TÜV CERT

CERTIFICATE

The TÜV CERT Certification Body
for QM Systems of RWTÜV Systems GmbH

hereby certifies in accordance with TÜV CERT procedure that

ELITEGROUP COMPUTER SYSTEMS CO., LTD.
ECS MANUFACTURING (SHENZHEN) CO., LTD.
ELITE TECHNOLOGY (SHENZHEN) CO., LTD.

2F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan 114
No. 22, Alley 38, Lane 91, Sec. 1, Nei Hu Road, Taipei, Taiwan 114
No. 20 & No. 26, Free Trade Zone, Shatoujiao, Shenzhen City, GuangDong Province, China

has established and applies a quality system for

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

An audit was performed, Report No. **2.5-1585/2000**

Proof has been furnished that the requirements according to

ISO 9001 : 2000 / EN ISO 9001 : 2000 / JIS Q 9001 : 2000 / ANSI/ASQC Q9001 : 2000

are fulfilled. The certificate is valid until **27 January 2007**

Certificate Registration No. **04100 2000 1325**

The company has been certified since **2000**

Essen, 04.03.2004

RWTÜV

The TÜV CERT Certification Body for QM Systems of RWTÜV Systems GmbH

SSCC CERTIFICATION

ISO14001 CERTIFICATE

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

We hereby certify that

ECS MANUFACTURING (SHANZHEN) CO., LTD.

by reason of its

Environmental Management System

has been awarded this certificate for compliance with the standard

ISO14001:1996

The Environmental Management System applies in the following area:

ECS MANUFACTURING (SHANZHEN) CO., LTD.
located at No. 20 & 26 (except 1F, 2F), Free Trade Zone, Shatuojiao, 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:

CNAB

SHENZHEN SOUTHERN CERTIFICATION CO., LTD.

ECS ELITEGROUP

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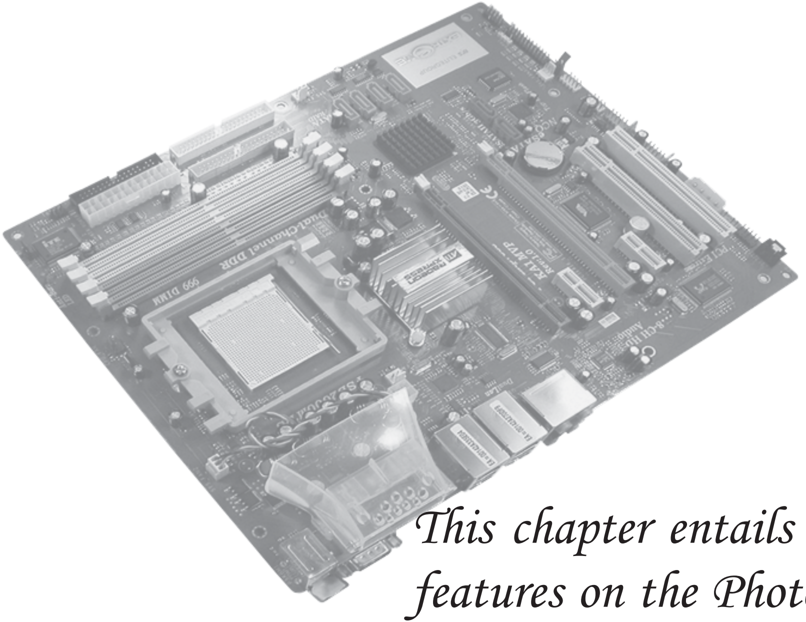
EXTREME

CHAPTER 4



This chapter entails the newest technology and rich features on the Photon Extreme motherboard.

Reference

1.1 Introduction

Thank you for choosing the KA1 MVP motherboard.

The KA1 MVP is the next generation of high performance motherboard designed to support the AMD Athlon 64/Athlon 64 FX processor. This motherboard has an ATX form factor that uses a 4-layer printed circuit board and measures 305 mm x 244 mm.

The KA1 MVP motherboard is based on the ATI RD480 Northbridge and SB450 Southbridge chipsets to set a new benchmark for the best desktop platform solution. This motherboard supports up to 4 GB of system memory with PC3200/2700/2100/1600 DDR DIMMs, high resolution graphics via two PCI Express slots, Dual LAN, USB 2.0, IEEE 1394, 8-channel audio, and SATA II (Gen 1 and Gen 2) support with RAID function.

This motherboard complies to ATI's unique CrossFire™ technology, a parallel processing technology propelling your PC to a new pinnacle of performance with the ultimate multi-GPU consumer graphics solution. Supporting a wide range of ATI-based graphics cards and motherboards, the CrossFire platform offers flexibity and compatibility with all of today's Radeon X800® or Radeon X850® graphics cards.

1.2 Package Check List

Motherboard

User's Guide

Installation CD

SATA Power Cable

Top Hat Flash

I/O Shield

eSATA Cable

SATA Cable

Cross Over Cable

SPDIF out bracket

USB+1394 PCI Bracket & housing

HDD, CD-ROM, and FDD Cables

Shunt Card

All pictures are for reference only.

1.3 Feature Summary

CPU	• Socket 939 for AMD Athlon 64/Athlon 64 FX CPU • High-performance HyperTransport CPU Interface • Transfer rate of 2000/1600/1200/800/400 MT/s
Chipset	• Northbridge: ATI RD480 • Southbridge: ATI SB450
Memory	• Dual-channel DDR memory architecture • 4 x 184-pin, 2.5V, DDR SDRAM DIMM sockets support up to 4 GB • Support DDR400/333/266/200 unbuffered DDR SDRAM
Expansion Slots	• 2 x PCI Express x16 slots • 2 x PCI Express x1 slot • 2 x PCI slots
Storage	• Supported by SB450 - 4 x Ultra DMA133/100/66 IDE devices - 4 x SATA devices - RAID 0 & RAID 1 configuration • Supported by SiI3132 - Serial ATA Generation 2 transfer rate of 3.0 Gb/s - 2 x SATA II devices - RAID 0 & RAID 1 configuration

IEEE 1394a	• VIA IEEE1394a controller • Supports 2 x IEEE1394a cable ports at 100M bits/s, 200M bits/s, and 400M bits/s
Audio	• Realtek 8-channel audio CODEC • Compliant with High Definition Audio Codec
Dual LAN	• Realtek 10/100 Mbps LAN controller • Marvell Giga LAN controller
Rear panel I/O	• 1 x PS/2 keyboard connector • 1 x PS/2 mouse connector • 4 x USB ports • 2 x RJ45 LAN connectors • 1 x Serial port • 1 x Audio jack (microphone, line-in, and 8-channel line out)
BIOS features	• Award BIOS with 4Mb or 8Mb Flash ROM • Supports Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Supports ACPI revision 1.0B specificaion
Internal I/O	• 1 x 24-pin ATX Power Supply Connector & 4-pin 12 V Connector • 1 x 4-pin ATX4P1 power connector

	• 1 x Floppy connector- supports 360K ~ 2.88M Bytes, 3 Mode FDDs or LS120 • 2 x IDE connectors • 6 x Serial ATA connectors • 2 x USB 2.0 headers support additional 4 USB ports • 2 x 1394a headers • 1 x LPT1 header • 1 x Front panel switch/LED header • 1 x Front panel audio header • 1 x Infrared header • 1 x SPK1 header • 1 x CD-in header • 1 x SPDIF out header • CPU_FAN/NB_FAN/SYS_FAN1~3 connectors
Form Factor	• ATX size • 305mm x 244mm

1.4 Special Features

Extreme Power

The most effieient algorithm!

The most powerful engine!

Overdrive the HDD performance with NCQ!

One-key boot device selection!

Uncompromising DVD audio quality!

New generation of I/O interface!

Increased, supercharged 3D graphics & performance.

Slash memory access time!

Double bandwidth SATA!

More bandwidth, low latency, and betterefficiency!

Device plug with USB-like ease!

Instant and automatic overclocking technology!

Extreme Guardian

Auto restart after power loss!

A 'time machine' to protect and restore files!

Become your own BIOS 'doc-tor'!

Memory module alert!

Dr. LED!

Connect with external Multiple devices with FIS based switching function!

External sATA hot plug, anytime & anywhere. Absolute no limitation!

PC protection toolkit!

Extreme Link

Add peripherals and con-sumer electronics devices!

PCI 2.3 support!

All the USB 2.0 connectiv-ity you'll ever need!

More options for data stor-age!

Smart LAN!

More port options!

Industrial-strength LAN power!

Auto-negotiate your 10/ 100M LAN!

Porvide good performance and data protection!

Server class dual LAN for both Internet and Intranet!

A cooling channel with a fansink placed on top of the PWM controller!

Let your PC as a fileserver!

Extreme Genius

Color-coding for easy con-nections!

Supports AMD 939-pin processor!

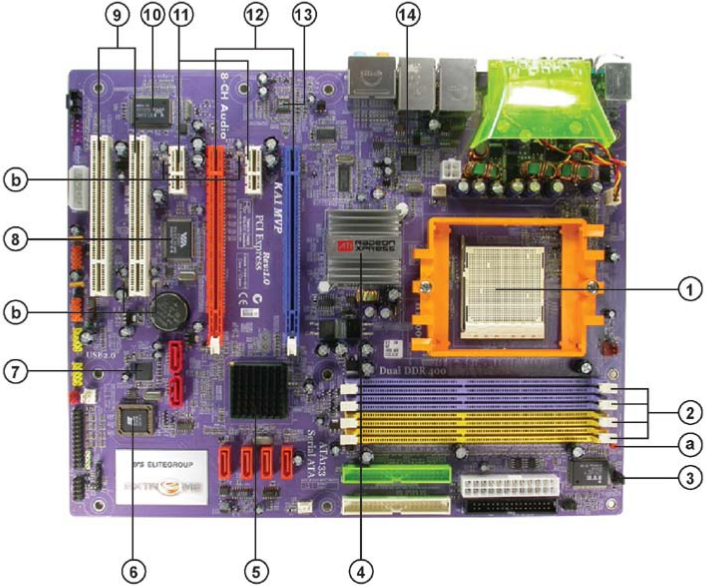
Eliminate data highway roadblocks!

Ultra sound quality!

Clear and Clean!

Rounded corners for strength and safety!

1.5 Major Components



1. ***CPU socket***

   Socket 939 surface mount, Zero Insertion Force socket for AMD K8 Athlon 64 FX Processor supports FSB 1000/800/600/400/200 MHz that allows up to 8 GB/s data transfer rates.

2. ***Dual channel DDR DIMM sockets***

   These four 184-pin DIMM sockets support up to 4GB system memory using unbuffered PC3200/2700/2100/1600 DDR DIMMs.

3. ***Super I/O controller***

   The Low Pin Count (LPC) interface provides the commonly used super I/O functionality. The chipset supports a high performance floppy disk controller, a multi-mode parallel port, one serial port, a game port, the mouse and keyboard interface.

4. ***Northbridge controller***

   The RD480 is a system controller in a single chip. It supports AMD K8 desktop systems in both the performance and value sectors. It fully supports DirectX9.0 in hardware.

5. ***Southbridge controller***

   The SB450 integrated peripheral controller supports various I/O functions including four Serial ATA connectors, single channel UltraDMA 133/100/66/33 master mode EIDE controller, eight USB 2.0 ports, Azalia Audio interface, and PCI 2.3 interface.

6. ***Flash ROM***

This ROM contains the programmable BIOS program.

7. ***SiI3132 Serial ATAII controller***

This motherboard incorporates the high performance SiI3132 IDE RAID controller, which supports RAID 0, RAID 1 configuration.

8. ***IEEE 1394a controller***

The IEEE 1394a controller provides high-speed and flexible PC connectivity to a wide range of peripherals and devices compliant to IEEE 1394a standards. The IEEE 1394a interface allows up to 400Mbps tranfer rates.

9. ***PCI slots***

These two 32-bit PCI 2.3 expansion slots support bus master PCI cards like SCSI or LAN cards with 133MB/s maximum throughput.

10. ***LAN controller***

The 10/100Mbps LAN delivers a transfer rates up to 10/100Mbps.

11. ***PCI Express x1 slots***

These two PCI Express x1 slots are fully compliant to the PCI Express Base Specification revision 1.0a.

12. ***PCI Express x16 slots***

This motherboard has two x16 PCI Express slots, which are intended for external PCI Express graphics cards.

13. ***Audio CODEC***

The audio CODEC is compliant with High Definition Audio Codec and supports 8-channel audio.

14. ***Giga LAN controller***

The Giga LAN controller delivers a transfer rates up to 10/100/1000 Mbps for the Ethernet connection. Ideal for handling large amounts of data such as video, audio and voice.

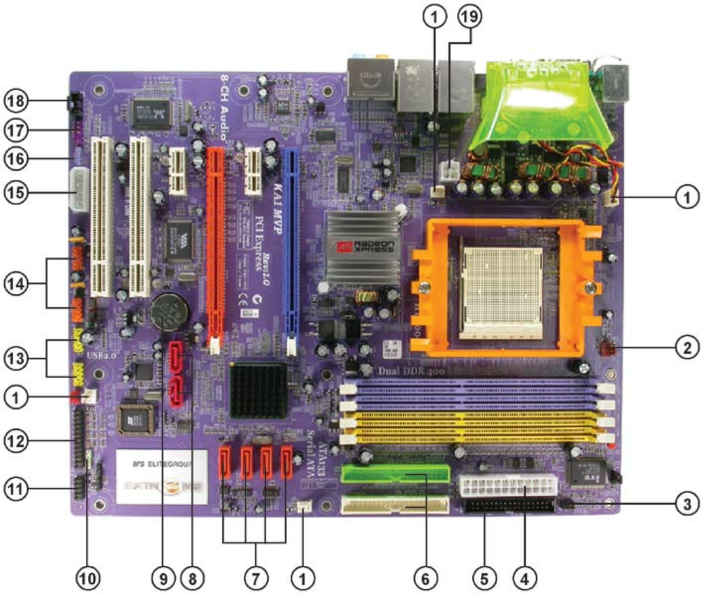
a. ***Anti-Burn LED indicator***

When this LED is lit up, do not remove the memory module from your DIMM slot or else your memory module will be damaged.

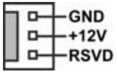
b. ***PCI LED indicator***

The blinking PCI LED indicates the PCI slot activity. These LEDs will stop blinking when add-in card has been installed. Blinking means no add card installed or add-in card was not properly installed.

1.6 Headers and Connectors

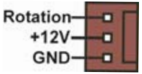


1. *NB_FAN, SYS_FAN1~3 (Fan Connectors, 3 pin)*



These connectors allow you to link with the cooling fans to lower the system temperature and the Northbridge chipset temperature.

2. *CPU_FAN (CPU Fan Connector, 3 pin)*

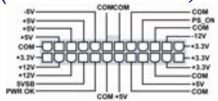


Please note that a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal conditions or being damaged by overheating. The CPU fan connector supports maximum current up to 600 mA.

3. *IR1 (Infrared Header, 6-1 pin)*

The motherboard supports an infrared (IR1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

4. ATX_POWER (Power Connector, 24 pin)

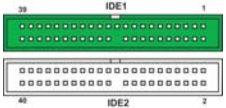


AC power cord should only be connected to your power supply until after ATX power cable and other related devices are firmly connected to the motherboard. The minimum recommended power is 300W. If not, the system may become unstable or may not even boot up.

5. FDD (Floppy Connector, 34-1 pin,)

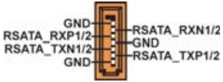
Please connect the floppy drive ribbon cables to FDD. It supports 360K, 12M, 720K, 1.44M and 2.88M bytes floppy disk types.

6. IDE 1~2 (IDE1~2 Connectors, 40-1 pin)



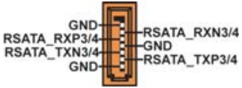
These are supported by SB450. Please connect the first hard disk to IDE 1 and connect the CD-ROM to IDE 2. The streamline IDE cable must be the same side with the Pin 1.

7. SATA 1/2/3/4 (Serial ATA Connectors, 7 pin)



These next generation connectors delivered by the SB450 South Bridge support the thin Serial ATA cables for Serial ATA hard disks. The current Serial ATA interface allows up to 150MB/s data transfer rate, faster than the standard parallel ATA with 133MB/s (UltraATA 133)

8. SATA 5/6 (Serial ATA RAID Connectors, 7 pin)



These Serial ATAII connectors support SATA hard disks that you can configure as a RAID set. Through the onboard SiI3132 RAID controller, you can create a RAID 0, RAID 1 configuration.

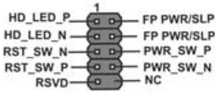
9. Battery

Danger of explosion if battery is incorrectly replaced. Replace only with the same of equivalent type recommended by the manufacturer.

10. SPK1 (Speaker Header, 4-pin)

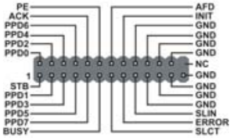
Connect the case speaker cable to the header.

11. Panel1 (Front Panel Header, 10-1 pin)



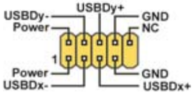
The front panel connector provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases.

12. LPT1 (Parallel Port Header, 26-1 pin)



Connect the printer, scanner, or other device to this header.

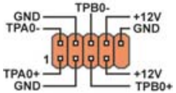
13. USB 3/4 (Front USB Headers, 10-1 pin)



If the USB ports on the rear panel are inadequate, three USB headers are available for additional USB ports. The USB headers complies with USB 2.0 specification that supports up to 480 Mbps connection speed. This is a speed advantage over the conventional 12 Mbps on USB 1.1.

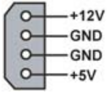
Note: USB 3/4 DO NOT support wake from USB mouse or keyboard under S3 power management mode.

14. 1394A1/A2 (10-1 pin Headers)



Attach the 10-1 pin 1394 cable plug from the device to this connector. You may also connect a 1394-compliant internal hard disk to this connector.

15. ATX4P1 (Auxiliary power connector for graphics cards)

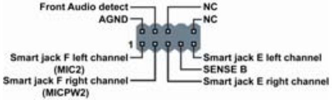


ATX4P1 power connector is for power supply plug; it offers adequate supply of power to the motherboard. The power supply plug is designed to fit connector in only one orientation. When installing two graphics cards, make sure to connect the 4-pin power plug to the ATX4PI. If not, the system may become unstable.

16. SPDIFO1 (SPDIF Out Header, 4 pin)

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

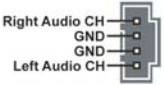
17. Audio1 (Front Panel Audio Header, 10-1 pin)



This is an interface for the Intel front panel audio cable that allows convenient connection and control of audio devices.

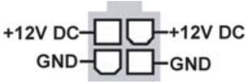
Notes: **If your front panel cable is separated, please connect it to pin1 and pin3 or pin5 and pin7 to activate the MIC function.**

18. CD_IN (CD In Connector, 4 pin)



Connect CD-ROM or DVD-ROM audio out to the connector.

19. ATX12V



This connector supplies the CPU operation voltage (Vcore). Don't forget to connect the 4-pin ATX 12V connector, otherwise the system cannot boot up.

1.7 Jumpers

1. ***CLR_CMOS (CLEAR CMOS Jumper)***
   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. Before clearing the CMOS data, make sure to turn the system off.

   1-2: NORMAL (Default)
   2-3: CLEAR

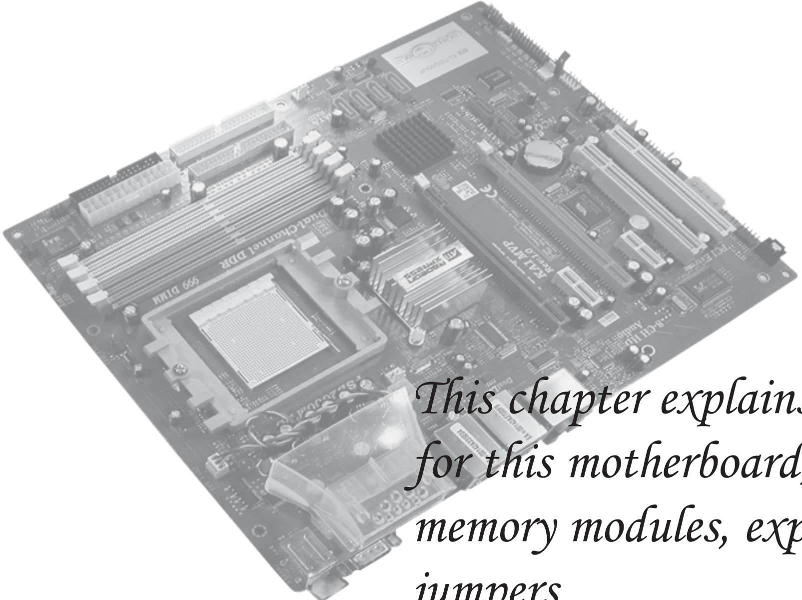
2. ***BIOS_WP (BIOS PROTECT)***
   This jumper enables you to prevent the BIOS from being updated or flashed.

   1-2: DISABLE (Default)
   2-3: ENABLE

1.8 Rear Panel

1. ***PS/2 mouse port***
   This 6-pin connector is for connecting PS/2 mouse.
2. ***RJ-45 port***
   This port allows connection to a Local Area Network (LAN) through a network hub. It supports up to Gigabit tranfer rate.
3. ***RJ-45 port***
   This port allows connection to a Local Area Network (LAN) through a network hub. It supports up to 10/100 Mbps transfer rate.
4. ***Center/Bass Jack ****
   This jack connects a tape player or other audio sources. In 8-channel mode, the function of this jack is Center/Bass speaker out.
5. ***Line in jack ****
   The function of the jack is microphone input.
6. ***Front Out Jack ****
   This jack connects a tape player or other audio sources. In 8-channel mode, the function of this jack is Front speaker out.
7. ***Back Surround Jack ****
   This jack connects a tape player or other audio sources. In 8-channel mode, the function of this jack is Back-Surround speaker out.
8. ***Microphone in Rear jack ****
   The function of the jack is microphone input rear.
9. ***Side Surround Jack ****
   This jack connects a tape player or other audio sources. In 8-channel mode, the function of this jack is Side Surround speaker out.
10. ***USB 2.0 ports 1 ~ 4***
    These four Universal Serial Bus (USB) ports are available for connecting USB 2.0.
11. ***Serial port***
    This 9-pin COM1 port is for serial devices.
12. ***PS/2 keyboard port***
    This 6-pin connector is for connecting PS/2 keyboard.

Note: The audio ports with a * sign can be changed to audio input or audio output by changing the driver utility setting.

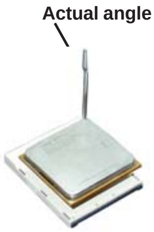


This chapter explains the hardware setup procedure for this motherboard, such as installing the CPU, memory modules, expansion cards, as well as the jumpers

Reference

2.1 Installing the CPU

1. Angling the rod to 65-degree may feel tight, continue to pull the rod to 90-degree angle.
2. Position the CPU above the socket such that its notched or marked corner matches the socket corner near the base of the lever, while making sure that the CPU is parallel to the socket. Then insert the CPU into the socket.



Warning: If the CPU does not fit, please change the insert orientation. Do not force the CPU into the socket.

3. Close the socket by lowering and locking the lever.

2.2 Installing the CPU cooling FAN

1. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.

2. 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.

Warning: We recommend that you apply the thermal tape to provide better heat conduction between your CPU and cooling fan.

2.3 Installing Memory Module

1. Push the latches on each side of the DIMM slot down.
2. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
3. 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.

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

The following DDR400 memory modules have been tested and qualified for use with this motherboard.

Size	Vendor	Module Name
128MB	Infineon	HYS64D16301GU-5-B
	NANYA	NT128D64SH4B1G-5
	NANYA	NT128D64SH4B1G-5T
256MB	Infineon	HYS64D32300GU-5-B
	Infineon	HYS64D32300HU-5-C
	Micron	MT8VDDT3264AG-40BC4
	NANYA	NT256D64S88B1G-5T
	Ramaxel	HYB25D256800CE-5C
	SAMSUNG	M368L3223DTM-CC4
512MB	Apacer	V58C2256804SAT5
	Apacer	HYB25D256800BT-5B
	Infineon	HYS64D64320HU-5-C
	NANYA	NT1GD64S8HB0G-5T
1GB	NANYA	NT512D64S8HB1G-5T

Table B: Unbuffered DIMM Support for 939-pin

Data Bus	Chip Selects				Maximum DRAM Speed	
	MEMCS_1L_L*	MEMCS_1H_L*	MEMCS_2L_L*	MEMCS_2H_L*	1T	2T
64-bits	Single rank	N/A	N/A	N/A	DDR400	DDR400
	Double rank	N/A	N/A	N/A	DDR400	DDR400
	N/A	N/A	Single rank	N/A	DDR400	DDR400
	N/A	N/A	Double rank	N/A	DDR400	DDR400
	Single rank	N/A	Single rank	N/A	DDR333	DDR400
	Single rank	N/A	Double rank	N/A	DDR200	DDR400
	Double rank	N/A	Single rank	N/A	DDR200	DDR400
	Double rank	N/A	Double rank	N/A	DDR200	DDR333
128-bits	Single rank	Single rank	N/A	N/A	DDR400	DDR400
	Double rank	Double rank	N/A	N/A	DDR400	DDR400
	N/A	N/A	Single rank	Single rank	DDR400	DDR400
	N/A	N/A	Double rank	Double rank	DDR400	DDR400
	Single rank	Single rank	Single rank	Single rank	DDR333	DDR400
	Single rank	Single rank	Double rank	Double rank	DDR200	DDR400
	Double rank	Double rank	Single rank	Single rank	DDR200	DDR400
	Double rank	Double rank	Double rank	Double rank	DDR200	DDR333

Note for "*": Memory types must be set to values consistent with system hardware.

Table C: Recommended dual-channel DDR configurations

DDR1	DDR2	DDR3	DDR4	Dual Channel
√	√			√
		√	√	√
√	√	√	√	√

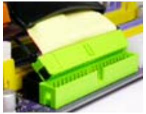
Notes: 1. When using dual channel mode, install only same (same density, DRAM technology and DRAM bus width) module for each deal channel.

2. Please note that those types not in the **Table B** will not boot up.

3. The KN1 Extreme doesn't support three memory modules. If three memory modules are inserted, the system may boot but not function normally.

2.4 Connecting IDE, Floppy and SATA cable

1. Connect the IDE/Floppy disk ribbon cable. Make sure the side of the cable with the red stripe on it is plugged into *pin 1* side of the disk connector.
2. Connect the SATA cable to the SATA hard drive or the connector on the motherboard.



IDE connector

FDD connector

SATA connector

2.5 Installing Motherboard in a case

1. Place the motherboard over the mounting brackets.
2. Secure the motherboard with screws where appropriate.

3. Double check to make sure that the underside of the motherboard is not touching the case or else shorting may occur and make sure that the slots and I/O connectors line up with the holes on the back of the case.
4. Case LED leads are labeled, connect the leads to the panel header on the motherboard.

2.6 Connecting IDE, Floppy & SATA Device

1. If installing two IDE devices on the same ribbon cable, one device must be set to "master" and the other to "slave." Check the accompanying documents for the master/slave settings of IDE Devices, ie.: the hard disk and CD-ROM drives and then set their jumper caps accordingly.
2. Mount the drives in the case.
3. Connect the floppy disk ribbon cable and power cable.
4. Connect the IDE ribbon cable and power cable.

IDE Hard Disk

Floppy Disk Device

SATA Hard Disk

2.7 Installing Expansion cards

1. Open the chassis and then remove the slot bracket from the case where you will be installing the expansion cards.
2. Install your graphics card in the proper slot by pressing the card firmly into the slot.
3. Drive in the screw to secure the slot bracket of the expanson card.
4. Replace your computer's chassis cover.
5. Power on the computer, if necessary, set up BIOS utility of expansion card from BIOS.
6. Install related driver to complete the installation.

Installing one graphics card

Installing two graphics cards

Notes:

1. With one PCI Express Graphics card, install it into **PCIEX16_1** slot, and insert the **"SHUNT CARD"** into the **PCIEX16_2** slot. With two PCI Express Graphics cards, set them up onto **PCIEX16_1** and **PCIEX16_2** slots, and then plug in the external cable to unite the multi-GPU for CrossFire™ mode.
2. For CrossFire™ mode, a compatible Radeon graphics card and a related Radeon CrossFire Edition co-processor board are needed.

3. Please note that the graphics card driver supports Windows 2000/XP only.

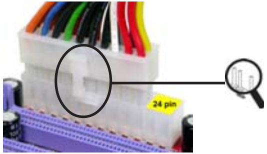
4. Make sure to connect a 4-pin ATX power cable to the **ATX4P1**; otherwise, the system will be unstable.

2.8 Connecting the Power supply cable

The ATX1 power connector is keyed for proper insertion. There are two connectors for 4-pin and 24-pin ATX power cable. The plastic clip on the power connector should lock over the plastic tab on the motherboard power connector.

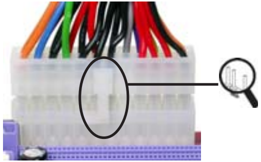
Connecting 20/24-pin power cable

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.**



20-pin power cable

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latche of power cable clings to the left side of the ATX1 connector latch.



24-pin power cable

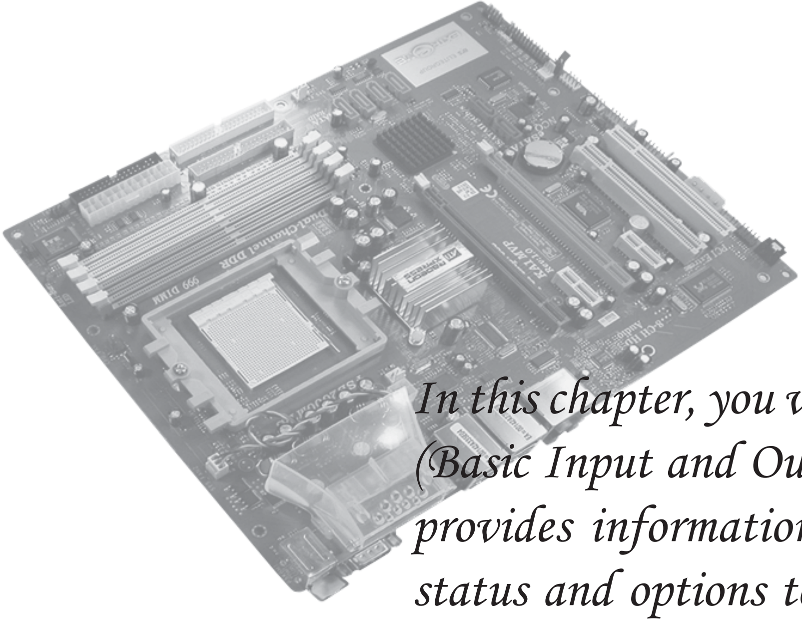
With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latch of power cable connector clings to the right side of the ATX1 connector latch.

4-pin ATX power connector

Users please note that when installing 4-pin power cable, the latches of power cable and the ATX12 match perfectly.

2.9 Powering up

Turn on the power to the monitor and the computer. If necessary, format your hard disk drive and install an operating system.



In this chapter, you will learn how to adjust the BIOS (Basic Input and Output System) setup menus. It provides information on the system's configuration status and options to setup system parameters.

Reference

3.1 Entering the BIOS Setup Menu

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:

Press DEL to enter SETUP

Pressing the delete key accesses the BIOS Setup Utility:

Phoenix-AwardBIOS CMOS Setup Utility:

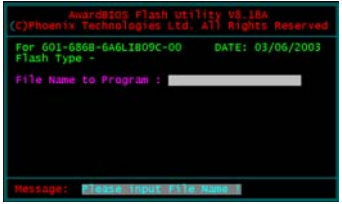
▶ Standard CMOS Features	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Performance
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PnP/PCI Configurations	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc: Quit F10: Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type...	

3.2 Updating and Recovering the BIOS

A standard configuration has already been set in the Setup Utility. However, if you encounter a configuration error or you need a better performance. You could attempt to update or recover your system BIOS.

3.2-1 Using AWARD Flash to update your BIOS

1. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten).
2. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
3. Use the Award Flash Utility from the ECS support CD and download the last BIOS file for this motherboard from ECS web site (www.ecs.com.tw). Copy these files to the system diskette you created in step 2.
4. 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.)
5. At the A:\ prompt, type the Flash Utility program name and press <Enter>. You see a screen similar to the following:



6. Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the motherboard BIOS.
7. 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.

3.2-2 Using ECS Top-Hat Flash to recover your BIOS

The ECS Top-Hat Flash kit allows you to restore BIOS from ECS website (www.ecs.com.tw) or ECS support CD, in case you want to update the current BIOS on the motherboard or get corrupted, please follow the procedures below to recover your BIOS.

1. Please find the BIOS ROM located on your motherboard. (Figure A)
2. Find the cut edge corner on the Flash ROM. (Figure B)
3. Find the cut edge corner on the Top Hat Flash. (Figure C)
4. Orient the cut edge Top Hat Flash to BIOS ROM's and press the flash ROM into the lower socket of Top Hat Flash. (Figure D & E)
5. Then, power on your computer.


Figure A


Figure B


Figure C


Figure D


Figure E

6. After the computer boots up, remove the Top Hat Flash.
7. Download the BIOS file from ECS web site (www.ecs.com.tw) or ECS support CD and use Flash Utility to reflash the original Flash ROM.
8. You can choose either AWARD Flash utility in DOS mode or ECS "EZ Flash Utility" in windows to reflash the BIOS.

3.3 The Main Menu

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>.

3.3-1 Standard CMOS Features

This option displays basic information about your system.

Phoenix-AwardBIOS CMOS Setup Utility
Standard CMOS Features

		Item Help
Date (mm:dd:yy)	Wed, Jan 25 2005	Menu Level ▶
Time (hh:mm:ss)	9 : 33 : 26	Change the day, month, year and century
▶ IDE Channel 0 Master	[None]	
▶ IDE Channel 0 Slave	[None]	
▶ IDE Channel 1 Master	[None]	
▶ IDE Channel 1 Slave	[None]	
▶ IDE Channel 2 Master	[None]	
▶ IDE Channel 2 Slave	[None]	
▶ IDE Channel 3 Master	[None]	
▶ IDE Channel 3 Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/VGA]	
Halt On	[All Errors]	

↑↓→← :Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Date and 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 (None)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel.

Press <Enter> to display the IDE submenu:

Phoenix-AwardBIOS CMOS Setup Utility
IDE Channel 0 Slave

		Item Help
IDE HDD Auto-Detection	[Press Enter]	Menu Level ▶▶
IDE Channel 0 Master	[Auto]	To auto-detect the HDD's size, head... on this channel
Access Mode	[Auto]	
Capacity	0MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

IDE HDD Auto-Detection

Press <Enter> while this item is highlighted to prompt the Setup Utility to automatically detect and configure an IDE device on the IDE channel.

If you are setting up a new hard disk drive that supports LBA mode, more than one line will appear in the parameter box. Choose the line that lists LBA for an LBA drive.

IDE Channel 0/1 Master/Slave IDE/Extended IDE Drives (Auto)

Leave this item at Auto to enable the system to automatically detect and configure IDE devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below. Please note that if you choose IDE Channel 2/3 Master, the item may change to Extended IDE Drive.

Before attempting to configure a hard disk drive, ensure that you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can result in your system not recognizing the installed hard disk.

Access Mode (Auto)

This item defines ways that can be used to access IDE hard disks such as LBA (Large Block Addressing). Leave this value at Auto and the system will automatically decide the fastest way to access the hard disk drive. If you choose IDE Channel 2/3 Master, the item only have Large and Auto.

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

Drive A/Drive B (1.44M, 3.5 in./None)

These items define the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

Floppy 3 Mode Support (Disabled)

Floppy 3 mode refers to a 3.5-inch diskette with a capacity of 1.2 MB. Floppy 3 mode is sometimes used in Japan.

Video (EGA/VGA)

This item defines the video mode of the system. This motherboard has a built-in VGA graphics system; you must leave this item at the default value.

Halt On (All Errors)

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

Base Memory, Extended Memory, and Total Memory

These items are automatically detected by the system at start up time. These are display-only fields. You cannot make changes to these fields.

3.3-2 Advanced BIOS Features

This option defines advanced information about your system.

Phoenix-AwardBIOS CMOS Setup Utility
Advanced BIOS Features

▶ Hard Disk Boot Priority	[Press Enter]	Item Help
CPU Internal Cache	[Enabled]	Menu Level ▶
External Cache	[Enabled]	Select Hard Disk Boot Device Priority
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[Hard Disk]	
Third Boot Device	[CDROM]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Disabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
ATA 66/100 IDE Cable Msg.	[Enabled]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/Sec0	6	
X Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
OS Select For DRAM>64MB	[Non-OS2]	

↑↓→← : Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

▶ Hard Disk Boot Priority (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. Bootable Add-in Cards	Item Help
	Menu Level ▶▶
	Use < ↑ > or < ↓ > to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

↑↓→←: Move PU/PD+/-/:Change Priority F10:Save ESC:Exit

CPU Internal Cache (Enabled)

All processors that can be installed in this motherboard use internal level 1 (L1) cache memory to improve performance. Leave this item at the default value for better performance.

External Cache (Enabled)

Most processors that can be installed in this system use external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

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.

First/Second/Third Boot Device (Floppy/Hard Disk/CDROM)

Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.

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.

Swap Floppy Drive (Disabled)

If you have two floppy diskette drives in your system, this item allows you to swap the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.

Boot Up Floppy Seek (Disabled)

If this item is enabled, it checks the size of the floppy disk drives at start-up time. You don’t need to enable this item unless you have a legacy diskette drive with 360K capacity.

Boot Up NumLock Status (On)

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

Gate A20 Option (Fast)

This item defines how the system handles legacy software that was written for an earlier generation of processors. Leave this item at the default value.

ATA 66/100 IDE Cable Msg. (Enabled)

This item enables or disables the display of the ATA 66/100 Cable MSG.

Typematic Rate Setting (Disabled)

If this item is enabled, you can use the following two items to set the typematic rate and the typematic delay settings for your keyboard.

- **Typematic Rate (Chars/Sec):** Use this item to define how many characters per second are generated by a held-down key.
- **Typematic Delay (Msec):** Use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

Security Option (Setup)

If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the Setup Utility.

APIC Mode (Enabled)

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

OS Select For DRAM > 64 MB (Non-OS2)

This item is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system. Otherwise, leave this item at the default.

HDD S.M.A.R.T Capability (Disabled)

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.

Full Screen Logo Show (Enabled)

When enabled, this will show a full screen company logo on the boot up screen. Select disabled when you want to show POST messages during boot up.

Small Logo (EPA) Show (Disabled)

Enables or disables the display of the EPA logo during boot.

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

3.3-3 Advanced Chipset Features

These items define critical timing parameters of the mainboard. You should leave the items on this page at their default values unless you are very familiar with the technical specifications of your system hardware. If you change the values incorrectly, this may cause fatal errors or instability into your system.

Phoenix-AwardBIOS CMOS Setup Utility
Advanced Chipset Features

			Item Help
▶	DRAM Configuration	[Press Enter]	Menu Level ▶
▶	LDT & PCI Bus Control	[Press Enter]	DRAM timing and control
	PCIE GFX Core Payload Size	[64 Bytes]	
	PCIE GPP Core Payload Size	[64 Bytes]	
	Dual Slot Configuration	[Disabled]	
	GFX0 Link Width	[x16]	
	GFX1 Link Width	x8	
	GFX Multi Function Mode	[Disabled]	
	AGP Aperture Size	[128MB]	
	GFX Clock Mode	[Sync]	
x	Async GFX Clock	200MHz	
x	Async GFX Clock Source	14.318MHz OSC	
x	MCLK Spread Spectrum	Disabled	
	Dual-Mode Interleaving	[Disabled]	
	Dynamic CKE	[Enabled]	
	System BIOS Cacheable	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

▶ DRAM Configuration (Press Enter)

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

	Timing Mode	[Auto]	Item Help
X	Memclock index value (MHz)	200Mhz	
X	CAS# latency (Tcl)	2.5	Menu Level ▶▶
X	Min RAS# active time (Tras)	8T	
X	RAS# to CAS# delay (Trcd)	4T	
X	Row precharge Time (Trp)	4T	
X	Row to Row delay(Trrd)	2T	
X	Row cycle time (Trc)	12T	
X	Row refresh cyc time(Trfc)	24T	
	User Config mode	[Auto]	
X	1T/2T Memory Timing	2T	
X	Read Preamble value	6ns	
X	Async Latency value	6ns	

↑↓→← : Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Timing Mode (Auto)

This item allows you to set up the DRAM timing manually or automatically. This item is set to [Auto] by default. When setting to [Manua], the following items are adjustable.

- **Memclock index value (Mhz) (200MHz):** When DDR Timing Setting by is set to Manual, use this item to set the DRAM frequency.
- **CAS# latency (Tcl) (2.5):** This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.
- **Min RAS# to active time (Tras) (8T):** This item determines the time RAS takes to read from and write to a memory cell.
- **RAS to CAS Delay (Trcd) (4T):** This is the amount of time a CAS is performed after a RAS. The lower the better, but some DRAM does not support low figures.
- **Row precharge Time (Trrd) (2T):** This item specifies the Row precharge to Active or Auto-Refresh of the same bank.
- **Row to Row delay (Trrd) (2T):** This item specifies the active-to-active delay of different banks.
- **Row cycle time (Trc) (12T):** This item determines the minumum number of clock cycles a memory row takes to complete a full cycle, from row activation up to the precharging of the active row.
- **Row refresh cyc time (Trfc) (24T):** Auto-refreshactive to RAS#-active or RAS# auto-refresh.

User Config mode (Auto)

This item has the capacity to automatically detect all of the fllowing fields default values. This item is set to [Auto] by default. When setting to [Manual], the following items are adjustable.

- **1T/2T Memory Timing (2T):** This item controls the SDRAM command rate.
- **Read Preamble value (6ns):** This item allows you to set Read Preamble value from 2ns, to 9.5ns, and it is specified in units of 0.5ns.
- **Async Latency value (6ns):** This item allows you to set Async Latency value from 2ns to 11ns, and it is specified in units of 1 ns.

▶ LDT & PCI Bus Control (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility
Advanced Chipset Features

LDT Configuration	[Enabled]	Item Help
Upstream LDT Bus Width	[16 bit]	Menu Level ▶▶
Downstream LDT Bus Width	[16 bit]	
LDT Bus Frequency	[Auto]	
PCIE Reset Delay	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

LDT Configuration (Enabled)

This item enables or disables the LDT configuration.

Upstream LDT Bus Width (16 bit)

This item allows users to manually adjust the upstream LDT bus width to be 8 bit or 16 bit.

Downstream LDT Bus Width (16 bit)

This item allows users to manually adjust the downstream LDT bus width to be 8 bit or 16 bit.

LDT Bus Frequency (Auto)

This item allows users to manually adjust the LDT Bus Frequency.

PCIE Reset Delay (Disabled)

This item enables or disables the PCIE reset delay.

Press <Esc> to return to the Advanced Chipset Features page.

PCIE GFX Core Payload Size (64 Bytes)

This item allows users to manually adjust the PCIE GFX Core Payload Size.

PCIE GPP Core Payload Size (64 Bytes)

This item allows users to manually adjust the PCIE GPP Core Payload Size.

Dual Slot Configuration (Disabled)

This item allows users to enable or disable the Dual Slot Confuguration.

GFX0/1 Link Width [x16] (x8)

This item allows users to manually set the GFX Link Width.

GFX Multi Function Mode (Disabled)

This item allows users to enable or disable the GFX Multi Function Mode.

AGP Aperture Size (128MB)

This item allows users to manually adjust the AGP aperture size, from 32MB to 2GB.

GFX Clock Mode (Sync])

This item allows users to set the GFX Clock Mode to be Sync or Async. When this item is set to Sync, the following 3 item is activated.

- **Async GFX Clock (200MHz]):** This item allows users to manually adjust the GFX clock, from 200MHz to 350MHz.
- **Async GFX Clock Source (14.318MHz OSC):**This item allows users to set the GFX Clock Source, either to be 14.318MHz OSC or 100MHz PCIE.
- **MCLK Spread Spectrum (Disabled):** This item allows users to enable or disable the MCLK spread spectrum function.

Dual-Mode Interleaving (Disabled)

This item allows users to enable or disable the Dual-Mode interleaving function.

Dynamic CKE (Enabled)

This item allows users to enable or disable the Dynamic CKE function.

System BIOS Cacheable (Disabled)

This feature is only valid when the system BIOS is shadowed. It enables or disables the caching of the system BIOS ROM at F0000h-FFFFFh via the L2 cache. This greatly speeds up accesses to the system BIOS.

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

3.3-4 Integrated Peripherals

These options display items that define the operation of peripheral components on the system's input/output ports.

Phoenix-AwardBIOS CMOS Setup Utility
Integrated Peripherals

		Item Help
▶ South OnChip IDE Device	[Press Enter]	Menu Level ▶▶
▶ South OnChip PCI Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	
Init Display First	[PCI Slot]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

▶ South OnChip IDE Device (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility
SIS OnChip IDE Device

IDE DMA transfer access	[Enabled]	Item Help
Onchip IDE Channel0	[Enabled]	Menu Level ▶▶
Onchip IDE Channel1	[Enabled]	
IDE Prefetch Mode	[Enabled]	
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
Primary Master UDMA	[Auto]	
Primary Slave UDMA	[Auto]	
Secondary Master UDMA	[Auto]	
Secondary Slave UDMA	[Auto]	
IDE HDD Block mode	[Enabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

IDE DMA transfer access (Enabled)

This item allows you to enable the transfer access of the IDE DMA then burst onto the PCI bus and nonburstable transactions do not.

OnChip IDE Channel0/1 (Enabled)

Use this item to enable or disable the PCI IDE channels that are integrated on the motherboard.

IDE Prefetch Mode (Enabled)

The onboard IDE drive interface supports IDE prefetching, for faster drive access. If you install a primary and secondary add-on interface, set this field to Disable if the interface does not support prefetching.

IDE Primary/Secondary Master/Slave PIO (Auto)

Each IDE channel supports a master device and a slave device. These four items let you assign the kind of PIO (Programmed Input/Output) was used by the IDE devices. Choose Auto to let the system auto detect which PIO mode is best, or select a PIO mode from 0-4.

Primary/Secondary Master/Slave UDMA (Auto)

Each IDE channel supports a master device and a slave device. This motherboard supports UltraDMA technology, which provides faster access to IDE devices.

If you install a device that supports UltraDMA, change the appropriate item on this list to Auto. You may have to install the UltraDMA driver supplied with this motherboard in order to use an UltraDMA device.

IDE HDD Block Mode (Enabled)

Enable this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support. It also improves the speed of access to IDE devices.

Press <Esc> to return to the Integrated Peripherals page.

▶ South OnChip PCI Device (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility
SIS OnChip PCI Device

	Onboard Azalia Audio	[Auto]	Item Help
	Onboard 1394	[Enabled]	Menu Level ▶▶
	Onboard PCI LAN	[Enabled]	
	Onboard Lan Boot ROM	[Disabled]	
	Onboard SATA Controller	[Both]	
	Onborad SATA Type	[IDE Mode]	
	USB 2.0 Supports	[Enabled]	
	USB Controller	[Enabled]	
x	USB Legacy Support	[Enabled]	
x	USB Mouse Support	[Enabled]	
	SATA2 Controller	[Enabled]	
	Giga Lan Controller	[Enabled]	
	Giga Lan Boot Rom	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Onboard Azalia AUDIO (Auto)

This option allows you to control the onboard Azalia audio. Disable this item if you are going to install a PCI audio add-on card.

Onboard 1394 (Enabled)

This option allows you to enable or disable the onboard 1394 function.

Onboard PCI LAN (Enabled)

This option allows you to control the onboard LAN device.

Onboard LAN Boot ROM (Disabled)

Use this item to enable and disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Onboard SATA Controller (Both)

This item allows you to manually specify the onboard Serial ATA controller.

Onboard SATA Type (IDE Mode)

This item allows you to manually specify the onboard Serial ATA Type.

USB 2.0 Supports (Enabled)

Enable this item if your system supports USB 2.0.

USB Controller (Enabled)

This item enables or disables the USB controller. Leave this at the default "Enabled" if you want to connect USB devices to your computer.

USB Legacy 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 devices at startup. If detected, theUSB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

USB Mouse Support (Enabled)

Enable this item if you plan to use a mouse connected through the USB port in a legacy operating system (such as DOS) that does not support Plug and Play.

SATA2 Controller (Enabled)

This item allows you to enable or disable the SATA2 Controller function.

Giga Lan Controller (Enabled)

This item allows you to enable or disable the Giga Lan Controller function.

Giga Lan Boot ROM (Disabled)

Use this item to enable and disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Press <Esc> to return to the Advanced Chipset Features page.

▶Onboard SuperIO Device (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility
Onboard SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	Menu Level ▶▶
UART Port	[2F8/IRQ3]	
UART Mode Select	[IrDA]	
x UR2 Duplex Mode	Full	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP]	
ECP Mode Use DMA	[3]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Onboard FDC Controller (Enabled)

This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1(3F8/IRQ4)

This option is used to assign the I/O address and interrupt request (IRQ) for onboard serial port 1 (COM1).

UART Port (2F8/IRQ3)

This item allows users to assign the resources for the UART port device.

UART Mode Select (IrDA)

This field is available if the Onboard Serial Port 2 field is set to any option but Disabled. UART Mode Select enables you to select the infrared communication protocol-Normal (default), IrDA, or ASKIR.

- **UR2 Duplex Mode (Full):** This field is available when UART Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default). Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time.

Onboard Parallel Port (378/IRQ7)

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard parallel port.

Parallel Port Mode (ECP)

Enables you to set the data transfer protocol for your parallel port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP+EPP.

ECP Mode Use DMA (3)

When the onboard parallel port is set to ECP mode, the parallel port can use DMA 3 or DMA1.

Press <Esc> to return to the Advanced Chipset Features page.

Init Display First (PCI Slot)

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the motherboard.

3.3-5 Power Management Setup

This option lets you control system power management. The system has various power-saving modes including powering down the hard disk, turning off the video, suspending to RAM, and software power down that allows the system to be automatically resumed by certain events.

Phoenix-AwardBIOS CMOS Setup Utility
Power Management Setup

		Item Help
ACPI Suspend Type	[S3(STR)]	Menu Level ▶
HDD Power Down	[Disabled]	
Video Off Option	[Suspend--> Off]	
Video Off Method	[DPMS Support]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instant-Off]	
PWRON After PWR-Fail	[Off]	
▶ Resume Event Control	[Press Enter]	

↑↓→← : Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3 (STR), 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.

HDD Power Down (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disable.

Video Off Option (Suspend —> Off)

This option defines if the video is powered down when the system is put into suspend mode.

Video Off Method (DPMS Support)

This item defines how the video is powered down to save power. This item is set to DPMS (Display Power Management Software) by default.

MODEM Use IRQ (3)

If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the motherboard Wake On Modem connector for this feature to work.

Soft-Off by PWRBTN (Instant Off)

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 (Off)

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

▶Resume Event Control (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility
Resume Event Control

	Resume By Ring	[Disabled]	Item Help
	Resume By PCI PME	[Enabled]	
	Resume By PCI-E	[Enabled]	Menu Level ▶▶
	Resume By USB (S3)	[Disabled]	
	Resume By PS/2 Mouse	[Disabled]	
	Resume By PS/2 Keyboard	[Disabled]	
x	Hot Key Resume	Ctrl-F1	
	RTC Alarm Resume	[Disabled]	
x	Date (of Month) Alarm	0	
x	Time (hh:mm:ss) Alarm	0 0 0	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Resume by Ring (Disabled)

This item specifies whether the system will be awakened from power saving modes when activity or input signal of WOL/WOM/Ring device is detected.

Resume by PCI PME (Enabled)

This item specifies whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Resume by PCI-E (Enabled)

This item specifies whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Resume by USB (S3) (Disabled)

This option allows the activity of the USB devices to wake up the system from S3 sleep state.

Resume by PS/2 Mouse (Disabled)

This option allows the activity of the mouse device to wake up the system from sleeping status.

Resume by PS/2 Keyboard (Disabled)

This option allows the activity of the keyboard device to wake up the system from sleeping status.

Hot Key Resume (Ctrl-F1)

Use this item to define the password when using the keyboard "hot key" to resume the system.

RTC Alarm Resume (Disabled)

When set to Enabled, the following additional fields become available and you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

- **Date of Month:** Use this item to define the date of month when using the RTC alarm to resume the system.
- **Resume Time:** Use this item to define the time when using the RTC alarm to resume the system.

Press <Esc> to return to the Power Management Setup screen.

3.3-6 PNP/PCI Configurations

These options configure how PnP (Plug and Play) and PCI expansion cards operate in your system. Both the the ISA and PCI buses on the motherboard use system IRQs (Interrup ReQuests) and DMAs (Direct Memory Access). You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configurations Setup utility for the motherboard to work properly. Selecting PnP/PCI Configurations on the main program screen displays this menu:

Phoenix-AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
		Menu Level ►►
Resources Controlled By	[Auto(ESCD)]	Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For USB	[Enabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Reset Configuration Data (Disabled)

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

Resources Controlled By Auto (Auto(ESCD))

You should leave this item at the default Auto (ESCD). Under this setting, the system dynamically allocates resources to Plug and Play devices as they are required.

If you cannot get a legacy ISA (Industry Standard Architecture) expansion card to work properly, you might be able to solve the problem by changing this item to Manual, and then opening up the IRQ Resources submenu.

- **IRQ Resources (Press Enter):** In the IRQ Resources submenu, if you assign an IRQ to Legacy ISA, then that Interrupt Request Line is reserved for a legacy ISA expansion card. Press <Esc> to close the IRQ Resources submenu.

PCI/VGA Palette Snoop (Disabled)

This item is designed to overcome problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

Assign IRQ For USB (Enabled)

Names the interrupt request (IRQ) line assigned to the USB on your system. Activity of the selected IRQ always awakens the system.

3.3-7 PC Health Status

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

Phoenix-AwardBIOS CMOS Setup Utility
PC Health Status

Shutdown Temperature	[Disabled]	Item Help
Warning Temperature	[Disabled]	Menu Level ▶
CPU Vcore		
+2.5V		
+3.3V		
+5V		
+12V		
5VSB		
VBAT		
System Temperature		
CPU Temperature		
CPU Fan Speed		
System Fan Speed		
NB Fan Speed		
Power 20/24Pin Message	[Enabled]	

↑↓→← : Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Shutdown Temperature (Disabled)

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

Warning Temperature (Disabled)

This item allows users to manually set the warning temperature of the system.

System Component Characteristics

These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

- **CPU Vcore**
- **System Temperature**
- **CPU Temperature**
- **CPU Fan Speed**
- **System Fan Speed**
- **NB Fan Speed**

Power 20/24Pin Message (Enabled)

This item allows users to enable or disable the 20/24pin power cable indication message.

3-3-8 Frequency/Voltage Control

This item 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.

Phoenix-AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

		Item Help
AMD K8 Cool 'n' Quiet control	[Auto]	Menu Level ▶
Hammer Fid control	[StartUp]	
Hammer Vid control	[StartUp]	
Auto Detect PCI Clk	[Enabled]	
Spread Spectrum	[+/- 0.3%]	
CPU Clock	[200 MHz]	
CPU Dynamic Overclocking	[Disabled]	
DIMM Voltage Adjust	[2.6 V]	
CPU Vcore Adjust	[Default]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

AMD K8 Cool 'n' Quiet control (Auto)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

Hammer FID Control (StartUp)

This item allows users to adjust the CPU frequency; the range will be varied according to different CPUs. We strongly recommend you leave this item at its default value.

Hammer VID Control (StartUp)

This item allows users to adjust the CPU voltage. We strongly recommend you leave this item at its default value.

Auto Detect PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free PCI slots.

Spread Spectrum (+/-0.3%)

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

CPU Clock (200 MHz)

This item allows users to manually adjust the CPU lock.

CPU Dynamic Overclocking (Disabled)

This item allows users to enable or disable the CPU Dynamic Overclocking function.

DIMM Voltage Adjust (2.6V)

Use this item to manually adjust the DIMM voltage, from.

CPU Vcore Adjust (Default)

This item allows users to manually adjust the CPU Vcore value. Users are recommended to keep it at its default value.

3.3-9 Load Performance

If you select this item and press Enter a dialog box will appear. If you select [OK], and then Enter, the Setup Utility loads a set of performance default values. These default settings are quite demanding and your system might not function properly if you are using slower CPU, memory, or other low-performance components.

Warning: To load Performance settings may make your system become unstable or unbootable. When loading the Performance Defaults fails, users can choose "either" step below to return the motherboard to its default BIOS:

1. Reset the system and enter the CMOS setup to reset the CPU frequency.

2. Power on the system and press "Insert" key. The system will bypass the previous BIOS setting and automatically reload the default BIOS. (This procedure is BIOS setup only!)

3. Locate the "Clear CMOS" jumper and proceed with the "Clear CMOS" to recover the default BIOS setting. Please refer to Chapter 1, page 1- 13, to complete the clear CMOS action. (This procedure requires opening the chasis!)

3.3-10 Load Optimized 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. When your hardware doesn't support the "Optimized Defaults", fatal system errors or instability may occur. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.

Users please use the factory BIOS default setting of "Load optimized Defaults" when install Operation System onto your system.

3.3-11 Set Supervisor/User Password

When this function is selected, the following message appears at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter BIOS Setup freely.

PASSWORD DISABLED

If you have selected "**System**" in "Security Option" of "BIOS Features Setup" menu, you will be prompted for the password every time the system reboots or any time you try to enter BIOS Setup.

If you have selected "**Setup**" at "Security Option" from "BIOS Features Setup" menu, you will be prompted for the password only when you enter BIOS Setup. Supervisor Password has higher priority than User Password. You can use Supervisor Password when booting the system or entering BIOS Setup to modify all settings. Also you can use User Password when booting the system or entering BIOS Setup but can not modify any setting if Supervisor Password is enabled.

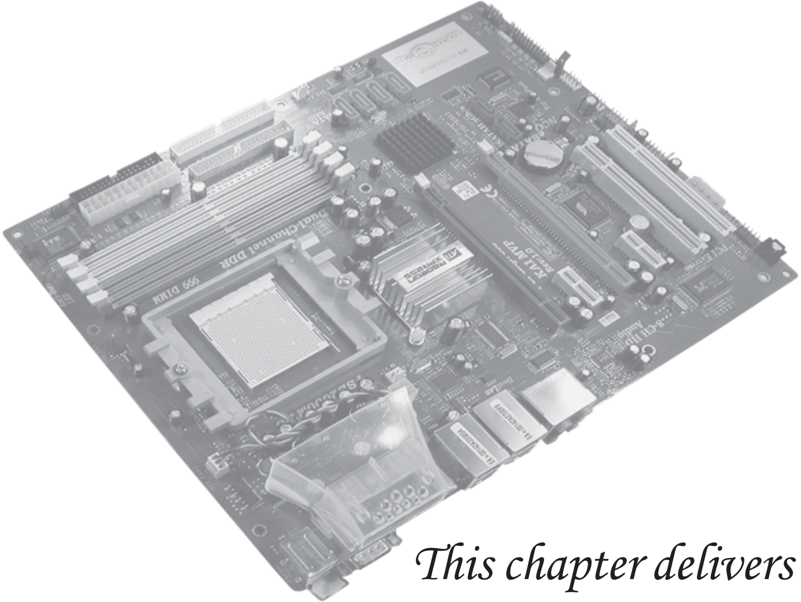
3.3-12 Save & Exit Setup

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, press <Y> to save and exit, or press <N> to return to the main menu.

3.3-13 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, press <Y> to discard changes and exit, or press <N> to return to the main menu.

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



This chapter delivers contents of the ECS support CD.

Reference

4.1 Software CD Information

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.

Note: 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.

4.2 Running the Software CD

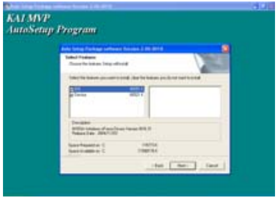
To begin using the software CD, simply insert the CD into your CD-ROM drive. The CD automatically display the multimedia if auto run is enable in your computer.

4.3 Setup Tab

The setup tab shows three buttons - **Setup, Browse CD, Exit.**

Setup button: Click the **Setup** button to run the software installation program. Select from the menu which software you want to install.

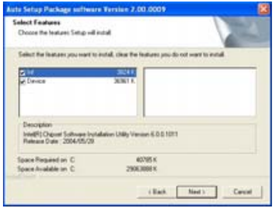
1. Click ***Setup****. The installation program begins:*



Note: 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.

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



3. *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.

Browse CD button: The Browse CD button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.

Exit button: The **Exit** button closes the Auto Setup window.

4.4 Application Tab

Lists the software utilities that are available on the CD.

4.5 Read Me Tab

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

4.6 Software Utilities Introduction

AWARD Flash Utility

This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new

BIOS that is incorrect, your system will malfunction. Refer to Chapter 3 "Using BIOS" for more information.

WinFlash Utility

The AWARD WinFlash utility is a Windows version of the DOS Award BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the motherboard while in a Windows environment. This utility is currently available for WINXP\ME\2000\98SE. To install the WinFlash utility, rin WINFLASH.EXE from the following directory: \UTILITY\WINFLASH

I'm InTouch

I'm InTouch remote access software allows you to login and work on your far-away computer, just as if you were sitting behind it! Run programs, transfer files, manage e-mail, contacts and calendar events. With I'm InTouch, you always have access to your PC and the important information and programs that you need.

MediaRing Talk - Telephony Software

Go to \UTILITY\MEDIARING EZ NET and run SETUP 331.EXE to install the MediaRing Talk voice modem software for the built-in modem.

WinCinema

- **WinDVD Creator Plus**

WinDVD Creator Plus is designed for people who want to make their own DVDs but who don't want to learn complicated programs. By taking you through 4 DVD-making steps, WinDVD Creator Plus walks you through capturing video, editing it, adding titles, transitions, effects, music, DVD menus and finally burning the finished product. User also can direct-burn to DVD when DVD burner is available.

- **WinDVD**

WinDVD is the world's most popular DVD player and supports over 30 new features and enhancements such as improved picture quality, easier-to-use Time-Stretching, MP3 playback, and Video Desktop - which lets you watch movies under your desktop icons while you work or check email.

- **WinRIP**

WinRIP lets you record, store, organize, and enjoy you music collection - on your PC, CD player, and portable player. Organize your Music Galleryand create your own playlists. You can switch between simple Player mode or full-featured Jukebox mode.

Pro Magic Plus

This amazing software not only provides users with convenient and instant restoration of your computer, but also restores within seconds important data back to the preferred state at a specific point in time. Pro Magic Plus also combines several other functions including anti-virus, backup, uninstall software and multi-booting to satisfy all your system protection needs.

DPU (Data Process Utility)

Specially designed for file protection, security and management this DPU or data processing utility insures the safety of important data through complete file restoration, eliminating file damage even in case of improper operation. User can freely edit original files after a set restore time point. The DPU can even restore even deleted files.

Adobe Reader

This item install the Adobe Acrobat Reader. The Acrobat Reader software is for viewing files saved in Portable Document Format (PDF).

Show Shifter

ShowShifter, the award winning software, combines viewing TV, video, CD, MP3 and digital pictures into one easy to use application. With a little help from Showshifter your PC will be the ultimate home media center.

Résumé des caractéristiques

CPU	• Socket 939 pour processeur AMD Athlon 64/Athlon 64 FX • Interface de CPU HyperTransport de Hautes Performances: • Vitesse de transfert de 2000/1600/1200/800/400 MT/s
Chipset	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Mémoire	• Architecture mémoire DDR double canal • 4 x sockets DIMM SDRAM DDR, 2.5V, 184 broches prenant en charge jusqu'à 4 Go • Prend en charge les SDRAM DDR sans mémoire tampon DDR400/333/266/200
Options d'extension	• 2 x logements PCI Express x16 • 2 x logements PCI Express x1 • 2 x logements PCI
Stockage	• Pris en charge par SB450 - 4 x périphériques IDE Ultra DMA 133/100/66 - 4 x périphériques SATA - Configuration RAID 0 & RAID 1 • Pris en charge par SiI3132 - Vitesse de transfert ATA Série Génération 2 de 3,0Gb/s - 2 x périphériques SATA II - Configuration RAID 0, RAID 1

IEEE 1394a	• Contrôleur IEEE1394a VIA • Prend en charge 2 ports de câble x IEEE1394a à 100M bits/s, 200M bits/s, et 400M bits/s
Audio	• CODEC audio Realtek 8 canaux • Conforme aux High Definition Audio Codec
LAN Double	• Contrôleur LAN Realtek 10/100 Mbps • Marvell Giga LAN
E/S du panneau arrière	• 1 x clavier PS/2 • 1 x connecteur souris PS/2 • 4 x ports USB • 2 x connecteurs LAN RJ45 • 1 x port Série • 1 x prise Audio (Entrée Micro, sortie de ligne, 8 canaux d'entrée de ligne)
Caractéristiques du BIOS	• Award BIOS avec ROM Flash de 4Mb or 8Mb • Prend en charge Plug & Play 1.0A, APM 1.2, Multi Boot, DMI • Prend en charge les spécifications 1.0B révision ACPI

E/S interne	• 1 x Connecteur d'alimentation ATX 24 broches & Connecteur 12 V 4 broches • 1 x connecteur d'alimentation ATX4P1 à 4 broches • 1 x connecteur de lecteur de disquette- prenant en charge 360K ~ 2,88M octets, 3 Lecteurs de disquettes Modes ou LS120 • 2 x connecteurs IDE • 6 x connecteurs ATA Série • 2 x embases USB 2.0 supportant 4 ports USB supplémentaires • 2 x embases 1394a • 1 x embase LPT1 • 1 x embase de commutateur/LED de panneau avant • 1 x embase audio de panneau avant • 1 x embase infrarouge • 1 x embase SPK1 • 1 x embase d'entrée CD • 1 x embase sortie SPDIF • Connecteurs CPU_FAN/NB_FAN/SYS_FAN1~3
Facteur de Forme	• Taille ATX • 305mm x 244mm

Zusammenfassung der Merkmale

CPU	• Socket 939 für AMD Athlon 64/Athlon 64 FX CPU • Hochleistungsfähiges HyperTransport CPU-Interface • Transferrate von 2000/1600/1200/800/400 MT/s
Chipsatz	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Arbeitsspeicher	• Dual-Kanal DDR Speicherarchitektur • 4 x 184-Pin, 2.5V, DDR SDRAM DIMM-Sockets unterstützen bis zu 4 GB • Unterstützt ungepufferte DDR400/333/266/200 DDR SDRAM
Erweiter-ungsmöglichkeiten	• 2 x PCI Express x16 Steckplätze • 2 x PCI Express x1 Steckplätze • 2 x PCI Steckplätze
Speicher	• Unterstützt durch SB450 - 4 x Ultra DMA133/100/66 IDE Geräte - 4 x SATA Geräte - RAID 0 & RAID 1 Konfiguration • Unterstützt durch einen SiI3132 -Serial ATA Generation 2, Transferrate von 3.0 Gb/s -2 x SATA II Geräte -RAID 0, RAID 1 Konfiguration

IEEE 1394a	• VIA IEEE1394a Controller • Unterstützt 2 x IEEE1394a Kabelports mit 100M bits/s, 200M bits/s und 400M bits/s
Audio	• Realtek 8-Kanal Audio-CODEC • Entspricht High Definition Audio Codec
Dual LAN	• Realtek 10/100 Mbps LAN-Controller • Marvell Giga LAN
Rear panel I/O	• 1 x PS/2 Tastatur • 1 x PS/2 Mausanschluss • 4 x USB Anschlüsse • 2 x RJ45 LAN Anschlüsse • 1 x Seriellanschluss • 1 x Audiobuchse (Mic-in Ports , Line-in und 8-Kanal Line-out)
BIOS Merkmale	• Award BIOS mit 4Mb oder 8 Mb Flash ROM • Unterstützt Plug und Play 1.0A, APM 1.2, Multi Boot, DMI • Unterstützt ACPI Revision 1.0B Spezifikation

Internes I/O	• 1 x 24-Pin ATX Netzteilanschluss & 4-Pin 12 V Stecker • 1 x 4-Pin ATX4P1-Stromstecker • 1 x Floppylaufwerkanschluss, unterstützt 360K ~ 2.88M Bytes, 3 Modus Festplatten oder LS120 • 2 x IDE Anschlüsse • 6 x Seriell ATA Anschluss • 3 x USB 2.0 Header, unterstützt zusätzlich 6 USB-Ports • 2 x 1394a Header • 1 x LPT1 Header • 1 x Schalter in der Frontabdeckung/LED-Header • 1 x Audioanschluss in der Frontabdeckung • 1 x Infrarot-Header • 1 x SPK1-Header • 1 x CD-in-Header • 1 x SPDIF-out-Header • CPU_FAN/NB_FAN/SYS_FAN1~3-Stecker
Formfaktor	• ATX-Größe • 305mm x 244mm

Indice delle caratteristiche

CPU	• Presa 939 per CPU AMD Athlon 64/Athlon 64 FX • Interfaccia CPU HyperTransport a elevate prestazioni • Velocità di trasferimento di 2000/1600/1200/800/400 MT/s
Chipset	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Memoria	• Dual-channel DDR memory architecture • 4 prese DIMM per DDR SDRAM da 2,5 V a 184 pin con supporto di fino a 4 GB • Supporto di DDR SDRAM DDR400/333/266/200 senza buffer
Opzioni d'espansione	• 2 x slots PCI Express x16 • 2 x slots PCI Express x1 • 2 x slots PCI
Deposito	• Supportata da SB450 - 4 x dispositivi IDE Ultra DMA 133/100/66 - 4 dispositivi SATA - configurazione RAID 0 & RAID 1 • Supportato da SiI3132 - Velocità di trasferimento di Generation 2 ATA seriale di 3,0 Gb/s - 2 x dispositivi SATA II -configurazione RAID 0, RAID 1

IEEE 1394a	• Controller IEEE 1394a VIA • Supporto di 2 porte per cavo IEEE1394a a 100M bit/s, 200M bit/s e 400M bit/s
Audio	• CODEC audio a 8 canali Realtek • Conforme alla High Definition Audio Codec
Doppia LAN	• Controller LAN 10/100 Mbps Realtek • LAN Giga Marvell
Pannello posteriore I/O	• 1 x porta per tastiera PS/2 • 1 x connettore mouse PS/2 • 4 x porte USB • 2 x connettori RJ45 LAN • 1 x porta Seriale • 1 jack Audio (Mic-in, porte Line-in, e , 8-canali Line-out)
Caratteristic-he BIOS	• BIOS Award con 4Mb o 8Mb Flash ROM • Supporta Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Supporta specifiche di revisione ACPI 1.0B

I/O interno	• 1 x connettore di alimentazione 24-pin ATX e connettore 4-pin da 12 V • 1 connettore di alimentazione ATX4P1 a 4 pin • 1 x connettore floppy - supporta 360K ~ 2,88M Byte, 3 Mode FDDs o LS120 • 2 x connettori IDE • 6 x connettori Seriali ATA • 2 x supporti header USB 2.0 con 4 porte USB supplementari • 2 x testata 1394a • 1 x testata LPT1 • 1 x interruttore del pannello frontale /LED header • 1 x pannello frontale header audio • 1 x testata Infrared • 1 x testata SPK1 • 1 x testata CD-In • 1 x testata SPDIF out • Connettori CPU_FAN/NB_FAN/SYS_FAN1~3
Form Factor	• Dimensione -ATX • 305mm x 244mm

Resumen de Características

CPU	• Socket 939 para CPU AMD Athlon 64/Athlon 64 FX • Interfaz de CPU HyperTransport de alto rendimiento • Índice de transferencia de 2000/1600/1200/800/400 MT/s
Chipset	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Memoria	• Arquitectura de memoria DDR Canal Dual • Zócalos DDR SDRAM DIMM de 4 x 184-pin, 2.5V, soportan hasta 4 GB • Soporte de DDR SDRAM DDR400/333/266/200 sin buffer
Opciones de expansión	• 2 x ranuras PCI Express x16 • 2 x ranuras PCI Express x1 • 2 x ranuras PCI
Almacenaje	• Soportado por SB450 - 4 x dispositivos IDE Ultra DMA133/100/66 - 4 x dispositivos SATA - Configuración RAID 0 & RAID 1 • Soportado por SiI3132 - Índice de transferencia de Serial ATA Generation 2 en 3.0 Gb/s - 2 x dispositivos SATAII - Configuración RAID 0, RAID 1

IEEE 1394a	• Controlador VIA IEEE1394a • Soporta 2 x puertos de cable IEEE1394a en 100M bits/s, 200M bits/s, y 400M bits/s
Audio	• CODEC de audio de 8 canales de Realtek • Conforme con el Codec de Audio de Alta Definición
Dual LAN	• Controlador LAN de Realtek 10/100 Mbps • Controlador Marvel Gigabit LAN
I/O del panel trasero	• 1 x teclado PS/2 • 1 x conector de ratón PS/2 • 4 x puertos USB • 2 x conectores RJ45 LAN • 1 x puerto Serial • 1 x clavija de Audio (Mic-in, puertos Line-in y 8 canales Line-out)
Característi-cas de BIOS	• Award BIOS con 4Mb o 8Mb Flash ROM • Soporta Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Soporta especificación ACPI revisión 1.0B

I/O Interno	• 1 x Conector de Suministro 24-pin ATX & Conector 4-pin 12 V • 1 x Conector de suministro de 4-pin ATX4P1 • 1 x conector Floppy - soporta 360K ~ 2.88M Bytes, FDD de 3 Modos o LS120 • 2 x conectores IDE • 6 x conectores Serial ATA • 2 x cabezales USB 2.0 soporta 4 puertos USB adicionales • 2 x cabezales 1394a • 1 x cabezal LPT1 • 1 x interruptor del panel frontal/cabezal LED • 1 x cabezal de audio del panel frontal • 1 x cabezal infrarrojo • 1 x cabezal SPK1 • 1 x cabezal CD-in • 1 x cabezal salidas SPDIF • Conectores CPU_FAN/NB_FAN/SYS_FAN1~3
Factor de Forma	• Tamaño de ATX • 305mm x 244mm

Sumário de Características

CPU	• Ficha 939 para AMD Athlon 64/Athlon 64 FX CPU • Interface de CPU de Elevada Performance e HyperTransport • Taxa de transferência de 2000/1600/1200/800/400 MT/s
Chipset	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Memória	• Arquitectura de memória DDR bicanal • 4 x 184-pin, 2.5V, suporte para fichas DDR SDRAM DIMM até 4 GB • Suporta DDR400/333/266/200 DDR SDRAM sem buffers
Opções de expansão	• 2 x Ranhuras PCI Express x 16 • 2 x Ranhuras PCI Express x 1 • 2 x Ranhuras PCI
Armazenam-ento	• Suportado por SB450 - 4 x Dispositivos Ultra DMA133/100/66 IDE - 4 x Dispositivos SATA - Configuração RAID 0 & RAID 1 • Suportado por SiI3132 - Taxa de Transferência Generation 2 ATA de Série de 3.0 Gb/seg - 2 x Dispositivos SATA II - Configuração RAID 0, RAID 1

IEEE 1394a	• Controlador VIA IEEE1394a • Suporta portas com cabo 2 x IEEE1394a a 100M bits/s, 200M bits/s, e 400M bits/s
Áudio	• CODEC áudio com 8 canais Realtek • Cumpre com a High Definition Audio Codec
LAN duplo	• Controlador LAN 10/100 Mbps Realtek • Controlador Marvel Gigabit LAN
Painel traseiro I/O	• 1 x Teclado PS/2 • 1 x conector de rato PS/2 • 4 x portas USB • 2 x conectores RJ45 LAN • 1 x porta de Série • Fichas Áudio 1 x (Portas Mic-in , Entrada de linha, e 8 canais Saída de linha)
Característi-cas BIOS	• Award BIOS com 4Mb ou 8Mb Flash ROM • Suporta dispositivo Plug e Play 1.0A, APM 1.2, Multi Boot, DMI • Suporta especificação da revisão 1.0B ACPI

I/O interno	• 1 x Conector de Fonte de Alimentação 24 pinos ATX & Conector 4 pinos 12 V • 1 x conector de potência ATX4P1 de 4 pinos • 1 x Conector flexível - suporta 360K ~ 2.88M Bytes, FDDs de 3 Modos ou LS120 • 2 x Conectores IDE • 6 x Conectores de Série ATA • 2 x Colector USB 2.0 suporta 4 portas USB adicionais • 2 x Colector 1394a • 1 x Colector LPT1 • 1 x Colector com interruptor/LED do painel traseiro • 1 x Colector de áudio do painel traseiro • 1 x Colector de infravermelhos • 1 x colector SPK1 • 1 x colector de entrada de CD • 1 x colector saída SPDIF • Conectores CPU_FAN/NB_FAN/SYS_FAN1~3
Coeficiente de Forma	• Tamanho ATX • 305mm x 244mm

特徴概要

プロセッサ	• AMD Athlon 64/Athlon 64 FX CPUのSocket 939を搭載 • 高性能HyperTransport CPU インターフェースに対応 • 2000/1600/1200/800/400 MT/s転送率を実現
チップセット	• North Bridge: ATI RD480 • South Bridge: ATI SB450
メモリ	• デュアルチャネルDDRメモリのアーキテクチャ • 184ピン2.5V仕様のDDR SDRAM DIMM ソケットを4つ搭載し、それに最大4 GBまでのメモリを装着可能 • DDR400/333/266/200 非バッファDDR SDRAMに対応
拡張スロット	• 2つのPCI Express x16スロット • 2つのPCI Express x1スロット • 2つのPCI スロット
保存装置	• SB450 チップセットでサポートするのは - 4つのUltra DMA133/100/66 IDE デバイス - 4つのSATA デバイス - RAID 0、RAID 1の 構成 • SiI3132でサポートするのは - Serial ATA Generation 2 で3.0 Gb/秒の転送率を実現 - 2つのSATA II デバイス - RAID 0、RAID 1の 構成

IEEE 1394a	• VIA IEEE1394a コントローラ • IEEE1394a ケーブルポートが2つで、100M bits/s, 200M bits/s, および400M bits/sの転送率に対応
オーディオ	• Realtek 8チャネルオーディオCODEC • High Definition Audio Codec に準拠
デュアルLAN	• Realtek 10/100 Mbps LAN コントローラ • Marvell Giga LAN
背面パネル入出力	• PS/2 コネクタが1つ • PS/2 マウスコネクタが1つ • USBポートが4つ • RJ45 LAN コネクタが2つ • シリアルポートが1つ • オーディオジャック(マイクロホン入力、ライン入力、および8チャネルオライン出力)が1式
BIOSの諸機能	• 4 Mb または 8Mb の Flash ROM のAward BIOS • Plug&Play 1.0A、APM 1.2、Multi Boot、およびDMIをサポート • ACPI revision 1.0B 規格に準拠

内部入出力	• 1 つの24ピンATX 電源サプライコネクタと4ピン12 V コネクタ • 1つの4ピン仕様のATX4P1 電源コネクタ • 1つのフロッピーディスクドライブコネクタ、360Kから2.88Mバイトの3 Mode FDDとLS120をサポート • 2つのIDEコネクタ • 6つのシリアルATAコネクタ • 2つのUSB 2.0ヘッダーでさらなる4つのUSBポートを増設可能 • 2つの1394a ヘッダー • 1つのLPT1 ヘッダー • 1つの前面パネルスイッチ/LED ヘッダー • 1つのフロントパネルオーディオヘッダー • 1つの赤外線ヘッダ • 1つのSPK1 ヘッダー • 1つのCD-inヘッダー • 1つのSPDIF 出力ヘッダー • CPU_FAN/NB_FAN/SYSFAN1~3 コネクタ
寸法	• ATXサイズ • 305mm x 244mm

日本語

특성 요약

CPU	• AMD 애슬론 64/애슬론 64 FX CPU 용 소켓 939 • 고 성능 HyperTransport CPU 인터페이스 • 전송 속도 2000/1600/1200/800/400 MT/s
칩셋	• North Bridge: ATI RD480 • South Bridge: ATI SB450
메모리	• 듀얼 채널 DDR 메모리 아키텍처 • 4 x 184 핀, 2.5V, DDR SDRAM DIMM 소켓이 최대 용량 4 GB 지원 • DDR400/333/266/200 unbuffered DDR SDRAM 지원
확장 옵션	• 2 x PCI 익스프레스 x16 • 2 x PCI 익스프레스 x1 • 2 x PCI 슬롯
저장	• SB450 지원 - 4 x Ultra DMA133/100/66 IDE 장치 - 4 x SATA 장치 -RAID 0 &RAID 1 구성 • SiI3132 지원 -Serial ATA Generation 2 전송 속도 3.0 Gb/s -2 x SATA II 장치 -RAID 0, RAID 1 구성

IEEE 1394a	• VIA IEEE1394a 컨트롤러 • 2 x IEEE1394a 케이블 포트, 100M bits/s, 200M bits/s, 400M bits/s 지원
오디오	• Realtek 8 채널 오디오 코덱 • High Defintion Audio Codec 사양 부합
듀얼 랜	• Realtek 10/100 Mbps LAN 컨트롤러 • Marvel 기가바이트 랜 컨트롤러
뒷 패널 I/O	• 1 x PS/2 키보드 • 1 x PS/2 마우스 커넥터 • 4 x USB 포트 • 2 x RJ45 LAN 커넥터 • 1 x 시리얼 포트 • 1 x 오디오 잭 (마이크 입력 포트, 라인 입력, 8 채널라인 출력)
BIOS 특성	• 8Mb 즉 4Mb 플래시 ROM의 Award BIOS • 플러그 앤 플레이 1.0A, APM 1.2, Multi Boot, DMI 지원 • ACPI 1.0B 사양 지원.

내부 I/O	• 1 x 24 핀 ATX 파워 써플라이 커넥터 및 4 핀 12 V 커넥터 • 4 핀 ATX4P1 전원 커넥터 1 개 • 1 x 플로피 커넥터 - 360K ~ 2.88M Bytes, 3 모드 FDD 또는 LS120 지원 • 2 x IDE 커넥터 • 6 x 시리얼 ATA 커넥터 • 2 x USB 2.0 헤더, 추가적으로 4 개의 USB 포트 지원s • 2 x 1394a 헤더 • 1 x LPT1 헤더 • 1 x 앞 패널 스위치/LED 헤더 • 1 x 앞 패널 오디오 헤더 • 1 x 적외선 해더 • 1 x SPK1 해더 • 1 x CD-in 해더 • 1 x SPDIF 출력 해더 • CPU_FAN/NB_FAN/SYS_FAN1~3 커넥터
규격	• ATX 사이즈 • 305mm x 244mm

功能摘要

中央處理器	• 配備有 AMD Athlon 64/Athlon 64 FX CPU的Socket 939 • 支援高效能HyperTransport CPU 介面 • 提供高達2000/1600/1200/800/400 MT/s的資料傳輸率
晶片組	• 北橋晶片：ATI RD480 • 南橋晶片：ATI SB450
記憶體	• 雙通道DDR 記憶體架構 • 4 個184針 2.5V的DDR SDRAM DIMM 插槽，最大安裝容量達4 GB • 支援 DDR400/333/266/200 無緩衝DDR SDRAM
擴充槽	• 2個PCI Express x16槽 • 2個PCI Express x1槽 • 2個PCI槽
儲存裝置	• 以SB450提供支援 - 4個Ultra DMA133/100/66 IDE裝置 - 4個SATA 裝置 - 支援RAID 0 & RAID 1 設定 • 以 SiI3132提供支援 - 支援Serial ATA 第二代之傳輸率，高達3.0 Gb/秒 - 2個 SATA II 裝置 - 支援RAID 0、RAID 1、及 RAID 0+1 設定

IEEE 1394a	• VIA IEEE1394a 控制器 • 支援2個IEEE1394a 接線埠，提供100M bits/s、200M bits/s、及400M bits/s的傳輸率
音訊	• Realtek 8聲道音訊解碼器 • 相容於高傳真音效編碼解碼器
雙LAN	• Realtek 10/100 Mbps LAN 控制器 • Marvel Gigabit LAN 控制器
背面板輸出入介面	• 1個PS/2 鍵盤連接器 • 1個PS/2 滑鼠連接器 • 4個USB埠 • 2個RJ45 LAN 插孔 • 1個序列埠 • 1 個音訊插孔(麥克風及線級輸入及8聲道線級輸出)
BIOS功能	• 採4Mb 或 8Mb Flash ROM的Award BIOS • 支援Plug and Play 1.0A、 APM 1.2、 Multi Boot、及 DMI • 支援ACPI 修訂版1.0B 規格

內部輸出入介面	• 1個24針ATX 電源供應器連接器及4針12 V 連接器 • 1個 4針ATX4P1 電源連接器 • 1個軟碟機連接器，可支援360K至2.88M位元組之3 Mode 軟碟機及LS120軟碟機 • 2個IDE連接器 • 6個序列ATA 連接器 • 2個USB 2.0接頭，可支援4個額外的USB埠 • 2個1394a接頭 • 1個LPT1接頭 • 1個前面板開關及1個LED 接頭 • 1個前面板音訊接頭 • 1個紅外線接頭 • 1個SPK1接頭 • 1個CD-in接頭 • 1個SPDIF輸出接頭 • CPU_FAN/NB_FAN/SYS_FAN1~3連接器
主機板尺寸	• ATX 尺寸 • 305mm x 244mm

功能摘要

CPU	• 用于AMD Athlon 64/Athlon 64 FX CPU 的 Socket 939 插座 • 高性能 HyperTransport CPU 接口： • 传输速率 2000/1600/1200/800/400 MT/s
芯片组	• 北桥：ATI RD480 • 南桥：ATI SB450
内存	• 双通道 DDR 内存架构 • 4 个 184 线 2.5V，DDR SDRAM DIMM 插槽，内存最大可支持 4 GB • 支持 DDR400/333/266/200非缓冲 DDR SDRAM
扩展选项	• 2 个 PCI Express x16 插槽 • 2 个 PCI Express x1 插槽 • 2 个 PCI 插槽
存储	• 支持 SB450 - 4 个 Ultra DMA133/100/66 IDE 设备 - 4 个 SATA 设备 - RAID 0 & RAID 1 配置 • 支持 SiI3132 - 串行 ATA Generation 2，传输速率 3.0 Gb/s - 2 个 SATA II 设备 - RAID 0, RAID 1 配置

IEEE 1394a	• VIA IEEE1394a 控制器 • 支持 2 x IEEE1394a 电缆端口（在 100M bits/s、200M bits/s 和 400M bits/s 下）
音频	• Realtek 8 声道音频编解码器 • 兼容高精度音频编解码器
双 LAN	• Realtek 10/100 Mbps LAN 控制器 • Marvel 千兆 LAN 控制器
后面板 I/O	• 1 个 PS/2 键盘接口 • 1 个 PS/2 鼠标接口 • 4 个 USB 端口 • 2 个 RJ45 LAN 接口 • 1 个串口 • 1 个音频插孔（麦克风、线入、8 声道线出）
BIOS 功能	• Award BIOS (4Mb/8Mb Flash ROM) • 支持即插即用 1.0A、APM 1.2、Multi Boot、DMI • 支持 ACPI Revision 1.0B 规格

集成 I/O	• 1 个 24 针 ATX 电源接口和 1 个 4 针 12 V 接口 • 1 个 4 针 ATX4P1 电源接口 • 1 个软驱接口- 支持 360K ~ 2.88M 字节，3 Mode FDD 或 LS120 • 2 个 IDE 接口 • 6 个串行 ATA 接口 • 2 个 USB 2.0 接头，支持另外 4 个 USB 端口 • 2 个 1394a 接头 • 1 个 LPT1 接头 • 1 个 前面板开关/LED 接头 • 1 个 前面板音频接头 • 1 个 红外接口 • 1 个 SPK1接口 • 1 个 CD-in接口 • 1 个 SPDIF 输出接口 • CPU_FAN/NB_FAN/SYS_FAN1~3 接口
外形	• ATX 尺寸 • 305mm x 244mm

Характеристики

CPU	• Разъем 939 для процессоров AMD Athlon 64/Athlon 64 FX CPU • Интерфейс HyperTransport CPU с высокой пропускной способностью • Скорость передачи данных 2000/1600/1200/800/400 MT/сек
Чипсет	• Северный мост: ATI RD480 • Южный мост: ATI SB450
Память	• Архитектура памяти Dual-channel DDR • Четыре 184-штырьковых сокета 2.5V DDR DIMM с поддержкой до 4 ГБ памяти • Поддержка DDR400/333/266/200 и небуферизуемой памяти DDR SDRAM
Возможности расширения	• 2 слота PCI Express x16 • 2 слота PCI Express x1 • 2 слота PCI
Массовая память	• Поддерживаемая SB450 - 4 устройства IDE Ultra DMA133/100/66 - 4 устройства SATA - Конфигураци RAID 0 & RAID 1 • Поддерживаемая SiI3132 - Serial ATA 2-го поколения со скоростью трансфера 3.0 Гб/с - 2 устройства SATA II - Конфигураци RAID 0, RAID 1, RAID 0+1

IEEE 1394a	• Контроллер VIA IEEE1394a • Поддержка двух портов IEEE1394a (100M бит/с, 200M бит/с и 400M бит/с)
Аудио	• 8-канальный аудио CODEC Realtek • Совместимость с High Definition Audio Codec
Dual LAN	• Контроллер Realtek 10/100 Mbps LAN • Контроллер Marvel Gigabit LAN
Гнезда входа/выхода на тыльной панели	• 1 гнездо клавиатуры PS/2 • 1 гнездо мыши PS/2 • 4 порта USB • 2 гнезда RJ45 LAN • 1 серийный порт • 1 разъем аудио (микрофона, порты входа и 8-канальный выхода)
Особенности BIOS'a	• Award BIOS с 4Мб или 8Мб Flash ROM • Поддержка Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Поддержка ACPI вер.1.0B

Внутренние гнезда входа/выхода	• 1 24-штырьковое гнездо питания ATX и 4-штырьковое гнездо 12 V • 1 4-штырьковый коннектор электропитания ATX4P1 • 1 гнездо подключения накопителя НГМД с поддержкой форматов 360K ~ 2.88МБ, 3 формата FDD или LS120 • 2 гнезда IDE • 6 гнезд Serial ATA • 2 гнезда USB 2.0 с поддержкой 4 дополнительных портов USB • 2 гнездо 1394a • 1 гнездо LPT1 • 1 гнездо выключателя/индикатора передней панели • 1 аудио гнездо передней панели • 1 разъем инфракрасного порта • 1 разъем SPK1 • 1 разъем CD-in • 1 разъем SPDIF выхода • Разъемы вентиляторов CPU , северного моста и SYS_FAN (1~3)
Габариты	• Стандарт ATX • 305мм x 244мм

Cechy

CPU	• Gniazdo 939 dla procesorów AMD Athlon 64/Athlon 64 FX CPU • Złącze szybkiego transpotu danych HyperTransport CPU Interface • Szybkość przesylania danych 2000/1600/1200/800/400 MT/s
Chipset	• Mostek północny: ATI RD480 • Mostek poludniowy: ATI SB450
Pamięć	• Architektura pamięci dwukanałowej DDR • 4 184-nóżkowe złącza 2.5V, DDR SDRAM DIMM obsługujące do 4 GB pamięci • Obsługa pamięci typu DDR400/333/266/200 i niebuforowanej pamięci DDR SDRAM
Możliwości rozbudowy	• 2 złącze PCI Express x16 • 2 złącze PCI Express x1 • 2 złącze PCI
Urządzenia pamięc masowej	• Obsługiwane przez SB450 - 4 urządzenia IDE Ultra DMA133/100/66 - 4 urządzenia SATA - Konfiguracje RAID 0 & RAID 1 • Obsługiwane przez SiI3132 - Serial ATA 2 generacji o zdolności przesylania danych 3.0 Gb/s - 2 urządzenia SATA II - Konfiguracje RAID 0, RAID 1

IEEE 1394a	• Kontroler VIA IEEE1394a • Obsługuje 2 złącza IEEE1394a o szybkości 100M bit/s, 200M bit/s i 400M bit/s
Audio	• 8-kanałowy audio CODEC Realtek • Zgodne z High Definition Audio Codec
Dual LAN	• Kontroler LAN Realtek 10/100 Mbps • Kontroller Marvel Gigabit LAN
Gniazda We/Wy na tylnym panelu	• 1 gniazdo klawiatury PS/2 • 1 gniazdo myszy PS/2 • 4 gniazda USB • 2 złącza RJ45 LAN • 1 port szeregowy • 1 złącze audio (gniazdo wejściowe mikrofonowe, gniazda wejściowe i 8-kanałowy wyjściowe audio)
Cechy BIOSu	• Award BIOS, zaopatrzony w 4Mb bo 8Mb Flash ROM • Obsługuje technologie Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Obsługuje technologię ACPI w wersji 1.0B

Wewnętrzne gniazda We/Wy	• 1 gniazdo 24-nóżkowe zasilacza ATX i 4-nóżkowe gniazdo zasilania 12 V • 1 gniazdo zasilania typu 4-nóżki ATX4P1 • 1 gniazdo napędu dyskietek, obsługuje formaty 360K ~ 2.88M Bajt, 3 Mode FDD lub LS120 • 2 złącza IDE • 6 złącz Serial ATA • 2 złącza USB 2.0 obsługujące 4 dodatkowe porty USB • 2 złącze 1394a • 1 złącze LPT1 • 1 złącze włącznika / wskaźnika LED na panelu przednim • 1 gniazdo audio na panelu przednim • 1 złącze dla podczerwieni • 1 złącze dla SPK1 • 1 złącze dla CD • 1 złącze dla wyjścia SPDIF • Gniazda wiatraków CPU, mostka północnego i gniazdoSYSFAN (1~3)
Wymiary	• Standard ATX • 305mm x 244mm

Souhrn vlastností

CPU	• Patice 939 pro procesory AMD Athlon 64/Athlon 64 FX • Vysoce výkonné rozhraní HyperTransport CPU • Přenosové rychlosti 2000/1600/1200/800/400 MT/s
Čipová sada	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Paměť	• Dvojkanálová paměťová architektura DDR • 4 x 184kolíková patice DDR SDRAM DIMM 2,5 V, podporující paměť do kapacity až 4 GB • Podpora pamětí typu DDR SDRAM 400/333/266/200, bez vyrovnávací paměti
Rozšiřující sloty	• 2 x slot PCI Express x16 • 2 x slot PCI Express x1 • 2 x slot PCI
Disková zařízení	• Podporovaná SB450 - 4 x zařízení Ultra DMA IDE 133/100/66 - 4 x zařízení SATA - Konfigurace RAID 0 & RAID 1 • Podporovaná SiI3132 - Serial ATA Generation 2 s přenosovou rychlostí 3,0 Gb/s - 2 x zařízení SATA II - Konfigurace RAID 0, RAID 1

IEEE 1394a	• Řadič VIA IEEE 1394a • Podpora 2 kabelových portů IEEE 1394a s přenosovou rychlostí 100 Mb/s, 200 Mb/s a 400 Mb/s
Zvuk	• 8kanálový zvukový kodek Realtek • Splňuje požadavky High Definition Audio Codec
Duální LAN	• Řadič sítě 10/100 Mbps LAN, Realtek • Řadič gigabitové sítě LAN, Marvell
Vstupy/ výstupy na zadním panelu	• 1 x konektor klávesnice PS/2 • 1 x konektor myši PS/2 • 4 x port USB • 2 x konektor LAN RJ45 • 1 x sériový port • 1 x zvukový konektor (mikrofon/linkový vstup/8kanálový linkový výstup/)
Vlastnosti BIOS	• Award BIOS s 4 Mb nebo 8Mb Flash ROM • Podpora Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Podpora standardu ACPI verze 1.0B

Interní vstupy/ výstupy	• 1x 24kolíkový napájecí konektor ATX a 4kolíkový konektor 12 V • 1x 4kolíkový napájecí konektor ATX4P1 • 1x konektor floppy diskových mechanik – podpora 360 kB až 2,88 MB, 3 režimy FDD nebo LS120 • 2x konektor IDE • 6x konektor Serial ATA • 2x rozhraní USB 2.0 s podporou dalších 4 USB portů • 2x rozhraní 1394a • 1x rozhraní LPT1 • 1x rozhraní pro spínač na předním panelu/LED • 1x rozhraní pro zvukový vstup/výstup na předním panelu • 1x infračervené rozhraní • 1x rozhraní SPK1 • 1x vstup CD • 1x rozhraní výstup SPDIF • Konektory CPU_FAN/NB_FAN/SYS_FAN1~3
Velikost	• Rozměry standardu ATX • 305mm x 244mm

Sumarul caracteristicilor

Unitatea centrală (CPU)	• Soclu 939 pentru unităţi centrale (CPU) AMD Athlon 64/Athlon 64 FX • Interfaţă CPU HyperTransport de înaltă performanţă • Viteză de transfer de 2000/1600/1200/800/400 MT/s
Set de chipuri	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Memorie	• Architectură cu module de memorie DDR cu canal dual • 4 socluri DDR SDRAM DIMM de 2,5 V şi 184 ace, cu capacitate maximă de 4 GB • Suport pentru module DDR SDRAM DDR400/333/266/200 fără zonă tampon
Sloturi de extindere	• Două sloturi PCI Express de 16x • Două sloturi PCI Express de 1x • Două sloturi PCI
Stocare	• Compatibilă cu SB450 - Patru unităţi IDE Ultra DMA 133/100/66 - Patru unităţi SATA devices - Configuraţie RAID 0 & RAID 1 • Compatibilă cu SiI3132 - Serial ATA, generaţia 2-a, cu o rată de transfer de 3.0 Gb/s - Două unităţi SATA II devices - Configuraţie RAID 0 şi RAID 1

IEEE 1394a	• Controler VIA IEEE1394a • Funcţionează cu 2 porturi de cablu IEEE1394a la viteze de 100 Mbiţi/s, 200 Mbiţi/s şi 400 Mbiţi/s
Audio	• CODEC audio Realtek cu 8 canale • Compatibil cu High Definition Audio Codec
LAN dual	• Controler LAN Realtek 10/100 Mbps • Controler LAN Marvel Gigabit
I/O de pe panoul din spate	• O tastatură PS/2 • Un conector de mouse PS/2 • Patru porturi USB • Două conectoare LAN RJ45 • Un port serial • O mufă audio (microfon, pentru intrare şi 8 canale ieşire audio)
Caracteristici BIOS	• Award BIOS cu Flash ROM de 4 Mb sau 8Mb • Compatibil cu Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • Compatibil cu ACPI, versiunea 1.0B

I/O internă	• Un conector cu 24 ace pentru alimentare cu energie şi conector de 12 V cu 4 ace • Un conector reţea electrică 4-pin ATX4P1 • Un conector Floppy, pentru dischete de 360 KB–2,88 MB, FDD cu 3 moduri sau LS120 • Două sloturi IDE • Şase conectoare ATA seriale • Două conectoare USB 2.0, cu posibilitate pentru alte 4 porturi USB • Două conectoare 1394a • Un conector LPT1 • Un comutator/conector LED pe panoul frontal • Un conector audio pe panoul frontal • Un Infrared header • Un SPK1 header • Un CD-in header • Un ieşire SPDIF header • Conectoare CPU_FAN/NB_FAN/SYS_FAN1~3
Caracteristici externe	• Dimensiuni ATX • 305mm x 244mm

Параметри

Процесор	• сокет 939 за процесор AMD Athlon 64/Athlon 64 FX • високопроизводителен интерфейс HyperTransport • скорост на обмен на данни 2000/1600/1200/800/400 MT/s
Чипсет	• Северен мост: ATI RD480 • Южен мост: ATI SB450
Памет	• двуканална архитектура на паметта DDR(DDR & DDR2) • 4 слота 184-pin, 2.5V, DDR SDRAM DIMM с поддръжка на общ капацитет до 4 GB • поддръжка на модули DDR400/333/266/200 небуферирана DDR SDRAM
Слотове за разширяване	• 2 слота PCI Express x16 • 2 слота PCI Express x1 • 2 слота PCI
Възможности за съхраняване на данни	• поддържани от S450 - 4 устройства Ultra DMA 133/100/66 IDE - 4 устройства SATA - RAID 0 & RAID 1 • поддържани от SiI3132 - Serial ATA от второ поколение със скорост на трансфер 3.0 Gb/s - 2 устройства SATA II - RAID 0, RAID 1

IEEE 1394a	• контролер VIA IEEE1394a • поддръжка на 2 кабелни порта IEEE1394a със скорост 100M bits/s, 200M bits/s, и 400M bits/s
Аудио	• 8-канален аудио CODEC Realtek • съвместимост със High Definition Audio Codec
Dual LAN	• мрежов контролер Realtek 10/100 Mbps • мрежов контролер Marvell Giga LAN
Портове Вход/Изход на задния панел	• 1 порт PS/2 за клавиатура • 1 порт PS/2 за мишка • 4 порта USB • 2 конектора RJ45 LAN • 1 сериен порт • 1 аудио гнездо (вход за микрофон/линеен вход/8-канално линеен изход)
Параметри на BIOS	• Award BIOS с 4Mb или 8Mb Flash ROM • поддръжка на спецификацията Plug and Play 1.0A, APM 1.2, Multi Boot, DMI • поддръжка на спецификацията ACPI revision 1.0B

Интегриран Вход/Изход контролер	• 1 конектор 24-pin ATX Power Supply и конектор 4-pin 12 V • 1 x 4-pin ATX4P1 конектор за захранване • 1 конектор за флопидисково устройство с поддръжка на устройства 360K ~ 2.88M Bytes, 3 Mode или LS120 • 2 конектора IDE • 6 конектора Serial ATA • 2 колектора USB 2.0 с поддръжка на 4 допълнители USB порта • 2 колектор 1394a • 1 колектор LPT1 • 1 колектор за бутоните и LED-индикацията на предния панел • 1 колектор за аудио вход/изход на предния панел • 1 x Инфра червен концентратор • 1 x SPK1 концентратор • 1 x CD-in концентратор • 1 колектор изход SPDIF • конектори CPU_FAN/NB_FAN/SYS_FAN1~3
Размери	• ATX • 305mm x 244mm

Jellemzők összefoglalása

Központi egység(CPU)	• 939-es foglalat AMD Athlon 64/AMD Athlon 64 FX központi egységeknek • Nagy teljesítményű HyperTransport technologiás központi egység interfész • 2000/1600/1200/800/400 MT/s átviteli sebesség
Lapkakészlet	• North Bridge: ATI RD480 • South Bridge: ATI SB450
Memória	• Duál csatornás DDR memória kiépítés • Négy 184 tűs, 2,5 V-os DDR SDRAM DIMM foglalat, maximum 4 GB kapacitással • Puffermentes DDR400/333/266/200 DDR SDRAM memóriaegységek támogatása
Bővítési foglalatok	• Két 16-szoros PCI Express • Két egyszeres PCI Express • Két PCI foglalat
Tárolás	• Az SB450 által támogatott - 4 x Ultra DMA 133/100/66 IDE eszköz - 4 x SATA eszköz - RAID 0 & RAID 1 konfiguráció • A SiI3132 által támogatot - Második generációs soros ATA 3.0 Gb/s átviteli sebességgel - 2 x SATAII eszköz - RAID 0 és RAID 1 konfiguráció

IEEE 1394a	• VIA IEEE1394a vezérlő • Két IEEE1394a 100 Mbit/s, 200 Mbit/s vagy 400 Mbit/s sebességű kábelportot támogat
Audio	• Realtek 8 csatornás audio CODEC • Megfelel az High Definition Audio Codec
Duál LAN	• Realtek 10/100 Mbps sebességű LAN vezérlő • Marvell Giga LAN
Hátsó panelen levő I/O	• Egy PS/2 billentyűzet • Egy PS/2 egércsatlakozó • Négy USB port • Két RJ45 LAN csatlakozó • Egy soros port • Egy Audio aljzat (mikorofon portokkal, bemenet és 8 csatornás kimenet)
BIOS jellemzők	• Award BIOS 4 Mb vagy 8Mb Flash ROM-mal • 1.0A Plug and Play, APM 1.2, Multi Boot, DMI támogatása • Kompatibilis az ACPI 1.0B változatával

Belső I/O	• Egy 24 tűs ATX tápforrás csatlakozó és négytűs 12 V-os csatlakozó • 1 x 4-pin ATX4P1 elektromos csatlakozó • Egy floppy meghajtó 360 kB–2,88 MB lemezeknek, 3 üzemmódú FDD meghajtók vagy LS120 • Két IDE foglalat • Hat soros ATA csatlakozó • Két USB 2.0 csatlakozó, és további 4 USB porttal tud működni • Két 1394a csatlakozó • Egy LPT1 csatlakozó • Egy elülső panelen levő kapcsoló/LED csatlakozó • Az elülső panelen levő audio csatlakozó • 1 x Infravörös header • 1 x SPK1 header • 1 x CD-in header • 1 x SPDIF-out header • CPU_FAN/NB_FAN/SYS_FAN1~3 csatlakozók
Alaki jellemzők	• ATX méret • 305mm x 244mm

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- 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.

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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.

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