



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




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



ISO14001 CERTIFICATE

Certificate No.: 061-04-EI-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:



SHENZHEN SOUTHERN CERTIFICATION CO., LTD.

Preface

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Version 1.0

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Federal Communications Commission (FCC)

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

Preface

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

About the Manual

The manual consists of the following:





Chapter 1 Introducing the Motherboard	Describes features of the motherboard. Go to  page 1
Chapter 2 Installing the Motherboard	Describes installation of motherboard components. Go to  page 7
Chapter 3 Using BIOS	Provides information on using the BIOS Setup Utility. Go to  page 25
Chapter 4 Using the Motherboard Software	Describes the motherboard software Go to  page 47

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Multi-Language Translation

Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the NFORCE4M-A motherboard. This motherboard is a high performance, enhanced function motherboard that supports Socket AM2 AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX CPUs for high-end business or personal desktop markets.

This motherboard is based on NVIDIA® nForce4-4X media and communications processor (MCP) for best desktop platform solution. nForce4-4X is a single-chip, highly integrated, high performance HyperTransport peripheral controller, unmatched by any other single chip-device controller. This motherboard supports up to 32 GB of system memory with DDR2 800/667/533/400 DIMMs, high resolution graphics via an PCI Express x16 slot, 10/100 Fast Ethernet LAN Controller, USB 2.0, 6-channel audio and SATA support with RAID function.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, LPT1, four USB ports, one optional LAN port, and audio jacks for microphone, line-in, and line-out. This motherboard is designed in an ATX form factor using a four-layer printed circuit board and measures 305 mm x 244 mm.

Feature

Processor

This motherboard uses a Socket AM2 that carries the following features:

- Accommodates AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX processors
- Supports up to 2000 MT/s HyperTransport™ (HT) interface Speeds

HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

Chipset

The NVIDIA® nForce4-4X is a single-chip with proven reliability and performance.

- HyperTransport x16 up and down links at up to 1.0 GHz to the AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX processors
- PCI 2.3 interface, supporting up to five PCI slots
- Two separate SATA controllers with integrated PHYs, each supporting two drives in master mode
- IEEE 802.3 NVIDIA MAC for 1000BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI and USB 1.1 OHCI, supporting up to ten ports
- Fast ATA-133 IDE controller
- AC'97 2.3 interface, supporting S/PDIF pass-through function and standard, enhanced audio functionality
- Supports Gigabit/Fast Ethernet/Ethernet

Memory

- DDR2 800/667/533/400 DDR SDRAM with Dual Channel supported
- Accommodates four unbuffered DIMMs
- Up to 8 GB per DIMM with maximum memory size up to 32 GB

Audio

- Compliant with AC'97 v2.3 CODEC
- Supports 6-channel audio CODEC designed for PC multimedia systems
- Provides three analog line-level stereo inputs with 5-bit volume control: Line-in, CD, AUX
- Meets Microsoft WHQL/WLP 2.0 audio requirements

Onboard LAN (optional)

The onboard LAN provides the following features:

- Supports 10/100 Mbps Auto-Negotiation operation
- Supports MII and 7-wire SNI (Serial Network Interface)
- Half/Full duplex operation
- Supports auto crossover detection

Introducing the Motherboard

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphics Interface
- Two PCI Express x1 slots
- Three 32-bit PCI v2.3 compliant slots
- Two IDE connectors supporting up to 4 IDE devices
- One floppy disk drive interface
- Four 7-pin SATA connectors

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

Integrated I/O

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

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- Four USB ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

BIOS Firmware

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

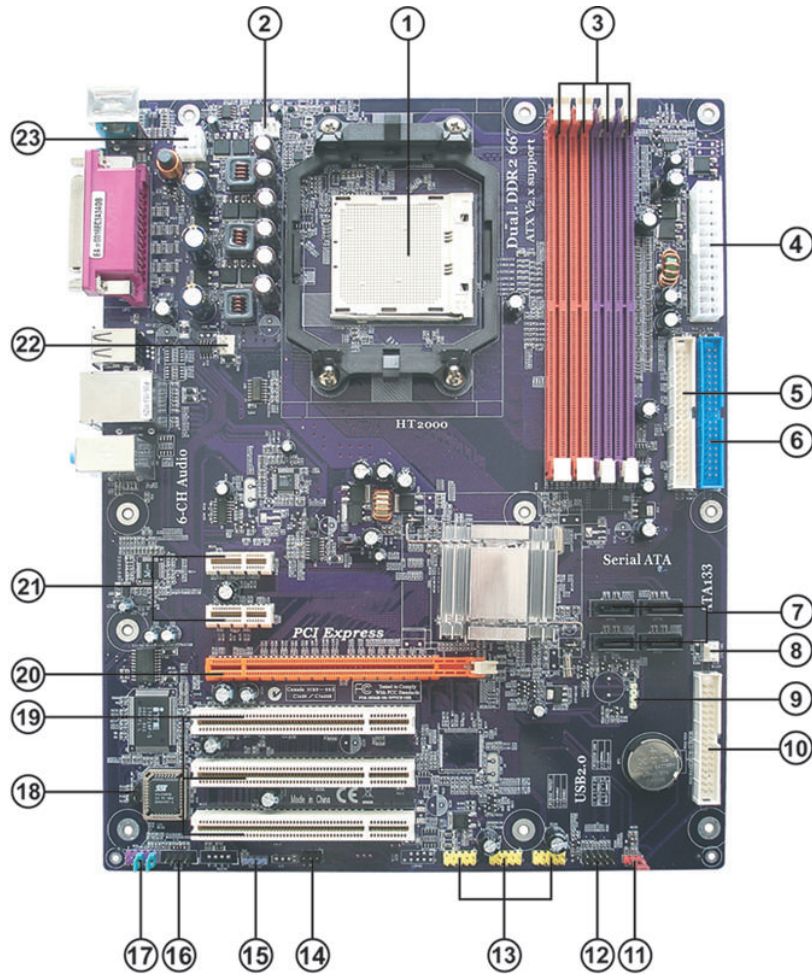
- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

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



Some hardware specifications and software items are subject to change without prior notice.

Motherboard Components



Introducing the Motherboard

Table of Motherboard Components

LABEL	COMPONENT
1 CPU Socket	Socket AM2 for AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX processors
2 CPU_FAN1	CPU cooling fan connector
3 DIMMA1/2~B1/2	240-pin DDR2 SDRAM slots
4 ATX1	Standard 24-pin ATX power connector
5 IDE2	Secondary IDE connector
6 IDE1	Primary IDE connector
7 SATA1~4	Serial ATA connectors
8 SYS_FAN1	System cooling fan connector
9 SPK1	Speaker header
10 FDD1	Floppy disk drive connector
11 CLR_COMS	Clear CMOS jumper
12 PANEL1	Front Panel switch/LED header
13 USB3~5	Front Panel USB headers
14 IR1	Infrared header
15 SPDIFO1	SPDIF out header
16 CDIN1	Analog Audio Input connector
17 AUDIO1	Front panel audio header
18 BIOS_WP	BIOS protect jumper
19 PCI1~3	32-bit add-on card slots
20 PCIE1	PCI Express x16 graphics card slot
21 PCIE2~3	PCI Express x1 slots
22 CAS_FAN1	Case cooling fan connector
23 PWR1	4-pin +12V power connector

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

Introducing the Motherboard

Memo

Introducing the Motherboard

Chapter 2

Installing the Motherboard

Safety Precautions

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

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports one or two floppy diskette drives and four enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

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

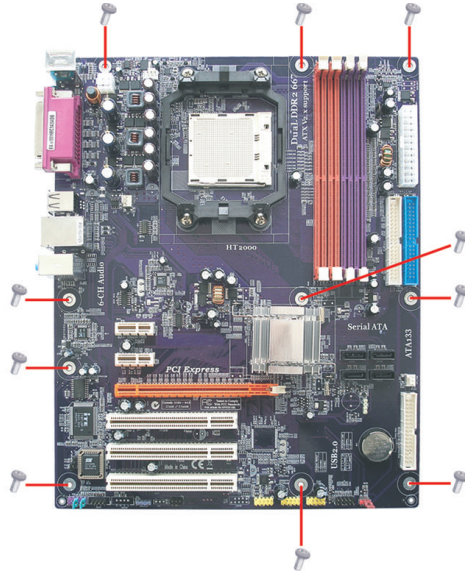
This motherboard carries an ATX form factor of 305 X 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

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

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

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



Do not over-tighten the screws as this can stress the motherboard.

Checking Jumper Settings

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

Setting Jumpers

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

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

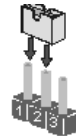


SHORT



OPEN

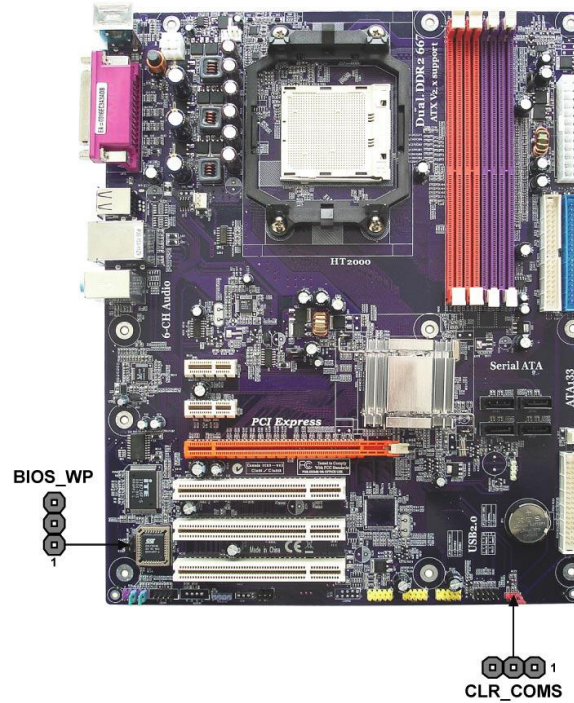
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.





Installing the Motherboard

Checking Jumper Settings

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



Jumper Settings

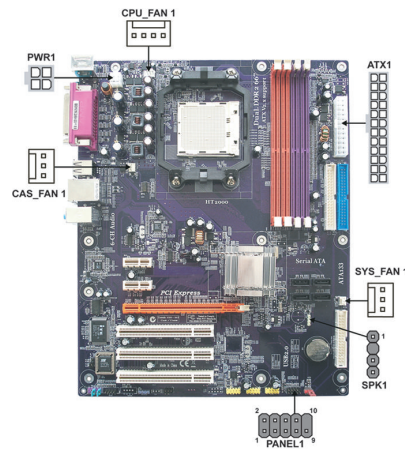
Jumper	Type	Description	Setting (default)	
CLR_COMS	3-pin	CLEAR CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn the system off.	 1 CLR_COMS
BIOS_WP	3-pin	BIOS PROTECT	1-2: DISABLE 2-3: ENABLE	 1 BIOS_WP

Installing the Motherboard

Connecting Case Components

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

- 1 Connect the CPU cooling fan cable to **CPU_FAN1**.
- 2 Connect the case cooling fan connector to **CAS_FAN1**.
- 3 Connect the system cooling fan connector to **SYS_FAN1**.
- 4 Connect the case speaker cable to **SPK1**.
- 5 Connect the standard power supply connector to **ATX1**.
- 6 Connect the auxiliary case power supply connector to **PWR1**.
- 7 Connect the case switches and indicator LEDs to the **PANEL1**.



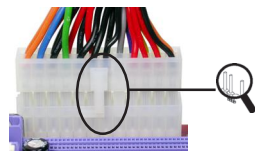
Connecting 20/24-pin power cable

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



20-pin power cable

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



24-pin power cable

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

Installing the Motherboard

CPU_FAN1: CPU Cooling FAN Power Connector

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

CAS_FAN1/SYS_FAN1: Cooling FAN Power Connectors

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

SPK1: Internal speaker

Pin	Signal Name
1	VCC
2	Key
3	GND
4	Signal

ATX1: ATX 24-pin Power Connector

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

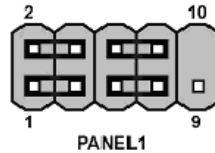
PWR1: ATX 12V Power Connector

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

Installing the Motherboard

Front Panel Header

The front panel header (PANEL1) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



Pin	Signal Name	Function	Pin	Signal Name	Function
1	HD_LED_P	Hard disk LED(+)	2	FPPWR/SLP	*MSG LED(+)
3	HD_LED_N	Hard disk LED(-)	4	FP PWR/SLP	*MSG LED(-)
5	RST_SW_N	Reset Switch(-)	6	PWR_SW_P	Power Switch(+)
7	RST_SW_P	Reset Switch(+)	8	PWR_SW_N	Power Switch(-)
9	RSVD	Reserved	10	Key	No pin

*MSG LED (dual color or single color)

Hard Drive Activity LED

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

Power/Sleep/Message waiting LED

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

Reset Switch

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

Power Switch

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

Installing Hardware

Installing the Processor



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

Installing the Motherboard

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

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

Before installing the Processor

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



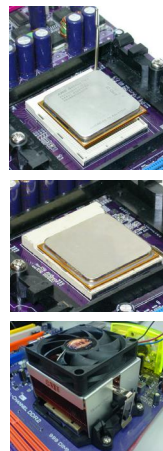
Warning: Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

This motherboard has a Socket AM2 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components.

- 1 Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
- 2 Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
- 3 Press the lever down and apply thermal grease on top of the CPU.
- 4 Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
- 5 Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.



To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing the Motherboard

Installing Memory Modules

This motherboard accommodates four 240-pin unbuffered DIMMs and supports DDR2 800 /667/533/400 DDR2 SDRAM. You must install at least one module in any of the four slots. Each module can be installed with 8 GB of memory; the total memory capacity is 32 GB.

DDR2 SDRAM memory module table

Memory module	Memory Bus
DDR2 400	200 MHz
DDR2 533	266 MHz
DDR2 667	333 MHz
DDR2 800	400 MHz

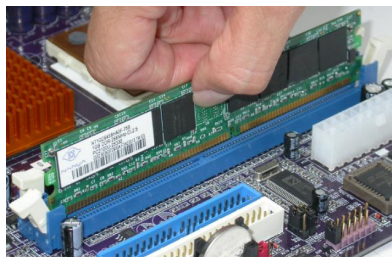


Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

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



Installing the Motherboard

Table A: Unbuffered DIMM Support for Socket AM2 CPU

DRAM Speed	DIMM1 ¹	DIMM2 ¹	Timing Mode	Address Timing Control Register	Output Driver Compensation Control Register
DDR2-400	-	Any	1T	002F_2F2Fh	X011_1222h
DDR2-400	Any	Any	2T	002F_2F2Fh	X011_1322h
DDR2-533	-	Any	1T	002F_2F2Fh	X011_1222h
DDR2-533	SRx16	SRx16	2T	002F_2F2Fh	X011_1322h
	SRx16	SRx8			
	SRx8	SRx16			
DDR2-533	SRx8	SRx8	2T	0000_2F2Fh	X011_1322h
DDR2-533	DRx8	DRx8	2T	0034_2F2Fh	X011_1322h
DDR2-533	DRx8	SRx16	2T	0038_2F2Fh	X011_1322h
	SRx16	DRx8			
DDR2-533	DRx8	SRx8	2T	0037_2F2Fh	X011_1322h
	SRx8	DRx8			
DDR2-667	-	Any	1T	0020_2020h	X011_1222h
DDR2-667	SRx16	SRx16	2T	0020_2020h	X011_1322h
	SRx16	SRx8			
	SRx8	SRx16			
DDR2-667	SRx8	SRx8	2T	0030_2020h	X011_1322h
DDR2-667	DRx8	DRx8	2T	002B_2020h	X011_1322h
DDR2-667	DRx8	SRx16	2T	002C_2020h	X011_1322h
	SRx16	DRx8			
DDR2-667	DRx8	SRx8	2T	002A_2020h	X011_1322h
	SRx8	DRx8			
DDR2-800	-	Any	2T	0020_2520h	X011_3222h
DDR2-800	Any	Any	2T	0020_2520h	X011_3222h

1. SRx16=Single Rank x16 DIMM
SRx8=Single Rank x8 DIMM
DRx16=Dual Rank x16 DIMM
DRx8=Dual Rank x8 DIMM

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

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

Type	Size	Vendor	Module Name
DDR2 400	512 MB	Samsung	PC2-3200U-333-10-A1 K4T51083QB-GCCC
		Samsung	PC2-3200U-333-10-A1 K4T5163QB-ZCCC
DDR2 533	256 MB	Corsair	VC256MB533D2 4PB11D9CHM
		Eipida	04180WB00
		Kingston	Infioeon KVR533D2N4/256 HYB18T512260AF-3.7
	512 MB	Corsair	0434028-0 4PB11D9CHM
		Eipida	Eipida 04180WB01
		Kingston	Hynix KVR533D2N4/512 HY5PS12821
		Kingston	Hynix KVR533D2N4/512HY5PS56821
		Samsung	PC2-4200U-4444-12-DS K4T51083QC
		Samsung	PC2-4200U-4444-10-B1 K4T51083QF-ZC05
		Twinmos	Hynix 8D22JB-HX
	1 GB	Apacer	Eipida E5108AB-5C-E
		Geil	A016E2864T2AG8AK AG8AKT5H120004
		Infineon	HYS64T325001HU-3-A HYB18T256
DDR2 667	512 MB	A-DATA	Eipida 04230W324 E5108AB-5C-E
		Corsair	VALUESELECT 32M8CEC
		Infinity	0547W64M8PC5300
		Samsung	PC35300U-25331-Z K4T56083QF-ZCE6
		Syncmax	Elpida04230W324 E5108AB-5C-E
		Transcend	SEL520ZC6 K4T51083QC

Installing the Motherboard

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

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

About IDE Devices

Your motherboard has a primary and secondary IDE channel interface (IDE1 and IDE2). An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



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

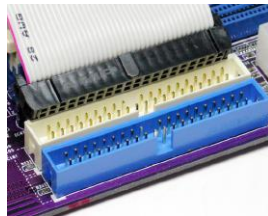
IDE1: Primary IDE Connector

The first hard drive should always be connected to IDE1.



IDE2: Secondary IDE Connector

The second drive on this controller must be set to slave mode. The configuration is the same as IDE1.



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

About UltraDMA

This motherboard supports UltraDMA 133/100/66. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 133/100/66.

Installing the Motherboard

About SATA Connectors

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

Installing Serial ATA Hard Drives

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



SATA cable (optional)



SATA power cable (optional)

Refer to the illustration below for proper installation:

- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



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

Installing the Motherboard

Installing a Floppy Diskette Drive

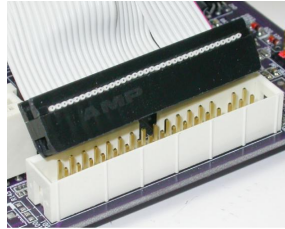
The motherboard has a floppy diskette drive (FDD1) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.



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

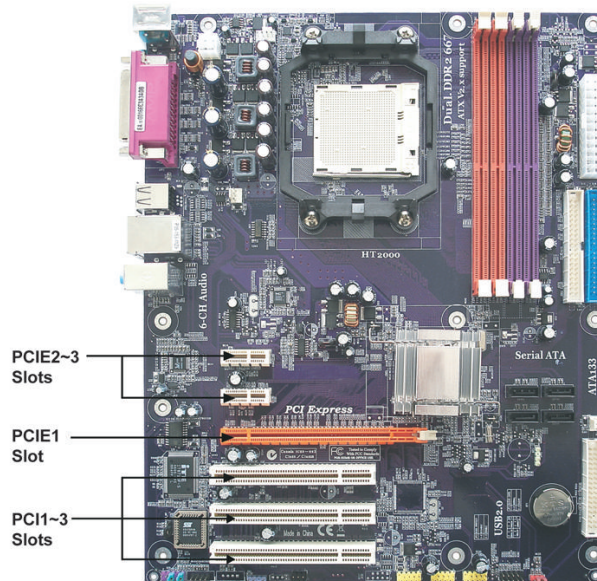
FDD1: Floppy Disk Connector

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



Installing Add-on Cards

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



Installing the Motherboard

PCIE2~3 Slots The two PCI Express x1 slots are fully compliant to the PCI Express Base Specification revision 1.0a as well.

PCIE1 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.

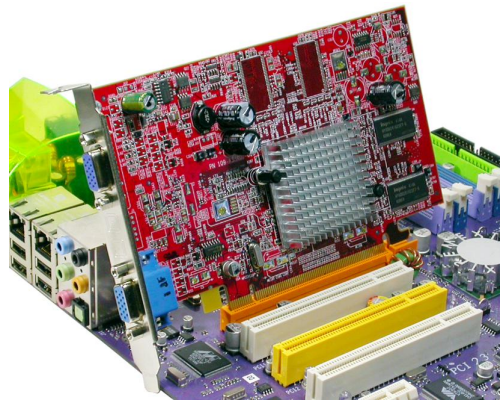
PCI1~3 Slots This motherboard is equipped with three standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.



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

Follow these instructions to install an add-on card:

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

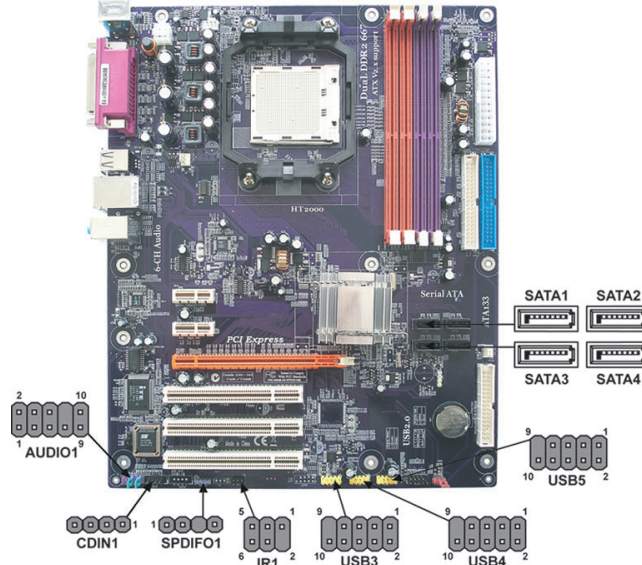


For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Installing the Motherboard

Connecting Optional Devices

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



AUDIO1: Front Panel Audio header

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

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

CDIN1: Analog Audio Input header

Pin	Signal Name	Function
1	CD in_L	CD In left channel
2	GND	Ground
3	GND	Ground
4	CD in_R	CD In right channel

Installing the Motherboard

SATA1~4: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (1.5 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

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

USB3~5: Front Panel USB headers

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

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	NC	Not connected



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

IR1: Infrared port

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.

Pin	Signal Name	Function
1	Not assigned	Not assigned
2	KEY	No pin
3	+5V	IR Power
4	GND	Ground
5	IRTX	IrDA serial output
6	IRRX	IrDA serial input

Installing the Motherboard

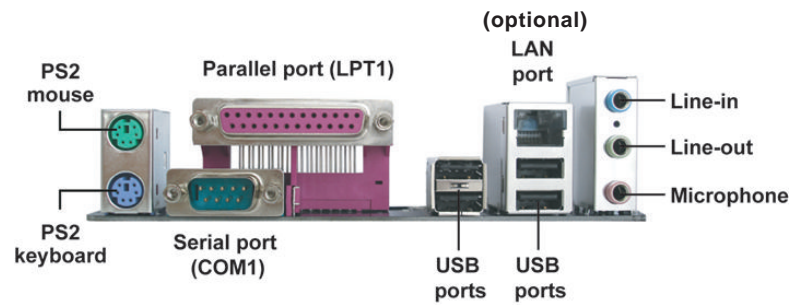
SPDIF01: SPDIF out header

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

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

Connecting I/O Devices

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



- PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.
- PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.
- Parallel Port (LPT1)** Use LPT1 to connect printers or other parallel communications devices.
- Serial Port (COM1)** Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
- LAN Port (optional)** Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
- USB Ports** Use the USB ports to connect USB devices.
- Audio Ports** Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.

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

Installing the Motherboard

Memo

Installing the Motherboard

Chapter 3

Using BIOS

About the Setup Utility

The computer uses the latest Award BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

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

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

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

This chapter provides explanations for Setup Utility options.

The Standard Configuration

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

This Setup Utility should be used:

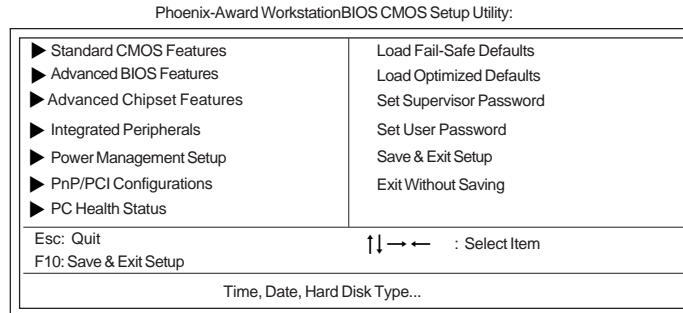
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security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

Entering the Setup Utility

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

Press DEL to enter SETUP

Pressing the delete key accesses the BIOS Setup Utility:

***BIOS Navigation Keys***

The BIOS navigation keys are listed below:

KEY	FUNCTION
←↑↓→	Move
Enter	Select
+/-/PU/PD	Value
ESC	Exits the current menu
F1	General Help
F2	Item Help
F5	Previous Values
F6	Fail-Safe Defaults
F7	Optimized Defaults
F9	Menu in BIOS
F10	Save

Using BIOS

Updating the BIOS

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

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
- 3 Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
- 5 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.)
- 6 At the A:\ prompt, type the Flash Utility program name and press <Enter>.
- 7 Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the motherboard BIOS.
- 8 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.

Using BIOS

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

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

Some options (marked with a triangle ►) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

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

Using BIOS

Standard CMOS Features

This option displays basic information about your system.

Phoenix-Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Jan.1 2006	Item Help
Time (hh:mm:ss)	0 : 54 : 28	
▶ IDE Channel 0 Master	[None]	Menu Level ▶ Change the day, month, year and century
▶ IDE Channel 0 Slave	[None]	
▶ IDE Channel 1 Master	[None]	
▶ IDE Channel 1 Slave	[None]	
▶ IDE Channel 2 Master	[None]	
▶ IDE Channel 3 Master	[None]	
▶ IDE Channel 4 Master	[None]	
▶ IDE Channel 5 Master	[None]	
Drive A	[1.44M, 3.5 in.]	
Floppy 3 Mode Support	[Disabled]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	522240K	
Total Memory	523264K	

↑ | ← → : 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-Award WorkstationBIOS CMOS Setup Utility
IDE Channel 0 Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Channel 0 Master Access Mode	[Auto]	
Capacity	80 GB	Menu Level ▶▶ To auto-detect the HDD's size, head... on this channel
Cylinder	38309	
Head	16	
Precomp	0	
Landing Zone	38308	
Sector	255	

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

Using BIOS

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 0/1/2/3/4/5 Master & IDE Channel 0/1 Slave

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.



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.

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

Drive A (1.44M, 3.5 in.)

This item defines 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 1.2MB. Floppy 3 mode is sometimes used in Japan.

Halt On (All, But Keyboard)

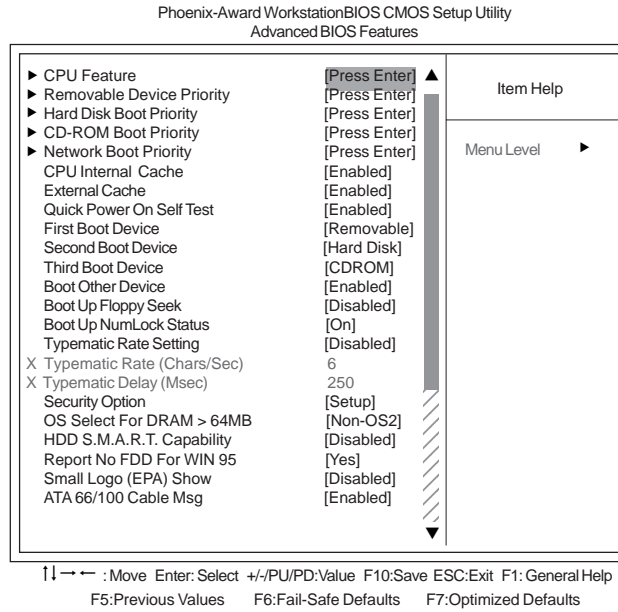
This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

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.

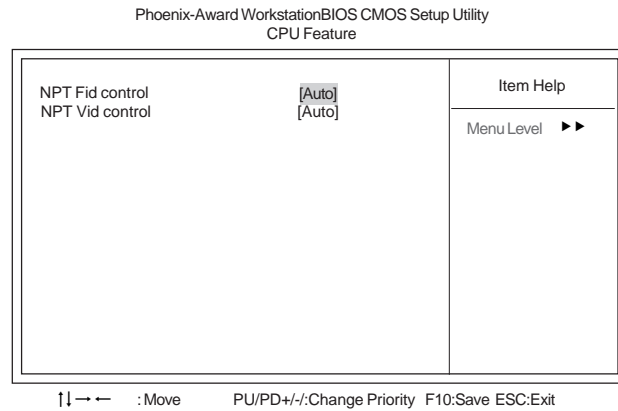
Advanced BIOS Features

This option defines advanced information about your system.



▶ CPU Feature (Press Enter)

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



NPT Fid control (Auto)

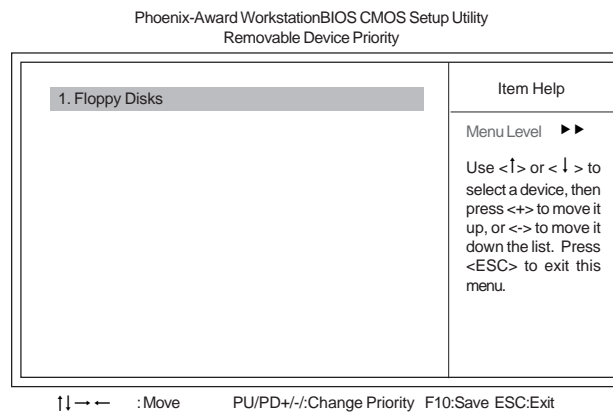
This item allows users to adjust the CPU frequency; the range will be varied according to different CPUs. We strongly recommend you leave this item at its default value.

NPT Vid control (Auto)

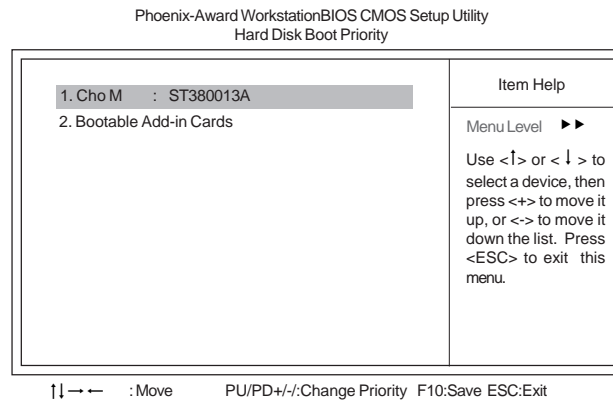
This item allows users to adjust the CPU voltage. We strongly recommend you leave this item at its default value

► Removable Device Priority (Press Enter)

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

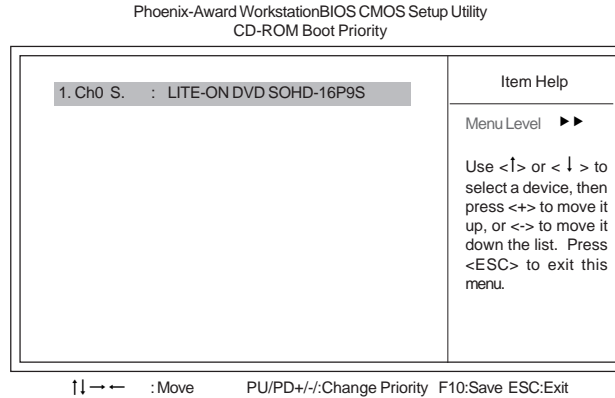
**► Hard Disk Boot Priority (Press Enter)**

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



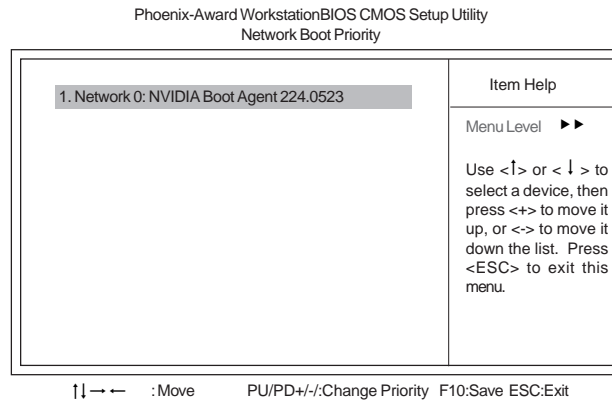
► CD-ROM Boot Priority (Press Enter)

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



► Network Boot Priority (Press Enter)

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



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.

Using BIOS

First/Second/Third Boot Device (Removable/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.

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.

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.

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.

The disk drive software monitors the internal performance of the motors, media, heads, and electronics of the drive. The host software monitors the overall reliability status of the drive. If a device failure is predicted, the host software, through the Client WORKS S.M.A.R.T applet, warns the user of the impending condition and advises appropriate action to protect the data.

Report No FDD For WIN 95 (Yes)

Set this item to the default if you are running a system with no floppy drive and using Windows 95; this ensures compatibility with the Windows 95 logo certification.

Small Logo (EPA) Show (Disabled)

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

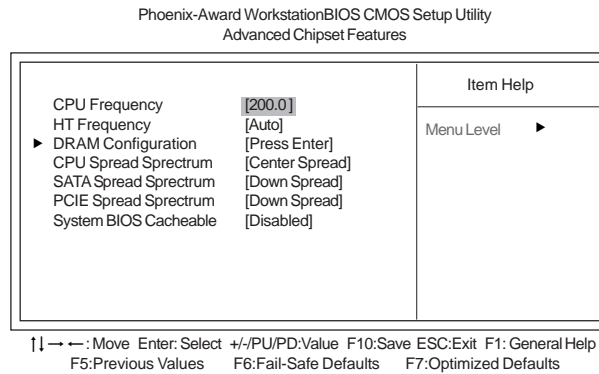
ATA 66/100 IDE Cable Msg. (Enabled)

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

Using BIOS

Advanced Chipset Features

These items define critical timing parameters of the motherboard. 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, you may introduce fatal errors or recurring instability into your system.



CPU Frequency (200.0)

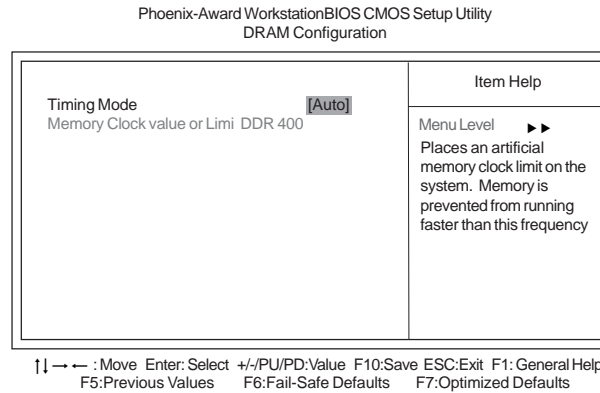
This item enables users to manually over-clock the CPU frequency, ranging from 200.0 to 300.0.

HT Frequency (Auto)

This item enables users to manually set up the HyperTransport frequency, ranging from Auto, 1x, to 5x.

► DRAM Configuration (Press Enter)

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



Timing Mode (Auto)

This item enables you to specify the DRAM timing mode to be configured automatically or manually.

- **Memory Clock value or Limi DDR 400:** This item is used to set the Memory Clock value or Limi DDR 400.

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

CPU Spread Spectrum (Center Spread)

This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by the CPU.

SATA Spread Spectrum (Down Spread)

This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by the SATA.

PCIE Spread Spectrum (Down Spread)

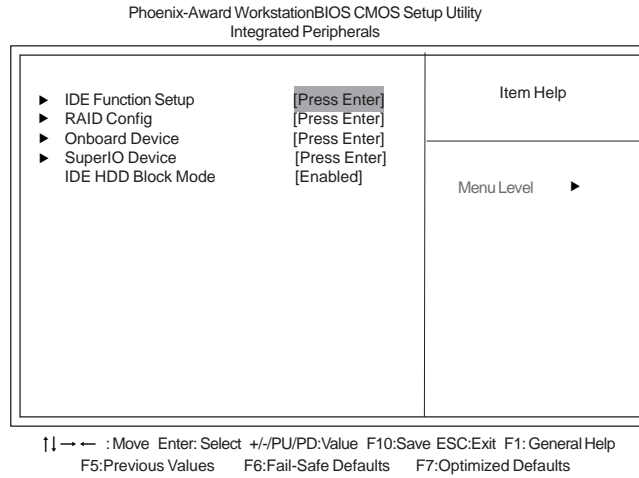
This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by the PCIE.

System BIOS Cacheable (Disabled)

This item enables users to enable or disable the system BIOS cache.

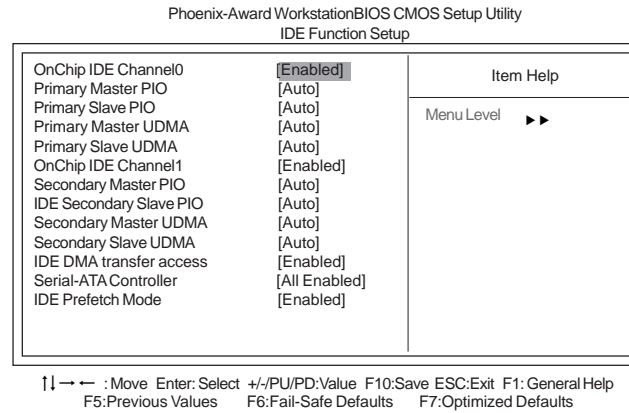
Integrated Peripherals

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



► IDE Function Setup (Press Enter)

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



On-Chip IDE Channel 0/1 (Enabled)

Use these items to enable or disable the PCI IDE channels that are integrated on the motherboard.

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.

Using BIOS

Primary/Secondary Master/Slave UltraDMA (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 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.

Serial-ATA Controller (All Enabled)

This item allows you to enable or disable the onboard SATA controller.

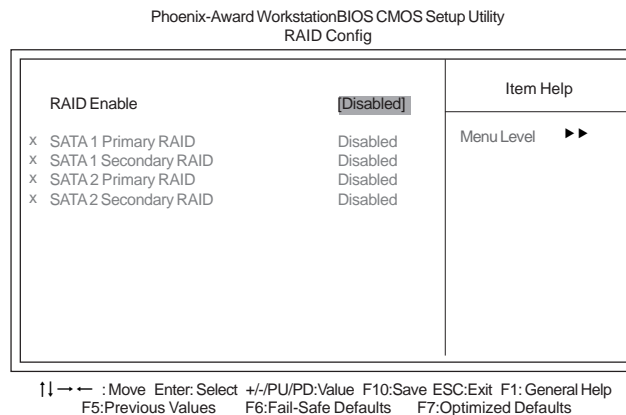
IDE Prefetch Mode (Enabled)

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

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

► RAID Config (Press Enter)

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

**RAID Enable (Disabled)**

This item allows you to enable or disable the onboard RAID function of RAID function of RAID supporting devices.

- **SATA 1/2 Primary/Secondary RAID (Disabled):** These four items enable or disable the SATA 1/2 Primary/Secondary RAID.

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

Using BIOS

► Onboard Device (Press Enter)

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

Phoenix-Award Workstation BIOS CMOS Setup Utility
Onboard Device

Onchip USB [V1.1 + V2.0] USB Legacy Support [Enabled] USB Mouse Support [Enabled] AC97 Audio [Auto] Onboard Lan [Enabled]	Item Help <hr/> Menu Level ►►
---	----------------------------------

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

Onchip USB (V1.1+V2.0)

This item enables users to enable or disable the onchip USB function, setting it to be USB1.1 or USB2.0 compatible.

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, the USB 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.

AC'97 Audio(Auto)

Enables and disables the onboard audio chip. Disable this item if you are going to install a PCI audio add-in card.

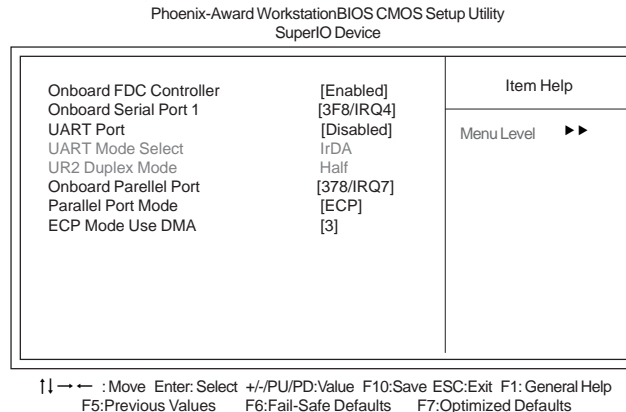
Onboard Lan (Enabled)

Enables or disables the onboard Lan function.

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

► SuperIO Device (Press Enter)

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



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.

UART Port (Disabled)

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-IrDA, ASKIR or SCR.

UR2 Duplex Mode (Half)

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.

SPP allows data output only. Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) are bi-directional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP- and ECP-aware peripherals.

Using BIOS

ECP Mode Use DMA (3)

When the onboard parallel port is set to ECP mode, the parallel port can use DMA 3 or DMA 1.

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

IDE HDD Block Mode (Enabled)

Enables 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 and improves the speed of access to IDE devices.

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-Award Workstation BIOS CMOS Setup Utility
Power Management Setup

ACPI Suspend Type	[S3(STR)]	Item Help
Video Off Method	[DPMS Support]	
HDD Power Down	[Disabled]	
Soft-Off by PBTN	[Instant-Off]	
Resume By PCI PME	[Enabled]	Menu Level ▶
Resume By Ring	[Disabled]	
Power-On by Alarm	[Disabled]	
X Day of Month Alarm	0	
X Time (hh:mm:ss) Alarm	0 : 0 : 0	
Resume By PS2 MS (S3)	Disabled	
Resume By PS2 KB (S3)	Disabled	
X Hot Key Power ON	[Ctrl-F1]	
Power on After Power fail	[off]	

↑↓ → ← : 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.

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.

HDD Power Down (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time.

Using BIOS

Soft-Off by PBTN (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.

Resume By PCI PME (Enabled)

This item allows users to enable or disable PCI activity to wake up the system from a power saving mode.

Resume By Ring (Disabled)

This item allows users to enable or disable LAN or modem activity to wake up the system from a power saving mode.

Power-On by Alarm (Disabled)

This item allows users to enable or disable the alarm to wake up the system. If set to Enabled, users can specify the specific day of month and the exact time to power up the system.

Resume By PS2 M2 (S3) (Disabled)/Resume By PS2 KB (S3) (Disabled)

These items allow the activity of the mouse and keyboard devices to wake up the system from sleeping.

Hot Key Power ON (Ctrl-F1)

Use this item to allocate the hot key to wake up the system.

Power on After Power fail (Off)

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

PNP/PCI Configurations

These options configure how PnP (Plug and Play) and PCI expansion cards operate in your system. Both the ISA and PCI buses on the motherboard use system IRQs (Interrupt 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-Award Workstation BIOS CMOS Setup Utility
PnP/PCI Configurations

Init Display First	[PCI Slot]	Item Help
Reset Configuration Data	[Disabled]	Menu Level ▶
Resources Controlled By	[Auto(ESCD)]	
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For USB	[Enabled]	
** PCI Express relative items**		
Maximum Payload Size	[4096]	

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

Using BIOS

Init Display First (PCI Slot)

This item allows you to choose the primary display card.

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(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:** 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. In the Memory Resources submenu, use the first item Reserved Memory Base to set the start address of the memory you want to reserve for the ISA expansion card. Use the section item Reserved Memory Length to set the amount of reserved memory. Press <Esc> to close the Memory 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)

This item enables or disables the function of assigning IRQ for USB devices.

Maximum Payload Size (4096)

This item specifies the maximum payload size for the PCI Express function.

PC Health Status

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

Phoenix-Award WorkstationBIOS CMOS Setup Utility
PC Health Status

▶ Smart Fan Function	[Press Enter]	Item Help
Shutdown Temperature	[Disabled]	Menu Level ▶
Warning Temperature	[Disabled]	
CPU Tcontrol	45 °C	
System Temperature	27 °C	
CPU Fan Speed	4800 RPM	
System Fan Speed	0 RPM	
CPU Vcore	1.39V	
VDIMM	1.85V	

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

▶ Smart Fan Function (Press Enter)

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

Phoenix-Award WorkstationBIOS CMOS Setup Utility
Smart Fan Function

Smart Fan Control	[Auto]	Item Help
X FAN1 START PWM VALUE	0	Menu Level ▶▶
X FAN1 START Temp °C	0	
X FAN1 Limit Temp °C	0	
X FAN1 Slope Select PWM/°C	0	

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

Smart Fan Control (Auto)

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

- **FAN1 START PWM VALUE**: This item is used to set the start PWM value of the smart fan.
- **FAN1 START Temp °C**: This item is used to set the start temperature of the smart fan.
- **FAN1 Limit Temp °C**: This item is used to set the limit temperature of the smart fan.
- **FAN1 Slope Select PWM/°C**: This item is used to set the Slope Select PWM of the smart fan.

Press <Esc> to return to the PC Health Status page.

Shutdown Temperature (Disabled)

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

Warning Temperature (Disabled)

This item enables or disables the warning temperature function.

System Component Characteristics

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

- CPU Tcontrol
- System Temperature
- CPU Fan Speed
- System Fan Speed
- CPU Vcore
- VDIMM

Load Fail-Safe Defaults

This option opens a dialog box that lets you install fail-safe 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 fail-safe defaults place no great demands on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F6>.

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. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.



Users please remain the factory BIOS default setting of “Load optimized Defaults” when install Operation System onto your system.

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.

Using BIOS

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.

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.



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


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

Chapter 4

Using the Motherboard Software

About the Software CD-ROM


The support software CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software.

 *Never try to install all software from folder that is not specified for use with your motherboard.*

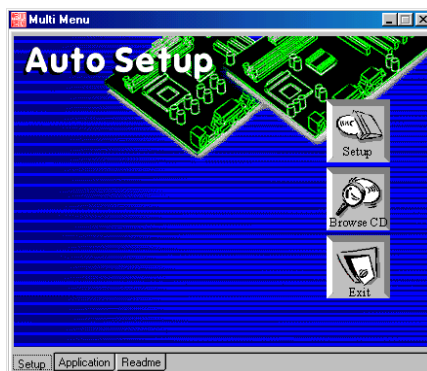
Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.


Auto-installing under Windows 2000/XP

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

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

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



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

Using the Motherboard Software

Setup Tab

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

Application Tab

Lists the software utilities that are available on the CD.

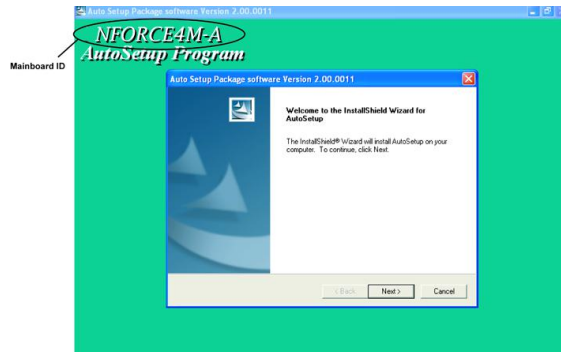
Read Me Tab

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

Running Setup

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

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

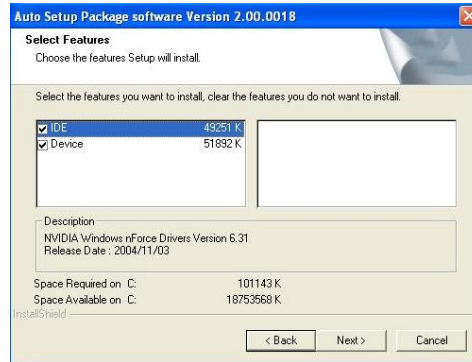


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

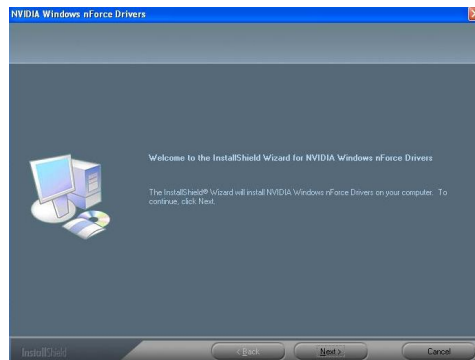
The motherboard identification is located in the upper left-hand corner.

Using the Motherboard Software

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



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



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

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

Using the Motherboard Software

Manual Installation

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

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

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

Utility Software Reference

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



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

AMI/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 WinFlash utility is a Windows version of the DOS 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\2000. To install the WinFlash utility, run AFUWIN.EXE (AMI) or WINFLASH.EXE (Award) from the following directory: \UTILITY\WINFLASH AMI or Award.

This concludes Chapter 4.

Using the Motherboard Software

Caractéristiques

Processeur

Cette carte mère utilise un socket AM2 ayant les caractéristiques suivantes :

- Peut recevoir les processeurs AMD Sempron/Athlon 64/Athlon 64 X2 double noyau/Athlon 64 FX
- Prend en charge des vitesses d'interface HyperTransport™ (HT) allant jusqu'à 2000MT/s

La Technologie HyperTransport™ est une liaison point à point entre deux matériels, elle permet à des circuits intégrés d'échanger des informations à des vitesses bien plus élevées que ne le permettent les technologies à interconnexions actuellement disponibles.

Chipset

Le NVIDIA® nForce4-4X comporte une seule puce avec une fiabilité et des performances prouvées.

- HyperTransport x16 liaisons haute et basse jusqu'à 1,0 GHz sur le processeurs AMD Sempron/Athlon 64/Athlon 64 X2 double noyau/Athlon 64 FX
- Interface PCI 2.3, prenant en charge jusqu'à cinq logements PCI
- Deux contrôleurs SATA séparés avec PHYs intégrés, chacun prenant en charge deux lecteurs en mode maître
- IEEE 802.3 NVIDIA MAC pour 1000BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI et USB 1.1 OHCI, prenant en charge jusqu'à dix ports
- Contrôleur Fast ATA-133 IDE
- Interface AC'97 2.3, prenant en charge la fonction S/PDIF directe et standard, fonctionnalité audio améliorée
- Prend en charge Gigabit/Fast Ethernet/Ethernet

Mémoire

- SDRAM DDR2 800/667/533/400 DDR avec double canal pris en charge
- Reçoit deux DIMM sans tampon
- Jusqu'à 8 Go par DIMM avec une taille de mémoire maximum de 32 Go

Audio

- Conforme aux spécifications AC'97 2.3
- Prend en charge le CODEC audio 6 canaux destiné aux systèmes multimédia PC
- Offre trois entrées stéréo de niveau de ligne analogique avec contrôle de volume 5 bits: Ligne d'entrée, CD, AUX
- Conforme aux exigences audio de Microsoft WHQL/WLP 2.0

LAN interne (optionnel)

Le LAN interne offre les caractéristiques suivantes:

- Prend en charge l'auto-négociation 10/100 Mbps
- Prend en charge MII et 7-wire SNI (Serial Network Interface)
- Prend en charge le fonctionnement en half/full duplex
- Prend en charge détection de croisement auto

Options d'extension

La carte mère est livrée avec les options d'extensions suivantes:

- Un logement PCI Express x16
- Deux logements PCI Express x1
- Trois emplacements PCI v2.3 32bits
- Deux embases IDE prenant en charge quatre périphériques IDE
- Une interface de lecteur de disquette
- Quatre connecteurs SATA à 7 broches

Cette carte mère prend en charge la maîtrise de bus Ultra DMA avec des vitesses de transfert de 133/100/66 Mo/s.

E/S intégrées

La carte mère possède un jeu complet de ports d'E/S et de connecteurs:

- Deux ports PS/2 pour souris et clavier
- Un port série
- Un port parallèle
- Quatre ports USB
- Un port LAN (optionnel)
- Prises audio pour microphone, ligne d'entrée et ligne de sortie

Microprogramme BIOS

La carte mère utilise Award BIOS qui permet aux utilisateurs de configurer de nombreuses caractéristiques du système comprenant les suivantes:

- Gestion de l'alimentation
- Alarmes de réveil
- Paramètres de CPU
- Synchronisation du CPU et de la mémoire

Le microprogramme peut aussi être utilisé pour définir les paramètres pour les vitesses d'horloges de différents processeurs.



Certaines spécifications matérielles et éléments de logiciels peuvent être modifiés sans avertissement.

Feature

Prozessor

Dieses Mainboard verwendet einen AM2-Sockel mit den folgenden Eigenschaften:

- Nimmt AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX-Prozessoren auf
- Unterstützt bis zu 2000MT/s HyperTransport™(HT) Interface-Geschwindigkeiten

HyperTransport™ Technologie ist ein Punkt-zu-Punkt Link zwischen zwei Geräten. Es ermöglicht integrierten Schaltkreisen einen Informationsaustausch mit wesentlich höherer Geschwindigkeit als bei gängigen Interconnect-Technologien.

Chipsatz

NVIDIA® nForce4-4X ist ein Single-Chip mit bewiesener Zuverlässigkeit und Leistung.

- HyperTransport x16 Up- und Down-Links mit bis zu 1.0 GHz zur AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX Prozessoren auf PCI 2.3 Interface, unterstützt bis zu fünf PCI-Steckplätze
- Zwei separate SATA Controller mit integrierten PHYs, wobei jedes zwei Laufwerke im Master-Modus unterstützt
- IEEE 802.3 NVIDIA MAC für 1000BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI und USB 1.1 OHCI, unterstützen bis zu zehn Ports
- Fast ATA-133 IDE-Controller
- AC'97 2.3 Interface, unterstützt S/PDIF Pass-Through-Funktion und Standard, erweiterte Audio-Funktionalität
- Unterstützt Gigabit/Fast Ethernet/Ethernet

Speicher

- Unterstützung für DDR2 800/667/533/400 DDR SDRAM mit Dualkanal
- Es können vier ungepufferte DIMMs aufgenommen werden.
- Bis zu 8 GB pro DIMM mit maximaler Speicherkapazität von bis zu 32 GB.

Audio

- Entspricht AC'97 2.3 Spezifikationen
- Unterstützt 6-Kanal Audio CODEC, entwickelt für Multimedia PC-Systeme
- Stellt drei analoge Line-Level Stereoeingänge mit 5-bit Lautstärkeregelung zur Verfügung: Line-in, CD, AUX
- Entspricht den Microsoft WHQL/WLP 2.0 Audio-Anforderungen

Integriertes LAN (optional)

Das integrierte LAN bietet folgende Features:

- Unterstützt 10/100 Mbps Auto-Negotiation
- Unterstützt MII und 7-adriges SNI (Serial Network Interface)
- Unterstützt Halb-/Voll duplex
- Unterstützt Auto-Crossover Detection

Erweiterungsoptionen

Das Mainboard bietet die folgenden Erweiterungsoptionen:

- Ein PCI Express x16 Steckplatz
- Zwei PCI Express x1 Steckplätze
- Drei 32-bit PCI v2.3-Steckplätze
- Zwei IDE-Header, die vier IDE-Geräte unterstützen
- Ein Steckplatz für ein Diskettenlaufwerk
- Vier 7-Pin SATA-Stecker

Dieses Mainboard unterstützt Ultra DMA Bus-Mastering mit Transferraten von 133/100/66MB/s.

Integrierte I/O-Schnittstellen

Das Mainboard verfügt über einen kompletten Satz von I/O-Schnittstellen und Anschlüssen:

- Zwei PS/2-Schnittstellen für Tastatur und Maus
- Eine serielle Schnittstelle
- Eine parallele Schnittstelle
- Vier USB- Schnittstellen
- Eine LAN-Schnittstelle (optional)
- Audiobuchsen für Mikrofon, Line-In und Line-Out

BIOS Firmware

Dieses Mainboard setzt das Award BIOS ein, mit dem der Anwender viele Systemeigenschaften selbst konfigurieren kann, einschließlich der folgenden:

- Energieverwaltung
- Wake-up Alarm
- CPU-Parameter
- CPU- und Speichertiming

Mit der Firmware können auch Parameter für verschiedene Prozessortaktgeschwindigkeiten eingestellt werden.



Einige Hardware- und Software-Spezifikationen können jederzeit und ohne vorherige Ankündigung geändert werden.

Caratteristiche

Processore

La scheda madre utilizza una presa AM2 pin che offre le seguenti caratteristiche:

- Adatta i processori AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Supporto di velocità di interfaccia HyperTransport™ (HT) fino a 2000 MT/s

La tecnologia HyperTransport™ consente il collegamento point-to-point fra due dispositivi e quindi un trasferimento di informazioni tra circuiti integrati molto più veloce di quanto sia possibile con le attuali tecnologie di interconnessione.

Chipset

Il single chip NVIDIA® nForce4-4X offre collaudata affidabilità e prestazioni sicure.

- Link Up e Down HyperTransport x16 a fino 1,0 GHz alla processori AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Interfaccia PCI 2.3 con supporto di fino a cinque slot PCI
- Due controller SATA separati con PHY integrati, ciascuno con supporto di due drive in modalità master
- MAC IEEE 802.3 NVIDIA per 1000BASE-T/100BASE-T/10BASE-T
- EHCI USB 2.0 e OHCI USB 1.1 con supporto di fino a dieci porte
- Controller IDE ATA-133 a elevata velocità
- Interfaccia AC'97 2.3 con supporto di funzione pass-through S/PDIF e funzionalità audio potenziata standard
- Supporto di Gigabit/Fast Ethernet/Ethernet

Memoria

- Supporto di SDRAM DDR2 800/667/533/400 con Dual Channel
- Alloggia 4 DIMM unbuffered
- Dimensione massima della DIMM pari ad 8 GB per un ammontare massimo di 32 GB di memoria

Audio

- Conforme alle specifiche AC'97 2.3
- Supporto di CODEC audio a 6 canali per sistemi PC multimediali
- Tre ingressi analogici stereo lineari con controllo volume a 5 bit: Line-In, CD, AUX
- Conforme ai requisiti audio di WHQL e WLP 2.0 di Microsoft

LAN integrata (opzionale)

La funzionalità LAN integrata sulla scheda offre le seguenti caratteristiche:

- Supporto di auto-negotiation a 10/100 Mbps
- Supporto di MII e SNI (Serial Network Interface) a 7 fili
- Supporto di funzionalità half/full duplex
- Supporto di auto rilevazione e crossover

Opzioni di espansione

La scheda madre è dotata delle seguenti opzioni di espansione:

- Uno slot PCI Express x16
- Due slot PCI Express x1
- Tre slot PCI v2.3 a 32 bit
- Due connettori IDE per il supporto di 4 componenti IDE
- Un'interfaccia per unità disco floppy
- Quattro connettori SATA a 7 pin

La scheda madre supporta la funzionalità di bus mastering Ultra DMA con velocità di trasferimento di 133/100/66 MB/s.

I/O integrati

La scheda madre offre una serie completa di porte e connettori I/O:

- Due porte PS/2 per mouse e tastiera
- Una porta seriale
- Una porta parallela
- Quattro porte USB
- Una porta LAN (opzionale)
- Prese jack audio per microfono, line-in e line-out

Firmware BIOS

La scheda madre si avvale del BIOS Award che consente la configurazione personalizzata di molte funzionalità del sistema, tra cui:

- Gestione dell'alimentazione
- Allarmi di attivazione
- Parametri CPU
- Sincronizzazione di CPU e memoria

Il firmware consente inoltre di impostare i parametri per diverse velocità di clock del processore.



Alcune specifiche hardware e voci di software possono essere modificate senza preavviso.

Característica

Procesador

Esta placa principal usa Socket AM2 que ofrece las sigtes. características:

- Acomoda procesadores AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Soporta hasta las velocidades de interfaz 2000MT/s HyperTransport™ (HT)

La Tecnología HyperTransport™ es un vínculo punto a punto entre dos dispositivos, habilita circuitos integrados para intercambiar la información en velocidades más rápidas que las tecnologías de interconexión disponibles actualmente.

Chipset

El NVIDIA® nForce4-4X es un chip singular con fiabilidad y rendimiento comprobados.

- Los vínculos arriba y abajo de HyperTransport x16 en hasta 1.0 GHz para la procesadores AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Interfaz PCI 2.3, que soporta hasta cinco ranuras PCI
- Dos controladores SATA separados con PHYs integrados, cada uno soporta dos unidades en el modo máster
- IEEE 802.3 NVIDIA MAC para 1000BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI y USB 1.1 OHCI, soporta hasta diez puertos
- Controlador Fast ATA-133 IDE
- Interfaz AC'97 2.3, que soporta la función y norma pass-through S/PDIF, la funcionalidad de audio mejorada
- Soporta Gigabit/Fast Ethernet/Ethernet

Memoria

- DDR2 800/667/533/400 DDR SDRAM con soporte de Canal Dual
- Acomoda cuatro DIMMS sin buffer
- Hasta 8 GB por DIMM con el tamaño de memoria máximo hasta 32 GB

Audio

- Conformidad con las especificaciones AC'97 2.3
- Soporta CODEC de audio de 6 canales diseñados para los sistemas multimedia
- Provee tres entradas en estéreo a nivel de línea análogicas con control de volumen de 5-bit: Line-in, CD, AUX
- Satisface los requisitos de audio de Microsoft WHQL/WLP 2.0

LAN Abordo (optativo)

El LAN abordo provee las sigtes. características:

- Soporta autonegociación en 10/100 Mbps
- Soporta interfaz MII y 7-wire SNI (Serial Network Interface/Interfaz de Red Serial)
- Soporta capacidad duplex medio/completo
- Soporta Auto Detección Cruzada

Opciones de Expansión

La placa principal viene con las sigtes. opciones de expansión:

- Una ranura PCI Express x16
- Dos ranuras PCI Express x1
- Tres ranuras conforme con 32-bit PCI v2.3
- Dos cabezales IDE que soporta cuatro dispositivos IDE
- Una interfaz de la unidad de disco floppy
- Cuatro conectores SATA de 7-pin

Esta placa principal soporta Ultra DMA bus mastering con índices de transferencia de 133/100/66MB/s.

I/O Integrado

La placa principal tiene un juego completo de puertos y conectores I/O:

- Dos puertos PS/2 para ratón y teclado
- Un puerto serial
- Un puerto paralelo
- Cuatro puertos USB
- Un puerto LAN (optativo)
- Clavijas de audio para micrófono, entrada y salida de línea

BIOS Firmware

La placa principal usa Award BIOS que habilita usuarios para configurar muchas características de sistema que incluyen las sigtes:

- Administración de Alimentación
- Alarmas para despertar
- Parámetros de CPU
- Cronometraje de CPU y de memoria

También se lo puede usar el firmware para configurar los parámetros para diferentes velocidades de reloj de procesador.



Algunas especificaciones de hardware e ítems de software son sujetos a cambio sin aviso previo.

Características

Processador

Esta motherboard usa Ficha AM2 que possui as seguintes características:

- Acomoda processadores de núcleo duplo AMD Sempron/Athlon 64/Athlon 64 X2/Athlon 64 FX
- Suporta velocidades de interface de HyperTransport™ (HT) até 2000MT/s

Tecnologia de HyperTransport™ Té um link ponto-a-ponto entre dois dispositivos, permite circuitos integrados para trocar informação a velocidades muito mais elevadas que as disponíveis actualmente em tecnologias de interconexão.

Conjunto de Chips

O NVIDIA® nForce4-4X é um chip único com fiabilidade e performances provadas.

- Hiper-Transporte x16 links para cima e para baixo até 1.0 GHz para o processadores de núcleo duplo AMD Sempron/Athlon 64/Athlon 64 X2/Athlon 64 FX
- Interface PCI 2.3, suportando até cinco ranhuras PCI
- Dois controladores SATA separados com PHYs integrados, cada um suportando duas drives em modo master
- IEEE 802.3 NVIDIA MAC para 1000BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI e USB 1.1 OHCI, suportando até dez portas
- Controlador ATA-133 IDE rápido
- Interface AC'97 2.3, suportando funções de passagem S/PDIF e com uma funcionalidade áudio melhorada, standard
- Suporta Gigabit/Ethernet Rápida/Ethernet

Memória

- DDR2 800/667/533/400 DDR SDRAM com suporte de Bicanal
- Acomoda quatro DIMMs sem buffers
- Até 8 GB por DIMM com tamanho de memória máxima de até 32 GB

Áudio

- Cumpre com as especificações AC'97 2.3
- Suporta CODEC áudio com 6 canais concebido para sistemas multimédia para PC
- Fornece três entradas estéreo nível de linha analógicas com controlo de volume de 5 bits: Line-in, CD, AUX
- Cumpre com os requisitos áudio WHQL/WLP 2.0 da Microsoft audio

Onboard LAN (opcional)

O onboard LAN fornece as seguintes características:

- Suporta auto-negociação 10/100 Mbps
- Suporta MII e 7-wire SNI Interface de Rede de Série (Serial Network Interface)
- Suporta capacidade de duplex pela metade/ou na totalidade
- Suporta Auto Detecção Crossover

Opções de Expansão

A motherboard é fornecida com as seguintes opções de expansão:

- Uma ranhura PCI Express x16
- Duas ranhuras PCI Express x1
- Três ranhuras compatíveis com PCI v2.3 de 32 bits
- Dois colectores IDE que suportam quatro dispositivos IDE
- Um interface com drive de disco flexível
- Quatro conectores SATA de 7 pin

Esta motherboard suporta mastering bus Ultra DMA com taxas de transferência de 133/100/66MB/s.

I/O Integrado

A motherboard possui um conjunto completo de portas I/O e conectores:

- Duas portas PS/2 para rato e teclado
- Uma porta de série
- Uma porta paralela
- Quatro portas USB
- Uma porta LAN (opcional)
- Fichas áudio para microfone, entrada de linha e saída de linha

Microprogramação BIOS

Esta motherboard usa Award BIOS que permitem aos utilizadores configurar muitas características do sistema incluindo as seguintes:

- Gestão de corrente
- Alarmes de despertar
- Parâmetros CPU
- Temporização de memória e CPU

A microprogramação poderá ser também usada para estabelecer parâmetros para diferentes velocidades de relógio do processador.



Algumas especificações de hardware e itens de software poderão ser sujeitos a alteraçõessem aviso prévio.

機能

プロセッサ

このマザーボードには、次の機能を持ったソケット AM2があります：

- AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX プロセッサに対応
- 転送率が最大2000MT/秒までの HyperTransport™ (HT)インターフェースを採用

HyperTransport™技術とは、二つのデバイスを1対1 (point-to-point)で接続する技術であり、従来のインターコネクト技術に比較して、集積回路同士の情報交換を高速化します。

チップセット

NVIDIA® nForce4-4X はシングルチップのもので、実証済みの信頼性と高性能性を提供します。

- HyperTransport x16でAMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX プロセッサとの1.0 GHzのアップリンクとダウンリンクを実現
- PCI 2.3インターフェースで最大5つまでのPCIスロットをサポート
- 2つの独立したSATA コントローラのそれぞれが内蔵型PHYを搭載し、マスターモードのドライブを2つサポート
- 1000BASE-T/100BASE-T/10BASE-TのIEEE 802.3 NVIDIA MAC
- USB 2.0 EHCI とUSB 1.1 OHCIで最大10個のポートをサポート
- 高速 ATA-133 IDE コントローラ
- AC'97 2.3 インターフェースで、S/PDIF pass-through機能や標準/強化音声機能をサポート

メモリ

- デュアルチャネルのDDR2 800/667/533/400 DDR SDRAMを採用
- 4つの非バッファードDIMMを搭載
- 各DIMMスロットに8 GBまで装着可能で、合計32GBまでをサポート

オーディオ

- AC'97 2.3 規格に準拠
- PCマルチメディアシステムの6チャンネルオーディオCODECをサポート
- 5ビット音声コントロール可能なアナログラインレベルのステレオ入力が3つ：ラインイン、CD、およびAUX
- Microsoft WHQL/WLP 2.0 オーディオ要求に適合

オンボードLAN (オプション)

オンボードLANは、次の機能を提供します。

- 10/100 Mbps 自動ネゴシエーション操作をサポート
- MII/7-wire SNI (Serial Network Interface)インターフェースをサポート
- 半/全二重の機能をサポート
- 自動クロスオーバー検出機能を搭載

拡張オプション

本マザーボードでは、次の拡張機能が利用できます。

- PCI Express x16 スロット x1
- PCI Express x1 スロット x2
- 32ビットPCI v2.3 互換性スロット x3
- IDEヘッダー x2 (4つのIDEデバイスの接続を可能)
- フロッピーディスクドライブインターフェイス x1
- 7ピンSATAコネクタ X4

このマザーボードは、133/100/66MB/秒の転送速度でのUltra DMAバスマスタリングをサポートします。

統合の入出力ポート

マザーボードには、次のI/Oポートやコネクタを揃えています。

- マウスとキーボード用のPS/2ポート x2
- シリアルポート x1
- パラレルポート x1
- USBポート x4
- LANポート x1 (オプション)
- マイク、ラインイン、ラインアウト用オーディオジャック

BIOSファームウェア

本マザーボードはAward BIOSを採用し、次の機能を含む多様なシステムの構成をサポートします。

- 電源管理
- ウェークアップアラーム
- CPUパラメータ
- CPUとメモリとのタイミング

さらに、所定のパラメータを設定することによって、プロセッサのクロック速度を変更することもできます。



一部のハードウェア仕様とソフトウェアアイテムは、予告なしに変更することがあります。

특성

프로세서

본 마더보드에 탑재된 소켓 AM2는 다음과 같은 기능을 제공한다:

- AMD 샘프론/애슬론 64/애슬론 64 X2 듀얼 코어/애슬론 64 FX 프로세서 탑재
- HyperTransport™ (HT) 인터페이스 속도 최대 2000MT/s 지원

HyperTransport™ 기술은 두 장치간의 point-to-point 링크로, 집적 회로가 기존의 상호 연결 기술 보다 더 빠른 속도로 정보를 교환할 수 있다.

칩셋

NVIDIA® nForce4-4X 는 신뢰성과 성능을 인정 받은 싱글 칩이다.

- AMD 샘프론/애슬론 64/애슬론 64 X2 듀얼 코어/애슬론 64 FX 최고 1.0 GHz 로 프로세서 HyperTransport x16 업 앤 다운 링크
- PCI 2.3 인터페이스, 최대 5 개의 PCI 슬롯 지원
- 통합 PHY 를 지닌 2 개의 분리된 SATA 컨트롤러, 각기 마스터 모드의 두 개의 드라이브 지원
- 1000BASE-T/100BASE-T/10BASE-T 용 IEEE 802.3 NVIDIA MAC
- USB 2.0 EHCI 및 USB 1.1 OHCI, 최대 10 개의 포트 지원
- Fast ATA-133 IDE 컨트롤러
- AC'97 2.3 인터페이스, S/PDIF pass-through 기능 및 표준, 강화 오디오 기능성 지원
- 기가바이트/패스트 이더넷/이더넷 지원

메모리

- DDR2 800/667/533/400 DDR SDRAM, 듀얼 채널 지원
- 4 개의 unbuffered DIMM 사용
- DIMM 당 최대 8 GB, 최대 메모리 32 GB

오디오

- AC'97 2.3 사양 부합
- PC 멀티미디어 시스템을 위해 디자인 된 6 채널 오디오 코덱 지원
- 5 비트 볼륨 컨트롤의 아날로그 라인 레벨 스테레오 입력 3개 : Line-in, CD, AUX
- 마이크로소프트 WHQL/WLP 2.0 오디오 요구 조건 부합

보드 내장 LAN (선택 사항)

보드 내장 LAN 은 다음과 같은 특성이 있다:

- 10/100 Mbps 자동 교섭 작동 지원
- MII 및 7-wire SNI (Serial Network Interface) 지원
- Half/full 듀플렉스 지원.
- Auto Crossover Detection 지원

확장 옵션

본 마더보드의 확장 옵션은 다음과 같다:

- PCI Express x16 슬롯 1 개
- PCI Express x1 슬롯 2 개
- 32 비트 PCI v2.3 호환 슬롯 3 개
- 4 개의 IDE 장치를 지원하는 IDE 헤더 2 개
- 플로피 디스크 드라이브 인터페이스 1 개
- 7 핀 SATA 커넥터 4 개

본 마더보드는 전송 속도 133/100/66MB/s 로 Ultra DMA 버스 마스터링을 지원한다.

통합 I/O

본 마더보드는 풀 셋트의 I/O 포트 및 커넥터가 있다:

- 마우스 및 키보드를 위한 PS/2 포트 2 개
- 시리얼 포트 1 개
- 패러럴 포트 1 개
- USB 포트 4 개
- LAN 포트 1 개 (선택 사항)
- 마이크, 라인 입력 및 라인 출력용 오디오 잭

BIOS 펌웨어

본 마더보드는 다음과 같은 시스템 특성을 구성할 수 있는 Award BIOS 를 사용한다:

- 전원 관리
- Wake-up 알람
- CPU 파라미터
- CPU 및 메모리 타이밍

펌웨어로 다른 프로세서 클럭 속도의 파라미터를 설정할 수도 있다.



몇 하드웨어 사양 및 소프트웨어 아이템은 사전 통보 없이 변경될 수 있습니다.

功能

處理器

此主機板使用具有如下特性的Socket AM2 插槽：

- 適用 AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX 處理器；
- 支援高達2000MT/秒的HyperTransport™ (HT)介面傳輸速率。

HyperTransport™技術為以點對點方式連接兩台設備的技術，藉此，積體電路間能夠以後高於現有各種內部連接技術(interconnect technology)技術的速度來交換資訊。

晶片組

NVIDIA® nForce4-4X 採單晶片設計，具有令人讚賞的可靠性及效能。

- HyperTransport x16，其提供對AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX 處理器高達1.0GHz上行及下行連接；
- PCI 2.3介面，其支援高達5個PCI插槽；
- 2個獨立的SATA 控制器，其具有整合型PHY，各自能夠支援2個master模式的硬碟；
- 1000BASE-T/100BASE-T/10BASE-T的IEEE 802.3 NVIDIA MAC；
- USB 2.0 EHCI 及USB 1.1 OHCI，其支援高達10個USB埠；
- 高速ATA-133 IDE控制器；
- AC'97 2.3介面，支援S/PDIF的pass-through功能以及標準型/增強型的音訊功能；
- 支援Gigabit/Fast Ethernet/Ethernet功能。

記憶體

- 採用雙通道DDR2 800/667/533/400 DDR SDRAM；
- 可安裝4個非緩衝式DIMM；
- 各DIMM可安裝8GB記憶體，共可支援高達32GB的記憶體容量。

音頻

- 相容於AC' 97 2.3 規格；
- 支援為個人電腦多媒體系統設計的6聲道音訊CODEC功能；
- 提供具有5位元音量控制功能的3種類比線級立體音效輸入：Lin-in、CD、及AUX；
- 符合Microsoft WHQL/WLP 2.0 音訊規格。

內建區域網路(選購)

內建區域網路提供下列功能：

- 支援 10/100 Mbps 自動協商功能；
- 支援 MII 及 7-wire SNI (Serial Network Interface) 介面；
- 支援半/全雙工功能；
- 具有自動跳線偵測功能。

擴充選項

本主機板包括下列擴充選項：

- 1個PCI Express x16插槽
- 2個PCI Express x1 插槽
- 3個32位元PCIv2.3插槽；
- 2個IDE接頭，支援4個IDE裝置；
- 1個軟碟機介面；
- 4個7針SATA插頭。

本主機板支援傳輸率133/100/66 MB/秒下的Ultra DMA 匯流排主控功能。

整合 I/O

主機板具有一組齊全的I/O連接埠及連接頭：

- 2個PS/2埠，供滑鼠與鍵盤使用；
- 1個串行埠；
- 1個平行埠；
- 4個USB埠；
- 1個區域網路埠(選購)；
- 麥克風音頻插座、線級輸入及線級輸出。

BIOS 韌體

本主機板使用Award BIOS，使用者可以組態設定許多系統功能，包括如下：

- 電源管理；
- 喚醒警鈴；
- CPU參數；
- CPU及記憶體の時脈定時。

此外，也可藉由參數的設定，調整處理器的時脈速度。



部份硬體規格和軟體內容可能會在未經通知的情況下更動，敬請見諒。

功能

处理器

主板使用一个 Socket AM2 插座，此插座具有以下特点：

- 支持 AMD Sempron/Athlon 64/Athlon 64 X2 双核/Athlon 64 FX 处理器
 - 支持 2000MT/s HyperTransport™ (HT) 接口速度
- HyperTransport™ 技术是一种在两台设备间进行点到点连接的技术，它可以让集成电路使用比当前互连技术更高的速度进行信息交换。

芯片组

NVIDIA® nForce4-4X 是一种能提供高可靠性和高性能的单芯片。

- HyperTransport x16 技术，到 AMD Sempron/Athlon 64/Athlon 64 X2 双核/Athlon 64 FX 处理器的上行链路和下行链路带宽可达 1.0 GHz
- PCI 2.3 接口，支持 5 个 PCI 插槽
- 2 个带有集成 PHY 的独立 SATA 控制器，每个控制器在主模式下支持 2 个驱动器
- 用于 1000BASE-T/100BASE-T/10BASE-T 的 IEEE 802.3 NVIDIA MAC
- USB 2.0 EHCI 和 USB 1.1 OHCI，最多支持 10 个端口
- 高速 ATA-133 IDE 控制器
- AC'97 2.3 接口，支持 S/PDIF 传递功能和标准、增强音频功能
- 支持千兆/高速以太网/以太网

内存

- DDR2 800/667/533/400 DDR SDRAM 双通道支持
- 支持 4 个非缓冲 DIMM
- 每个插槽支持 8 GB，总共最大可支持 32 GB

音频

- 兼容 AC'97 v2.3 规格
- 支持为 PC 多媒体系统设计的 6 声道音频编解码器
- 提供 3 路带 5 位音量控制的模拟线路电平立体声输入：线入、CD 和 AUX
- 符合 Microsoft WHQL/WLP 2.0 音频要求

Onboard LAN (可选)

板上集成的 LAN 提供以下功能：

- 支持 10/100 Mbps 自协商工作
- 支持 MII 和 7-线 SNI (串行网络接口)
- 支持半双工/全双工工作
- 支持自动跨接检测

扩展选项

此主板提供如下扩展选项：

- 1 个 PCI Express x16 插槽
- 2 个 PCI Express x1 插槽
- 3 个 32 位 PCI v2.3 扩展槽
- 2 个 IDE 接口，可支持 4 个 IDE 设备
- 1 个 软驱接口
- 4 个 7-pin SATA 接口

主板支持 Ultra DMA 总线控制，传输速率可达 133/100/66MB/s。

集成 I/O

此主板具有完整的 I/O 端口和插孔：

- 2 个用于连接鼠标和键盘的 PS/2 端口
- 1 个串口
- 1 个并口
- 4 个 USB 端口
- 1 个 LAN 端口（可选）
- 麦克风、线入和线出声音插孔

BIOS

此主板使用 Award BIOS，可以让用户自己配置以下系统功能：

- 电源管理
- 唤醒报警
- CPU 参数
- CPU 和记忆定时

还可用于设置不同处理器时钟速度的参数。



某些硬件规格和软件项目若有更改恕不另行通知。

Характеристики

Процессор

Данная материнская плата размещает сокет AM2 и обладает следующими характеристиками:

- Размещает процессоры AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core /Athlon 64 FX
- Поддерживает технологию 2000MT/s HyperTransport™ (HT)

Технология HyperTransport™ обеспечивает связь двух устройств по протоколу point-to-point, позволяя гораздо более быстрый обмен информацией между интегральными микросхемами, чем тот, который обеспечивается существующими технологиями.

Чипсет

NVIDIA® nForce4-4X – это единая микросхема, характеризующаяся высокой надежностью и производительностью.

- Технология HyperTransport x16 обслуживает процессоры AMD Sempron/Athlon64/Athlon 64 X2 Dual-Core /Athlon 64 FX со скоростью до 1.0 ГГц
- Интерфейс PCI 2.3 поддерживает до пяти слотов PCI
- Два отдельных контроллера SATA с интегрированными PNY поддерживают каждый по два дисковода в режиме master
- IEEE 802.3 NVIDIA MAC для 100BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI и USB 1.1 OHCI с поддержкой до 10 портов
- Контроллер Fast ATA-133 IDE
- Интерфейс AC'97 2.3 с поддержкой функции S/PDIF и стандартного расширенного аудиовыхода
- Поддержка Gigabit/Fast Ethernet/Ethernet

Память

- DDR2 800/667/533/400 DDR SDRAM с поддержкой двухканального режима
- Обслуживает 4 модуля небуферизованной памяти DIMM
- Обслуживает до 8 ГБ на модуль DIMM (максимально до 32 ГБ памяти)

Аудио

- Совместимость со спецификацией AC'97 2.3
- Поддерживает 6-канальный аудио CODEC для мультимедиальных компьютерных систем
- Обеспечивает три аналоговых стереовыхода с 5-битной регуляцией громкости: Line-in, CD, AUX
- Соответствие требованиям для аудио Microsoft WHQL/WLP 2.0

Встроенный сетевой адаптер LAN (опционально)

Встроенный сетевой адаптер LAN обладает следующими характеристиками:

- Поддержка 10/100 Mbps в режиме auto-negotiation
- Поддержка интерфейса MII и 7-wire SNI (Serial Network Interface)
- Поддержка режимов Half и Full Duplex
- Поддержка Детекция Crossover

Возможности расширения

Существуют следующие опции расширения данной материнской платы:

- Один слот PCI Express x16
- Два слота PCI Express x1
- Три 32-битных слота PCI v2.3
- Два разъема IDE с поддержкой четырех устройств IDE
- Один разъем для накопителя на гибких дисках
- Четыре разъема 7-pin SATA

Плата поддерживает захват управления шиной Ultra DMA со скоростью передачи 133/100/66МБ/с.

Интегрированный вход/выход

Плата снабжена полным набором портов входа/выхода и разъемов:

- Два порта PS/2 для подключения мыши и клавиатуры
- Один серийный порт
- Один параллельный порт
- Четыре порта USB
- Один порт LAN (опционально)
- Гнездо для подключения микрофона, гнезда аудио-входа и выхода

BIOS

Плата работает под Award BIOS, который позволяет пользователю конфигурировать различные характеристики системы:

- Управление питанием
- Сигналы пробуждения системы
- Параметры CPU
- Время доступа для CPU и памяти

BIOS допускает также установку параметров для различных частот процессора.



Некоторые параметры платы и характеристики ее программного обеспечения могут быть изменены без предварительного уведомления.

Cechy

Procesor

Ta płyta główna wyposażona jest w gniazdo AM2 i posiada następujące właściwości:

- Przystosowany do procesorów AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core /Athlon 64 FX
- Obsługuje złącze HyperTransport™ (HT) z szybkością do 2000MT/s

Technologia HiperTransportu™ jest protokołem komunikacji między dwoma urządzeniami, który umożliwia układom zcalonym wymieniać informację z dużo większymi szybkościami niż dotychczas stosowane technologie wzajemnych połączeń.

Chipset

nForce4-4X firmy NVIDIA® jest pojedynczym układem o sprawdzonej niezawodności i funkcjonalności.

- HyperTransport x16 obsługuje procesory AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core /Athlon 64 FX z szybkościami do 1.0 GHz.
- Interface PCI w wersji 2.3 obsługuje do pięciu gniazd PCI.
- Dwa oddzielne kontrolery SATA ze zintegrowanymi PHY, z których każdy obsługuje dwa urządzenia w trybie master
- IEEE 802.3 NVIDIA firmy MAC dla obsługi 1000BASE-T/100BASE-T/10BASE-T
- Obsługuje do dziesięciu gniazd USB 2.0 EHCI i USB 1.1 OHCI.
- Kontroler dysków Fast ATA-133 IDE
- Interface AC'97 w wersji 2.3 obsługuje wszystkie funkcje standardu S/PDIF, podwyższając funkcjonalność audio
- Obsługuje gigabitowe połączenie z siecią Fast Ethernet/Ethernet

Pamięć

- DDR2 800/667/533/400 DDR SDRAM z obsługą dwu kanałów
- Zaopatrzony w cztery gniazda niebuforowanej pamięci typu DIMM
- Obsługuje pamięć DIMM do pojemności 8 GB każda; maksymalna możliwa pojemność pamięci do 32 GB

Audio

- Zgodne ze specyfikacją AC'97 w wersji 2.3
- Obsługuje 6 kanałów audio CODEC dla komputerowych systemów multimedialnych
- Zapewnia trzy wejściowe, analogowe linie stereo z 5 bitową regulacją głośności: Line-in, CD, AUX
- Spełnia wymagania stawiane audio przez firmę Microsoft w systemie WHQL/WLP 2.0

Zintegrowana obsługa sieci LAN (opcjonalnie)

Zintegrowana obsługa sieci LAN posiada następujące właściwości:

- Obsługuje szybkości przesyłania 10/100 Mbps z opcją auto-wyboru
- Obsługuje MII i 7-żyłowy SNI (szeregowy kontroler sieci, Serial Network Interface)
- Zdolność Half/Full duplex
- Obsługuje Auto Detekcja Crossover

Możliwości rozbudowy

Płyta główna wyposażona jest w następujące gniazda:

- Jedno gniazdo PCI Express x16.
- Dwa gniazda PCI Express x1
- Trzy 32-bitowych gniazda zgodnych z PCI w wersji 2.3
- Dwa złącza IDE obsługujące cztery urządzenia IDE.
- Jedno złącze obsługujące stacje dyskiekiet
- Cztery 7-nóżkowe złącza SATA

Płyta główna obsługuje magistralę Ultra DMA o szybkościach przesyłu 133/100/66MB/s.

Zintegrowane We/Wy

Płyta główna wyposażona jest w pełny zestaw gniazd i złączy We/Wy:

- Dwa gniazda PS/2 dla myszy i klawiatury
- Jedno gniazdo szeregowo
- Jedno gniazdo równoległe
- Cztery gniazda USB
- Jedno gniazdo LAN (opcjonalnie)
- Gniazdo wejściowe mikrofonowe, gniazdo wejściowe i wyjściowe dźwięku (audio)

Firmowy BIOS

Płyta główna wyposażona jest w BIOS firmy Award, który pozwala użytkownikowi konfigurować wiele cech systemu włączając w to następujące właściwości:

- Zarządzanie poborem mocy
- Alarmy typu Wake-up
- Parametry pracy procesora
- Ustalenia szybkości pracy procesora i pamięci

BIOS może być używany do ustalania parametrów wpływających na szybkości pracy zegara procesora.



Niektóre parametry dotyczące płyty i jej oprogramowania mogą ulec zmianie bez uprzedniego powiadomienia.

Vlastnosti

Processor

Tato základní deska využívá patici Socket AM2 nabízející následující vlastnosti:

- Podpora procesoru AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Podpora rychlostí rozhraní HyperTransport™ (HT) až 2000 MT/s

Technologie HyperTransport™ je přímým spojením mezi dvěma zařízeními, umožňující integrovaným obvodům výměnu informací vyššími rychlostmi, než jaké nabízejí současné technologie.

Čipová sada

Čipová sada NVIDIA® nForce4-4X je vybavena jedním čipem s ověřenou spolehlivostí a výkonem.

- Technologie HyperTransport x16 v obousměrném přenosu s frekvencí až 1,0 GHz s podporou procesorů AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Rozhraní PCI 2.3, podporující až pět slotů PCI
- Dva samostatné řadiče SATA s integrovanými PHY, každý podporující dvě diskové mechaniky v režimu Master
- Rozhraní IEEE 802.3 NVIDIA MAC pro síťovou komunikaci 1000BASE-T/100BASE-T/10BASE-T Gigabit/Fast Ethernet/Ethernet
- Rozhraní USB 2.0 EHCI a USB 1.1 OHCI, podporující maximální deset portů
- Řadič Fast ATA-133 IDE
- Rozhraní AC'97 2.3, podporující funkci S/PDIF s vylepšenou funkčností
- Podpora síťové komunikace Gigabit/Fast Ethernet/Ethernet

Paměť

- Paměti DDR2 800/667/533/400 DDR SDRAM s dvoukanálovým přenosem
- Instalovat je možné až čtyři DIMM moduly bez vyrovnávací paměti
- Až 8 GB paměti na jeden modul DIMM s maximální velikostí paměti do 32 GB

Zvuk

- Splňuje požadavky standardu AC'97 2.3
- Podpora 6kanálového zvukového kodeku určeného pro multimediální PC systémy
- Nabízí tři analogové linkové stereo vstupy s 5bitovým řízením hlasitosti: LINE-IN, CD, AUX
- Splňuje požadavky pro audio zařízení Microsoft WHQL/WLP 2.0

Vestavění síťové rozhraní LAN (volitelně)

Vestavěné síťové rozhraní LAN nabízí následující možnosti:

- Podpora provozu 10/100 Mbps s automatickým vyjednáváním
- Podpora rozhraní MII/7vodičové SNI (sériové síťové rozhraní)
- Podpora plného/polovičnického duplexního provozu
- Podpora automatická detekce přeslechu

Možnosti rozšíření

Základní deska je dodávána s následujícími možnostmi rozšíření

- Jedna patice PCI Express x16 pro grafickou kartu
- Dva patice PCI Express x1
- Tři 32bitové patice PCI v2.3
- Dva 40kolíkový konektor IDE podporující až čtyři zařízení IDE
- Jedno rozraní pro disketovou mechaniku
- Čtyři 7kolíkové konektor SATA

Tato základní deska podporuje řízení sběrnice Ultra DMA s přenosovými rychlostmi 133/100/66 MB/s.

Integrovaný vstup/výstup

Základní deska je vybavena kompletní sadou vstupních portů a konektorů I/O:

- Dva porty PS/2 pro myš a klávesnici
- Jeden sériový port
- Jeden paralelní port
- Čtyři porty USB
- Jeden port LAN (volitelně)
- Zvukové konektory pro mikrofon, zvukový vstup a výstup

Firmware BIOS

Základní deska využívá BIOS formy Award, který uživateli umožňuje nakonfigurovat mnoho systémových parametrů, včetně následujících:

- Řízení spotřeby
- Alarmy při spouštění systému
- Parametry CPU
- Časování CPU a paměti

Firmware může být rovněž použit k nastavení parametrů pro různé taktovací frekvence procesoru.



Některé technické parametry hardware a software se mohou měnit bez předchozího upozornění.

Caracteristici

Procesorul

Această placă de bază suportă un socket AM2 care are următoarele caracteristici:

- Este compatibil cu procesoarele AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX
 - Suportă interfețe HyperTransport™ (HT) cu viteze de până la 2000 MT/s
- Tehnologia HyperTransport™ este o legătură punct-la-punct între două aparate, care permite viteze mult mai mari de schimb al informațiilor între circuitele integrate, decât cel asigurat de tehnologiile de interconectare actuale.

Setul de chipuri

NVIDIA® nForce4-4X este un singur chip, cu fiabilitate și randament dovedite.

- Conexiuni în sus și în jos HyperTransport de 16x la viteză de cel mult 1,0 GHz la unitatea centrală AMD Sempron/Athlon64/Athlon 64 X2 Dual-Core/Athlon 64 FX
- Interfață PCI 2.3, cu suport pentru până la cinci sloturi PCI
- Doi controleri independenți SATA cu PHY integrat, fiecare cu suport pentru două unități în mod master
- IEEE 802.3 NVIDIA MAC pentru 1000BASE-T/100BASE-T/10BASE-T
- USB 2.0 EHCI și USB 1.1 OHCI, cu suport pentru până la zece porturi
- Controler rapid ATA-133 IDE
- Interfață AC'97 2.3, cu suport pentru funcția pass-through S/PDIF și funcții audio standard, îmbunătățite
- Suport pentru Gigabit/Fast Ethernet/Ethernet

Memoria

- Suport DDR2 800/667/533/400 DDR SDRAM cu canal dual
- Poate funcționa cu patru module DIMM fără zonă tampon
- Poate funcționa cu module DIMM de cel mult 8 GB, iar cantitatea maximă de memorie este de 32 GB

Audio

- Compatibil cu specificația AC'97 2.3
- Suportă CODEC cu șase canale audio destinate sistemelor multimedia ale calculatoarelor
- Oferă trei intrări audio analoge stereo, cu un control al volumului sonor de 5 biți: Intrare audio, CD, AUX
- Corespunde cerințelor audio Microsoft WHQL/WLP 2.0

Onboard LAN (opțional)

Onboard LAN are următoarele caracteristici:

- Suportă reglare automată 10/100 Mbps
- Suportă pentru MII și 7-wire SNI (Serial Network Interface – Interfață rețea serială)
- Suportă modul de operare duplex total/semi-duplex
- Suportă automată detectare tranziție

Opțiuni de extindere

Placa de bază este dotată următoarele posibilități de extindere:

- Un slot PCI Express de 16x
- Două sloturi PCI Express de 1x
- Trei sloturi de 32 biți compatibile PCI, versiunea 2.3
- Două conecitoare IDE care suportă patru unități IDE
- O interfață pentru unitate floppy
- Patru conecitoare SATA 7

Această placă de bază suportă Ultra DMA bus mastering cu viteza de transfer de 133/100/66MB/s.

I/O integrată

Placa de bază este dotată cu un set complet de porturi și conecitoare I/O:

- Două porturi PS/2, pentru mouse și tastatură
- Un port serial
- Un port paralel
- Patru porturi USB
- Un port LAN (opțional)
- Mufe audio pentru microfon, intrare și ieșire audio

Firmware BIOS

Placa de bază utilizează Award BIOS, care permite utilizatorului să configureze mai mulți parametri ai sistemului, cum ar fi:

- Gestionarea energiei
- Alarmer de trezire
- Parametri CPU
- Temporizare CPU și memorie

Acest firmware poate fi utilizat și pentru a seta parametrii diferitelor frecvențe de comandă ale procesorului.



Anumite specificații hardware și elemente de software pot fi modificate fără înștiințare prealabilă.

Спецификация

Процесор

Тази дънна платка използва сокет AM2 със следните спецификации:

- Поддръжка на процесори AMD Sempron/Athlon 64/Athlon 64 X 2 Dual-Core/Athlon 64 FX
- Поддръжка на технологията HyperTransport™ (HT) със скорост до 2000MT/s

Технологията HyperTransport™ е връзка точка-до-точка (point-to-point) между две устройства, която предоставя възможност интегрираните вериги да обменят информация на много по-висока скорост от досегашно съществуващите технологии.

Чипсет

Чипсет с доказана производителности и надеждност NVIDIA® nForce4-4X.

- HyperTransport x16 up/down връзки на скорост до 1.0 GHz към процесор AMD Sempron/Athlon 64/Athlon 64 X 2 Dual-Core/Athlon 64 FX
- Интерфейс PCI 2.3 с поддръжка до пет PCI слота
- Два отделни SATA контролера с интегрирани PHY, всеки поддържащ две устройства в режим master
- Контролер IEEE 802.3 NVIDIA MAC поддържащ 1000BASE-T/100BASE-T/10BASE-T
- Контролери USB 2.0 EHCI и USB 1.1 OHCI с поддръжка до 10 порта
- Контролер Fast ATA-133 IDE
- Интерфейс AC'97 2.3 с поддръжка на функцията S/PDIF pass-through и подобрена аудио функционалност
- Поддръжка на Gigabit/Fast Ethernet/Ethernet

Памет

- Поддръжка на двуканална памет DDR2 800/667/533/400 DDR SDRAM
- поддръжка на до четири небуферирани DIMM слота
- до 8 GB памет на 1 DIMM канал с максимален капацитет 32 GB

Аудио

- Аудио Кодек съвместим с AC'97 v2.3
- Поддръжка на 6-канален аудио кодек за мултимедийни компютърни системи
- Три аналогови линейни стерео входа с 5-битов контрол на силата на звука: Line-in, CD, AUX
- Съответствие с изискванията на Microsoft WHQL/WLP 2.0

Интегриран мрежов контролер (опция)

Спецификация на интегрирания мрежов контролер:

- Поддръжка на автосъгласуване 10/100 Mbps
- Поддръжка на MII и 7-жилен SNI интерфейс (Serial Network Interface)
- Поддръжка на режими half/full duplex
- Поддръжка на Автоматично разпознаване

Възможности за разширяване

Дънната платка има следните разширителни възможности:

- Един слот PCI Express x16
- Два слота PCI Express x1
- три слота 32-bit PCI v2.3
- Два колектора IDE с поддръжка на четири IDE устройства
- един конектор за флопидисково устройство
- четири 7-щифтови SATA конекторас

Дънната платка поддържа шина Ultra DMA 133/100/66MB/s.

Интегриран Вход/Изход контролер

Дънната платка има пълен набор от I/O портове и конектори:

- два PS/2 порта за мишка и клавиатура
- един сериен порт
- един паралелен порт
- четири USB порта
- един LAN порт (опция)
- Аудио жакове за микрофон, линеен вход и линеен изход

BIOS Firmware

Дънната платка използва Award BIOS с възможност за различни системни настройки, включително

- управление на захранването
- Wake-up аларми
- параметри на процесора
- синхронизиране на процесора и паметта

настройка на скоростта на часовника на процесора



Хардуерните и софтуерни спецификации и параметри могат да бъдат изменени без предупреждение.

Jellemző

Processzor

Ez az alaplap az alábbi jellemzőkkel bíró AM2 socket-el van ellátva:

- Összeegyeztethető az AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX processzorokkal
- Maximum 2000 MT/s HyperTransport™ (HT) sebességű interfészt támogat

A HyperTransport™ technológia egy ponttól pontig való kapcsolat két készülék között, és segítségével az integrált áramkörök közötti információcsere sebessége sokkal nagyobb, mint a jelenleg rendelkezésre álló összekapcsolási technológiák esetében.

Lapkakészlet

Az NVIDIA® nForce4-4X bizonyított megbízhatóságú és teljesítményű egyetlen lapka.

- 16-szoros HyperTransport fölfelé és lefelé irányuló, akár 1,0 GHz-es sebességű kapcsolat az AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX központi egységhez
- PCI 2.3 interfész, akár öt PCI foglalattal
- Két független SATA vezérlő integrált PHY-vel, amelyek két-két meghajtót támogatnak master módban
- IEEE 802.3 NVIDIA MAC 1000BASE-T/100BASE-T/10BASE-T számára
- USB 2.0 EHCI és USB 1.1 OHCI, akár tíz foglalat támogatására
- Gyors ATA-133 IDE vezérlő
- AC'97 2.3 interfész, S/PDIF áthaladási funkció és standard, bővített audio funkciók támogatása
- Gigabit/Fast Ethernet/Ethernet támogatása

Memória

- DDR2 800/667/533/400 DDR SDRAM, duál csatorna támogatásával
- Négy puffervermentes DIMM egységgel működik
- Maximum 8 GB-os DIMM egységeket támogat, maximális memória 32 GB

Audio

- Megfelel az AC'97 2.3-as specifikációnak
- A számítógép multimédiás rendszereinek szánt hat csatornás audio CODEC-et támogat
- Három analóg sztereo bemenet biztosít 5 bites hangerő vezérléssel: bemenet, CD, AUX
- Megfelel a Microsoft WHQL/WLP 2.0 audio követelményeinek

Alaplapon levő LAN (választható)

Az alaplapon levő LAN jellemzői:

- 10/100 Mbps automatikus beállítás támogatása
- biztosít MII és 7-wire SNI-t (Serial Network Interface – sorozatos hálózati interfész)
- Fél-/teljes duplex
- Automatikus rendszerváltás érzékelés

Bővítési lehetőségek

Az alaplap a következő bővítési lehetőségekkel rendelkezik:

- Egy 16-szoros PCI Express foglalat
- Két 1-szeres PCI Express foglalat
- Három 32 bites, a PCI 2.3-as változatával kompatibilis foglalat
- Két IDE csatlakozó négy IDE eszköz támogatására
- Egy hajlékonylemez meghajtó interfész
- Négy 7 tűs SATA csatlakozó

Ez az alaplap a 133/100/66MB/s átviteli sebességű Ultra DMA 'bus mastering' megoldást is támogatja.

Beépített I/O

Az alaplapot az I/O portok és csatlakozók teljes készletével szerelték fel:

- Két PS/2 port az egér és a billentyűzet számára
- Egy soros port
- Egy párhuzamos port
- Négy USB port
- Egy LAN port (választható)
- Audio csatlakozók mikrofon, bemenet és kimenet számára

BIOS Firmware

Az alaplapon levő Award BIOS segítségével a felhasználó a rendszer sok paraméterét állíthatja be, például:

- Energiagazdálkodás
- Ébresztési riasztások
- CPU paraméterek
- CPU és memória időzítés

A firmware segítségével a processzor órajel-frekvenciáinak paramétereit is beállíthatják.



Bizonyos hardverjellemzők és szoftverelemek előzetes bejelentés nélkül módosulhatnak.