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Certificate HK07/01191.00

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ISO 9001:2000

For the following activities

**Design and Sales of Mainboards, Personal Computers,
Notebooks, and Peripheral Cards;
Design and Manufacturing of Mainboards and Peripheral Cards.**

Further clarifications regarding the scope of this certificate and the applicability of
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This certificate is valid from 16 March 2007 until 15 March 2010
Issue 1. Certified with SGS since March 2007

Multiple certificates have been issued for this scope
The main certificate is numbered HK07/01191.00

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ISO14001 CERTIFICATE

Certificate No.: 061-04-E1-0065-R1-L

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by reason of its

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has been awarded this certificate for
compliance with the standard

ISO14001:1996

The Environmental Management System
applies in the following area:

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located at No. 20 & 26 (except 1F, 2F), Free Trade Zone,
Shatuojiang, Shenzhen City, Guangdong Province, P. R. China.
is engaged in manufacturing of Mother Board and Peripheral Card,
and interrelated managerial activities.

Date of issue: 28th Sept. 2004

Date of expiry: 27th Sept. 2007

Signed by:



SHENZHEN SOUTHERN CERTIFICATION CO., LTD.

Preface

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Version 2.0A

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- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto 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

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Preface

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

About the Manual

The manual consists of the following:

Chapter 1 Introducing the Motherboard	Describes features of the motherboard. Go to ➞ page 1
Chapter 2 Installing the Motherboard	Describes installation of motherboard components. Go to ➞ page 7
Chapter 3 Using BIOS	Provides information on using the BIOS Setup Utility. Go to ➞ page 25
Chapter 4 Using the Motherboard Software	Describes the motherboard software Go to ➞ page 39

Preface

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Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the 945GCT-M motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA775 socket Intel® Core™2 Duo/Pentium® D/Celeron® D/Conroe® L processors for high-end business or personal desktop markets.

The motherboard incorporates the 945GC Northbridge (NB) and ICH7 Southbridge (SB) chipsets. The Northbridge supports a Front Side Bus (FSB) frequency of *1066/800/533 MHz using a scalable FSB Vcc_CPU. The memory controller supports DDR2 memory DIMM frequencies of 667/533/400. It supports two DDR2 Sockets with up to maximum memory of 2 GB DDR2 Maximum memory bandwidth of 8.5 Gb/s in dual-channel interleaved mode assuming DDR2 667 MHz. High resolution graphics via one PCI Express slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification revision 1.0a.

* Under ECS validation, 945GCT-M v2.0 is capable to support FSB 1066 MHz.

The ICH7 Southbridge supports two PCI slots which are PCI 2.3 compliant. It implements an EHCI compliant interface that provides 480 Mb/s bandwidth for eight USB 2.0 ports. One onboard IDE connector supports 2 IDE devices in Ultra ATA 100/66/33 mode. The Southbridge integrates a Serial ATA host controller, supporting four SATA ports with maximum transfer rate up to 3.0 Gb/s each.

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, one VGA port, four USB ports, one optional LAN port and audio jacks for microphone, line-in and line-out.

Feature

Processor

The motherboard uses an LGA775 type of Intel® Core™2 Duo/Pentium® D/Celeron® D/Conroe® L that carries the following features:

- Accommodates Intel® Core™2 Duo/Pentium® D/Celeron® D/Conroe® L processors
- Supports a system bus (FSB) of *1066/800/533 MHz
- Supports “Hyper-Threading” technology CPU

* Under ECS validation, 945GCT-M v2.0 is capable to support FSB 1066 MHz.

“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 945GC Northbridge (NB) and ICH7 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- | | |
|-------------------|---|
| 945GC (NB) | <ul style="list-style-type: none"> • Supports 32-bit host bus addressing, allowing the CPU to access the entire 2 GB of the memory address space. • 2 GB/s point-to-point Direct Media Interface (DMI) to ICH7 (1 GB/s)each direction. • Supports 256-Mb, 512-Mb and 1-Gb DDR2 technologies for x8 and x16 devices • Supports high quality 3D setup, Render Engine and high-quality texture engine |
| ICH7 (SB) | <ul style="list-style-type: none"> • Enhanced DMA Controller, interrupt controller, and timer functions • Compliant with PCI Express Base Specification, Revision 1.0a • Compliant with PCI 2.3 specification • Integrated SATA 3.0 Gb/s Host Controller • Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports • Integrated IDE controller supports Ultra ATA 100/66/33 |

Memory

- Supports DDR2 667/533/400 DDR SDRAM with Dual-channel architecture
- Accommodates two unbuffered DIMMs
- Up to 1 GB per DIMM with maximum memory size up to 2 GB

Introducing the Motherboard

Audio

- 5.1 Channel High Definition Audio Codec
- All DACs support 192K/96K/48K/44.1KHz sample rate
- Software selectable 2.5V/3.75V VREFOUT
- Meets Microsoft WHQL/WLP 2.x audio requirements
- Direct Sound 3D™ compatible

Onboard LAN (Optional)

The onboard LAN controller provides the following features:

<ul style="list-style-type: none"> • Integrated Gigabit Ethernet Controller for PCI Express™ Applications • Integrated 10/100/1000 transceiver • Wake-On-LAN and remote wake-up support
<ul style="list-style-type: none"> • Integrated Fast Ethernet Controller for PCI Express™ Applications • Integrated 10/100 transceiver • Wake-On-LAN and remote wake-up support

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x 16 Slot for Graphic Interface
- One PCI Express x1 Slot
- Two 32-bit PCI v2.3 compliant slots
- One 40-pin IDE connector that support two IDE devices
- One floppy disk drive interface
- Four 7-pin SATA connectors

The motherboard supports UDMA bus mastering with transfer rates of 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
- Four USB ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

BIOS Firmware

This 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

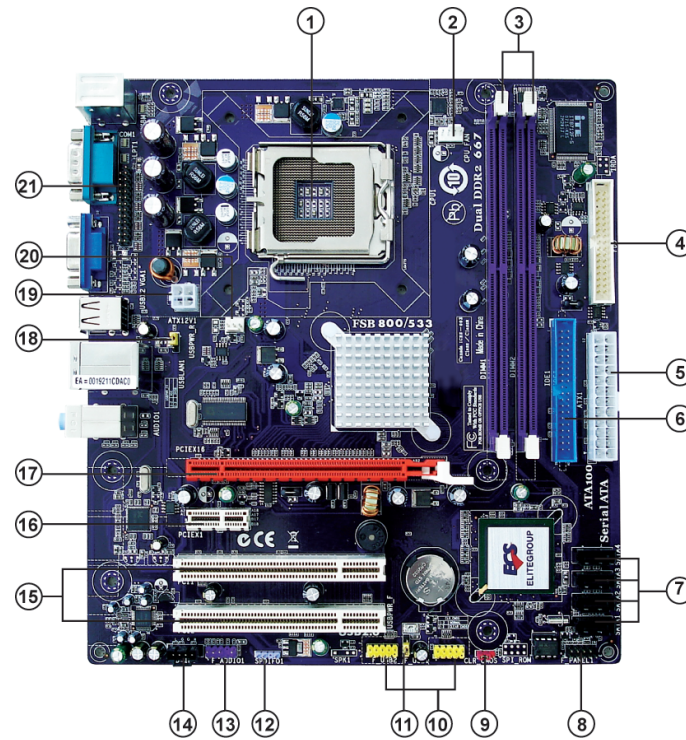
The firmware can also be used to set parameters for different processor clock speeds.



Some hardware specifications and software items are subject to change with out prior notice.

Introducing the Motherboard

Motherboard Components



Introducing the Motherboard

Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	LGA775 Socket for Intel [®] Core [™] 2 Duo/Pentium [®] D/Celeron [®] D/Conroe [®] L CPUs
2. CPU_FAN	CPU cooling fan connector
3. DIMM1~2	240-pin DDR2 SDRAM slots
4. FDD	Floppy Disk Drive connector
5. ATX1	Standard 24-Pin ATX Power connector
6. IDE1	Primary IDE connector
7. SATA1~4	Serial ATA connectors
8. F_PANEL1	Front panel switch/LED header
9. CLR_CMOS	Clear CMOS jumper
10. F_USB1~2	Front Panel USB headers
11. USBPWR_F	Front Panel USB Power Select Jumper
12. SPDIFO1	SPDIF out header
13. F_AUDIO1	Front Panel Audio header
14. CD_IN1	Analog audio input connector
15. PCI1~2	32-bit add-on card slots
16. PCIEX1	PCI Express x1 slot
17. PCIEX16	PCI Express x16 slot for graphics interface
18. USBPWR_R	Rear Panel USB PS/2 Power Select Jumper
19. ATX12V1	4-pin +12V power connector
20. SYS_FAN	System Fan connector
21. LPT1	Parallel port header

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

Introducing the Motherboard

Memo

Introducing the Motherboard

Chapter 2

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. First, 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. Secondly, this motherboard supports one or two floppy diskette drives and two enhanced IDE drives. Make sure that your case 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.

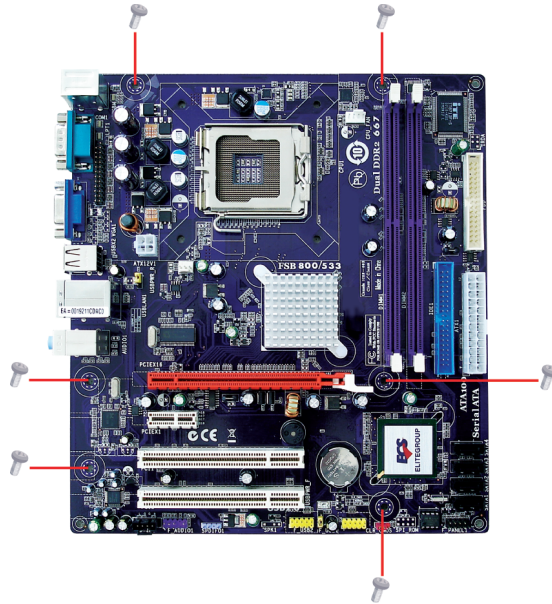
This motherboard carries a Micro ATX form factor of 244 x 210 mm. Choose a case that accommodates this form factor.

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**.

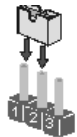


SHORT



OPEN

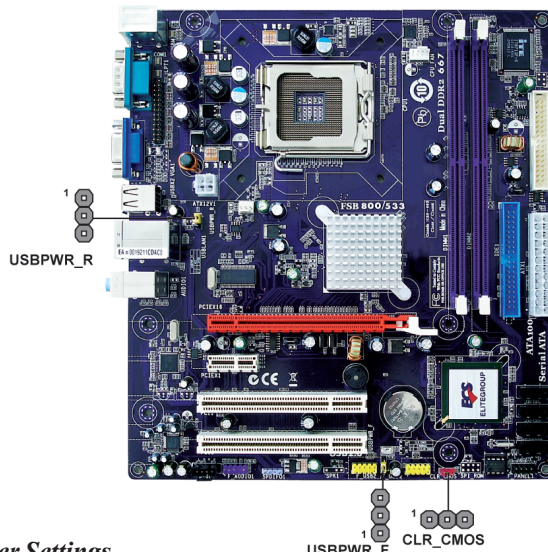
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.






Installing the Motherboard

Checking Jumper Settings

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



Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	Clear CMOS	1-2: NORMAL 2-3: CLEAR CMOS Before clearing the CMOS, make sure to turn off the system.	1  CLR_CMOS
USBPWR_F	3-pin	Front Panel USBPower Select Jumper	1-2: VCC 2-3: 5VSB	1  USBPWR_F
USBPWR_R	3-pin	Rear USB PS/2 Power Select Jumper	1-2: VCC 2-3: 5VSB	1  USBPWR_R



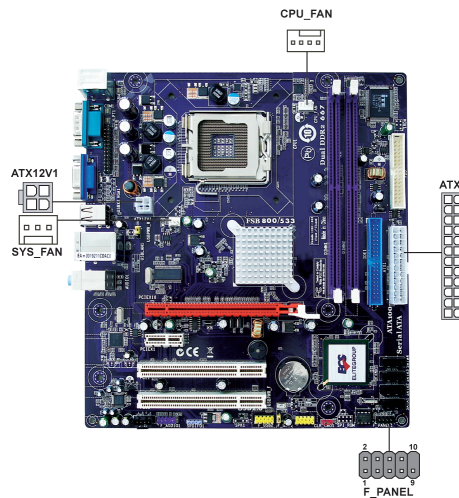
1. To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimal Defaults" and then "Save Changes and Exit".
2. Make sure the power supply provides enough 5VSB voltage before selecting the 5VSB function.
3. It is required that users place the USBPWR_F & USBPWR_R cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.

Installing the Motherboard

Connecting Case Components

After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

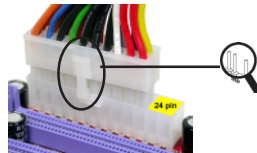
- 1 Connect the CPU cooling fan cable to **CPU_FAN**.
- 2 Connect the system cooling fan connector to **SYS_FAN**.
- 3 Connect the case switches and indicator LEDs to the **F_PANEL1**.
- 4 Connect the standard power supply connector to **ATX1**.
- 5 Connect the auxiliary case power supply connector to **ATX12V1**.



Connecting 20/24-pin power cable

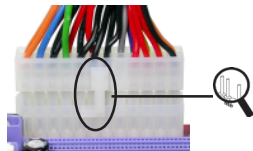


Users please note that the 20-pin and 24-pin power cables can both be connected to the ATX1 connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX1 connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity. A minimum power of 300W is recommended for a fully-configured system.



20-pin power cable

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latch of power cable falls on the left side of the ATX1 connector latch, just as the picture shows.



24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX1 match perfectly.

Installing the Motherboard

CPU_FAN: FAN Power Connector

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.

SYS_FAN: FAN Power Connector

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

ATX1: ATX 24-pin Power Connector

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

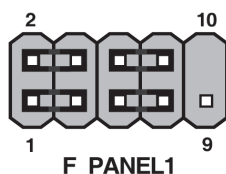
ATX12V1: ATX 12V Power Connector

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

Installing the Motherboard

Front Panel Header

The front panel header (F_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	Function	Pin	Signal	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

* 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 momentary-contact 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.

Installing the Motherboard

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 has a 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.

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing 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: 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.

Fail-Safe Procedures for Over-clocking

When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

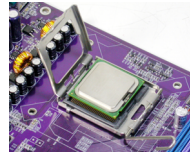
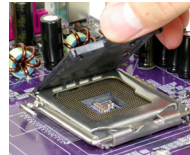
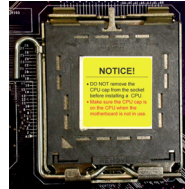
1. Shut down the computer.
2. Press and hold the “Page Up Key (PgUp)” of the keyboard, and then boot the PC up.
3. Two seconds after the PC boots up, release the “Page Up Key (PgUp)”.
4. The BIOS returns to the default setting by itself.

Installing the Motherboard

CPU Installation Procedure

The following illustration shows CPU installation components.

- A. Read and follow the instructions shown on the sticker on the CPU cap.
- B. Unload the cap
 - Use thumb & forefinger to hold the lifting tab of the cap.
 - Lift the cap up and remove the cap completely from the socket.
- C. Open the load plate
 - Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
 - Lift up the lever.
 - Use thumb to open the load plate. Be careful not to touch the contacts.
- D. Install the CPU on the socket
 - Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.
- E. Close the load plate
 - Slightly push down the load plate onto the tongue side, and hook the lever.
 - CPU is locked completely.
- F. Apply thermal grease on top of the CPU.
- G. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- H. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.



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 the Motherboard

Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 240-pin DDR2 667/533/400. The total memory capacity is 2 GB.

DDR2 SDRAM memory module table

Memory module	Memory Bus
DDR2 400	200 MHz
DDR2 533	266 MHz
DDR2 667	333 MHz

You must install at least one module in any of the two slots. Each module can be installed with 256 MB to 1 GB of memory; total memory capacity is 2 GB.

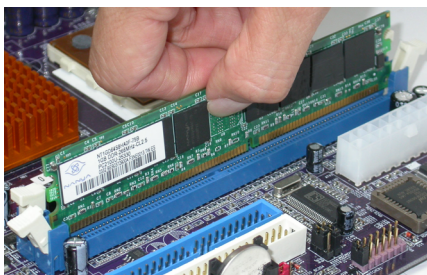


Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR2 SDRAM .
- 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.



Installing the Motherboard

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

The following DDR2 667/533/400 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name
DDR2 400	256 MB	Hynix	HYMP532U646-E3-AA
		Nanya	NT256T64UH4A0F-5A
	512MB	Nanya	NT512T64U88A0F-5A
DDR2 533	256 MB	A-DATA	M2OHY2F3G3110A1B0Z
		Elixir	M2U25664TUH4A0F-37B
		Infineon	HYS64T32400HU-3.7-A
		Kingston	KVR533D2N4/256
		Ramaxel	RML 1040M28D5F-533
		Samsung	M378T3253FGO-CD5
	512 MB	Aeneon	AET660UD00-370A98U
		Aeneon	AET660UD00-370A98X
		Aeneon	AET660UD00-370A98Z
		Infineon	HYS64T64400HU-3.7-A
		Kingston	KVR533D2N4/512
		PQI	MEABR321LA01AA
	1 GB	Samsung	M378T6553BGO-CD5
		Apacer	ELPIDA E5108AB-5C-E
		Infineon	HYS64T128920HU-3.7-A
		Kingston	KVR533D2N4/1G
		PQI	MEABR421LA0106
		UMAX	UMAX U2S12D30TP-5C
DDR2 667	256MB	Infineon	HYS64T32400HU-3S-A
	512MB	A-DATA	M2OAD5G3H3163J1C52
		A-DATA	M2OAD5G3H3166I1C52
		Apacer	AU512E667C5KBGC
		Cosair	VS512MB667D2
		Infineon	HYS64T64400HU-3S-A
		Kingston	KVR667D2N5/512
		Kingston	KVR800D2N5/512
		KingMax	KLCC28F-A8MF5
		Micron	MT9HTF6472AY-667B3
		Nanya	NT512T64U88A0BY-3C
		Ramaxel	RML1520HC38D6F-667
		Transcend	K4T51083QC ZCE6
		Twinmos	8G25JK-ED
		Twinmos	8D23JK-TT
	1 GB	A-DATA	M2OAD5G3I4176I1C52
		Apacer	Elpida E5108AE-6E-E
		Infineon	HYS64T128920HU-3S-A
		Kingston	KVR800D2N5/1G
		Patriot	PSD21G6672
		Ramaxel	RML1320HC38D7F-667
		PQI	MEABR421LA0107
	2GB	PQI	MEAD-403LA1001-05B1
		Kingston	KVR667D2N5/2G
		Nanya	NT2GT64U8HB0JY-3C
		Sharetronic	SM212NH08EAF

Installing the Motherboard

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 IDE Devices

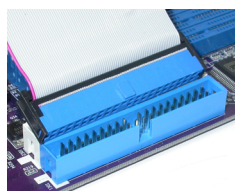
Your motherboard has one IDE channel interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

IDE1: IDE Connector

This motherboard supports four high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

About SATA Connectors

Your motherboard features four SATA connectors supporting a total of four 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)

Installing the Motherboard

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 a Floppy Diskette Drive

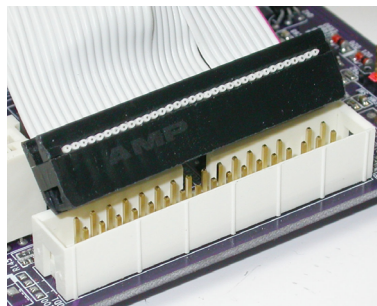
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.



You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

FDD: Floppy Disk Connector

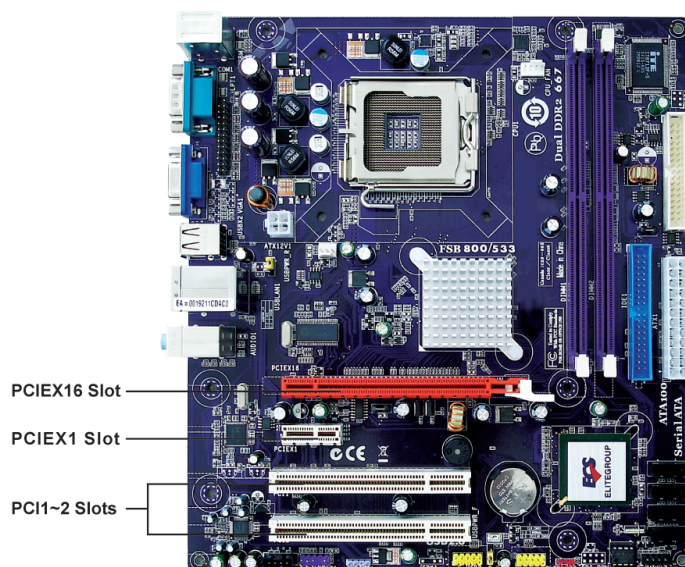
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



Installing the Motherboard

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 1.0a.

PCIEX1 Slot The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.0a as well.

PCI 1~2 Slots This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

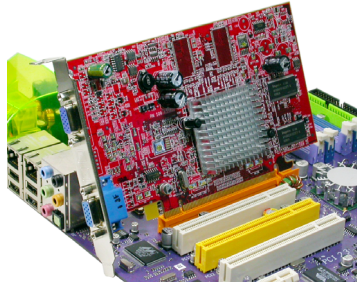


Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Installing the Motherboard

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.



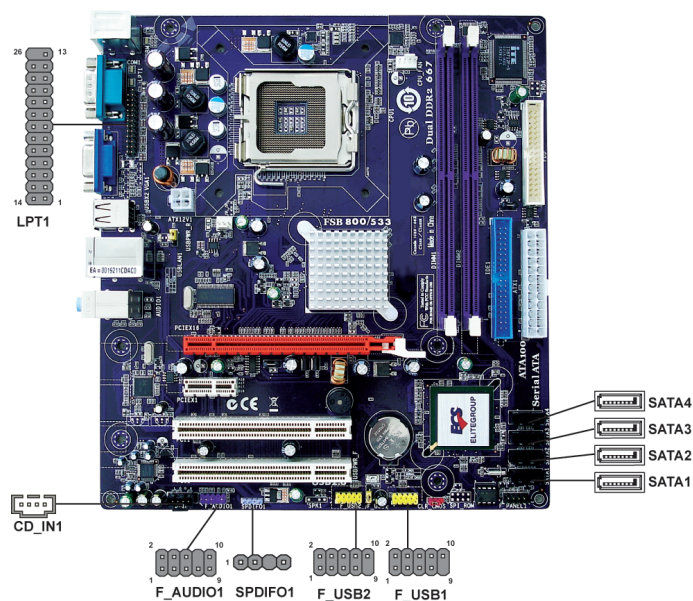
1. For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

2. The onboard PCI interface does not support 64-bit SCSI cards.

Installing the Motherboard

Connecting Optional Devices

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



F_AUDIO1: Front Panel Audio header for Azalia

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

Pin	Signal Name	Function
1	AUD_MIC	Front Panel Microphone input signal
2	AUD_GND	Ground used by Analog Audio Circuits
3	MIC_BIAS	Microphone Power
4	AUD_VCC	Filtered +5V used by Analog Audio Circuits
5	AUD_F_R	Right Channel audio signal to Front Panel
6	AUD_RET_R	Right Channel Audio signal to Return from Front Panel
7	REVD	Reserved
8	Key	No Pin
9	AUD_F_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal to Return from Front Panel

Installing the Motherboard

SATA1/2/3/4: Serial ATA connectors

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

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

CD_IN1: Analog Audio Input connector

Pin	Signal Name	Function
1	CD_L	CD In right channel
2	GND	Ground
3	GND	Ground
4	CD_R	CD In left channel

F_USB1~2: 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 Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal



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.

Installing the Motherboard

LPT1: Onboard parallel port header

This is a header that can be used to connect to the printer, scanner or other devices.

Pin	Signal Name	Pin	Signal Name
1	STROBE	14	ALF
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSK	24	Ground
12	PE	25	Ground
13	SLCT	26	Key

SPDIFO1: SPDIF out header

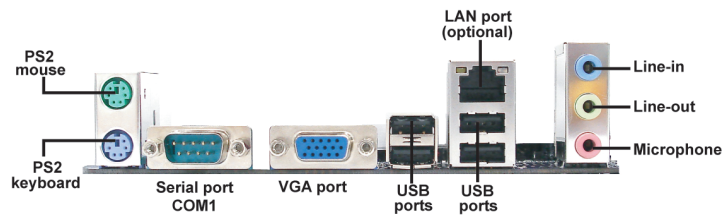
This is an optional header that provides an SPDIFO (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name
1	SPDIFOUT
2	+5V
3	Key
4	GND

Installing the Motherboard

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.
Serial Port (COM1)	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
VGA Port	Connect your monitor to the VGA port.
LAN Port (optional)	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.
Audio Ports	Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.

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

Installing the Motherboard

Chapter 3

Using BIOS

About the Setup Utility

The computer uses the latest “American Megatrends Inc.” BIOS with 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:

Using BIOS

Press DEL to enter SETUP

Press the delete key to access the BIOS Setup Utility.

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.

<ul style="list-style-type: none"> ▶ Standard CMOS Setup ▶ Advanced Setup ▶ Advanced Chipset Setup ▶ Integrated Peripherals ▶ Power Management Setup ▶ PCI/PnP Setup ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Default Settings ▶ Supervisor Password ▶ User Password Save & Exit Setup Exit Without Saving
<p>↑↓ → ← Move Enter: Select +/-: Value F10: Save and Exit F1: General Help F9: Optimized Defaults ESC: Exit</p>	
<p>v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.</p>	

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓ → ←	Scrolls through the items on a menu
+/-/PU/PD	Modifies the selected field's values
Enter	Select
F9	Loads an optimized setting for better performance
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions

Using BIOS

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 3.
- 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 ►.

Using BIOS

Standard CMOS Setup

This option displays basic information about your system.

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Setup

System Date	Mon 01/01/2007	Help Item
System Time	00 : 12 : 59	
▶ Primary IDE Master	Not Detected	User [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Date.
▶ Primary IDE Slave	Not Detected	
▶ Secondary IDE Master	Not Detected	
▶ Secondary IDE Slave	Not Detected	
▶ Third IDE Master	Not Detected	
▶ Third IDE Slave	Not Detected	
PCI IDE BusMaster	Enabled	
Floppy A	Not Deteced	

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

System Date & 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.

► IDE Devices

Your computer has one IDE channel which can be installed with one or two devices (Master and Slave). In addition, this motherboard supports two SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.

CMOS SETUP UTILITY -- Copyright (C) 1985-2005, American Megatrends, Inc.
Primary IDE Master

Primary IDE Master	Help Item
Device : Not Detected	
Type	Auto
LBA/Large Mode	Auto
Block (Multi-Sector Transfer)	Auto
PIO Mode	Auto
DMA Mode	Auto
S.M.A.R.T	Auto
32Bit Data Transfer	Enabled
	Select the type of device connected to the system.

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

Using BIOS

Type (Auto)

Use this item to configure the type of the IDE device that you specify. If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer

LBA/Large Mode (Auto)

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer) (Auto)

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode (Auto)

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode (Auto)

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T. (Auto)

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

32Bit Data Transfer (Enabled)

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

Advanced Setup

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) 1985-2005, American Megatrends, Inc.
Advanced Setup

		Help Item
CPU TM function	Enabled	
Max CPUID Value Limit	Disabled	
Execute Disable Bit	Disabled	
Intel (R) SpeedStep (tm) tech.	Automatic	
Enhanced Halt (C1E)	Enabled	
Quick Power on Self Test	Enabled	
Boot up Numlock Status	On	
APIC Mode	Enabled	
Boot Other Device	Enabled	
Hige Performance Event Timer	Enabled	
		For the processor its CPUID belows 0F41h. TM2 only can be enabled under below setting. 1. Freq. >= 3.6GHz FSB800 2. Freq. >= 2.86GHz FSB533

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

Using BIOS

CPU TM function (Enabled)

For some specific brands of CPU, you can use this item to control the CPU frequency and voltage according to its temperature.

Max CPUID Value Limit (Disabled)

Use this item to enable or disable the Max CPU ID value limit. When supports Prescott and LGA775 CPUs, enables this to prevent the system from “rebooting” when trying to install Windows NT 4.0.

Execute Disable Bit (Disabled)

This item is a security feature that helps you protect your CPU and operating system against malicious software executing code. This item is available when CPU supports the feature.

Intel (R) SpeedStep (tm) tech. (Disabled)

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

Enhanced Halt (C1E) (Enabled)

This item enables or disables enhanced halt.

Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

Boot Up Numlock Status (On)

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

APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

Boot Other Device (Enabled)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

High Performance Event Timer (Enabled)

This item enables or disables HPET (High Performance Event Timer) support.

Press <Esc> to return to the main menu setting page.

Advanced Chipset Setup

This page sets up more advanced information about your system. Handle this page

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Advanced Chipset Setup

Configure DRAM Timing	By SPD	Help Item
DVMT Mode Select	DVMT Mode	
DVMT/Fixed Memory	Maximum DVMT	
Share Memory Size	Enabled, 8MB	
		Options
		Manual
		By SPD

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

Configure DRAM Timing (By SPD)

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

DVMT Mode Select (DVMT Mode)

This item allows you to select the DVMT operating mode.

DVMT/Fixed Memory (Maximum DVMT)

When set to Fixed Mode, the graphics driver will reserve a fixed portion of the system memory as graphics memory. When set to DVMT Mode, the graphics chip will dynamically allocate system memory as graphics memory, according to system and graphics requirements..

Share Memory Size (Enabled, 8MB)

This item lets you allocate a portion of the main memory for the onboard VGA display application.

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) 1985-2005, American Megatrends, Inc.
Integrated Peripherals

Onboard IDE Controller	Enabled	Help Item
Onboard SATA Controller	Enabled	Disable / Enable the integrated IDE Controller
USB Functions	Enabled	
Legacy USB Support	Enabled	
Audio Controller	Enabled	
Onboard LAN Function	Enabled	
Onboard LAN Boot ROM	Disabled	
Serial Port1 Address	3F8&IRQ4	
Parallel Port Address	378	
Parallel Port Mode	ECP	
ECP Mode DMA Channel	DMA3	
Parallel Port IRQ	IRQ7	

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

Onboard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

Onboard SATA Controller (Enabled)

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

USB Functions (Enabled)

Use this item to enable or disable the USB function.

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.

Audio Controller (Enabled)

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

OnBoard LAN Function (Enabled)

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

OnBoard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card 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.

Parallel Port Address (378)

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

Parallel Port Mode (ECP)

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

Using BIOS

ECP Mode DMA Channel (DMA3)

Use this item to assign the DMA Channel under ECP Mode function.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

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) 1985-2005, American Megatrends, Inc.
Power Management Setup

	S3 (STR)	Help Item
ACPI Suspend Type	Delay 4 Sec	Select the ACPI state used for System Suspend.
Soft-off by PWR-BTTN	Power Off	
PWRON After PWR-Fail	Enabled	
Wake-Up by PME	Disabled	
Power On by Ring	Disabled	
USB KB Wakeup From S3	Disabled	
PS2 Keyboard Wakeup	Disabled	
PS2 Mouse Wakeup	Disabled	
Resume on RTC Alarm	Disabled	

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

ACPI Suspend Type (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.

Soft-Off By PWR-BTTN (Delay 4 Sec)

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec, then you have to hold the power button down for four seconds to cause a software power down.

PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Wake-Up by PME (Enabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

Power On by Ring (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Using BIOS

USB KB Wakeup From S3 (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3/S4 mode.

PS2 Keyboard Wakeup (Disabled)

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

PS2 Mouse Wakeup (Disabled)

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

Resume on 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 (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

PCI / PnP Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
PCI / PnP Setup

Init Display First Allocate IRQ to PCI VGA	PCI Card Yes	Help Item Select which graphics controller to use as the primary boot device.
---	-----------------	--

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

Init Display First (PCI Card)

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

Allocate IRQ to PCI VGA (Yes)

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

Press <Esc> to return to the main menu setting page.

Using BIOS

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) 1985-2005, American Megatrends, Inc.
PC Health Status

Hardware Health Event Monitoring		Help Item
►Smart Fan Function	Press Enter	
Shutdown Temperature	Disabled	
CPU Temperature	31°C/87°F	
CPU Fan Speed	3325 RPM	
CPU VCore	1.264 V	
VDIMM	1.824 V	

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

► Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function

SMART Fan Control		Item Help
SMART Fan start PWM value	070	
SMART Fan start TEMP. (°C)	020	
SMART Fan Slop PWM value	2 PWM value/°C	Fan configuration mode setting

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

SMART Fan Control (Disabled)

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 PC Health Status page.

Shutdown Temperature (Disabled)

Enable you to set the maximum temperature the system can reach before powering down.

Using BIOS

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.

- CPU Temperature
- CPU Fan Speed
- CPU VCore
- VDIMM

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) 1985-2005, American Megatrends, Inc.
Frequency/Voltage Control

Manufacturer: Intel Ratio Actual Value: 20 CPU Frequency Setting 133MHz DRAM Frequency Auto Spread Spectrum Disabled	Help item Options Auto 400 MHz 533 MHz 667 MHz
--	---

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

Manufacturer (Intel)

This item displays the information of current manufacturer of the CPU installed in your computer.

Ratio Actual Value (20)

These items show the locked ratio status and the actual ratio of the CPU installed in your system.

CPU Frequency Setting (133 MHz)

This item allows you to set CPU frequency.

DRAM Frequency (Auto)

This item shows the frequency of the DRAM in your computer.

Spread Spectrum (Disabled)

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.

Using BIOS

Load Optimal Defaults

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.

Supervisor Password

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Supervisor Password

Security Settings	Help item
Supervisor Password : Not Installed Change Supervisor Password Press Enter	Install or Change the password.

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

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.

Change Supervisor Password (Press Enter)

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

Press <Esc> to return to the main menu setting page.

User Password

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
User Password

Security Settings	Help item
User Password : Not Installed	

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

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.

Press <Esc> to return to the main menu setting page.

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 “Discard Changes and Exit” item and select [OK] 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.

Using BIOS

Chapter 4

Using the Motherboard Software

About the Software CD-ROM

The support software CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.



1. Never try to install all software from folder that is not specified for use with your motherboard.
2. The notice of Intel HD Audio Installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center **“before”** installing HD audio driver bundled in the driver CD. Please log on to <http://support.microsoft.com/default.aspx?scid=kb:en-us:901105#appliesto> for more information.

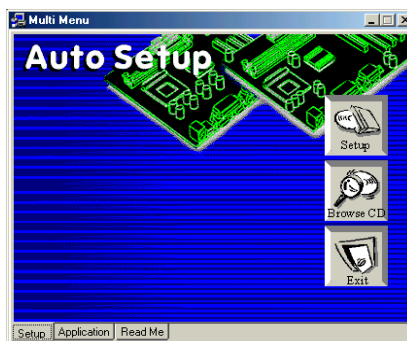
Auto-installing under Windows 2000/XP

The Auto-install CD-ROM makes it easy for you to install the drivers and software for your motherboard.



If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software CD-ROM disc loads automatically under Windows 2000/XP. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



If the opening screen does not appear; double-click the file “setup.exe” in the root directory.

Using the Motherboard Software

Setup Tab

Setup	Click the Setup button to run the software installation program. Select from the menu which software you want to install.
Browse CD	<p>The Browse CD button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as Windows 2000/XP. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.</p>
Exit	The EXIT button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

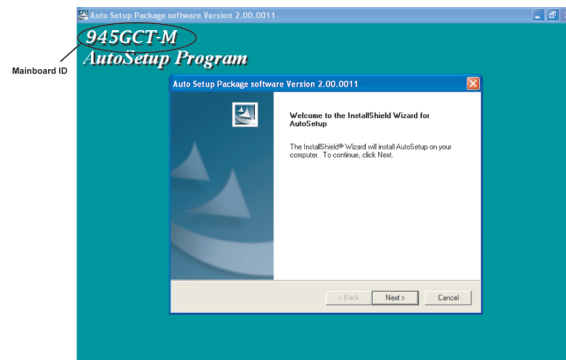
Read Me Tab

Displays the path for all software and drivers available on the CD.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

1. Click **Setup**. The installation program begins:

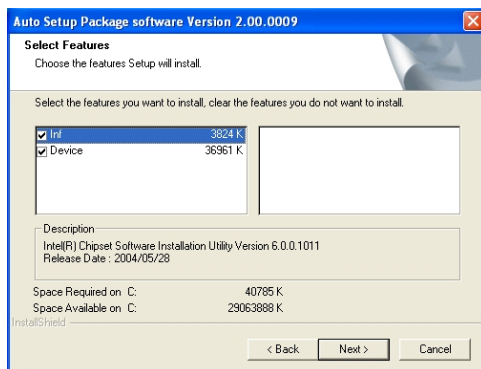


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

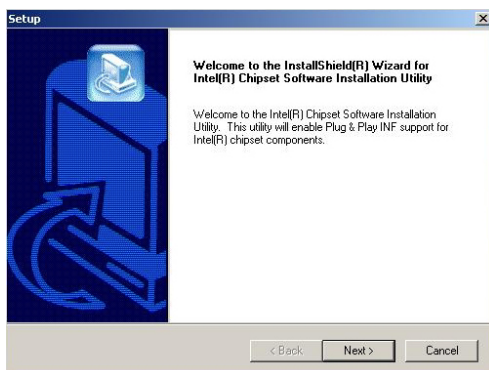
The motherboard identification is located in the upper left-hand corner.

Using the Motherboard Software

2. Click **Next**. The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** run the Installation Wizard. An item installation screen appears:



5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Using the Motherboard Software

Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.



These software(s) are subject to change at anytime without prior notice. Please refer to the support CD for available software.

This concludes Chapter 4.

Using the Motherboard Software