panel)
ASUS special features	Turbo Key II AI Suite II MemOK! Anti-Surge protection ASUS Q-Fan ASUS BT GO! ASUS CrashFree BIOS 3 ASUS EZ Flash 2 ASUS @Vibe support ASUS UEFI BIOS EZ Mode featuring friendly graphics user interface 100% All High-quality Conductive Polymer Capacitors ASUS MyLogo2

(continued on the next page)

E45M1-I DELUXE specifications summary

Rear panel ports	1 x PS/2 Keyboard / Mouse combo port 1 x DVI-I port 1 x HDMI port 1 x eSATA 6.0Gb/s port 1 x LAN (RJ-45) port 4 x USB 2.0 ports 2 x USB 3.0/2.0 port (blue, compatible with USB 2.0 devices) 1 x Optical S/PDIF out port 1 x Bluetooth 3.0 adapter 2 x Wi-Fi antenna ports 3 x Audio jacks
Internal connectors/ switches	1 x USB 3.0/2.0 connectors support additional 2 USB 3.0/2.0 ports (20-1 pin) 2 x USB 2.0 connectors support additional 4 USB 2.0 ports 1 x CPU fan connector 1 x Chassis fan connector 1 x Chassis intrusion connector 5 x SATA 6.0Gb/s connectors 1 x S/PDIF Out connector 1 x System panel connector 1 x Front panel audio connector 1 x 24-pin EATX power connector 1 x 4-pin ATX 12V power connector 1 x MemOK! switch 1 x Turbo Key II switch
BIOS features	32 Mb Flash ROM, AMI BIOS, PnP, DMI 2.0, WfM 2.0, ACPI 2.0a, SM BIOS 2.6
Accessories	2 x Serial ATA 6.0Gb/s cables 2 x Wi-Fi antennas 1 x I/O shield 1 x User Manual 1 x Support DVD
Support DVD	Drivers ASUS utilities ASUS Update Anti-virus software (OEM version)
Form factor	Mini ITX form factor: 6.7 in x 6.7 in (17.0 cm x 17.0 cm)

* Specifications are subject to change without notice.

Chapter 1

Product introduction

Thank you for buying an ASUS® E45M1-I DELUXE motherboard!

Before you start installing the motherboard, and hardware devices on it, check the items in your motherboard package. Refer to page x for the list of accessories.

> If any of the items is damaged or missing, contact your retailer.

1.1   Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.

1.2 Motherboard overview

1.2.1 Motherboard layout

Ensure that you install the motherboard into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis.
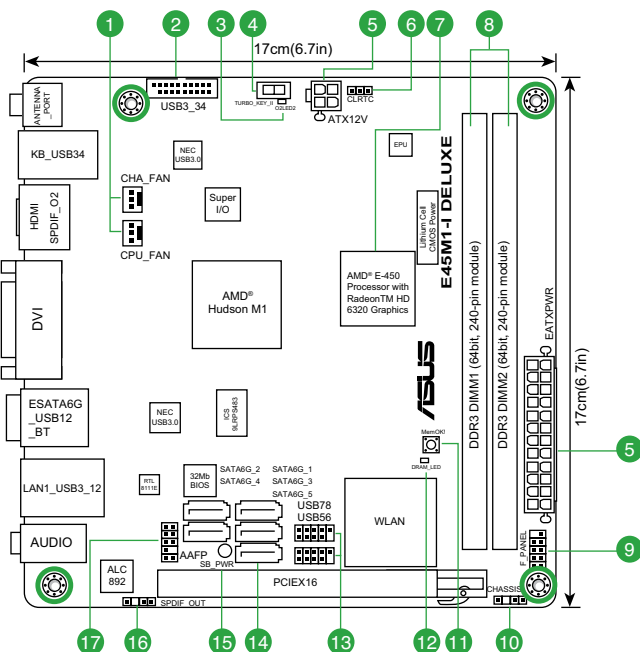
Place four screws into the holes indicated by circles to secure the motherboard to the chassis. DO NOT overtighten the screws! Doing so can damage the motherboard.

1.2.2 Layout contents

	Connectors/Jumpers/Slots/LED	Page		Connectors/Jumpers/Slots/LED	Page
1.	CPU and chassis fan connectors (3-pin CPU_FAN, 3-pin CHA_FAN)	1-12	10.	Chassis intrusion connector (4-1 pin CHASSIS)	1-14
2.	USB 3.0 connector (20-1 pin USB3_34)	1-15	11.	MemOK! switch	1-17
3.	Turbo Key II LED (O2LED2)	1-18	12.	DARM LED (DRAM_LED)	1-18
4.	Turbo Key II switch	1-16	13.	USB 2.0 connectors (10-1 pin USB56, USB78)	1-15
5.	ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)	1-11	14.	Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1~5)	1-13
6.	Clear RTC RAM (3-pin CLRTC)	1-8	15.	Standby power LED (SB_PWR)	1-18
7.	AMD® Zacate™ 18W processor	1-3	16.	Digital audio connector (4-1 pin SPDIF_OUT)	1-12
8.	DDR3 DIMM slots	1-3	17.	Front panel audio connector (10-1 pin AAFP)	1-13
9.	System panel connector (10-1 pin F_PANEL)	1-14			

1.3　Central Processing Unit (CPU)

The motherboard comes with an onboard AMD® Dual-Core Processor E-450 with AMD Radeon™ HD 6320 Discrete-Class Graphics and a specially designed CPU heatsink.

AMD® Dual-Core Processor E-450
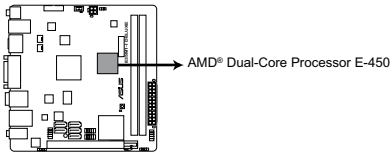
E45M1-I DELUXE AMD® E-450 processor

1.4　System memory

1.4.1　Overview

The motherboard comes with two Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.

A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket. DDR3 modules are developed for better performance with less power consumption.

The figure illustrates the location of the DDR3 DIMM sockets:

Channel	Sockets
Channel A	DIMM1 and DIMM2
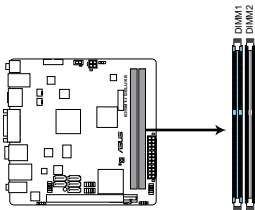
E45M1-I DELUXE 240-pin DDR3 DIMM sockets

1.4.2 Memory configurations

You may install 512MB, 1GB, 2GB, and 4GB unbuffered non-ECC DDR3 DIMMs into the DIMM sockets.

• We recommend that you install the memory modules from the blue slots for better overclocking capability.

• Due to the memory address limitation on 32-bit Windows® OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following:
- Use a maximum of 3GB system memory if you are using a 32-bit Windows® OS.
- Install a 64-bit Windows® OS when you want to install 4GB or more on the motherboard.

• This motherboard does not support DIMMs made up of 512Mb (64MB) chips or less.

• The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value. To operate at the vendor-marked or at a higher frequency, refer to section **2.4 Ai Tweaker** menu for manual memory frequency adjustment.

• For system stability, use a more efficient memory cooling system to support a full memory load (2 DIMMs) or overclocking condition.

E45M1-I DELUXE Motherboard Qualified Vendors Lists (QVL)

DDR3-1066 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional) 1 DIMM	2 DIMM
Crucial	CT12864BA1067.8FF	1GB	SS	Micron	9GF22D9KPT	7	-	•	•
Crucial	CT25664BA1067.16FF	2GB	DS	Micron	9HF22D9KPT	7	-	•	•
ELPIDA	EBJ10UE8EDF0-AE-F	1GB	SS	ELPIDA	J1108EDSE-DJ-F	-	1.35V(low voltage)	•	•
ELPIDA	EBJ21UE8EDF0-AE-F	2GB	DS	ELPIDA	J1108EDSE-DJ-F	-	1.35V(low voltage)	•	•
KINGSTON	KVR1066D3N7/1G(矮版)	1GB	SS	ELPIDA	J1108BFSE-DJ-F	7	1.5V	•	•
KINGSTON	KVR1066D3N7/2G	2GB	DS	ELPIDA	J1108BDSE-DJ-F	7	1.5V	•	•
KINGSTON	KVR1066D3N7/4G	4GB	DS	Hynix	H5TQ2G83AFR	7	1.5V	•	•
Micron	MT8JTF12864AZ-1G1F1	1GB	SS	Micron	9GF22D9KPT	7	-	•	•
Micron	MT16JTF25664AZ-1G1F1	2GB	DS	Micron	9HF22D9KPT	7	-	•	•
Kingtiger	2GB DIMM PC3-8500	2GB	DS	Hynix	H5TQ1G83AFP G7C	-	-	•	•

DDR3-1333 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
A-Data	AD31333001GOU	1GB	SS	A-Data	AD30908C8D-151C E0906	-	-	•	•
A-Data	AD63I1B0823EV	2GB	SS	A-Data	3CCA-1509A	-	-	•	•
A-Data	AD31333G001GOU	3GB(3 x 1GB)	SS	-	-	8-8-8-24	1.65-1.85V	•	•
A-Data	AXDU1333GC2G9-2G(XMP)	4GB(2 x 2GB)	SS	-	-	9-9-9-24	1.25V-1.35V(low voltage)	•	•
A-Data	AD31333G002GMU	2GB	DS	-	-	8-8-8-24	1.65-1.85V	•	•
A-Data	AD63I1C1624EV	4GB	DS	A-Data	3CCA-1509A	-	-	•	•
Apacer	78.A1GC6.9L1	2GB	DS	Apacer	AM5D5808DEWSBG	-	-	•	•
Apacer	78.A1GC6.9L1	2GB	DS	Apacer	AM5D5808FEQSBG	9	-	•	•
Apacer	78.B1GDE.9L10C	4GB	DS	Apacer	AM5D5908CEHSBG	-	-	•	•
CORSAIR	CM3X1024-1333C9	1GB	SS	-	-	9-9-9-24	1.60V	•	•
CORSAIR	TR3X3G1333C9 G	3GB(3 x 1GB)	SS	-	-	9-9-9-24	1.50V	•	•
CORSAIR	TR3X6G1333C9 G	6GB(3x 2GB)	SS	-	-	9-9-9-24	1.60V	•	•
CORSAIR	CMD24GX3M6A1333C9(XMP)	24GB(6x4GB)	SS	-	-	9-9-9-24	1.60V	•	•
CORSAIR	TW3X4G1333C9D G	4GB(2 x 2GB)	DS	-	-	9-9-9-24	1.50V	•	•
Crucial	CT12864BA1339.8FF	1GB	SS	Micron	9FF22D9KPT	9	-	•	•
Crucial	CT25664BA1339.16FF	2GB	DS	Micron	9KF27D9KPT	9	-	•	•
Crucial	BL25664BN1337.16FF (XMP)	6GB(3 x 2GB)	DS	-	-	7-7-7-24	1.65V	•	•
ELPIDA	EBJ10UE8EDF0-DJ-F	1GB	SS	ELPIDA	J1108EDSE-DJ-F	-	1.35V(low voltage)	•	•
ELPIDA	EBJ21UE8EDF0-DJ-F	2GB	DS	ELPIDA	J1108EDSE-DJ-F	-	1.35V(low voltage)	•	•
G.SKILL	F3-10600CL8D-2GBHK(XMP)	1GB	SS	G.SKILL	-	-	-	•	•
G.SKILL	F3-10600CL9D-2GBNQ	2GB(2 x 1GB)	SS	-	-	9-9-9-24	1.5V	•	•
G.SKILL	F3-10666CL7T-3GBPK(XMP)	3GB(3 x 1GB)	SS	-	-	7-7-7-18	1.5~1.6V	•	•
G.SKILL	F3-10666CL8D-4GBECO(XMP)	4GB(2 x 2GB)	DS	-	-	8-8-8-24	XMP 1.35V	•	•
G.SKILL	F3-10666CL7T-6GBPK(XMP)	6GB(3 x 2GB)	DS	-	-	7-7-7-18	1.5~1.6V	•	•
G.SKILL	F3-10666CL7D-8GBRH(XMP)	8GB(2 x 4GB)	DS	-	-	7-7-7-21	1.5V	•	•
GEIL	GET316GB1333C9QC	16GB(4x 4GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GV32GB1333C9DC	2GB(2 x 1GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GG34GB1333C9DC	4GB(2 x 2GB)	DS	GEIL	GL1L128M88BA12N	9-9-9-24	1.3V(low voltage)	•	•
GEIL	GV34GB1333C9DC	4GB(2 x 2GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GVP34GB1333C7DC	4GB(2 x 2GB)	DS	-	-	7-7-7-24	1.5V	•	•
Hynix	HMT112U6TFR8A-H9	1GB	SS	Hynix	H5TC1G83TFRH9A	-	1.35V(low voltage)	•	•
Hynix	HMT325U6BFR8C-H9	2GB	SS	Hynix	H5TQ2G83BFRH9C	-	-	•	•
Hynix	HMT125U6TFR8A-H9	2GB	DS	Hynix	H5TC1G83TFRH9A	-	1.35V(low voltage)	•	•
Hynix	HMT351U6BFR8C-H9	4GB	DS	Hynix	H5TQ2G83BFRH9C	-	-	•	•
Kingmax	FLFD45F-B8KL9 NAES	1GB	SS	Kingmax	KKB8FNWBFGNX-27A	-	-	•	•
Kingmax	FLFE85F-C8KF9 CAES	2GB	SS	Kingmax	KFC8FMFXF-DXX-15A	-	-	•	•
KINGMAX	FLFE85F-C8KL9 NAES	2GB	SS	KINGMAX	KFC8FNLXF-DXX-15A	-	-	•	•
Kingmax	FLFE85F-C8KM9 NAES	2GB	SS	Kingmax	KFC8FNMXF-BXX-15A	-	-	•	•
Kingmax	FLFE85F-B8KL9 NEES	2GB	DS	Kingmax	KKB8FNWBFGNX-26A	-	-	•	•
KINGMAX	FLFF65F-C8KL9 NEES	4GB	DS	KINGMAX	KFC8FNLXF-DXX-15A	-	-	•	•
Kingmax	FLFF65F-C8KM9 NEES	4GB	DS	Kingmax	KFC8FNMXF-BXX-15A	-	-	•	•
KINGSTON	KVR1333D3N9/1G(□□)	1GB	SS	ELPIDA	J1108DBDG-DJ-F	9	1.5V	•	•
KINGSTON	KVR1333D3N9/2G(□□)	2GB	SS	Hynix	H5TQ2G83AFRH9C	9	-	•	•
KINGSTON	KVR1333D3N9/2G(□□)	2GB	DS	ELPIDA	J1108BFBG-DJ-F	9	1.5V	•	•
KINGSTON	KVR1333D3N9/2G	2GB	DS	KTC	D1288JPNDPLD9U	9	1.5V	•	•
KINGSTON	KVR1333D3N9/2G	2GB	DS	ELPIDA	J1108BDSE-DJ-F	9	1.5V	•	•
KINGSTON	KHX1333C7D3K2/4GX(XMP)	4GB(2 x 2GB)	DS	-	-	7	1.65V	•	•
KINGSTON	KHX1333C9D3UK2/4GX(XMP)	4GB(2 x 2GB)	DS	-	-	9	XMP 1.25V	•	•
KINGSTON	KVR1333D3N9/4G(□□)	4GB	DS	ELPIDA	J2108BCSE-DJ-F	9	1.5V	•	•
KINGSTON	KVR1333D3N9/4G(□□)	4GB	DS	ELPIDA	J2108BCSE-DJ-F	-	1.5V	•	•
KINGSTON	KVR1333D3N9/4G	4GB	DS	KTC	D2568JENCNGD9U	-	1.5V	•	•
KINGSTON	KVR1333D3N9/4G	4GB	DS	Hynix	H5TQ2G83AFR	-	-	•	•
Micron	MT4JTF12864AZ-1G4D1	1GB	SS	Micron	OJD12D9LGQ	-	-	•	•
Micron	MT8JTF12864AZ-1G4F1	1GB	SS	Micron	9FF22D9KPT	9	-	•	•
Micron	MT8JTF25664AZ-1G4D1	2GB	SS	Micron	OJD12D9LGQ	-	-	•	•
Micron	MT16JTF25664AZ-1G4F1	2GB	DS	Micron	9KF27D9KPT	9	-	•	•
Micron	MT16JTF51264AZ-1G4D1	4GB	DS	Micron	OLD22D9LGK	-	-	•	•
OCZ	OCZ3F13334GK	4GB(2 x 2GB)	DS	-	-	9-9-9-20	1.7V	•	
OCZ	OCZ3P13334GK	4GB(2 x 2GB)	DS	-	-	7-7-7-20	1.8V	•	
OCZ	OCZ3P1333LV4GK	4GB(2 x 2GB)	DS	-	-	7-7-7-20	1.65V	•	
OCZ	OCZ3X13334GK(XMP)	4GB(2 x 2GB)	DS	-	-	7-7-7-20	1.75V	•	
OCZ	OCZ3G1333LV6GK	6GB(3 x 2GB)	DS	-	-	9-9-9-20	1.65V	•	
OCZ	OCZ3P1333LV6GK	6GB(3 x 2GB)	DS	-	-	7-7-7-20	1.65V	•	

(continued on the next page)

DDR3-1333 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional) 1 DIMM	2 DIMM
OCZ	OCZ3X1333LV6GK(XMP)	6GB(3 x 2GB)	DS	-	-	8-8-8-20	1.60V	•	•
PSC	AL7F8G73F-DJ2	1GB	SS	PSC	A3P1GF3FGF	-	-	•	•
PSC	AL8F8G73F-DJ2	2GB	DS	PSC	A3P1GF3FGF	-	-	•	•
SAMSUNG	M378B2873FHS-CH9	1GB	SS	SAMSUNG	K4B1G0846F	-	-	•	•
SAMSUNG	M378B5773DH0-CH9	2GB	SS	SAMSUNG	K4B2G0846D	-	-	•	•
SAMSUNG	M378B5673FH0-CH9	2GB	DS	SAMSUNG	K4B1G0846F	-	-	•	•
SAMSUNG	M378B5273CH0-CH9	4GB	DS	SAMSUNG	K4B2G0846C	-	-	•	•
Super Talent	W1333UA1GH	1GB	SS	Hynix	H5TQ1G83TFR	9	-	•	•
Super Talent	W1333X2G8(XMP)	1GB	SS	-	-	8	-	•	•
Super Talent	W1333UB2GS	2GB	DS	SAMSUNG	K4B1G0846F	9	-	•	•
Super Talent	W1333UB4GS	4GB	DS	SAMSUNG	K4B2G0846C	-	-	•	•
Super Talent	W1333UX6GM	6GB(3x 2GB)	DS	Micron	0BF27D9KPT	9-9-9-24	1.5V	•	•
Transcend	JM1333KLN-2G	2GB	SS	Micron	0YD77D9LGK	-	-	•	•
Transcend	JM1333KLN-2G	2GB	SS	Hynix	H5TQ2G83BZRH9C	-	-	•	•
Transcend	JM1333KLU-2G	2GB	DS	Transcend	TK243PDF3	-	-	•	•
Transcend	TS256MLK64V3U	2GB	DS	Micron	9GF27D9KPT	-	-	•	•
Century	PC3-10600 DDR3-1333 9-9-9	1GB	SS	Micron	8FD22D9JNM	-	-	•	•
Century	PC3-10600 DDR3-1333 9-9-9	2GB	DS	Micron	8DD22D9JNM	-	-	•	•
Elixir	M2F2G64CB88B7N-CG	2GB	SS	Elixir	N2CB2G80BN-CG	-	-	•	•
Elixir	M2F2G64CB88D7N-CG	2GB	SS	Elixir	N2CB2G80DN-CG	-	-	•	•
Elixir	M2F4G64CB8HB5N-CG	4GB	DS	Elixir	N2CB2G80BN-CG	-	-	•	•
Elixir	M2F4G64CB8HD5N-CG	4GB	DS	Elixir	N2CB2G80DN-CG	-	-	•	•
KINGSHARE	KSRPCD313332G	2GB	DS	PATRIOT	PM128M8D385-15	-	-	•	•
Kingtiger	2GB DIMM PC3-10666	2GB	DS	SAMSUNG	SEC 904 HCH9 K4B1G0846D	-	-	•	•
Kingtiger	KTG2G1333PG3	2GB	DS	-	-	-	-	•	•
KINGTIGER	4GB DIMM PC3-10600(□□)	4GB	DS	MICRON	ICD77D9LGK	-	-	•	•
PATRIOT	PSD31G13332H	1GB	DS	-	-	9	-	•	•
PATRIOT	PSD31G13332	1GB	DS	PATRIOT	PM64M8D38U-15	-	-	•	•
PATRIOT	PSD32G13332H	2GB	DS	-	-	-	-	•	•
PATRIOT	PDC34G1333ELK	4GB(2 x 2GB)	DS	-	-	9-9-9-24	1.5V	•	•
RAMAXEL	RMR1870ED48E8F-1333	2GB	DS	ELPIDA	J1108BDBG-DJ-F	-	-	•	•
RiDATA	C304627CB1AG22Fe	2GB	DS	RiDATA	N/A	9	-	•	•
RiDATA	E304459CB1AG32Cf	4GB	DS	RiDATA	N/A	9	-	•	•
SILICON POWER	SP001GBLTU133S01	1GB	SS	NANYA	NT5CB128M8AN-CG	9	-	•	•
SILICON POWER	SP001GBLTU133S02	1GB	SS	Elixir	N2CB1680AN-C6	9	-	•	•
SILICON POWER	SP002GBLTU133S02	2GB	DS	Elixir	N2CB1680AN-C6	9	-	•	•
TAKEMS	TMS1GB364D081-107EY	1GB	SS	-	-	7-7-7-20	1.5V	•	•
TAKEMS	TMS1GB364D081-138EY	1GB	SS	-	-	8-8-8-24	1.5V	•	•
TAKEMS	TMS2GB364D081-107EY	2GB	DS	-	-	7-7-7-20	1.5V	•	•
TAKEMS	TMS2GB364D081-138EY	2GB	DS	-	-	8-8-8-24	1.5V	•	•
TAKEMS	TMS2GB364D082-138EW	2GB	DS	-	-	8-8-8-24	1.5V	•	•
UMAX	E41302GP0-73BDB	2GB	DS	UMAX	U2S24D30TP-13	-	-	•	•
V-Color	TD2G16C9-Z8	2GB	DS	Hynix	H5TQ1G83AFP	-	-	•	•
WINTEC	3WVS31333-2G-CNR	2GB	DS	AMPO	AM3420803-13H	-	-	•	•

SS: Single-sided / DS: Double-sided
DIMM support:
• **1 DIMM:** Supports one module inserted into any slot as single-channel memory configuration.

Visit the ASUS website at www.asus.com for the latest QVL.

1.5 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.5.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.

2. Remove the system unit cover (if your motherboard is already installed in a chassis).

3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.

4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

5. Secure the card to the chassis with the screw you removed earlier.

6. Replace the system cover.

1.5.2 Configuring an expansion card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.

2. Assign an IRQ to the card.

3. Install the software drivers for the expansion card.

When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

1.5.3 PCI Express x16 slot

This motherboard has a PCI Express 2.0 x16 slot that supports PCI Express 2.0 x16 graphic cards complying with the PCI Express specifications.

1.6   Jumpers

Clear RTC RAM (3-pin CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.
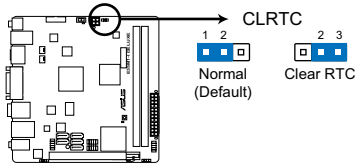
E45M1-I DELUXE Clear RTC RAM

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.

2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5-10 seconds, then move the cap back to pins 1-2.

3. Plug the power cord and turn ON the computer.

4. Hold down the <**Del**> key during the boot process and enter BIOS setup to re-enter data.

> Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

> • If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.
>
> • You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R.) feature. Shut down and reboot the system, then the BIOS automatically resets parameter settings to default values.

1.7 Connectors

1.7.1 Rear panel connectors
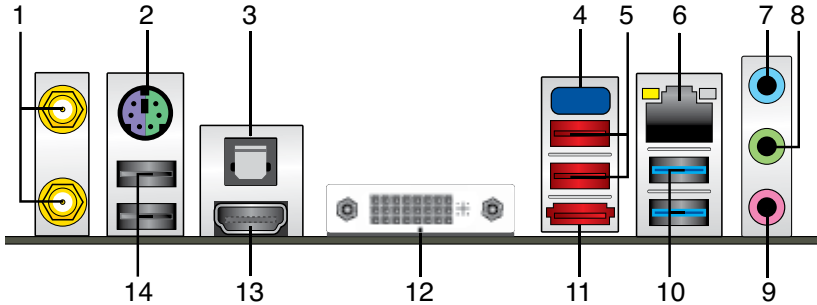
1. **WLAN antenna ports.** These ports connect to the WLAN antennas.

2. **PS/2 Keyboard / Mouse Combo port.** This port is for a PS/2 keyboard or PS/2 mouse.

3. **Optical S/PDIF output port.** This port connects to an external audio output device via an optical S/PDIF cable.

4. **Onboard Bluetooth module**. This onboard Bluetooth module allows wireless connection and data transfer between your system and other Bluetooth devices.

> • Under Windows® 7 OS, to achieve the complete Bluetooth functions, download the latest Bluetooth driver from the ASUS support wedsite at http://support.asus.com.
>
> • **Bluetooth Electrical Specification:**
>   Bluetooth specification V3.0 compliant;
>   Transmission rate up to 24 Mbps;
>   Working distance up to 10 meters;
>   Intergrated 32-bit CPU with 32KB data RAM and 256KB program RAM;
>   5V single supply voltage.
>
> • Under Windows® XP, if the Bluetooth Driver item is not displayed on the Support DVD's Drivers screen, follow the steps below:
>   1. Shut down your computer and switch off the Power Supply Unit (PSU).
>   2. Switch on the PSU and boot up your computer.
>   3. Open the Support DVD and click ASUS InstAll.

5. **USB 2.0 ports 1 and 2**. These two 4-pin Universal Serial Bus (USB) ports are for USB 2.0/1.1 devices.

6.	**LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

ACT/LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection

Activity Link **Speed**
LED **LED**

LAN port
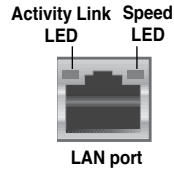
7.	**Line In port (light blue)**. This port connects the tape, CD, DVD player, or other audio sources.

8.	**Line Out port (lime)**. This port connects to a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configurations, the function of this port becomes Front Speaker Out.

9.	**Microphone port (pink)**. This port connects a microphone.

Refer to the audio configuration table below for the function of the audio ports in the 2, 4, 6, or 8-channel configuration.

Audio 2, 4, 6, 8-channel configuration

Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue (Rear panel)	Line In	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Lime (Rear panel)	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink (Rear panel)	Mic In	Mic In	Bass/Center	Bass/Center
Lime (Front panel)	-	-	-	Side Speaker Out

To configure an 8-channel audio output:

Use a chassis with HD audio module in the front panel to support an 8-channel audio output.

10.	**USB 3.0 ports 1 and 2**. These two 9-pin Universal Serial Bus (USB) ports are for USB 3.0/2.0 devices.

•	DO NOT connect a keyboard / mouse to any USB 3.0 port when installing Windows® operating system.

•	Due to USB 3.0 controller limitation, USB 3.0 devices can only be used under Windows® OS environment and after the USB 3.0 driver installation.

•	USB 3.0 devices can only be used as data storage only.

•	We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance for your USB 3.0 devices.

11. **eSATA port.** This port connects to an external Serial ATA hard disk drive.

12. **DVI-I port.** This port is for any DVI-I compatible device and are HDCP compliant, allowing playback of HD DVD, Blu-Ray and other protected content.

13. **HDMI port.** This port is for a High-Definition Multimedia Interface (HDMI) connector, and is HDCP compliant allowing playback of HD DVD, Blu-ray, and other protected content.

14. **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0/1.1 devices.

1.7.2   Internal connectors

1. **ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)**

    These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.
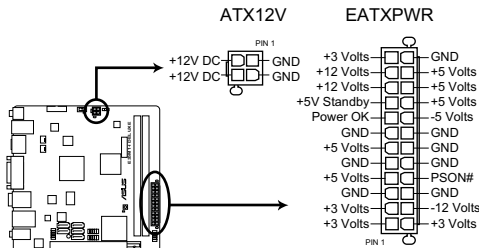
E45M1-I DELUXE ATX power connectors

• For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 350 W.

• DO NOT forget to connect the 4-pin ATX +12V power plug. Otherwise, the system will not boot up.

• We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

• If you are uncertain about the minimum power supply requirement for your system, refer to the Recommended Power Supply Wattage Calculator at http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us for details.

2.   **CPU and chassis fan connectors (3-pin CPU_FAN, 3-pin CHA_FAN)**

Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.

CHA_FAN

Rotation
+12V
GND

CPU_FAN

Rotation
+12V
GND
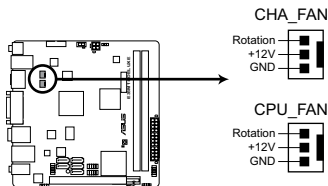
E45M1-I DELUXE Fan connectors

Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

•   The CPU_FAN connector supports a CPU fan of maximum 2A (24 W) fan power.

•   Only the CPU_FAN connector supports the ASUS Q-Fan feature.

3.   **Digital audio connector (4-1 pin SPDIF_OUT)**

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port. Connect the S/PDIF Out module cable to this connector, then install the module to a slot opening at the back of the system chassis.

SPDIFOUT
+5V
GND

SPDIF_OUT
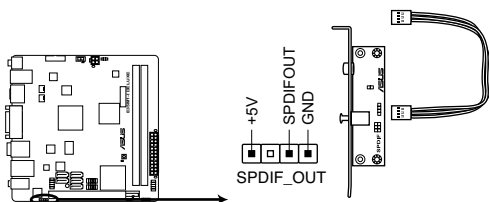
E45M1-I DELUXE Digital audio connector

The S/PDIF module is purchased separately.

4. Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1~5)

These connectors connect to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.
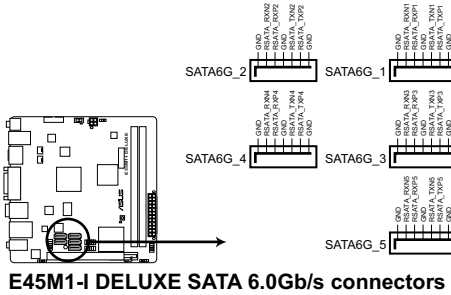
E45M1-I DELUXE SATA 6.0Gb/s connectors

• These connectors are set to [IDE Mode] by default. In IDE mode, you can connect Serial ATA boot/data hard disk drives to these connectors.

• When using hot-plug and NCQ, set the **OnChip SATA Type** item in the BIOS to [AHCI Mode]. See section **2.5.2 SATA Configuration** for details.

5. Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.
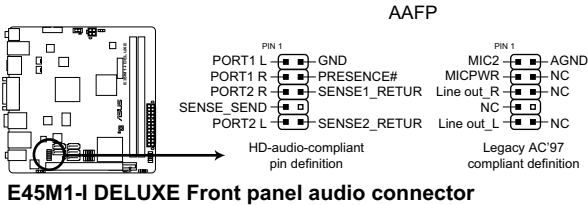
E45M1-I DELUXE Front panel audio connector

• We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

• If you want to connect a high-definition front panel audio module to this connector, set the **Front Panel Type** item in the BIOS setup to **[HD]**. If you want to connect an AC'97 front panel audio module to this connector, set the item to **[AC97]**. By default, this connector is set to **[HD]**. See section **2.5.5 Onboard Devices Configuration** for details.

6. **System panel connector (10-1 pin F_PANEL)**

    This connector supports several chassis-mounted functions.
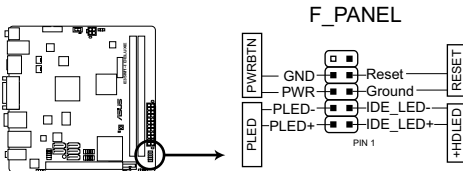
    E45M1-I DELUXE System panel connector

*   **System power LED (2-pin PLED)**

    This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

*   **Hard disk drive activity LED (2-pin +HDLED)**

    This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

*   **Power/Soft-off button (2-pin PWRBTN)**

    This 2-pin connector is for the system power button.

*   **Reset button (2-pin RESET)**

    This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

7. **Chassis intrusion connector (4-1 pin CHASSIS)**

    This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

    By default, the pin labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.
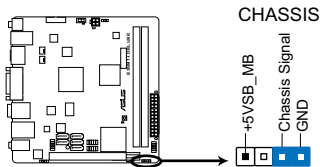
    E45M1-I DELUXE Chassis intrusion connector

8. **USB 3.0 connector (20-1 pin USB3_34)**

This connector is for the additional USB 3.0 ports. Connect the bundled USB 3.0 bracket cable to this connector, then install the USB 3.0 bracket to the rear side of the chassis. If your chassis support customised front panel installation, with ASUS USB 3.0 header, you can have a front panel USB 3.0 solution.
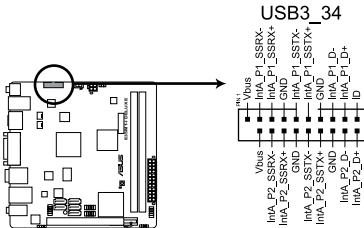
E45M1-I DELUXE USB3.0 front panel connector

9. **USB 2.0 connectors (10-1 pin USB56, USB78)**

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.
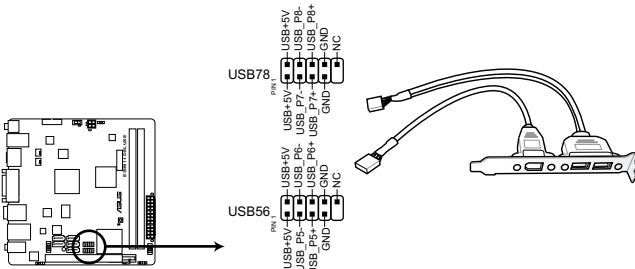
E45M1-I DELUXE USB2.0 connectors

Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

The USB module cable is purchased separately.

1.8   Onboard switches

Onboard switches allow you to fine-tune performance when working on a bare or open-case system. This is ideal for overclockers and gamers who continually change settings to enhance system performance.

1.   **Turbo Key II switch**

   This switch allows you to auto-tune your CPU to enhance the system performance.

   To ensure system performance, turn the switch setting to **Enable** when the system is powered off.

   TURBO_KEY_II

   Disable   Enable
   (Default)
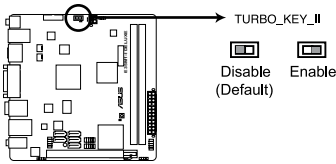
   E45M1-I DELUXE Turbo Key II switch

   • The O2LED2 LED near the Turbo Key II switch lights when the switch setting is turned to Enable. Refer to section **1.9 Onboard LEDs** for the exact location of the O2LED2 LED.

   • If you clear the CMOS or load the BIOS setup defaults, the related overclocking items in the BIOS menu follow the current setting of the Turbo Key II switch.

   • If you change the switch setting to Enable under the OS environment, the Turbo Key II function will be activated after the next system bootup.

   • You may use the TurboV Auto Tuning, overclock in the BIOS setup program, and enable the Turbo Key II function at the same time. However, the system will use the last setting you have made.

2. **MemOK! switch**

Installing DIMMs that are incompatible with the motherboard may cause system boot failure, and the DRAM_LED near the MemOK! switch lights continuously. Press and hold the MemOK! switch until the DRAM_LED starts blinking to begin automatic memory compatibility tuning for successful boot.
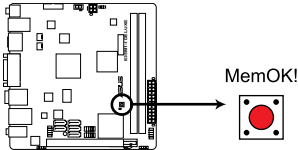
MemOK!

E45M1-I DELUXE MemOK! switch

• Refer to section **1.9 Onboard LEDs** for the exact location of the DRAM_LED.

• The DRAM_LED also lights when the DIMM is not properly installed. Turn off the system and reinstall the DIMM before using the MemOK! function.

• The MemOK! switch does not function under Windows® OS environment.

• During the tuning process, the system loads and tests failsafe memory settings. It takes about 30 seconds for the system to test one set of failsafe settings. If the test fails, the system reboots and test the next set of failsafe settings. The blinking speed of the DRAM_LED increases, indicating different test processes.

• Due to memory tuning requirement, the system automatically reboots when each timing set is tested. If the installed DIMMs still fail to boot after the whole tuning process, the DRAM_LED lights continuously. Replace the DIMMs with ones recommended in the Memory QVL (Qualified Vendors Lists) in this user manual or on the ASUS website at www.asus.com.

• If you turn off the computer and replace DIMMs during the tuning process, the system continues memory tuning after turning on the computer. To stop memory tuning, turn off the computer and unplug the power cord for about 5~10 seconds.

• If your system fail to boot due to BIOS overclocking, press the MemOK! switch to boot and load BIOS default settings. A message will appear during POST reminding you that the BIOS has been restored to its default settings.

• We recommend that you download and update to the latest BIOS version from the ASUS website at www.asus.com after using the MemOK! function.

1.9 Onboard LEDs

1. Standby Power LED

The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.

SB_PWR

ON Standby Power   **OFF** Powered Off
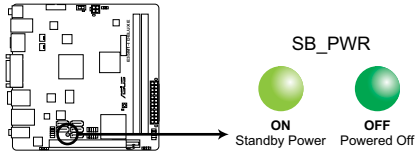
E45M1-I DELUXE Onboard LED

2. DRAM LED

DRAM LED checks the DRAM in sequence during motherboard booting process. If an error is found , the LED next to the error device will continue lighting until the problem is solved. This user-friendly design provides an intuitional way to locate the root problem within a second.
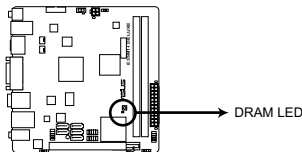
DRAM LED

E45M1-I DELUXE DRAM LED

3. Turbo Key II LED

The Turbo Key II LED lights when the Turbo Key II switch is turned to **Enable**.

O2LED2
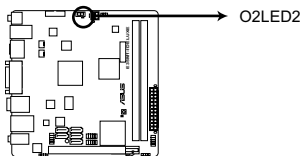
E45M1-I DELUXE Turbo Key II LED

1.10 Software support

1.10.1 Installing an operating system

This motherboard supports Windows® XP / Vista / 7 Operating Systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

- Motherboard settings and hardware options vary. Refer to your OS documentation for detailed information.

- Ensure that you install Windows® XP Service Pack 3 or later versions / Windows® Vista Service Pack 1 or later versions before installing the drivers for better compatibility and system stability.

1.10.2 Support DVD information

The Support DVD that comes with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

The contents of the Support DVD are subject to change at any time without notice. Visit the ASUS website at www.asus.com for updates.

To run the Support DVD

Place the Support DVD to the optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.

The following screen is for reference only.

Click an icon to display Support DVD/ motherboard information

Click an item to install

If Autorun is NOT enabled in your computer, browse the contents of the Support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the DVD.

Chapter 2

BIOS information

2.1 Managing and updating your BIOS

Save a copy of the original motherboard BIOS file to a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility.

2.1.1 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment.

- ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).
- This utility is available in the support DVD that comes with the motherboard package.

Installing ASUS Update

To install ASUS Update:

1. Place the support DVD in the optical drive. The **Drivers** menu appears.

2. Click the **Utilities** tab, then click **AI Suite II**.

3. Follow the onscreen instructions to complete the installation.

Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS

To update the BIOS:

1. From the Windows® desktop, click **Start** > **Programs** > **ASUS** > **AI Suite II** > **AI Suite II X.XX.XX** to launch the AI Suite II utility. The AI Suite II Quick Bar appears.

2. Click **Update** button from the Quick Bar, and then click **ASUS Update** from the popup menu. The **ASUS Update** main screen appears. From the list, select either of the following methods:

   Updating from the Internet

   a. Select **Update BIOS from the Internet**, then click **Next**.

   b. Select the ASUS FTP site nearest you to avoid network traffic, then click **Next**.

   c. From the FTP site, select the BIOS version that you wish to download then click **Next**.

The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

Updating from a BIOS file

    a.   Select **Update BIOS from file**, then click **Next**.

    b.   Locate the BIOS file from the **Open** window, then click **Open**.

3.   Follow the onscreen instructions to complete the updating process.

2.1.2   ASUS EZ Flash 2

The ASUS EZ Flash 2 feature allows you to update the BIOS without using an OS-based utility.

Before you start using this utility, download the latest BIOS file from the ASUS website at www.asus.com.

To update the BIOS using EZ Flash 2:

1.   Insert the USB flash disk that contains the latest BIOS file to the USB port.

2.   Enter the **Advanced Mode** of the BIOS setup program. Go to the **Tool** menu to select **ASUS EZ Flash Utility** and press <Enter> to enable it.
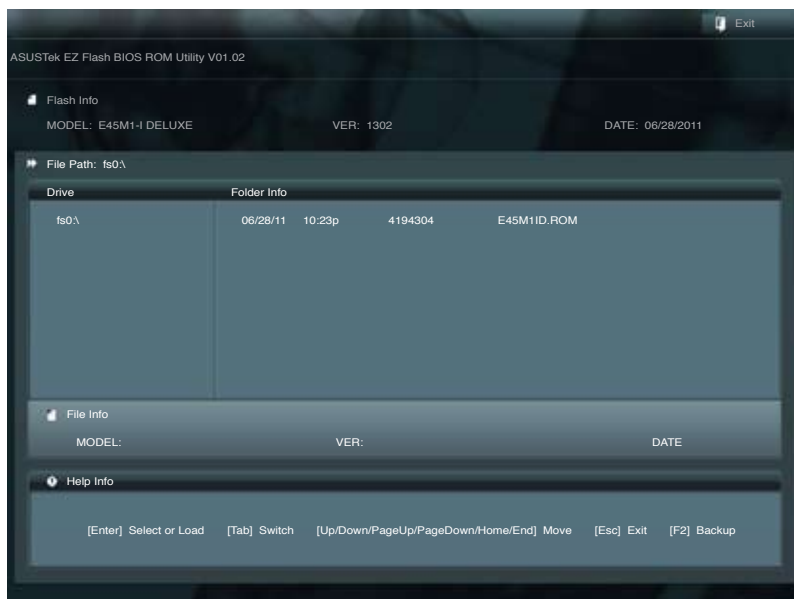
3.   Press <Tab> to switch to the **Drive** field.

4.   Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.

5.   Press <Tab> to switch to the **Folder Info** field.

6.   Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

> • This function supports USB flash disks with **FAT 32/16** format and single partition only.
>
> • DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

2.1.3   ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can restore a corrupted BIOS file using the motherboard support DVD or a USB flash drive that contains the updated BIOS file.

> • Before using this utility, rename the BIOS file in the removable device into **E45M1ID.ROM**.
>
> • The BIOS file in the support DVD may not be the latest version. Download the latest BIOS file from the ASUS website at www.asus.com.

Recovering the BIOS

To recover the BIOS:

1.   Turn on the system.

2.   Insert the support DVD to the optical drive or the USB flash drive that contains the BIOS file to the USB port.

3.   The utility automatically checks the devices for the BIOS file. When found, the utility reads the BIOS file and enters ASUS EZ Flash 2 utility automatically.

4.   The system requires you to enter BIOS Setup to recover BIOS setting. To ensure system compatibility and stability, we recommend that you press <F5> to load default BIOS values.

> DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

2.1.4   ASUS BIOS Updater

The ASUS BIOS Updater allows you to update BIOS in DOS environment. This utility also allows you to copy the current BIOS file that you can use as a backup when the BIOS fails or gets corrupted during the updating process.

> The succeeding utility screens are for reference only. The actual utility screen displays may not be same as shown.

Before updating BIOS

1.   Prepare the motherboard support DVD and a USB flash drive in FAT32/16 format and single partition.

2.   Download the latest BIOS file and BIOS Updater from the ASUS website at http://support.asus.com and save them on the USB flash drive.

> NTFS is not supported under DOS environment. Do not save the BIOS file and BIOS Updater to a hard disk drive or USB flash drive in NTFS format.

3.   Turn off the computer and disconnect all SATA hard disk drives (optional).

Booting the system in DOS environment

1.   Insert the USB flash drive with the latest BIOS file and BIOS Updater to the USB port.

2.   Boot your computer. When the ASUS Logo appears, press <F8> to show the **BIOS Boot Device Select Menu**. Insert the support DVD into the optical drive and select the optical drive as the boot device.

```
Please select boot device:

SATA:  XXXXXXXXXXXXXXXX
USB  XXXXXXXXXXXXXXXX
UEFI: XXXXXXXXXXXXXXX
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults
```
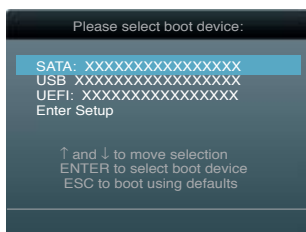
3.   When the **Make Disk** menu appears, select the **FreeDOS command prompt** item by pressing the item number.

4.   At the FreeDOS prompt, type `d:` and press <Enter> to switch the disk from Drive C (optical drive) to Drive D (USB flash drive).

```
Welcome to FreeDOS (http://www.freedos.org)!
C:\>d:
D:\>
```

Backing up the current BIOS

To backup the current BIOS file using the BIOS Updater

Ensure that the USB flash drive is not write-protected and has at least 4MB free space to save the file.

1. At the FreeDOS prompt, type **bupdater /o[filename]** and press <Enter>.

```
D:\>bupdater /oOLDBIOS1.rom
```

            Filename Extension

    The [filename] is any user-assigned filename with no more than eight alphanumeric characters for the filename and three alphanumeric characters for the extension.

2. The BIOS Updater backup screen appears indicating the BIOS backup process. When BIOS backup is done, press any key to return to the DOS prompt.

```
              ASUSTek BIOS Updater for DOS V1.18

        ─ Current ROM ─                    ─ Update ROM ─
        BOARD: E45M1-I DELUXE              BOARD: Unknown
        VER: 1302                          VER: Unknown
        DATE: 06/28/2011                   DATE: Unknown
    PATH: A:\

      ┌─────────────────────────────────────────────────────┐
      │    BIOS backup is done! Press any key to continue.    │
      └─────────────────────────────────────────────────────┘




        ─ Note ─
    Saving BIOS:

```
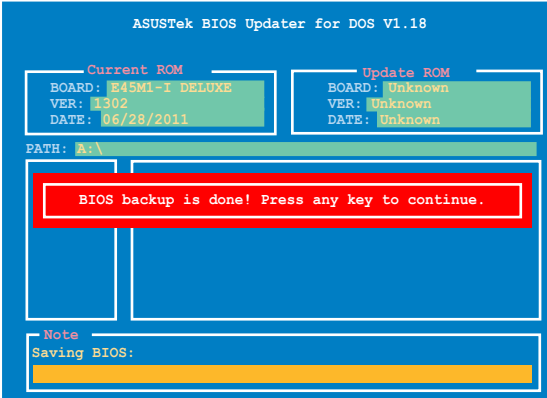
Updating the BIOS file

To update the BIOS file using BIOS Updater

1. At the FreeDOS prompt, type **bupdater /pc /g** and press <Enter>.

```
D:\>bupdater /pc /g
```

2. The BIOS Updater screen appears as below.

```
               ASUSTek BIOS Updater for DOS V1.18

        ┌─── Current ROM ───┐              ┌─── Update ROM ───┐
        │ BOARD: E45M1-I DELUXE│            │ BOARD: Unknown   │
        │ VER: 1302            │            │ VER: Unknown     │
        │ DATE: 06/28/2011     │            │ DATE: Unknown    │
        └──────────────────────┘           └──────────────────┘
   PATH: A:\

    ┌────────┐  ┌──────────────────────────────────────────────┐
    │ A:     │  │ E45M1ID.ROM    4194304 2011-06-28 17:30:48    │
    │        │  │                                                │
    │        │  │                                                │
    │        │  │                                                │
    │        │  │                                                │
    │        │  │                                                │
    └────────┘  └──────────────────────────────────────────────┘
   ┌── Note ──────────────────────────────────────────────────┐
   │ [Enter] Select or Load    [Tab] Switch    [V] Drive Info  │
   │ [Up/Down/Home/End] Move   [B] Backup       [Esc] Exit     │
   └───────────────────────────────────────────────────────────┘
```
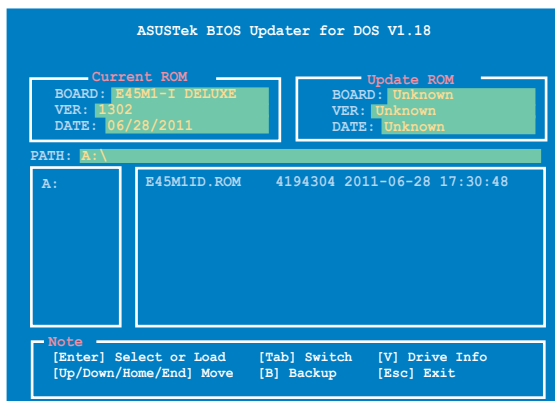
3. Press <Tab> to switch between screen fields and use the <Up/Down/Home/End> keys to select the BIOS file and press <Enter>. BIOS Updater checks the selected BIOS file and prompts you to confirm BIOS update.

```
          Are you sure to update BIOS?

               Yes      [ No ]
```

4. Select Yes and press <Enter>. When BIOS update is done, press <ESC> to exit BIOS Updater. Restart your computer.

⚠️ DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

✎ • For BIOS Updater version 1.04 or later, the utility automatically exits to the DOS prompt after updating BIOS.

   • Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the Exit menu. Refer to section **2.9 Exit menu** for details.

   • Ensure to connect all SATA hard disk drives after updating the BIOS file if you have disconnected them.

2.2 BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

- Press <Delete> during the Power-On Self Test (POST). If you do not press <Delete>, POST continues with its routines.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

- Press **<Ctrl>**+**<Alt>**+**<Del>** simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.

Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut down the system properly from the operating system.

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard.
- Ensure that a USB mouse is connected to your motherboard if you want to use the mouse to control the BIOS setup program.
- If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu. See section **2.9 Exit Menu** for details.
- If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section **1.6 Jumpers** for information on how to erase the RTC RAM.

BIOS menu screen

The BIOS setup program can be used under two modes: **EZ Mode** and **Advanced Mode**. You can change modes from the **Exit** menu or from the **Exit/Advanced Mode** button in the **EZ Mode/Advanced Mode** screen.

EZ Mode

By default, the **EZ Mode** screen appears when you enter the BIOS setup program. The **EZ Mode** provides you an overview of the basic system information, and allows you to select the display language, system performance mode and boot device priority. To access the **Advanced Mode**, click **Exit/Advanced Mode**, then select **Advanced Mode**.
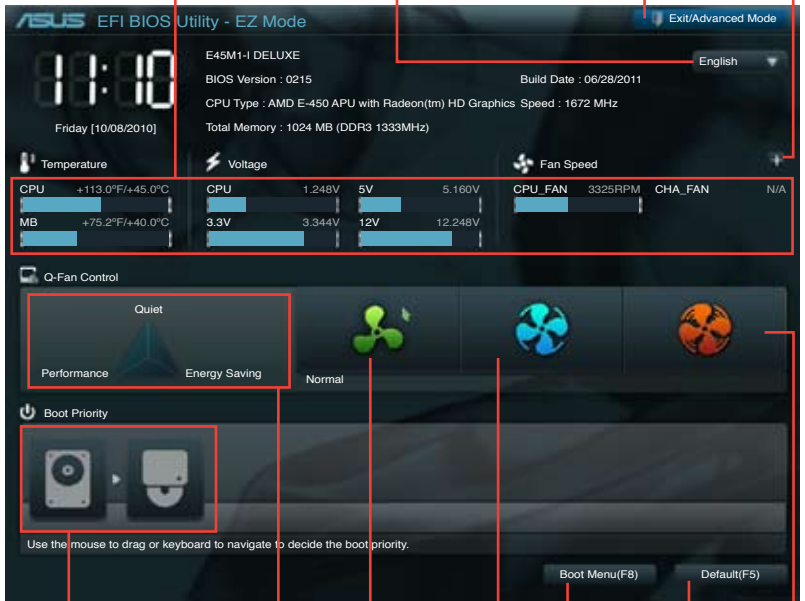
The default screen for entering the BIOS setup program can be changed. Refer to the **Setup Mode** item in section **2.7 Boot memu** for details.

Selects the display language of the BIOS setup program

Clicks to display all fan speeds if available

Displays the CPU/motherboard temperature, CPU/5V/3.3V/12V voltage output, CPU/chassis/power fan speed

Exits the BIOS setup program without saving the changes, saves the changes and resets the system, or enters the Advanced Mode

EFI BIOS Utility - EZ Mode

Exit/Advanced Mode

E45M1-I DELUXE
BIOS Version : 0215   Build Date : 06/28/2011
CPU Type : AMD E-450 APU with Radeon(tm) HD Graphics Speed : 1672 MHz

Friday [10/08/2010]   Total Memory : 1024 MB (DDR3 1333MHz)

English

Temperature   Voltage   Fan Speed

CPU   +113.0°F/+45.0°C   CPU   1.248V   5V   5.160V   CPU_FAN 3325RPM   CHA_FAN   N/A
MB   +75.2°F/+40.0°C   3.3V   3.344V   12V   12.248V

Q-Fan Control

Quiet

Performance   Energy Saving   Normal

Boot Priority

Use the mouse to drag or keyboard to navigate to decide the boot priority.

Boot Menu(F8)   Default(F5)

Selects the boot device priority

Power Saving mode

Loads optimized default

Displays the system properties of the selected mode on the right hand side

Normal mode

ASUS Optimal mode
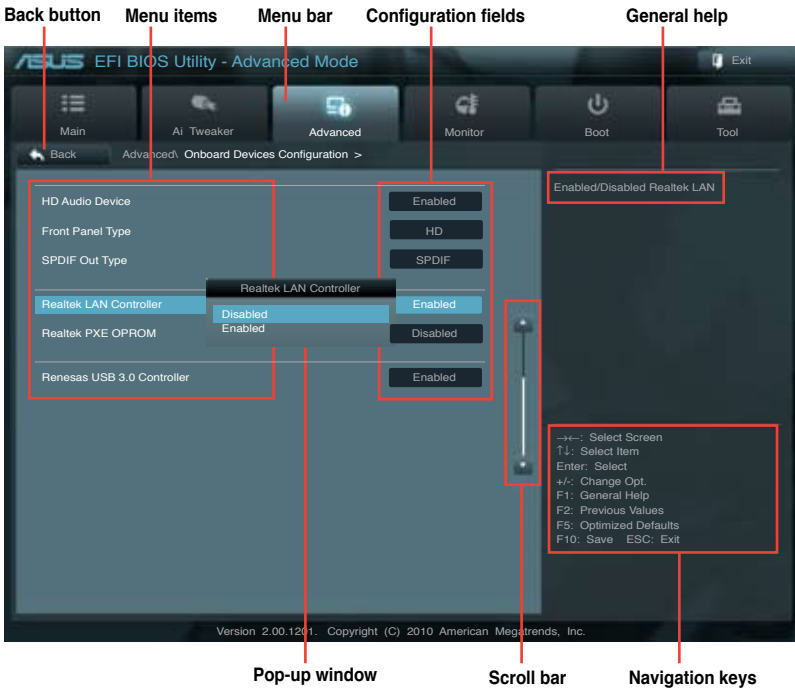
Selects the boot device priority

- The boot device options vary depending on the devices you installed to the system.
- The **Boot Menu(F8)** button is available only when the boot device is installed to the system.

Advanced Mode

The **Advanced Mode** provides advanced options for experienced end-users to configure the BIOS settings. The figure below shows an example of the **Advanced Mode**. Refer to the following sections for the detailed configurations.

> To access the EZ Mode, click **Exit**, then select **ASUS EZ Mode**.

Back button   Menu items   Menu bar   Configuration fields   General help

Pop-up window   Scroll bar   Navigation keys

Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items.

The other items (Ai Tweaker, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

Back button

This button appears when entering a submenu. Press <Esc> or use the USB mouse to click this button to return to the previous menu screen.

Submenu items

A greater than sign (>) before each item on any menu screen means that the item has a submenu. To display the submenu, select the item and press <Enter>.

Pop-up window

Select a menu item and press <Enter> to display a pop-up window with the configuration options for that item.

Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> / <Page Down> keys to display the other items on the screen.

Navigation keys

At the bottom right corner of the menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

General help

At the top right corner of the menu screen is a brief description of the selected item.
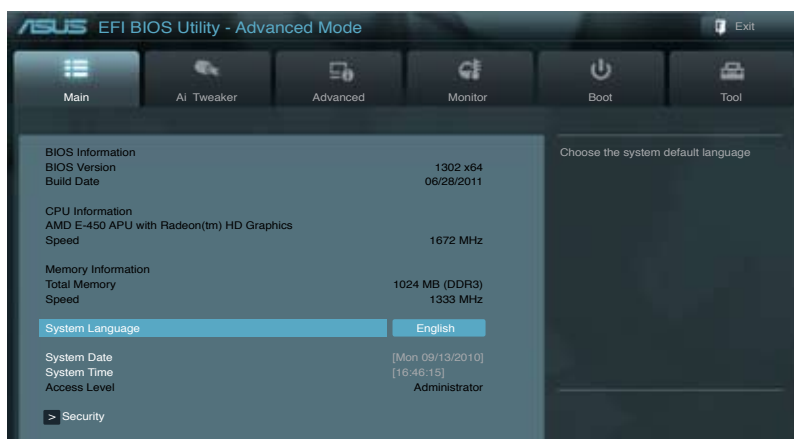
Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

2.3   Main menu

The Main menu screen appears when you enter the Advanced Mode of the BIOS Setup program. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.

2.3.1 System Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English] [Français] [Deutsch] [简体中文] [繁體中文] [日本語]

2.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

2.3.3 System Time [xx:xx:xx]

Allows you to set the system time.

2.3.4 Security

The Security menu items allow you to change the system security settings.

> • If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section **1.6 Jumpers** for information on how to erase the RTC RAM.
>
> • The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

User Password

If you have set a user password, you must enter the user password for accessing the system. The **User Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.
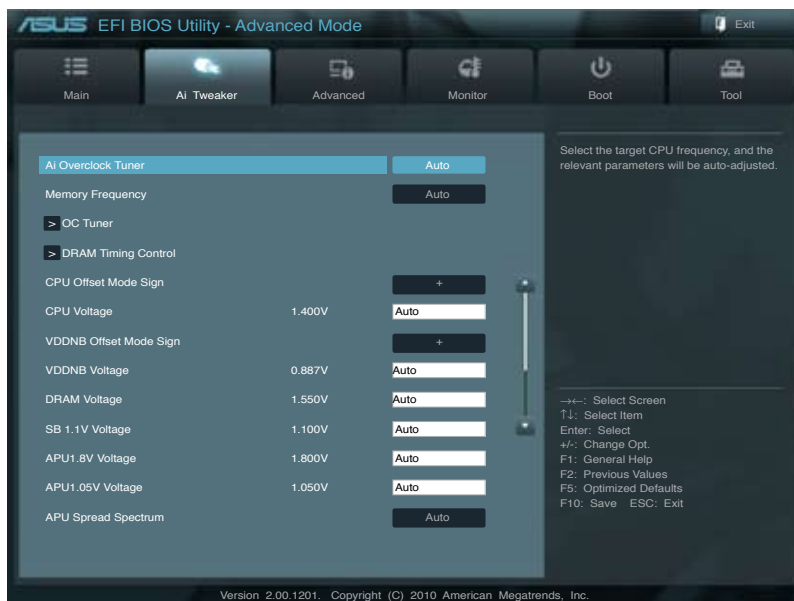
2.4   Ai Tweaker menu

The Ai Tweaker menu items allow you to configure overclocking-related items.

⚠ Be cautious when changing the settings of the Ai Tweaker menu items. Incorrect field values can cause the system to malfunction.

✎ The configuration options for this section vary depending on the CPU and DIMM model you installed on the motherboard.

2.4.1   Ai Overclock Tuner [Auto]

Allows you to select the CPU overclocking options to achieve the desired CPU internal frequency. Select any of these preset overclocking configuration options:

[Auto]   Loads the optimal settings for the system.

[Manual]   Allows you to individually set overclocking parameters.

APU Frequency [XXX]

This item appears only when you set the **Ai Overclock Tuner** item to [Manual]. Use the <+> and <-> keys to adjust the value. You can also key in the desired value using the numeric keypad. The values range from 90.0MHz to 300.0MHz.

2.4.2   Memory Frequency [Auto]

Allows you to set the memory operating frequency. Configuration options: [Auto] [DDR3-800MHz] [DDR3-1066MHz] [DDR3-1333MHz]

> Selecting a very high memory frequency may cause the system to become unstable! If this happens, revert to the default setting.

2.4.3   OC Tuner

OC Tuner automatically overclocks the frequency and voltage of CPU and DRAM for enhancing the system performance. Press <Enter> and select **OK** to start automatic overclocking.

2.4.4   DRAM Timing Control

The sub-items in this menu allow you to set the DRAM timing control features. Use the <+> and <-> keys to adjust the value. To restore the default setting, type [auto] using the keyboard and press <Enter>.

> Changing the values in this menu may cause the system to become unstable! If this happens, revert to the default settings.

2.4.5   CPU Offset Mode Sign [+]

[+]   To offset the voltage by a positive value.

[–]   To offset the voltage by a negative value.

CPU Voltage [Auto]

Allows you to set the CPU Offset voltage. The values range from -0.3V to +0.5V with a 0.00625V interval.

> Refer to the CPU documentation before setting the CPU voltage. Setting a high voltage may damage the CPU permanently, and setting a low voltage may make the system unstable.

2.4.6 VDDNB Offset Mode Sign [+]

[+]   To offset the voltage by a positive value.

[–]   To offset the voltage by a negative value.

VDDNB Voltage [Auto]

Allows you to set the VDDNB Offset voltage. The values range from -0.3V to +0.5V with a 0.00625V interval.

2.4.7 DRAM Voltage [Auto]

Allows you to set the DRAM voltage. The values range from 1.35V to 2.30V with a 0.01V interval.

⚠ According to Intel CPU specification, DIMMs with voltage requirement over 1.65V may damage the CPU permanently. We recommend you install the DIMMs with the voltage requirement below 1.65V.

2.4.8 SB 1.1V Voltage [Auto]

Allows you to set the Southbridge 1.1V voltage. The values range from 1.1V to 1.3V with a 0.01V interval.

2.4.9 APU 1.8V Voltage [Auto]

Allows you to set the APU (Accelerated Processor Unit) 1.8V voltage. The values range from 1.8000V to 1.9000V with a 0.1V interval.

2.4.10 APU 1.05V Voltage [Auto]

Allows you to set the APU 1.05V voltage. The values range from 1.0500V to 1.2500V with a 0.01V interval.

⚠ • The values of the **CPU Voltage, VDDNB Voltage, DRAM Voltage**, **SB 1.1V Voltage**, **APU 1.8V Voltage**, and **APU 1.05V Voltage** items are labeled in different color, indicating the risk levels of high voltage settings.

• The system may need better cooling system to work stably under high voltage settings.

2.4.11 APU Spread Spectrum [Auto]

[Auto]   Automatic configuration.

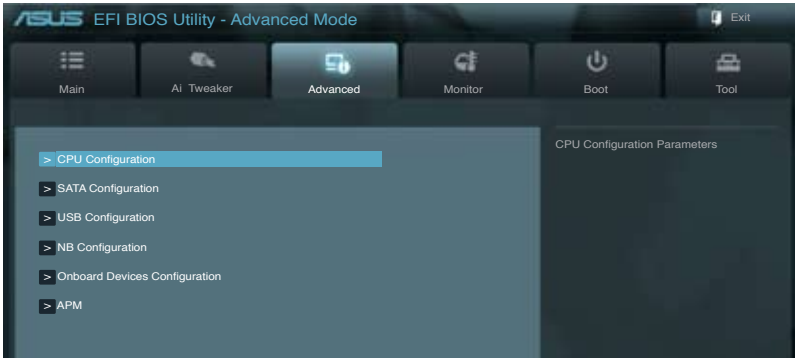[Disabled]   Enhances the PCIE overclocking ability.

[Enabled]   Sets to [Enabled] for EMI control.

2.5   Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

⚠️ Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

2.5.1   CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.

✎ The items shown in submenu may be different due to the CPU you installed.

Limit CPUID Maximum [Disabled]

[Enabled]   Allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.

[Disabled]   Disables this function.

Cool 'n' Quiet [Enabled]

Enables or disables the generation of ACPI _PPC, _PSS, and _PCT objects. Configuration options: [Disabled] [Enabled]

NX Mode [Enabled]

Enables or disables no-execute page protection function. Configuration options: [Disabled] [Enabled]

SVM Mode [Enabled]

Enables or disables CPU virtualization. Configuration options: [Disabled] [Enabled]

C6 Mode [Enabled]

Enables or disables C6 mode. Configuration options: [Enabled] [Disabled]

2.5.2 SATA Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.

OnChip SATA Channel [Enabled]

Enables or disables onboard channel SATA port. Configuration options: [Disabled] [Enabled]

OnChip SATA Type [IDE]

Allows you to set the SATA configuration.

[IDE]   Set to [IDE] when you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices.

[AHCI]   Set to [AHCI] when you want the SATA hard disk drives to use the AHCI (Advanced Host Controller Interface). The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.

OnChip SATA Speed [Auto]

Sets the onboard SATA port speed. Configuration options: [Auto] [SATA 3.0Gb/s] [SATA 6.0Gb/s]

S.M.A.R.T. Status Check [Enabled]

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a monitor system. When read/write of your hard disk errors occur, this feature allows the hard disk to report warning messages during the POST. Configuration options: [Enabled] [Disabled]

2.5.3 USB Configuration

The items in this menu allow you to change the USB-related features.

The **USB Devices** item shows the auto-detected values. If no USB device is detected, the item shows **None**.

Legacy USB Support [Enabled]

[Enabled]   Enables the support for USB devices on legacy operating systems (OS).

[Disabled]   The USB devices can be used only for the BIOS setup program.

[Auto]   Allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Legacy USB3.0 Support [Enabled]

[Enabled]   Enables the support for USB 3.0 devices on legacy operating systems (OS).

[Disabled]   Disables the function.

EHCI Hand-off [Disabled]

[Enabled]   Enables the support for operating systems without an EHCI hand-off feature.

[Disabled]   Disables the function.

2.5.4   NB Configuration

IGFX Multi-Monitor [Disabled]

Enables or disables the Internal Graphics Device Multi-Monitor support for add-on VGA devices. And the memory size of Internal Graphics Device will keep memory reserved. Configuration options: [Disabled] [Enabled]

Primary Video Device [PCIE Video]

Selects the primary display device. Configuration options: [IGFX Video] [PCIE Video]

Integrated Graphics [Auto]

Enables the integrated graphics controller. Configuration options: [Auto] [Force]

2.5.5   Onboard Devices Configuration

HD Audio Device [Enabled]

Enables or disables the Azalia High Definition Audio controller. Configuration options: [Disabled] [Enabled]

Front Panel Type [HD]

Allows you to set the front panel audio connector (AAFP) mode to legacy AC'97 or high-definition audio depending on the audio standard that the front panel audio module supports.

[HD]   Sets the front panel audio connector (AAFP) mode to high definition audio.

[AC97]   Sets the front panel audio connector (AAFP) mode to legacy AC'97

SPDIF Out Type [SPDIF]

[SPDIF]   Sets to [SPDIF] for SPDIF audio output.

[HDMI]   Sets to [HDMI] for HDMI audio output.

Realtek LAN Controller [Enabled]

[Enabled]   Enables the Realtek LAN controller.

[Disabled]   Disables the controller.

Realtek PXE OPROM [Disabled]

This item appears only when you set the previous item to [Enabled] and allows you to enable or disable the PXE OptionRom of the Realtek LAN controller.
Configuration options: [Enabled] [Disabled]

Renesas USB 3.0 Controller [Enabled]

[Enabled]   Enables the USB 3.0 controller.

[Disabled]   Disables the controller.

2.5.6   APM

Restore AC Power Loss [Power Off]

[Power On]   The system goes into on state after an AC power loss.

[Power Off]   The system goes into off state after an AC power loss.

[Last State]   The system goes into either off or on state, whatever the system state was
                   before the AC power loss.

Power On By PS/2 Keyboard [Disabled]

[Disabled]   Disables the Power On by a PS/2 keyboard.

[Space Bar]   Sets the Space Bar on the PS/2 keyboard to turn on the system.

[Ctrl-Esc]   Sets the Ctrl+Esc key on the PS/2 keyboard to turn on the system.

[Power Key]   Sets Power key on the PS/2 keyboard to turn on the system. This feature
                   requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PS/2 Mouse [Disabled]

[Disabled]   Disables the Power On by a PS/2 mouse.

[Enabled]   Enables the Power On by a PS/2 mouse. This feature requires an ATX
                   power supply that provides at least 1A on the +5VSB lead.

### Power On By PME [Disabled]

[Disabled]   Disables PME wake from sleep states.

[Enabled]   Enables PME wake from sleep states.

Power On By RTC [Disabled]

[Disabled]   Disables RTC to generate a wake event.

[Enabled]   When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/
                   Minute/Second** will become user-configurable with set values.

2.6 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.
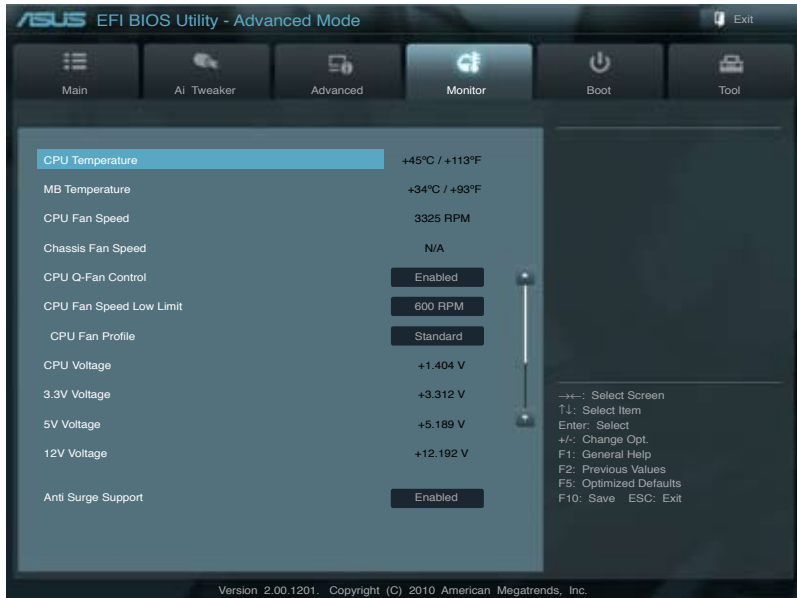
2.6.1 CPU Temperature / MB Temperature [xxxºC/xxxºF]

The onboard hardware monitor automatically detects and displays the CPU and motherboard temperatures. Select **Ignore** if you do not wish to display the detected temperatures.

2.6.2 CPU / Chassis Fan Speed [xxxx RPM] or [Ignore] / [N/A]

The onboard hardware monitor automatically detects and displays the CPU and chassis fan speeds in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows **N/A**. Select **Ignore** if you do not wish to display the detected speed.

2.6.3 CPU Q-Fan Control [Enabled]

[Disabled]   Disables the CPU Q-Fan control feature.

[Enabled]   Enables the CPU Q-Fan control feature.

CPU Fan Speed Low Limit [600 RPM]

This item appears only when you enable the **CPU Q-Fan Control** feature and allows you to disable or set the CPU fan warning speed.
Configuration options: [Ignore] [300 RPM] [400 RPM] [500 RPM] [600 RPM]

CPU Fan Profile [Standard]

This item appears only when you enable the **CPU Q-Fan Control** feature and allows you to set the appropriate performance level of the CPU fan.

[Standard]   Sets to [Standard] to make the CPU fan automatically adjust depending on the CPU temperature.

[Silent]   Sets to [Silent] to minimize the fan speed for quiet CPU fan operation.

[Turbo]   Sets to [Turbo] to achieve maximum CPU fan speed.

[Manual]   Sets to [Manual] to assign detailed fan speed control parameters.

The following four items appear only when you set **CPU Fan Profile** to [Manual].

CPU Upper Temperature [70]

Use the <+> and <-> keys to adjust the upper limit of the CPU temperature. The values range from 20ºC to 90ºC.

CPU Fan Max. Duty Cycle(%) [100]

Use the <+> and <-> keys to adjust the maximum CPU fan duty cycle. The values range from 40% to 100%. When the CPU temperature reaches the upper limit, the CPU fan will operate at the maximum duty cycle.

CPU Lower Temperature [20]

Displays the lower limit of the CPU temperature.

CPU Fan Min. Duty Cycle(%) [40]

Use the <+> and <-> keys to adjust the minimum CPU fan duty cycle. The values range from 40% to 100%. When the CPU temperature is under 40ºC, the CPU fan will operate at the minimum duty cycle.

2.6.4   CPU Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select **Ignore** if you do not want to detect this item.
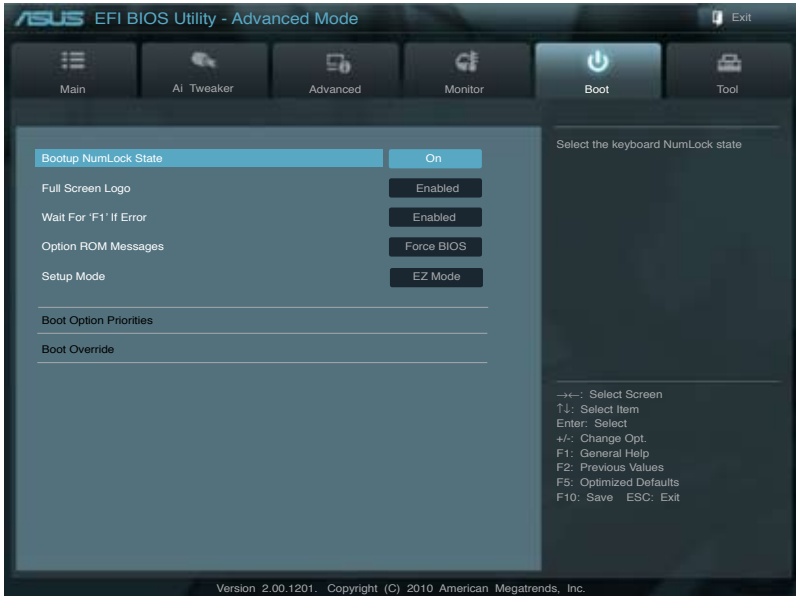
2.6.5   Anti Surge Support [Enabled]

This item allows you to enable or disable the Anti Surge function.
Configuration options: [Disabled] [Enabled]

2.7 Boot menu

The Boot menu items allow you to change the system boot options.

2.7.1 Bootup NumLock State [On]

[On]   Sets the power-on state of the NumLock to [On].

[Off]   Sets the power-on state of the NumLock to [Off].

2.7.2 Full Screen Logo [Enabled]

[Enabled]   Enables the full screen logo display feature.

[Disabled]   Disables the full screen logo display feature.

Set this item to [Enabled] to use the ASUS MyLogo 2™ feature.

2.7.3 Wait for 'F1' If Error [Enabled]

When this item is set to **[Enabled]**, the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

2.7.4 Option ROM Messages [Force BIOS]

[Force BIOS]   The third-party ROM messages will be forced to display during the boot sequence.

[Keep Current] The third-party ROM messages will be displayed only if the third-party manufacturer had set the add-on device to do so.

2.7.5   Setup Mode [EZ Mode]

[Advanced Mode] Sets Advanced Mode as the default screen for entering the BIOS setup program.

[EZ Mode]   Sets EZ Mode as the default screen for entering the BIOS setup program.

2.7.6   Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

- To select the boot device during system startup, press <F8> when ASUS Logo appears.
- To access Windows OS in Safe Mode, do any of the following:
  - Press <F5> when ASUS Logo appears.
  - Press <F8> after POST.

2.7.7   Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.
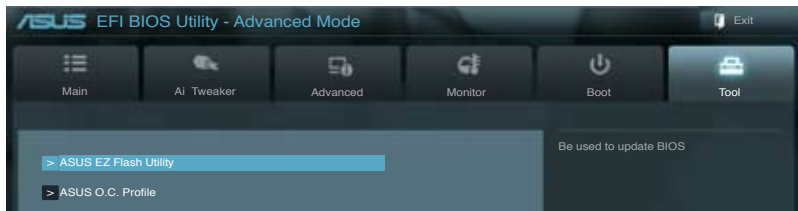
2.8 Tools menu

The Tools menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.

2.8.1 ASUS EZ Flash Utility

Allows you to run ASUS EZ Flash 2. Press [Enter] to launch the ASUS EZ Flash 2 screen.

> For more details, refer to section **2.1.2 ASUS EZ Flash 2**.

2.8.2 ASUS O.C. Profile

This item allows you to store or load multiple BIOS settings.

> The **Setup Profile Status** items show **Not Installed** if no profile is created.

Save to Profile

Allows you to save the current BIOS settings to the BIOS Flash, and create a profile. Key in a profile number from one to eight, press <Enter>, and then select **Yes**.

Load from Profile

Allows you to load the previous BIOS settings saved in the BIOS Flash. Key in the profile number that saved your CMOS settings, press <Enter>, and then select **Yes**.

> •   DO NOT shut down or reset the system while updating the BIOS to prevent the system boot failure!
>
> •   We recommend that you update the BIOS file only coming from the same memory/CPU configuration and BIOS version.

2.9   Exit menu

The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items. You can access the **EZ Mode** from the Exit menu.
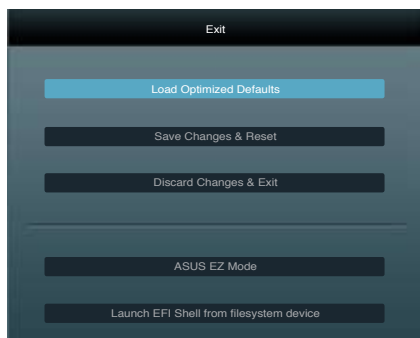
Load Optimized Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select **Yes** to load the default values.

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select **Yes** to save changes and exit.

Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to discard changes and exit.

ASUS EZ Mode

This option allows you to enter the EZ Mode screen.

Launch EFI Shell from filesystem device

This option allows you to attempt to launch the EFI Shell application (shellx64.efi) from one of the available devices that have a filesystem.

ASUS contact information

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Technical Support

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ASUS COMPUTER INTERNATIONAL (America)

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Technical Support

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ASUS COMPUTER GmbH (Germany and Austria)

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Online contact	www.asus.de/sales

Technical Support

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Telephone (System/Notebook/Eee/LCD)	+49-1805-010920*
Support Fax	+49-2102-9599-11
Online support	support.asus.com

* EUR 0.14/minute from a German fixed landline; EUR 0.42/minute from a mobile phone.

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

Responsible Party Name: **Asus Computer International**

Address: **800 Corporate Way, Fremont, CA 94539.**

Phone/Fax No: **(510)739-3777/(510)608-4555**

hereby declares that the product

Product Name : Motherboard

Model Number : E45M1-I DELUXE

Conforms to the following specifications:

☒ FCC Part 15, Subpart B, Unintentional Radiators
☐ FCC Part 15, Subpart C, Intentional Radiators
☐ FCC Part 15, Subpart E, Intentional Radiators

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name : __**Steve Chang / President**__

Signature :

Date : __**Jul. 20. 2011**__

Ver. 110101

EC Declaration of Conformity

We, the undersigned,

Manufacturer:	ASUSTek COMPUTER INC.
Address, City:	No. 150, LI-TE RD., PEITOU, TAIPEI 112, TAIWAN R.O.C.
Country:	TAIWAN
Authorized representative in Europe:	ASUS COMPUTER GmbH
Address, City:	HARKORT STR. 21-23, 40880 RATINGEN
Country:	GERMANY

declare the following apparatus:

Product name :	**Motherboard**
Model name :	**E45M1-I DELUXE**

conform with the essential requirements of the following directives:

☒2004/108/EC-EMC Directive

☒ EN 55022:2006+A1:2007
☒ EN 61000-3-2:2006
☒ EN 55013:2001+A1:2003+A2:2006

☒ EN 55024:1998+A1:2001+A2:2003
☒ EN 61000-3-3:2008
☐ EN 55020:2007

☒1999/5/EC-R &TTE Directive

☐ EN 300 328 V1.7.1(2006-05)
☐ EN 300 440-1 V1.4.1(2008-05)
☐ EN 300 440-2 V1.2.1(2008-03)
☐ EN 301 511 V9.0.2(2003-03)
☐ EN 301 908-1 V3.2.1(2007-05)
☐ EN 301 908-2 V3.2.1(2007-05)
☐ EN 301 893 V1.4.1(2005-03)
☐ EN 302 544-2 V1.1.1(2009-01)
☐ EN 50360:2001
☐ EN 50371:2002
☐ EN 50385:2002

☒ EN 301 489-1 V1.8.1(2008-04)
☐ EN 301 489-3 V1.4.1(2002-08)
☐ EN 301 489-4 V1.3.1(2002-08)
☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 489-17 V2.1.1(2009-05)
☒ EN 301 489-24 V1.4.1(2007-09)
☐ EN 302 326-2 V1.2.2(2007-06)
☐ EN 302 326-3 V1.3.1(2007-09)
☐ EN 301 357-2 V1.3.1(2006-05)
☐ EN 302 623 V1.1.1(2009-01)

☒2006/95/EC-LVD Directive

☒ EN 60950-1:2006
☒ EN 60950-1:2006+A11:2009

☐ EN 60065:2002+A1:2006+A11:2008

☐2009/125/EC-ErP Directive

Regulation (EC) No. 1275/2008
☒ EN 62301:2005

Regulation (EC) No. 642/2009
☒ EN 62301:2005

Regulation (EC) No. 278/2009
☒ EN 62301:2005

☒CE marking

(EC conformity marking)

Position : **CEO**
Name : **Jerry   Shen**

Signature : _____

Declaration Date: Jul. 20, 2011
Year to begin affixing CE marking:2011

Ver. 110101