



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, ShaLouJiao, 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 QMSystems
of RWTÜV Systems GmbH



ISO14001 CERTIFICATE

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

We hereby certify that

ECS MANUFACTURING (SHANZHEN) CO., LTD.

by reason of its

Environmental Management System

has been awarded this certificate for
compliance with the standard

ISO14001:1996

The Environmental Management System

applies in the following area:

ECS MANUFACTURING (SHANZHEN) CO., LTD.

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

Date of issue: 28th Sept. 2004

Date of expiry: 27th Sept. 2007

Signed by:



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 27

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 C51GM-M motherboard of great performance and with enhanced function. This motherboard is designed to fit the AMD AM2 processors in the 940-pin package. Based on the Micro ATX form factor, measuring 244 mm x 224 mm, this motherboard incorporates the following chipsets: C51PV/G Northbridge and MCP51/G Southbridge chipsets.

The C51PV/G Northbridge features the HyperTransport Technology up to 1.0 GHz for a total bandwidth of 8.0 GT/s. Two unbuffered DDR2 SDRAM DIMM sockets support DDR2 800/667/533/400 with maximum 16 GB in total memory. One PCI Express x16 slot, intended for Graphics interface, is fully compliant to the PCI Express Base Specification revision 1.0a.

The MCP51/G Southbridge is a highly integrated media and communications processor (MCP) with up to 1.0 GHz HyperTransport link interface. It supports two PCI slots which are PCI 2.3 compliant. With the integrated SATA II controller onboard, this motherboard supports two (up to four) drives up to 3.0 Gb/s per direction per channel. USB 2.0 Enhanced Host Controller Interface (EHCI) provides up to 8 USB 2.0 ports. The MCP51/G supports advanced system and power management features with integrated system power sequencing support.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, LPT1, four USB ports at the rear I/O, one optional LAN port, one optional 1394 port, one VGA port, and audio jacks for microphone, line-in, and line-out.

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 high-performance HyperTransport CPU interface

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 C51PV/G Northbridge (NB) and nVIDIA MCP51/G Southbridge (SB) chipset is based on an innovative and scalable architecture with proven reliability and performance.

- | | |
|-------------------------|--|
| C51PV/G
(NB) | <ul style="list-style-type: none"> • Primary HyperTransport Link to the AMD Sempron/Athlon 64/Athlon 64 X2 Dual-Core/Athlon 64 FX 940-pin CPUs • Two separate PCI Express controllers with 17 total lanes configured as one x16 and one x1 PCI Express lanes • DirectX 9.0c Shader Model 3.0 graphics processing unit • Full NVIDIA® nView™ multi-display technology capability, independent display controllers for the CRT • Supports instantly available PC (IAPC), ACPI 2.0, and PCI PM 1.1 system and power management |
| MCP51/G
(SB) | <ul style="list-style-type: none"> • HyperTransport x4/x8 up and down links, at up to 1.0 GHz • PCI 2.3 interface supporting up to five PCI slots at 33 MHz • One SATA II controller with an integrated 3.0 Gb/s PHY, supporting two drives in master mode • Fast ATA-133 IDE controller • USB 2.0 Controller, supporting up to 8 USB 2.0 ports |

Memory

- Supports DDR2 800/667/533/400 memory types with Dual-Channel architecture
- Accommodates two unbuffered DIMMs up to 16 GB maximum memory size

Audio

- | |
|--|
| <ul style="list-style-type: none"> • 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 |
| <ul style="list-style-type: none"> • 8 channels of DAC support 24/20/16-bit PCM format for 7.1 audio solution • Supports 192K/96K/48K/44.1KHz DAC sample rate • Power support: Digital: 3.3V; Analog: 3.5V~5.25V • Meets Microsoft WHQL/WLP 2.x audio requirements • Direct Sound 3D™ compatible • Dolby® Digital Encoder output for consumer electronic application |

Introducing the Motherboard

Onboard LAN (optional)

The onboard LAN provides the following features:

<ul style="list-style-type: none"> • 10/100 Mbps N-way Auto-negotiation operation • Half/Full duplex capability • Supports Wake-On-LAN(WOL) function and remote wake-up
<ul style="list-style-type: none"> • Integrated 10/100/1000 transceiver • PCI v2.3, 32-bit, 33/66 MHz • Fully compliant with IEEE 802.3, IEEE802.3u and IEEE802.3ab
<ul style="list-style-type: none"> • 10BASE-T/100BASE-TX IEEE 802.3u fast Ethernet transceiver • MII and 7-wire SNI (Serial Network Interface) • Integrated voltage regulator to allow operation from a single 3.3/2.5V supply source

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 slot
- One PCI Express x1 slot
- Two 32-bit PCI slots at 33 MHz
- Two IDE connectors which support four IDE devices
- One floppy disk drive interface
- Two 7-pin SATA connectors/Four 7-pin SATA connectors (Optional)

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 VGA port
- One LAN port (optional)
- One IEEE 1394 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

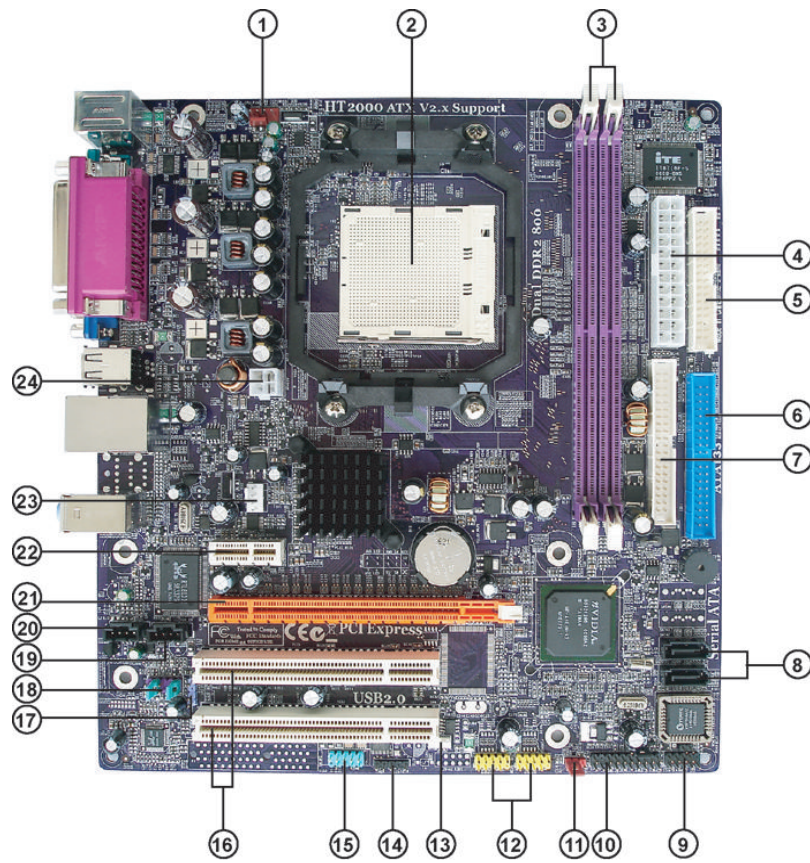
The firmware can also be used to set parameters for different processor clock speeds.



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

Introducing the Motherboard

Motherboard Components



Introducing the Motherboard

Table of Motherboard Components

LABEL	COMPONENT
1 CPU_FAN	CPU cooling fan connector
2 CPU Socket	Socket AM2 for AMD Sempron/Athlon 64/ Athlon 64 X2 Dual-Core/Athlon 64 FX pro- cessors
3 DIMM1~2	240-pin DDR2 SDRAM slots
4 ATX_POWER	Standard 24-pin ATX power connector
5 FDD	Floppy disk drive connector
6 IDE1	Primary IDE connector
7 IDE2	Secondary IDE connector
8 SATA1~2/SATA1~4*	Serial ATA connectors
9 PANEL1	Front Panel switch/LED header
10 JLPC*	TPM LPC header
11 CLR_CMOS	Clear CMOS jumper
12 USB3~4	Front Panel USB headers
13 WOL*	Wake on LAN connector
14 IRDA*	Infrared header
15 COM2*	Onboard serial port header
16 PCI1~2	32-bit add-on card slots
17 SPDIFO1	SPDIF out header
18 AUDIO1	Front panel audio header
19 AUX_IN*	Auxiliary In connector
20 CD_IN	Analog audio input connector
21 PCIEX16	PCI Express slot for graphics interface
22 PCIEX1	PCI Express x1 Slot
23 SYS_FAN1	System cooling fan connector
24 ATX12V	4-pin +12V power connector

“*” stands for optional components.

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

Introducing the Motherboard

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Memo

Introducing the Motherboard

Chapter 2

Installing the Motherboard

Safety Precautions

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

Choosing a Computer Case

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

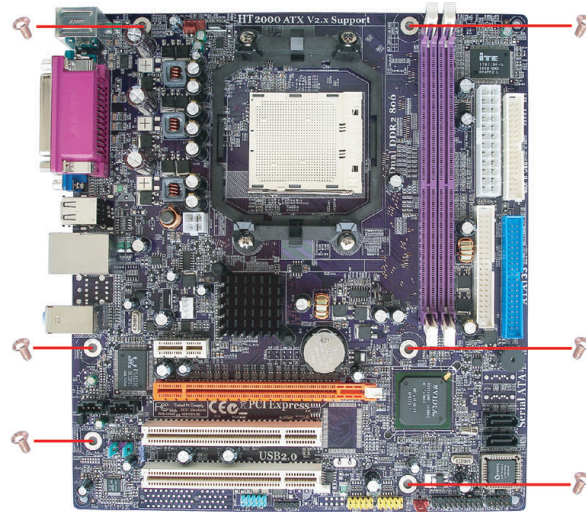
Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

This motherboard carries a Micro-ATX form factor of 244 x 224 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**.

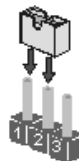


SHORT



OPEN

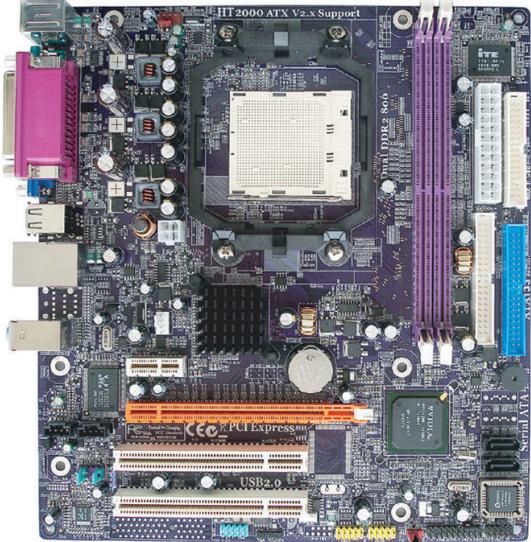
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



Installing the Motherboard


Checking Jumper Settings

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



1 CLR_CMOS

Jumper Settings

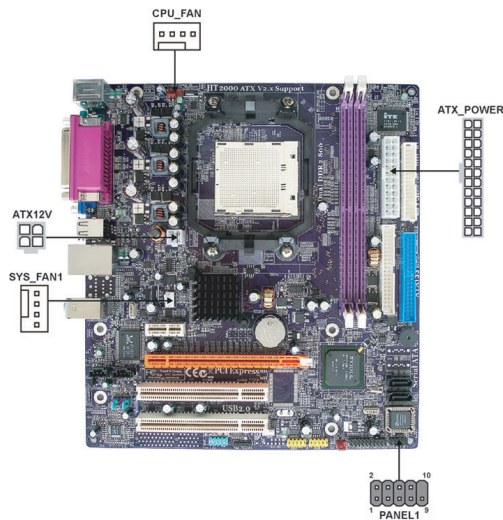
Jumper	Type	Description	Setting (default)
CLR_CMOS	3-pin	CLEAR CMOS	1-2: NORMAL 2-3: CLEAR CMOS Before clearing the CMOS, make sure to turn off the system. 

Installing the Motherboard

Connecting Case Components

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

- 1 Connect the CPU cooling fan cable to **CPU_FAN**.
- 2 Connect the system cooling fan connector to **SYS_FAN1**.
- 3 Connect the case switches and indicator LEDs to the **PANEL1**.
- 4 Connect the standard power supply connector to **ATX_POWER**.
- 5 Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 20/24-pin power cable

User please note that the 20-pin and 24-pin power cables can both be connected to the ATX_POWER connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX_POWER 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, user please note that when installing 20-pin power cable, the latch of power cable falls on the left side of the ATX_POWER connector latch, just as the picture shows.



24-pin power cable

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

Installing the Motherboard

CPU_FAN/SYS_FAN1: Cooling FAN Power Connectors

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



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

ATX_POWER: ATX 24-pin Power Connector

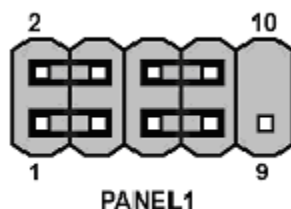
Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

ATX12V: ATX 12V Power Connector

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

Front Panel Header

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



Pin	Signal	Function	Pin	Signal	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 the Motherboard

Installing Hardware

Installing the Processor



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

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

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

Before installing the Processor

This motherboard 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.

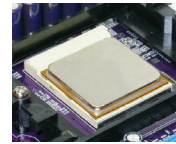
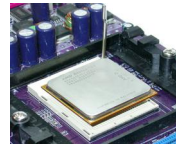
This motherboard has an AM2 Socket 940 Pin processor. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

Installing the Motherboard

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 Memory Modules

This motherboard accommodates two 240-pin unbuffered DDR2 SDRAM (Synchronous Dynamic Random Access Memory) modules. It can support DDR2 800/667/533/400 memory types and its total maximum memory size is 16 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.

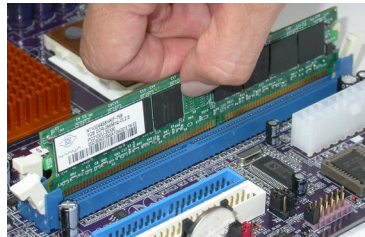
- Note:**
1. When running dual channel mode, install only same (same density, DRAM technology and DRAM bus width) module for each channel.
 2. Please note that those types not in the **TableB (p.17)** will not boot up.

Installing the Motherboard

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.



Installing the Motherboard

Table A: 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	256MB	SAMSUNG	K4T56083QF-GCCC	
		SAMSUNG	K4T5163QB-ZCCC	
	512MB	SAMSUNG	K4T51083QB-GCCC	
DDR2 533	256 MB	AENEON	AET560UD00-370A98X	
		AENEON	AET560UD00-370A98Z	
		CORSAIR	4PB11D9CHM	
		ELPIDA	04180WB00	
		Kingmax	HY5PS121621	
		Kingston	HYB18T512260AF-3.7	
		Nanya	NT5TU32M16AG-37B	
		Ramaxel	E5116AF-5C-E	
	512 MB	A-DATA	E5108AE-6E-E	
		AENEON	AET660UD00-370A98X	
		AENEON	AET660UD00-370A98Z	
		CORSAIR	K4T510830B-GCD5	
		CORSAIR	K4T51083QF-ZCD5	
		CORSAIR	4PB11D9CHM	
		ELPIDA	04180WB01	
		Infineon	HY818T512800AF373346778	
		Kingston	hynix HY5PS12821	
		Kingston	hynix HY5PS56821	
		Kingston	HY818T512	
		TwinMOS	Elpida 8D22JB-ED	
		TwinMOS	Hynix 8D22JB-HX	
		1 GB	Apacer	E5108AB-5C-E
			GEIL	AG8AKT5H120004
			Infineon	HY818T512800AF3733344539
Kingmax	KKEA88E4AAKKG-37			
Kingston	NANYA NT5TU64MBAE-			
DDR2 667	256 MB	Infineon	HYS64T325001HU-3-A	
	512 MB	A-DATA	AD29608A88-3EG	
		CORSAIR	VALUESELECT 32M8CEC	
		GEIL	GL2L64MO88BA18W	
		Infinity	0547W64M8	
		Kingston	D6408TE8EWL3	
		SAMSUNG	K4T51083QC	
		SAMSUNG	K4T56083QF-ZCE6	
		SIS	SLX264M8-T6E	
		SyncMAX	E5108AB-5C-E	
		Transcend	K4T51083QC	
	TwinMOS	TMM6208G8M30B		
	1 GB	Apacer	E5108AE-6E-E	
		Infineon	HYB18T512800AF3S	
		Kingston	D6408TE8EWL3	
	DDR2 800	1 GB	Infineon	HYB18T256 800AF25
			Kingston	KHX6400D2
SyncMAX			R050075B	

Installing the Motherboard

Table B: Unbuffered DIMM Support for 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					

Installing a Hard Disk Drive/CD-ROM

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.

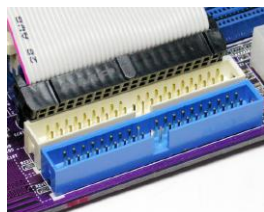
IDE1: Primary IDE Connector

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 two or four SATA connectors supporting a total of two or 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.



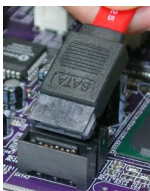
SATA cable (optional)



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.



Installing the Motherboard

Installing a Floppy Diskette Drive

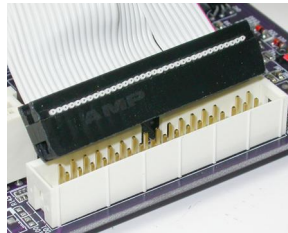
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch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



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

FDD: Floppy Disk Connector

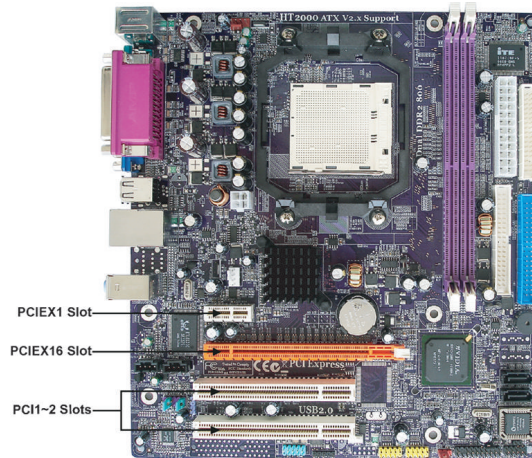
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



Installing the Motherboard

Installing Add-on Cards

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



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

PCIEX16 Slot The PCI Express X16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.

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

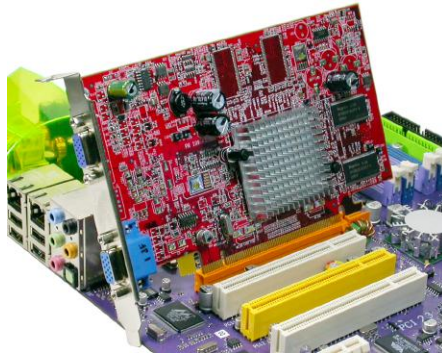


Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Installing the Motherboard

Follow these instructions to install an add-on card:

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

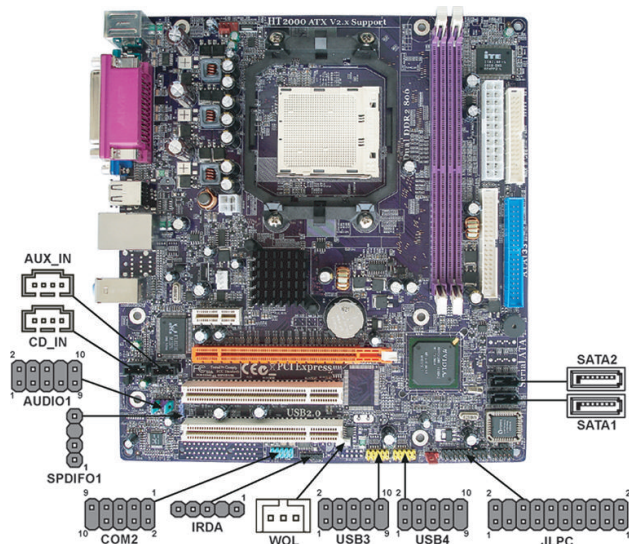


For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

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

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

USB3~4: 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.

SATA1~2/SATA1~4 (optional): Serial ATA connectors

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

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

CD_IN: Analog Audio Input connector

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

AUX_IN: Auxiliary-in connector (optional)

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

Pin	Signal Name	Function
1	AUXIN_L	AUX In left channel
2	AGND	Ground
3	AGND	Ground
4	AUXIN_R	AUX In right channel

WOL: Wake On LAN connector (optional)

If you have installed an LAN card, use the cable provided with the card to plug into the WOL connector onboard. This enables the Wake On LAN (WOL) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility in the BIOS. See Chapter 3 for more information.

Pin	Signal Name	Function
1	5VSB	+5V stand by power
2	GND	Ground
3	Ring#	Wake up signal (low active)

COM2: Onboard serial port header (Optional)

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	NDCDB	Data carry detect
2	NSINB	Serial Data In
3	NSOUTB	Serial Date Out
4	NDTRB	Data terminal ready
5	GND	Ground
6	NDSRB	Date set ready
7	NRTSB	Request to send
8	NCTSB	Clear to send
9	NRIB	Ring Indicator
10	Key	No pin

IRDA: Infrared port (optional)

This mainboard 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 Assistant (PDAs), and other computers.

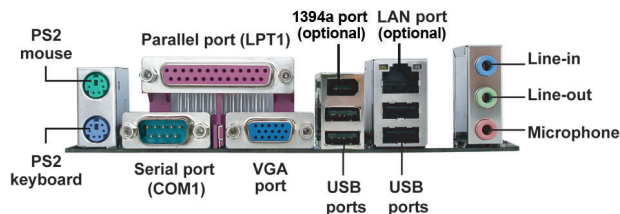
Pin	Signal Name	Function
1	VCC	IR Power
2	Key	No pin
3	IRRX	IrDA serial input
4	GND	Ground
5	IRTX	IrDA serial output

JLPC: TPM LPC header (optional)

Pin	Signal Name	Pin	Signal Name
1	CLK_33M	2	GND
3	L_FRAME#	4	Key
5	ICH_P_PCIRST#	6	SMA_DATA
7	L_AD3	8	L_AD2
9	3D3V_SYS	10	L_AD1
11	L_AD0	12	GND
13	PP	14	NC
15	3VSB	16	SERIRQ
17	GND	18	GND
19	L_PCPD#	20	SMA_CLK

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.
- VGA Port** Connect your monitor to the VGA port.
- LAN Port (optional)** Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
- 1394a Port (optional)** Use the 1394a port to connect any Firewire device.
- USB Ports** Use the USB ports to connect USB devices.
- Audio Ports** Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.

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

Installing the Motherboard

Chapter 3

Using BIOS

About the Setup Utility

The computer uses the latest 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:

Using BIOS

Press DEL to enter SETUP

Press the delete key to access the BIOS Setup Utility.

Phoenix-Award Workstation BIOS CMOS Setup Utility

<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
ESC: Quit F10: Save & Exit Setup	↑↓←→ : Select Item
Time, Date, Hard Disk Type...	

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
← ↑ ↓ →	Move
Enter	Select
+/-/PU/PD	Value
ESC	Exit
F1	General Help
F2	Item Help
F5	Previous Values
F6	Fail-Safe Defaults
F7	Optimized Defaults
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 on-line 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 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. The computer will restart automatically.

Using BIOS

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

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

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

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

Using BIOS

Standard CMOS Features

This option displays basic information about your system.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Fri, Jan 3 2006	Item Help
Time (hh:mm:ss)	0 : 3 : 51	
▶ 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]	
Drive A	[1.44M, 3.5 in.]	
Floppy 3 Mode Support	[Disabled]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	260096K	
Total Memory	261120 K	

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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

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

Press <Enter> to display the submenu:

Phoenix-Award Workstation BIOS CMOS Setup Utility
IDE Channel 0 Master

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

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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 Master/Slave Drives & Extended IDE Drive (Auto)

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

Refer to your drive's documentation or look on the drive casing if you need to obtain this information. If no device is installed, change the value to None.



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

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

Drive A (1.44M, 3.5 in.)

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

Floppy 3 Mode Support (Disabled)

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

Halt On (All Errors)

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

Base Memory, Extended Memory, and Total Memory

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

Advanced BIOS Features

This option defines advanced information about your system.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Advanced BIOS Features

▶ CPU Feature	[Press Enter]	▲ ▼	Item Help
▶ Removable Device Priority	[Press Enter]		Menu Level ▶
▶ Hard Disk Boot Priority	[Press Enter]		
▶ Network Boot Priority	[Press Enter]		
CPU Internal Cache	[Enabled]		
External Cache	[Enabled]		
Quick Power On Self Test	[Enabled]		
First Boot Device	[Removable]		
Second Boot Device	[Hard Disk]		
Third Boot Device	[CDROM]		
Boot Other Device	[Enabled]		
Boot Up Floppy Seek	[Disabled]		
Boot Up NumLock Status	[On]		
Typematic Rate Setting	[Disabled]		
x Typematic Rate (Chars/Sec)	6		
x Typematic Delay (Msec)	250		
Security Option	[Setup]		
OS Select For DRAM > 64MB	[Non-OS2]		
HDD S.M.A.R.T. Capability	[Disabled]		

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

▶ CPU Feature (Press Enter)

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

Phoenix-Award Workstation BIOS CMOS Setup Utility
CPU Feature

NPT Fid control	[Auto]	▶▶	Item Help
NPT Vid control	[Auto]		Menu Level ▶▶

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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

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

Using BIOS

► Removable Device Priority (Press Enter)

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

Phoenix-Award WorkstationBIOS CMOS Setup Utility	
Removable Device Priority	
1. Floppy Disks	Item Help
	Menu Level ►►
	Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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

► Hard Disk Boot Priority (Press Enter)

Scroll to this item and press <Enter> to view the following screen: Use this table to decide the disk boot priority.

Phoenix - Award WorkstationBIOS CMOS Setup Utility	
Hard Disk Boot Priority	
1. Bootable Add-in Cards	Item Help
	Menu Level ►►
	Use <↓> or <↑> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

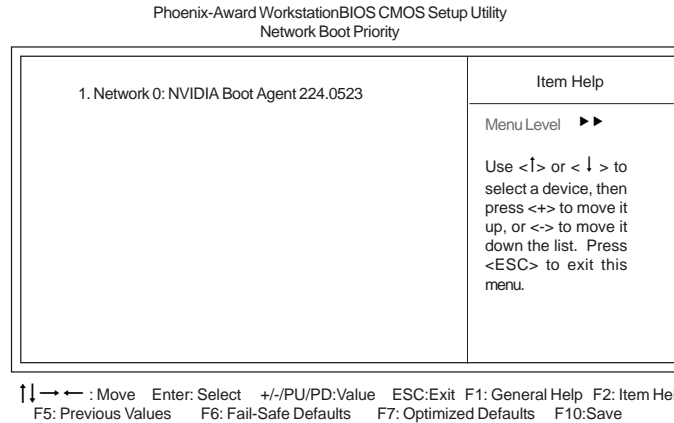
↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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

Using BIOS

► Network Boot Priority (Press Enter)

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



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

CPU Internal Cache (Enabled)

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

External Cache (Enabled)

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

Quick Power On Self Test (Enabled)

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

First/Second/Third Boot Device (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.

Using BIOS

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.

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.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced Chipset Features

Onboard GPU	[Enable If No Ext GPU]	Item Help
Frame Buffer Size	[64M]	
CPU Frequency	[200.0]	
▶ DRAM Configuration	[Press Enter]	Menu Level ▶
CPU Spread Spectrum	[Center]	
PCIE Spread Spectrum	[Disabled]	
SATA Spread Spectrum	[Disabled]	
HT Spread Spectrum	[Center]	
System BIOS Cacheable	[Disabled]	

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

Using BIOS

Onboard GPU (Enable If No Ext GPU)

This item enables the onboard GPU function. Disable this item if you are going to install an external GPU.

Frame Buffer Size (64M)

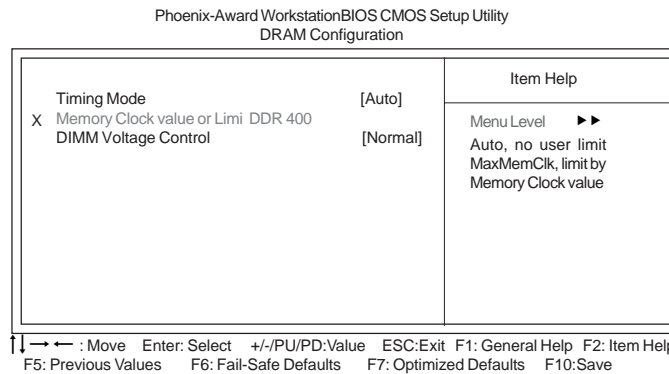
This item enables users to specify the Onboard VGA share memory size.

CPU Frequency (200.0)

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

► 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.

DIMM Voltage Control (Normal)

This item is used to control the voltage of the DIMM.

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

CPU Spread Spectrum (Center)

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

PCIE Spread Spectrum (Disabled)

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

SATA Spread Spectrum (Disabled)

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

HT Spread Spectrum (Center)

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

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.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Integrated Peripherals

<ul style="list-style-type: none"> ▶ IDE Function Setup [Press Enter] ▶ RAID Config [Press Enter] ▶ Onboard Device [Press Enter] ▶ Super IO Device [Press Enter] ▶ IDE HDD Block Mode [Enabled] 	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶</p>
--	--

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

▶IDE Function Setup (Press Enter)

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

Phoenix - Award WorkstationBIOS CMOS Setup Utility
IDE Function Setup

<ul style="list-style-type: none"> OnChip IDE Channel0 [Enabled] Primary Master PIO [Auto] Primary Slave PIO [Auto] Primary Master UDMA [Auto] Primary Slave UDMA [Auto] OnChip IDE Channel1 [Enabled] Secondary Master PIO [Auto] Secondary Slave PIO [Auto] Secondary Master UDMA [Auto] Secondary Slave UDMA [Auto] IDE DMA transfer access [Enabled] Serial-ATA Controller [All Enabled] IDE Prefetch Mode [Enabled] 	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶▶</p>
---	---

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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 UDMA (Auto)

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

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

OnChip IDE Channel 1 (Enabled)

This item allows you to enable or disable the onboard IDE devices.

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 devices.

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:

Phoenix - Award Workstation BIOS CMOS Setup Utility
RAID Config

			Item Help
RAID Enable		[Disabled]	
X SATA 1 Primary RAID		Disabled	Menu Level ►►
X SATA 2 Secondary RAID		Disabled	

↑↓ → ← : Move Enter: Select +/-/PU/PD: Value ESC: Exit F1: General Help F2: Item Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

RAID Enable (Disabled)

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

SATA Primary/Secondary RAID (Disabled)

These two items enable or disable the SATA 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 WorkstationBIOS CMOS Setup Utility
Onboard Device

		Item Help
OnChip USB	[V1.1+V2.0]	
USB Legacy Support	[Enabled]	Menu Level ►►
USB Mouse Support	[Enabled]	
AC97/HD Audio	[Auto]	
MC97 Modem	[Auto]	
Onboard Lan	[Enabled]	
Onboard 1394 Device	[Enabled]	

↑↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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.

AC97/HD Audio (Auto)

This item allows you to control the Onboard AC 97 audio. Disable this item if you are going to install a PCI audio add-on card.

MC97 Modem (Auto)

Enables or disables the MC97 Modem function.

Onboard Lan (Enabled)

Enables or disables the Onboard LAN function.

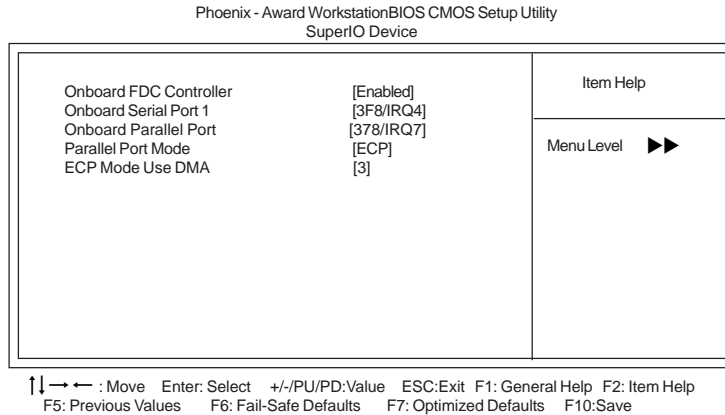
Onboard 1394 Device (Enabled)

Enables or disables the Onboard 1394 Device function.

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

► Super IO Device (Press Enter)

Scroll to this 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 the Onboard Serial Port 1.

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 bidirectional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP- and ECP-aware peripherals.

ECP Mode Use DMA (3)

When the onboard parallel port is set to ECP mode, the parallel port can use DMA3 or DMA1.

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

IDE HDD Block Mode (Enabled)

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode, select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.

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.

The power-saving modes can be controlled by time-outs. If the system is inactive for a time, the time-outs begin counting. If the inactivity continues so that the time-out period elapses, the system enters a power-saving mode. If any item in the list of Reload Global Timer Events is Enabled, then any activity on that item will reset the time-out counters to zero.

If the system is suspended or has been powered down by software, it can be resumed by a wake up call that is generated by incoming traffic to a modem, a LAN card, a PCI card, or a fixed alarm on the system realtime clock.

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]	
Resume By Ring	[Disabled]	
Resume By USB (S3)	[Disabled]	
x Power-On by Alarm	[Disabled]	
x Day of Month Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
Resume By PS2 MS (S3)	[Disabled]	
x Resume By PS2 KB (S3)	[Disabled]	
Hot Key Power ON	Ctrl-F1	
Power on After Power fail	[off]	
		Menu Level ▶

↑ ↓ → ← : Move Enter: Select +/-/PU/PD:Value ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S1 (POS), the suspend mode is equivalent to a software power down. If you select S3 (STR), the suspend mode is 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. Options are from 1 Min to 15 Min and Disable.

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

Resume by Ring (Disabled)

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

Resume By USB (S3) (Disabled)

This item allows the activity of the USB device to wake up the system from S3 sleep state.

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 MS (S3) (Disabled)

This item allows the activity of the PS2 mouse device to wake up the system from S3 sleep state.

Resume By PS2 KB (S3) (Disabled)

This item allows the activity of the PS2 keyboard device to wake up the system from S3 sleep state.

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.

PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI (Peripheral Component Interconnect) is a system, which allows I/O devices to operate at speeds nearing CPU's when they communicate with own special components. All the options describes in this section are important and technical and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PnP/PCI Configurations

		Item Help
Init Display First	[PCI Slot]	Menu Level ►
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	
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 ESC:Exit F1: General Help F2: Item Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

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.

Using BIOS

PC Health Status

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

Phoenix - Award Workstation BIOS CMOS Setup Utility
PC Health Status

<ul style="list-style-type: none"> ▶ Smart Fan Function [Press Enter] Shutdown Temperature [Disabled] Warning Temperature [Disabled] CPU Tcontrol 62 °C System Temperature 34 °C CPU Fan Speed 0 RPM System Fan Speed 2755 RPM CPU Vcore 1.39V VDIMM 1.77V 	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶</p>
--	--

↑↓ → ← : Move Enter: Select +/-/PU/PD: Value ESC: Exit F1: General Help F2: Item Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

▶ Smart Fan Function (Press Enter)

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

Phoenix-Award Workstation BIOS CMOS Setup Utility
Smart Fan Function

<ul style="list-style-type: none"> Smart Fan Control [Disabled] X FAN1 START PWM VALUE 0 X FAN1 START Temp °C 0 X FAN1 Limit Temp °C 0 X FAN1 Slope Select PWM/°C 0 	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶▶</p>
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↑↓ → ← : Move Enter: Select +/-/PU/PD: Value ESC: Exit F1: General Help F2: Item Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults F10: Save

Smart Fan Control (Disabled)

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>.



User please remain the factory BIOS default setting of “Load Optimized Defaults” when installing 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.

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.

Using BIOS

Chapter 4

Using the Motherboard Software

About the Software CD-ROM

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



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.

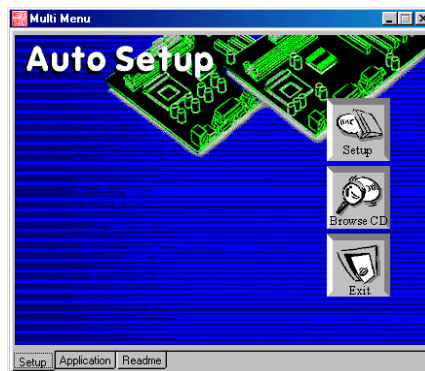
Auto-installing under Windows 2000/XP

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 install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.</p>
Exit	The EXIT button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

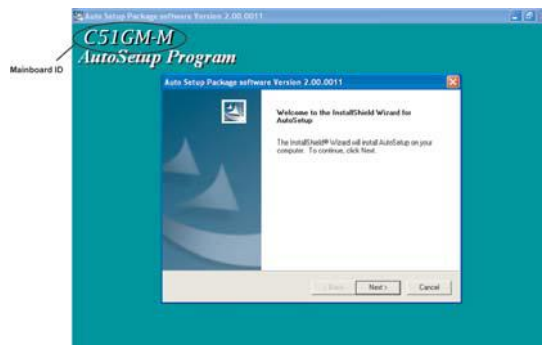
Read Me Tab

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

Running Setup

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

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

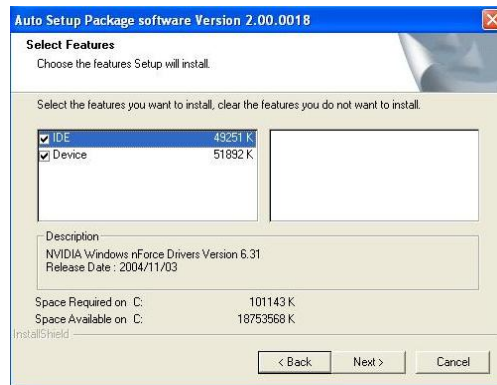


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

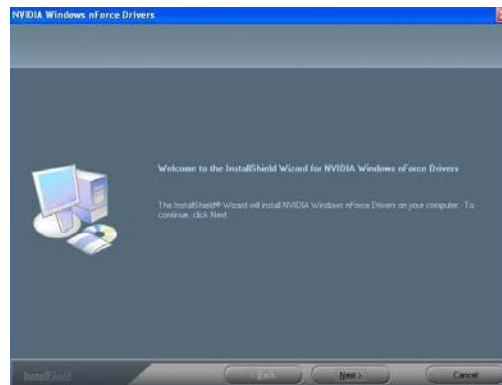
The motherboard identification is located in the upper left-hand corner.

Using the Motherboard Software

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



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



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

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

Using the Motherboard Software

Manual Installation

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

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

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

Utility Software Reference

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



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

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.

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 l'interface de CPU HyperTransport de hautes performances

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

Les chipsets nVIDIA C51PV/G Northbridge (NB) et nVIDIA MCP51/G Southbridge (SB) sont basés sur une architecture novatrice et dimensionnable avec une fiabilité et des performances prouvées.

C51PV/G (NB)

- Liaison HyperTransport principale aux CPU AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 double noyau 940 broches
- Deux contrôleurs PCI Express séparés avec 17 lignes totales, configurées comme une ligne x16 et une ligne x1 PCI Express
- Unité de traitement graphique DirectX 9.0c Shader Model 3.0
- Capacité de technologie multi-affichage Full NVIDIA® nView™, avec contrôleurs d'affichage indépendants pour le TRC
- Prend instantanément en charge les PC (IAPC), ACPI 2.0, et système PCIPM 1.1 disponibles et gestion d'alimentation

MCP51/G (SB)

- HyperTransport x4/x8 liaisons hautes et basses, jusqu'à 1.0 GHz
- Interface PCI 2.3, prenant en charge jusqu'à cinq logements PCI à 33 MHz
- Un contrôleur SATA II avec un 3.0 Go/s PHY intégré, prenant en charge deux lecteurs en mode maître
- Contrôleur IDE Fast ATA-133
- Contrôleur USB 2.0, prenant en charge jusqu'à 8 ports USB 2.0

Mémoire

- Prend en charge les types de mémoire DDR2 800/667/533/400 avec architecture à double canal
- Peut recevoir deux DIMM sans tampon, taille mémoire maximum de 16 Go

Audio

- | |
|--|
| <ul style="list-style-type: none"> • Conforme aux spécifications AC'97 2.3 • Prend en charge le CODEC audio 6 canaux destiné aux systèmes multi-média 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 |
| <ul style="list-style-type: none"> • 8 canaux de format PCM 24/20/16-bits de support DAC pour solution audio 7.1 • Supporte la vitesse d'échantillonnage DAC de 192K/96K/48K/44,1KHz • Support d'alimentation : Numérique : 3,3V; Analogique : 3,5V~5,25V • Conforme aux exigences audio de Microsoft WHQL/WLP 2.x • Compatible Direct Sound 3D™ • Sortie d'encodeur Dolby® Digital pour application électronique consommateur |

LAN interne (optionnel)

Le LAN interne offre les caractéristiques suivantes:

<ul style="list-style-type: none"> • Fonctionnement en auto-négociation N-way 10/100 Mbps • Prend en charge le fonctionnement en half/full duplex • Prise en charge de Réveil par LAN (WOL) et réveil distant
<ul style="list-style-type: none"> • Emetteur-récepteur intégré 10/100/1000 • PCI v2.3, 32 bits, 33/66 MHz • Entièrement conforme à IEEE 802.3, IEEE802.3u et IEEE802.3ab
<ul style="list-style-type: none"> • Emetteur-récepteur fast Ethernet 10BASE-T/100BASE-TX IEEE 802.3u • Prend en charge MII et 7-wire SNI (Serial Network Interface) • Régulateur de tension intégré pour permettre un fonctionnement à partir d'une source d'alimentation 3,3/2,5V unique

Options d'extension

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

- Un PCI Express x16
- Un logement PCI Express x1
- Deux logements PCI 32 bits à 33 MHz
- Deux embases IDE prenant en charge quatre périphériques IDE
- Une interface de lecteur de disquette
- Deux connecteurs SATA à 7 broches/Quatre connecteurs SATA à 7 broches (optionnel)

La carte mère prenant en charge la maîtrise de bus UltraDMA avec 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 VGA
- Un port LAN (optionnel)
- Un port IEEE 1394 (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 hochleistungsfähiges HyperTransport CPU-Interface

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

Die nVIDIA C51PV/G Northbridge (NB) und nVIDIA MCP51/G Southbridge (SB) Chipsätze basieren auf einer innovativen und skalierbaren Architektur mit bewiesener Zuverlässigkeit und Leistung.

C51PV/G (NB)

- Primäres HyperTransport-Link zu den AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core 940-Pin-CPU's
- Zwei separate PCI Express-Controller mit insgesamt 17 Lanes, konfiguriert als ein x16 und ein x1 PCI Express-Lane
- DirectX 9.0c Shader Modell 3.0 Grafikerarbeitungseinheit
- Vollständige NVIDIA® nView™ Multi-Display-Technologiefähigkeit mit unabhängigen Displaycontrollern für die CRT
- Unterstützt sofort verfügbare PC (IAPC), ACPI 2.0 und PCIPM 1.1 System- und Energieverwaltung

MCP51/G (SB)

- HyperTransport x4/x8 Up- und Down-Links bei bis zu 1.0 GHz
- PCI 2.3 Schnittstelle unterstützt bis zu fünf PCI-Steckplätze bei 33 MHz
- Ein SATA II -Controller mit integriertem 3.0 Gb/s PHY, unterstützt zwei Laufwerke im Master-Modus
- Schneller ATA-133 IDE-Controller
- USB 2.0 Controller, unterstützt bis zu 8 USB 2.0 Anschlüsse

Speicher

- Unterstützt DDR2 800/667/533/400 Speichertypen mit Dualkanal-Architektur
- Nimmt zwei ungepufferte DIMMs auf; die maximale Speichergröße beträgt bis zu 16 GB

Audio

<ul style="list-style-type: none"> • Entspricht AC'97 v2.3 CODEC • 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
<ul style="list-style-type: none"> • 8-Kanal DAC Unterstützung 24/20/16-Bit PCM-Format für 7.1 Audio • Unterstützt 192K/96K/48K/44.1KHz DAC Abtastrate • Netzteilunterstützung: Digital: 3,3V; Analog: 3,5V~5,25V • Entspricht den Anforderungen von Microsoft WHQL/WLP 2.x • Kompatibel mit Direct Sound 3D™ • Dolby® Digital Encoderausgang für Endverbrauchergeräte

Onboard LAN (optional)

Das onboard LAN bietet die folgenden Merkmale:

- | |
|---|
| <ul style="list-style-type: none">• 10/100 Mbps N-Way Auto-Negotiation-Betrieb• Unterstützt Halb-/Voll duplex• Unterstützung für Wake-on-LAN(WOL) und Remote Wake-up |
| <ul style="list-style-type: none">• Integrierter 10/100/1000 Transceiver• PCI v2.3, 32-Bit, 33/66MHz• Vollständige Entsprechung zu IEEE 802.3, IEEE802.3u und IEEE802.3ab |
| <ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u Fast Ethernet-Transceiver• Unterstützt MII und 7-adriges SNI (Serial Network Interface)• Integrierter Spannungsregler für den Betrieb von einer einzelnen 3.3/2.5V Quelle |

Erweiterungsoptionen

Das Mainboard bietet die folgenden Erweiterungsoptionen:

- Ein PCI-Express x16
- Ein PCI-Express x1 Steckplatz
- Zwei 32-Bit PCI-Steckplätze bei 33 MHz
- Zwei IDE-Header, die vier IDE-Geräte unterstützen
- Ein Steckplatz für ein Diskettenlaufwerk
- Zwei 7-Pin SATA-Stecker/Vier 7-Pin SATA-Stecker (optional)

Die Mainboard unterstützt UltraDMA Bus Mastering mit einer Übertragungsrates von 133/100/66 MB/Sek.

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 VGA-Schnittstelle
- Eine LAN-Schnittstelle (optional)
- Ein IEEE 1394-Anschluss (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 interfaccia CPU HyperTransport a elevate prestazioni

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

I chipset nVIDIA C51PV/G Northbridge (NB) e nVIDIA MCP51/G Southbridge (SB) sono basati su un'innovativa architettura scalabile e offrono collaudata affidabilità e prestazioni comprovate.

C51PV/G (NB)

- Link primario HyperTransport Link alle CPU AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core a 940 pin
- Due controller PCI separati con un totale di 17 corsie, uno configurato come corsie PCI Express x16 e uno come corsie PCI Express x1
- Elaboratore grafico DirectX 9.0c Shader Model 3.0
- Supporto completo di tecnologia multidisplay NVIDIA® nView™, con controller di display indipendenti per CRT
- Supporto immediatamente disponibile di gestione dell'alimentazione e del sistema PC (IAPC), ACPI 2.0 e PCIPM 1.1

MCP51/G (SB)

- Link Up e Down HyperTransport x4/x8, fino a 1.0 GHz
- Interfaccia PCI 2.3 con supporto di fino a cinque slot PCI a 33 MHz
- Un controller SATA II con PHY a 3,0 Gb/s integrato, con supporto di due drive in modalità master
- Controller Fast ATA-133 IDE
- Controller USB 2.0, con supporto di fino a 8 porte USB 2.0

Memoria

- Supporto di memorie DDR2 800/667/533/400 con architettura Dual-channel
- Compatibile con due DIMM senza buffer con una capacità massima di memoria di 16 GB

Audio

- | |
|---|
| <ul style="list-style-type: none"> • 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 |
| <ul style="list-style-type: none"> • 8 canali per formato PCM a 24/20/16 bit con supporto DAC per soluzioni audio 7.1 • Supporto di velocità di campionamento DAC a 192K/96K/48K/44,1 KHz • Supporto alimentazione: Digitale: 3,3 V; Analogico: 3,5 V ~ 5,25 V • Megfelel a Microsoft WHQL/WLP 2.x audio követelményeire • Compatibile con Direct Sound 3D™ • Uscita Dolby® Digital Encoder per apparecchiature elettroniche di largo consumo |

LAN integrata (opzionale)

La funzionalità LAN integrata sulla scheda offre le seguenti caratteristiche:

- | |
|---|
| <ul style="list-style-type: none"> • Operazioni di auto-negoziante N-way 10/100 Mbps • Supporto di funzionalità half/full duplex • Supporto di funzionalità Wake-on-LAN (WOL) e riattivazione remota |
| <ul style="list-style-type: none"> • Transceiver 10/100/1000 integrato • PCI v2.3, a 32 bit, 33/66 MHz • Piena compatibilità con IEEE 802.3, IEEE802.3u e IEEE802.3ab |
| <ul style="list-style-type: none"> • Scheda Ethernet 10BASE-T/100BASE-TX IEEE 802.3u • Supporto di MII e SNI (Serial Network Interface) a 7 fili • Regolatore di voltaggio integrato per permettere le operazioni da una singola fonte di alimentazione a 3,3/2,5V |

Opzioni di espansione

La scheda madre è dotata delle seguenti opzioni di espansione:

- Uno slot PCI Express x16
- Uno slot PCI Express x1
- Due slot PCI a 32-bit PCI e 33 MHz
- Due connettori IDE per il supporto di 4 componenti IDE
- Un'interfaccia per unità disco floppy
- Due connettori SATA a 7 pin/Quattro connettori SATA a 7 pin (opzionale)

La scheda madre supporta bus master UltraDMA con tasso 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 VGA
- Una porta LAN (opzionale)
- Una porta IEEE 1394 (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 la interfaz HyperTransport CPU de alto rendimiento

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 chipset nVIDIA C51PV/G Northbridge (NB) y nVIDIA MCP51/G Southbridge (SB) se basan de una arquitectura innovadora y escalable con fiabilidad y rendimiento comprobados.

C51PV/G (NB)

- HyperTransport Link Primario a las CUPs de AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core 940-pin
- Dos controladores PCI Express separados con 17 líneas en total, configurados como una x16 y una x1 PCI Express
- Unidad de procesamiento de gráficas DirectX 9.0c Shader Model 3.0
- Capacidad de tecnología multi-muestra completa NVIDIA® nView™, con controladores de muestra independientes para el CRT
- Soporta instantáneamente y disponibilidad de sistema PC (IAPC), ACPI 2.0, y PCIPM 1.1, y administración de alimentación

MCP51/G (SB)

- Vínculo superior e inferior HyperTransport x4/x8, hasta 1.0 GHz
- Interfaz PCI 2.3 soporta hasta cinco ranuras PCI en 33 MHz
- Un controlador SATA II con un 3.0 Gb/s PHY integrado, soporta dos unidades en el modo máster
- Controlador IDE ATA-133 IDE rápido
- Controlador USB 2.0, soporta hasta 8 puertos USB 2.0

Memoria

- Soporta tipos de memoria DDR2 800/667/533/400 con arquitectura Canal Dual
- Acomoda dos DIMMs sin buffer, hasta 16 GB de tamaño de memoria máximo

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 analógicas con control de volumen de 5-bit: Line-in, CD, AUX
- Satisface los requisitos de audio de Microsoft WHQL/WLP 2.0

- 8 canales de formato PCM de 24/20/16-bit de soporte DAC para la solución de audio 7.1
- Soporta índice de muestreo DAC 192K/96K/48K/44.1KHz
- Soporte de suministro: Digital: 3.3V; Analógico: 3.V~5.25V
- Satisface los requisitos de audio de Microsoft WHQL/WLP 2.x
- Compatible con Direct Sound 3D™
- Salida de Decodificador Digital Dolby® para la aplicación de los electrónicos de consumo

LAN Abordo (optativo)

El LAN abordo provee las sigtes. características:

- | |
|---|
| <ul style="list-style-type: none">• Operación de autonegociación N-way de 10/100 Mbps• Soporta capacidad duplex medio/completo• Soporta la función Wake-On-LAN(WOL) y despertar remoto |
| <ul style="list-style-type: none">• Transreceptor 10/100/1000 integrado• PCI v2.3, 32-bit, 33/66 MHz• Conformidad total con IEEE 802.3, IEEE802.3u y IEEE802.3ab |
| <ul style="list-style-type: none">• Transceptor de Ethernet rápido 10BASE-T/100BASE-TX IEEE 802.3u• Soporta interfaz MII y 7-wire SNI (Serial Network Interface/Interfaz de Red Serial)• Regulador de voltaje integrado para permitir operación de una sola fuente de suministro 3.3/2.5V |

Opciones de Expansión

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

- Una ranura PCI Express x16
- Una ranura PCI Express x1
- Dos ranuras PCI de 32-bit PCI en 33 MHz
- Dos conectores IDE que soporta cuatro canales IDE
- Una interfaz de la unidad de disco floppy
- Dos conectores SATA de 7-pin / Cuatro conectores SATA de 7-pin (optativo)

La placa principal soporta el mastering de bus UltraDMA 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 VGA
- Un puerto LAN (optativo)
- Un puerto IEEE 1394 (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.

Multi-Language Translation

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 interface CPU com Hiper-Transporte e de elevada performance

Tecnologia de HiperTransport™ 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 conjunto de chips nVIDIA C51PV/G Northbridge (NB) e nVIDIA MCP51/G Southbridge (SB) é baseado numa arquitectura inovadora e escalável com fiabilidade e performance provadas.

C51PV/G (NB)

- Link de Hiper-Transporte Primário para as CPUs de 940 pinos de núcleo duplo AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2
- Dois controladores PCI Express separados com 17 total lanes, configurados como um x16 e um x1 PCI Express lanes
- Unidade de processamento de gráficos DirectX 9.0c Shader Model 3.0
- Capacidade de tecnologia multi-visor NVIDIA® nView™ total, com controladores de visor independentes para o CRT
- Suporta instantaneamente PC disponível PC (IAPC), ACPI 2.0, e sistema PCIPM 1.1 e gestão de energia

MCP51/G (SB)

- Links para baixo e para cima de Hiper-Transporte x4/x8, a até 1.0 GHz
- Interface PCI 2.3 suportando até cinco ranhuras PCI a 33 MHz
- Um controlador SATA II com um 3.0 Gb/s PHY integrado , suportando duas drives no modo master
- Controlador ATA-133 IDE rápido
- Controlador USB 2.0, suportando até 8 portas USB 2.0

Memória

- Suporta tipos de memória DDR2 800/667/533/400 com arquitectura bicanal
- Acomoda dois DIMMs sem buffers, com até 16 GB de limite de memória máxima

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

- Formato 24/20/16-bit PCM com suporte DAC de 8 canais para solução áudio 7.1
- Suporta taxa de amostragem DAC 192K/96K/48K/44.1KHz DAC
- Suporte de potência: Digital: 3.3V; Analógica: 3.5V~ 5.25V
- Cumpre com os requisitos áudio WHQL/WLP 2.x da Microsoft
- Compatível com Direct Sound 3D™
- Saída de codificador Dolby® Digital para aplicação electrónica de consumidor

Onboard LAN (opcional)

O onboard LAN fornece as seguintes características:

<ul style="list-style-type: none">• Funcionamento de auto-negociação 10/100 Mbps N-way• Suporta capacidade de duplex pela metade/ou na totalidade• Suporte Wake-on-LAN (WOL) e wake-up remoto
<ul style="list-style-type: none">• Transmissor 10/100/1000 integrado• PCI v2.3, de 32 bits, 33/66 MHz• Totalmente compatível com IEEE 802.3, IEEE802.3u e IEEE802.3ab
<ul style="list-style-type: none">• Transreceptor de Ethernet rápida 10BASE-T/100BASE-TX IEEE 802.3u• Suporta MII e 7-wire SNI Interface de Rede de Série (Serial Network Interface)• Regulador de voltagem integrado para permitir o funcionamento a partir de uma única fonte de alimentação 3.3/2.5V

Opções de Expansão

A motherboard é fornecida com as seguintes opções de expansão:

- Um PCI Express x16 ranhura
- Um PCI Express x 1 ranhura
- Duas ranhuras PCI de 32 bits a 33 MHz
- Dois coletores IDE que suportam quatro dispositivos IDE
- Um interface com drive de disco flexível
- Dois conectores SATA de 7 pin/Quatroconectores SATA de 7 pin (opcional)

A motherboard suporta um domínio bus UltraDMA bus com taxas de Transferência de 133/100/66 MB/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 VGA
- Uma porta LAN (opcional)
- Uma porta IEEE 1394 (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 alterações sem 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
- 高性能HyperTransport プロセッサ・インターフェースに対応

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 C51PV/G Northbridge (NB)と nVIDIA MCP51/G Southbridge (SB)チップセットは、実証された信頼性と性能を持つ革新的で拡張性のあるアーキテクチャに基づいています。

- | | |
|-------------------------|---|
| C51PV/G
(NB) | <ul style="list-style-type: none"> • Primary HyperTransport LinkでAMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core 940ピン仕様のCPUをサポート • 2つの独立の PCI Expressコントローラで計17のレーンを提供し、1つのx16 と1つの x1 PCI Express レーンを構成することを可能に • DirectX 9.0c Shader Model 3.0 GPU(Graphic processing unit) • NVIDIA® nView™ マルチディスプレイ技術を完全採用、CRTへの独立のディスプレイコントローラを搭載 • 現存の PC (IAPC)、ACPI 2.0、及びPCIPM 1.1 のシステムと電源管理機能をそのまま対応可能 |
| MCP51/G
(SB) | <ul style="list-style-type: none"> • HyperTransport x4/x8 上下行きリンクを提供し、動作率最大1.0 GHz • PCI 2.3 インターフェースで33MHzのPCI スロットを最大5つまでサポート可能 • SATA II コントローラが1つ、それには 3.0 Gb/s 仕様のPHYが搭載されており、2つマスタードライブへの同時対応を可能に • 高速 ATA-133 IDEコントローラ • USB 2.0 コントローラで、最大8つまでの USB 2.0 ポートを提供 |

メモリ

- デュアルチャネル構成のDDR2 800/667/533/400 メモリタイプに対応
- 搭載されている2つの非バッファードDIMMで最大16 GBまでのメモリーの取り付けを可能に

オーディオ

- | |
|--|
| <ul style="list-style-type: none"> • 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 |
| <ul style="list-style-type: none"> • 8チャンネルのDACで、7.1オーディオソリューションの24/20/16-bit PCM形式をサポート • 192K/96K/48K/44.1KHz DAC サンプリング率をサポート • 電源サポート：3.3V(デジタル方式の場合)、3.5V~5.25V(アナログ方式の場合) • Microsoft WHQL/WLP 2.x オーディオ基準に準拠 • Direct Sound 3D™ に対応 • Dolby® Digital Encoder出力で、家庭用電子製品への対応を可能に |

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。

<ul style="list-style-type: none">• 10/100 Mbps Nウェイ自動折衝動作• 半/全二重の機能をサポート• Wake-on-LAN(WOL)と遠隔 wake-upとの機能をサポート
<ul style="list-style-type: none">• 10/100/1000 トランシーバーを搭載済み• 32ビット33/66 MHzモードのPCI v2.3仕様• IEEE 802.3、IEEE802.3u および IEEE802.3abに完全対応
<ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u 高速イーサネットトランシーバー• MII/7-wire SNI (Serial Network Interface) インターフェースをサポート• 統合式電圧調節器で 単一の3.3/2.5V電源サプライにより動作を実現

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 スロットが1つ
- PCI Express x1 スロットが1つ
- 33 MHz動作モード対応の 32ビット PCI スロットが2つ
- IDEヘッダー が2つ (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 が1つ
- 7ピンSATAコネクタ が2つ/17ピンSATAコネクタ が4つ(オプション)

このマザーボードは、133/100/66 MB/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 が2つ
- シリアルポート が1つ
- パラレルポート が1つ
- USBポート が4つ
- VGAポート が1つ
- LANポート が1つ(オプション)
- IEEE 1394ポートが1つ (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
- 고성능 HyperTransport CPU 인터페이스 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 C51PV/G Northbridge (NB) 및 nVIDIA MCP51/G Southbridge (SB) 칩셋은 혁신적이고 범용성을 지닌 아키텍처를 기반으로 인정한 신뢰성과 성능을 지닌다.

C51PV/G (NB)

- AMD 샘프론/애슬론 64/애슬론 64 FX/애슬론 64 X2 듀얼 코어 940 핀 CPU 에 HyperTransport 채택
- 총 17 라인 (x16 + x1 PCI Express 라인)의 PCI Express 컨트롤러 2 개
- DirectX 9.0c Shader Model 3.0 그래픽 처리 장치
- NVIDIA® nView™ 멀티 디스플레이 기술 (CRT 용 독립적 디스플레이 컨트롤러 포함)
- PC (IAPC), ACPI 2.0, 및 PCIPM 1.1 시스템 및 전원 관리 지원

MCP51/G (SB)

- HyperTransport x4/x8 링크, 최대 속도 1.0 GHz
- PCI 2.3 인터페이스, 33 MHz에서 최대 5 개의 PCI 슬롯을 지원
- 통합 3.0 Gb/s PHY의 SATA II 컨트롤러 1 개, 마스터 모드에서 2 개의 드라이브 지원
- 패스트 ATA-133 IDE 컨트롤러
- USB 2.0 컨트롤러, 최대 8 개의 USB 2.0 포트 지원

메모리

- 듀얼 채널 아키텍처와 함께 DDR2 800/667/533/400 메모리 타입 지원
- 2 개의 unbuffered DIMMs, 최대 메모리 크기 16 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

- 8 채널 DAC, 7.1 오디오 솔루션을 위해 24/20/16 비트 PCM 포맷 지원
- 192K/96K/48K/44.1KHz DAC 샘플 속도 지원
- 전원 지원: 디지털: 3.3V; 아날로그: 3.5V~5.25V
- Microsoft WHQL/WLP 2.x 오디오 요구 조건에 부합
- Direct Sound 3D™ 호환
- 일반 전자 제품을 위한 돌비® 디지털 인코더 출력

보드 내장 LAN (선택 사항)

보드 내장 LAN 은 다음과 같은 특성이 있다:

<ul style="list-style-type: none">• 10/100 Mbps N-way 자동 감지• Half/full 듀플렉스 지원.• Wake-on-LAN (WOL) 및 원격 wake-up 지원
<ul style="list-style-type: none">• 통합 10/100/1000 트랜시버• PCI v2.3, 32 비트, 33/66 MHz• IEEE 802.3, IEEE802.3u 및 IEEE802.3ab 규격 부합
<ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u 패스트 이더넷 트랜시버• MII 및 7-wire SNI (Serial Network Interface) 지원• 3.3/2.5V의 전원 공급원을 지원하는 통합 전압 조정기

확장 옵션

본 마더보드의 확장 옵션은 다음과 같다:

- PCI Express x16 슬롯 1 개
- PCI Express x1 슬롯 1 개
- 33 MHz, 32 비트 PCI 슬롯 2 개
- 4 개의 IDE 장치를 지원하는 IDE 헤더 2 개
- 플로피 디스크 드라이브 인터페이스 1 개
- 7 핀 SATA 커넥터 2 개/7 핀 SATA 커넥터 4 개(선택 사항)

마더보드는 전송 속도 133/100/66 MB/s의 UltraDMA 버스 마스터링을 지원한다.

통합 I/O

본 마더보드는 플 셋트의 I/O 포트 및 커넥터가 있다:

- 마우스 및 키보드용 PS/2 포트 2 개
- 시리얼 포트 1 개
- 패러럴 포트 1 개
- USB 포트 4 개
- VGA 포트 1 개
- LAN 포트 1 개 (선택 사항)
- IEEE 1394 포트 1 개 (옵션)
- 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
- 支援高效能HyperTransport 處理器介面

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 C51PV/G 北橋(NB)及nVIDIA MCP51/G 南橋(SB)晶片組在研發設計上採用了創新且具擴充性之架構，具備優良的可靠性及性能。

C51PV/G (NB)

- 以Primary HyperTransport Link 連接AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core 940針處理器
- 兩個獨立之PCI Express控制器，提供17條通道，可架構出1個x16 及1個 x1 PCI Express 通道
- DirectX 9.0c Shader Model 3.0 繪圖處理單元
- 採用完整之 NVIDIA® nView™ 多顯示器技術，為CRT提供獨立之顯示控制器
- 可立即支援現有PC (IAPC)、ACPI 2.0及PCIPM 1.1 系統及電源管理功能

MCP51/G (SB)

- 提供HyperTransport x4/x8 上下行連結，速率高達 1.0 GHz
- PCI 2.3 介面能以支援高達5個33 MHz的PCI插槽
- 1個SATA II 控制器，整合一個3.0 Gb/s PHY，藉此可支援兩個主要磁碟槽
- 快速 ATA-133 IDE 控制器
- USB 2.0 控制器，藉此支援高達8個USB 2.0埠

記憶體

- 支援雙通道架構之DDR2 800/667/533/400 記憶體
- 設有2個非緩衝DIMM，最多可安裝16 GB記憶體

音頻

- | |
|---|
| <ul style="list-style-type: none">· 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 |
| <ul style="list-style-type: none">· 配備8通道之DAC，可支援 7.1音訊解決方案之24/20/16-bit PCM 格式· 支援 192K/96K/48K/44.1KHz DAC 取樣率· 電源支援： 3.3V(數位)、3.5V~5.25V(類比)· 符合Microsoft WHQL/WLP 2.x 音訊規格· Direct Sound 3D™ 相容· 配備Dolby® Digital Encoder 輸出端子，可用來連接家用電子產品 |

內建區域網路 (選購)

內建區域網路提供下列功能：

<ul style="list-style-type: none">• 10/100 Mbps N路自動協商動作• 支援半/全雙工功能• 支援區域網路喚醒(Wake-On-LAN)及遠端喚醒功能
<ul style="list-style-type: none">• 整合有10/100/1000 收發器• PCI v2.3規格，32位元 33/66 MHz• 完全相容於IEEE 802.3、IEEE802.3u 及IEEE802.3ab
<ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u 快速乙太網路收發器• 支援 MII及7-wire SNI (Serial Network Interface)介面• 內建穩壓器，藉此以一個3.3/2.5V電源穩定運作

擴充選項

本主機板包括下列擴充選項：

- 1 個 PCI Express x16 插槽
- 1 個 PCI Express x1 插槽
- 2 個以33 MHz模式運作的 32位元 PCI插槽
- 2 個 IDE 接頭，支援 4個 IDE 裝置
- 1 個 軟碟機介面
- 2 個 7針SATA插頭/ 4 個 7針SATA插頭 (選項)

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 個串列埠
- 1 個平行埠
- 4 個USB埠
- 1 個VGA埠
- 1 個區域網路埠(選項)
- 1 個IEEE 1394埠(選項)
- 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及記憶體的時脈定時

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
 - 支持高性能 HyperTransport CPU 接口
- 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 C51PV/G 北桥 (NB) 和 nVIDIA MCP51/G 南桥 (SB) 芯片组是基于一种新型的、可扩展的架构，能提供已经证明的可靠性和高性能。

C51PV/G (NB)

- 内建到 AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 双核 940-pin CPU 的 Primary HyperTransport Link 技术
- 2 个带独立的 PCI Express 控制器，17 个总通道，一个配置为 x16 PCI Express 通道，另一个配置为 x1 PCI Express 通道
- DirectX 9.0c Shader Model 3.0 图形处理单元
- 完整的 NVIDIA® nView™ 多显示技术功能，CRT 独立显示控制器
- 支持立即可用的 PC (IAPC)、ACPI 2.0 和 PCIPM 1.1 系统和电源管理

MCP51/G (SB)

- HyperTransport x4/x8 和 1.0 GHz 下行链路
- PCI 2.3 接口，支持 5 个 33 MHz PCI 插槽
- 1 个集成 3.0 Gb/s PHY 的 SATA II 控制器，主模式下支持 2 个驱动器
- 高速 ATA-133 IDE 控制器
- USB 2.0 控制器，支持 8 个 USB 2.0 端口

内存

- 支持双通道架构 DDR2 800/667/533/400 内存类型
- 支持 2 个非缓冲 DIMM，内存最大支持 16 GB

音频

- | |
|---|
| <ul style="list-style-type: none">• 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 |
| <ul style="list-style-type: none">• 8 通道 DAC，支持 24/20/16 位 PCM 格式用于 7.1 音频解决方案• 支持 192K/96K/48K/44.1KHz DAC 采样速率• 电源支持：数字亮：3.3V；模拟量：3.5V-5.25V• 符合 Microsoft WHQL/WLP 2.x 音频要求• 符合 Direct Sound 3D™ 规格• 用于消费类电子应用的杜比® 数字编解码器 |

Onboard LAN (可选)

板上集成的 LAN 提供以下功能：

<ul style="list-style-type: none">• 10/100 Mbps N 路自侦测运行• 支持半双工/全双工工作• 支持 LAN 唤醒 (WOL) 功能和远程唤醒功能
<ul style="list-style-type: none">• 集成 10/100/1000 收发器• PCI v2.3, 32-位, 33/66-MHz• 完全支持 IEEE 802.3、IEEE802.3u 和 IEEE802.3ab
<ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u 高速以太网收发器• 支持 MII和7-线 SNI (串行网络接口)• 允许单 3.3/2.5V 供电的集成电压调理器

扩展选项

此主板提供如下扩展选项：

- 1 个 PCI Express x16 插槽
- 1 个 PCI Express x1 插槽
- 2 个 32 位 33MHz PCI 插槽
- 2 个 IDE 接口, 可支持 4 个 IDE 设备
- 1 个软驱接口
- 2 个 7-pin SATA 接口/ 4 个 7-pin SATA 接口 (可选)

此主板支持 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 VGA 端口
- 1 个 LAN 端口 (可选)
- 1 个 IEEE 1394 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 высокоэффективный интерфейс HyperTransport

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

Чипсеты nVIDIA C51PV/G «Северный мост» (Northbridge, NB) и nVIDIA MCP51/G «Южный мост» (Southbridge, SB) построены с использованием инновационной масштабируемой архитектуры, обеспечивающей высокую надежность и одительность.

C51PV/G (NB)

- Первичная шина HyperTransport к 940-пиновым процессорам AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core
- Два отдельных контроллера PCI Express с общим числом линий 17, сконфигурированные как PCI Express с одной линией x16 и одной линией x1
- Графический процессор DirectX 9.0c Shader Model 3.0
- Полная поддержка мульти-дисплейной технологии NVIDIA® nView™ с независимыми контроллерами дисплеев CRT
- Поддержка технологии «instantly available PC» (IACP), ACPI 2.0 и PCIPM 1.1 с управлением энергией

MCP51/G (SB)

- Технология HyperTransport x4/x8 up and down, до 1.0 GHz (up)
- Vynthatqc PCI 2.3 с gjllth;rq lj gznb skjnd PCI, 33 MHz
- Один контроллер SATA II с интегрированным 3.0 Gb/s PHY и поддержкой двух устройств в режиме master
- IDE-контроллер Fast ATA-133
- Контроллер USB 2.0 с поддержкой до 8 портов USB 2.0

Память

- Поддерживает типы памяти DDR2 800/667/533/400 с двухканальной архитектурой
- Размещает два модуля небуферизуемой памяти DIMM с максимальным объемом памяти до 16 ГБ

Аудио

- Поддерживает 8-канальный DAC в 24/20/16-битном PCM формате для аудио вер. 7.1
- Поддерживает частоту сэмплирования DAC 192K/96K/48K/44.1 КГц
- Электропитание: цифровой режим: 3.3V; аналоговый режим: 3.5V~5.25V
- Соответствует требованиям Microsoft WHQL/WLP 2.x аудио
- Совместимость с Direct Sound 3D™
- Выход Dolby® Digital Encoder для применения в бытовой электронике

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

Multi-Language Translation

Встроенный сетевой адаптер LAN (опционально)

Встроенный сетевой адаптер LAN со следующими характеристиками:

<ul style="list-style-type: none">• Режим автовыбора 10/100 Mbps N-way• Поддержка режимов Half и Full Duplex• Функция Wake-on-LAN и удаленного пробуждения
<ul style="list-style-type: none">• Встроенный трансивер 10/100/1000• PCI v2.3, 32-бит, 33/66 МГц• Полная совместимость с IEEE 802.3, IEEE802.3u и IEEE802.3ab
<ul style="list-style-type: none">• Трансивер Fast Ethernet 10BASE-T/100BASE-TX IEEE 802.3u• Поддержка интерфейса MII и 7-wire SNI (Serial Network Interface)• Встроенный регулятор напряжения, допускающий питание от одного источника 3.3/2.5 Вr

Возможности расширения

Существуют следующие опции расширения данной материнской платы:

- Один слот PCI Express x16
- Один слот PCI Express x1
- Два 32-битных слота PCI 33 МГц
- Два коннектора IDE с поддержкой четырех каналов IDE
- Один разъем для накопителя на гибких дисках
- Два разъема 7-pin SATA/Четыре разъема 7-pin SATA (опционально)

Плата поддерживает технологию захвата управления шиной UltraDMA bus mastering со скоростью передачи данных 133/100/66 МБ/сек.

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 VGA
- Один порт LAN (опционально)
- Один порт IEEE 1394 (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 szybki interfejs procesorów HT (HyperTransport CPU)

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

Chipset

Mostek północny (NB) nVIDIA C51PV/G i mostek południowy (SB) nVIDIA MCP51/G chipsetu oparty jest na nowatorskiej i skalowalnej architekturze o sprawdzonej niezawodności i funkcjonalności.

C51PV/G (NB)

- Bezpośrednie połączenie HyperTransport do 940-nóżkowego procesora AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core
- Dwa oddzielne kontrolery PCI Express ogólnie z 17 liniami, skonfigurowanymi jako jedna x16 i jedna x1 linia PCI Express
- Procesor graficzny DirectX 9.0c Shader Model 3.0
- Pełnej zdolności technologia multi-display NVIDIA® nView™ z niezależnymi kontrolerami wyświetlania dla monitorów CRT
- Obsługuje układy zarządzania energią PC (IAPC), ACPI 2.0 oraz PCIPM 1.1

MCP51/G (SB)

- HyperTransport x4/x8 połączeń up i down, z częstotliwością do 1.0 GHz
- Kontroler PCI 2.3 obsługujący do pięciu gniazd PCI z częstotliwością 33 MHz
- Jeden kontroler SATA II zintegrowany z 3.0 Gb/s PHY, obsługuje dwa urządzenia w trybie master
- Kontroler Fast ATA-133 IDE
- Kontroler USB 2.0 obsługujący do 8 gniazd USB 2.0

Pamięć

- Obsługuje dwukanałowe pamięci typu DDR2 800/667/533/400
- Przystosowana do obsługi dwu banków niebuforowanej pamięci DIMM o pojemności do 16 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

- Obsługuje 8 kanałów DAC w formacie 24/20/16-bit PCM w standardzie audio 7.1
- Obsługuje częstotliwości próbkowania 192K/96K/48K/44.1KHz DAC
- Zasilacz obsługuje odbiorniki 3.3V cyfrowe i 3.5V~5.25V analogowe
- Zgodna ze specyfikacją Microsoft WHQL/WLP 2.x audio
- Zgodny z Direct Sound 3D™
- Wyjście Dolby® Digital Encoder dla zastosowań konsumenckich

Zintegrowana obsługa sieci LAN (opcjonalnie)

Wbudowany LAN zapewnia następujące właściwości:

<ul style="list-style-type: none">• Możliwe operacje 10/100 Mbps N-way Auto-negotiation• Zdolność Half/Full duplex• Obsługuje Wake-on-LAN (WOL) i zdalne wake-up
<ul style="list-style-type: none">• Zintegrowany transceiver LAN 10/100/1000• 32 bitowa szyna PCI w wersji 2.3, 33/66 MHz• Całkowita zgodność z standardem IEEE 802.3, IEEE802.3u i IEEE802.3ab
<ul style="list-style-type: none">• Terminal szybkiego Ethernetu 10BASE-T/100BASE-TX IEEE 802.3u• Obsługuje MII i 7-żyłowy SNI (szeregowy kontroler sieci, Serial Network Interface)• Zintegrowany regulator napięcia umożliwiający zasilanie w zakresie 2,5 / 3,3 V

Możliwości rozbudowy

Płyta główna wyposażona jest w następujące gniazda:

- Jedno gniazdo PCI Express x16
- Jedno gniazdo PCI Express x1
- Dwa 32 bitowe gniazda PCI 33 MHz
- Dwa złącza IDE obsługujące cztery urządzenia IDE
- Jedno złącze obsługujące stacje dyskiety
- Dwa 7-nóżkowe złącza SATA/Cztery 7-nóżkowe złącza SATA (opcjonalnie)

Płyta główna obsługuje szynę UltraDMA z szybkością transferu 133/100/66 MB/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 VGA
- Jedno gniazdo LAN (opcjonalnie)
- Jedno złącze IEEE 1394 (opcjonalne)
- 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.

Multi-Language Translation

Vlastnosti

Processor

Tato základní deska využívá patici Socket AM2 nabízející následující vlastnosti:

- Připojení procesorů AMD Sempron/Athlon 64/Athlon 64 X2s dvojitým jádrem /Athlon 64 FX
- Podpora vysoce výkonného rozhraní HyperTransport CPU

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

Čipová sada

Čipy northbridge (NB) nVIDIA C51PV/G a southbridge (SB) nVIDIA MCP51/G jsou založeny na inovativní a škálovatelné architektuře s ověřenou spolehlivostí a výkonností.

C51PV/G (NB)

- Primární spojení HyperTransport pro procesory AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 s dvojitým jádrem a s 940kolíkovou patičí
- Dva oddělené řadiče PCI Express s celkem 17 kanály, konfigurovaný jako jeden slot x16 a jeden slot x1 PCI Express
- Grafický procesor DirectX 9.0c Shader Model 3.0
- Plné schopnosti technologie zobrazení na více monitorech NVIDIA® nView™, s nezávislými řadiči zobrazení pro monitory CRT
- Podpora okamžité dostupnosti PC (IAPC), ACPI 2.0 a systému PCIPM 1.1 a řízení spotřeby

MCP51/G (SB)

- Technologie HyperTransport x4/x8 s obousměrným spojením, s frekvencí až 1.0 GHz
- Rozhraní PCI 2.3, podporující až pět slotů PCI s frekvencí 33 MHz
- Jeden řadič SATA II s integrovaným 3.0 Gb/sPHY, podpora dvou diskových jednotek v režimu master
- Rychlý řadič IDE ATA-133
- Řadič USB 2.0, s podporou až 8 portů USB 2.0

Paměť

- Podpora typů paměti DDR2 800/667/533/400 s dvoukanálovou architekturou
- Podpora dvou modulů DIMM bez vyrovnávací paměti s maximální kapacitou 16 GB

Zvuk

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

- 8 kanálů převodníku DAC podporuje 24/20/16bitový formát PCM pro zvukový výstup 7.1
- Podpora vzorkovací frekvence převodníku DAC 192k/96k/48k/44,1kHz
- Podpora napájení: Digitální: 3,3 V; Analogové: 3,5 V ~ 5,25 V
- Splňuje požadavky na audio zařízení Microsoft WHQL/WLP 2.x
- Kompatibilita s Direct Sound 3D™
- Výstup digitálního enkodéru Dolby® pro použití s elektronickými zařízeními uživatele

Vestavění síťové rozhraní LAN (volitelně)

Vestavěné síťové rozhraní LAN nabízí následující možnosti:

<ul style="list-style-type: none">• 10/100 Mbps Ncestné automatické přepínání provozu• Podpora plného/polovičnického duplexního provozu• Podpora funkce Wake-on-LAN (WOL) a vzdálené aktivace
<ul style="list-style-type: none">• Integrovaný přijímač/vysílač 10/100/1000• Sběrnice PCI v2.3, 32bitová, 33/66 MHz• Shoda podle norem IEEE 802.3, IEEE802.3u a IEEE802.3ab
<ul style="list-style-type: none">• Rychlá síťový modul Ethernet 10BASE-T/100BASE-TX IEEE 802.3u• Podpora rozhraní MII/7vodičové SNI (sériové síťové rozhraní)• Integrovaný regulátor napětí umožňující provoz s jediným napájecím zdrojem 3,3/2,5 V

Možnosti rozšíření

Základní deska je dodávána s následujícími možnostmi rozšíření

- Jedna patice PCI Express x16
- Jeden slot PCI Express x1
- Dva 32bitové sloty PCI 33 MHz
- Dva konektor IDE podporující až čtyři zařízení IDE
- Jedno rozhraní pro disketovou mechaniku
- Dva 7kolíkové konektor SATA/ Čtyři 7kolíkové konektor SATA (volitelně)

Základní deska podporuje sběrnici 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 USB port
- Jeden VGA port
- Jeden LAN port (volitelně)
- Jeden port IEEE 1394 (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 interfață CPU HyperTransport de înaltă performanță

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

Seturile de chipuri nVIDIA C51PV/G Northbridge (NB) și nVIDIA MCP51/G Southbridge (SB) se bazează pe o arhitectură inovatoare și scalabilă, care s-a impus deja prin fiabilitate și performanță.

C51PV/G (NB)

- Primary HyperTransport Link la AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core 940-pin CPU-uri
- Două controlere PCI Express cu un total de 17 de benzi, configurate ca o bandă PCI Express x16 și una x1
- Unitate de procesare grafică DirectX 9.0c Shader Model 3.0
- Capacitate de tehnologie multi-display Full nVIDIA® nView™, cu controlere de display independente pentru CRT
- Suport pentru sisteme disponibile instant PC (IAPC), ACPI 2.0, și PCIPM 1.1 și economie de energie

MCP51/G (SB)

- linkuri HyperTransport x4/x8 sus și jos, până la 1.0 GHz
- interfață PCI 2.3 cu suport pentru până la 5 sloturi PCI la 33 Mhz
- un controler SATA II cu 3.0 Gb/s PHY integrat, cu suport pentru două drive-uri în master mode
- Fast ATA-133 IDE controller
- controler USB 2.0, cu suport pentru până la 8 porturi USB 2.0

Memoria

- Suportă tipuri de memorie DDR2 800/667/533/400 cu arhitectură cu canal dual
- Funcționează cu două module fără zonă tampon DIMM, cu capacitate maximă de 16 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

- Suport DAC 8 canale format PCM 24/20/16-bit pentru soluții audio 7.1
- Suport 192K/96K/48K/44.1KHz DAC sample rate
- Suport curent: Digital: 3.3V; Analog: 3.5V~5.25V
- Compatibilă cu specificațiile audio Microsoft WHQL/WLP 2.x
- Compatibil cu Direct Sound 3D™
- Leșire Dolby® Digital Encoder pentru aplicațiile electronice ale clientului

Onboard LAN (opțional)

LAN onboard are următoarele capacități:

<ul style="list-style-type: none">• Operare 10/100 Mbps N-way Auto-negotiation• Suportă modul de operare duplex total/semi-duplex• Suport pentru funcțiile Wake-on-LAN și trezire la distanță
<ul style="list-style-type: none">• Unitate de emisie/recepție 10/100/1000 integrat• PCI v2.3, 32-bit, 33/66 MHz• Complet compatibil cu IEEE 802.3, IEEE802.3u și IEEE802.3ab
<ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u fast Ethernet transceiver• Suportă pentru MII și 7-wire SNI (Serial Network Interface – Interfață rețea serială)• Regulator de tensiune integrat pentru a permite funcționarea de la o singură sursă de curent de 3.3/2.5Vsupply

Opțiuni de extindere

Placa de bază este dotată următoarele posibilități de extindere:

- Un slot PCI Express x16
- Un slot PCI Express x1
- Două sloturi 32-bit PCI la 33 MHz
- Două conecitoare IDE care suportă patru unități IDE
- O interfață pentru unitate floppy
- Două conecitoare SATA 7/ Patru conecitoare SATA 7 (opțional)

Placa de bază suportă bus mastering UltraDMA cu viteze de transfer de 133/100/66 MB/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 VGA
- Un port LAN (opțional)
- Un port IEEE 1394 (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
- Alarame 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.

Multi-Language Translation

Спецификация

Процесор

Тази дънна платка използва сокет AM2 със следните спецификации:

- Поддържа двудрени процесори AMD Sempron/Athlon 64/Athlon 64 X2/Athlon 64 FX
- Поддръжка на високопроизводителен интерфейс HyperTransport

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

Чипсетът със северен мост nVIDIA C51PV/G (NB) и южен мост nVIDIA MCP51/G (SB) е изграден на базата на оригинална архитектура с възможност за надстройка с доказана надеждност и производителност.

C51PV/G (NB)

- Първостепенна HyperTransport връзка към двудрениите процесори AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 940-pin
- Два отделни PCI Express контролера с общо 17 пътеки (17 lanes), конфигурирани като една PCI Express x16 и една PCI Express x1
- Графичен процесор DirectX 9.0c Shader Model 3.0
- Пълноценна много-мониторна технология NVIDIA® nView™, със самостоятелни контролери за CRT монитори
- Поддръжка на технологиите "мигновено включване" на компютъра (IAPC), ACPI 2.0 и PCIPM 1.1 за управление на системата и захранването

MCP51/G (SB)

- Технология HyperTransport x4/x8 за възходящи и низходящи връзки на скорост до 1.0 GHz
- Интерфейс PCI 2.3 с поддръжка до пет слота PCI на 33 MHz
- Един контролер SATA II с интегрирана 3.0 Gb/sPHY, с поддръжка на две устройства в режим "master"
- IDE контролер Fast ATA-133
- USB 2.0 контролер с поддръжка до 8 порта USB 2.0

Памет

- двуканална архитектура на паметта с поддръжка на модули DDR2 800/667/533/400
- Поддръжка на два небуферирани слота DIMM с общ максимален капацитет 16 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

- 8-канален цифрово-аналогов преобразовател с поддръжка на 24/20/16-bit PCM формат за 7.1 канален звук.
- Поддръжка на честота 192K/96K/48K/44.1KHz
- Захранване: цифрово: 3.3V; аналогово: 3.5V~5.25V
- аудио - съвместимо с спецификацията Microsoft WHQL/WLP 2.x
- съвместимост с Direct Sound 3D™
- Изход с вграден Dolby® Digital Encoder за връзка с домашни аудио/видео уреди.

Интегриран мрежов контролер (опция)

Интегриран LAN контролер със следните характеристики:

<ul style="list-style-type: none">• режими на работа 10/100 Mbps N-way с автоматично съгласуване• Поддръжка на режими half/full duplex• поддръжка на функция за "събуждане" Wake-On-LAN и дистанционен wake-up
<ul style="list-style-type: none">• Интегриран трансивер 10/100/1000• PCI v2.3, 32-bit, 33/66 MHz• Пълна съвместимост с IEEE 802.3, IEEE802.3u и IEEE802.3ab
<ul style="list-style-type: none">• Мрежов комутатор Ethernet 10BASE-T/100BASE-TX IEEE 802.3u• Поддръжка на MII и 7-жилен SNI интерфейс (Serial Network Interface)• Интегриран регулатор на напрежението за работа от единствен източник на захранване 3.3/2.5V

Възможности за разширяване

Дънната платка има следните разширителни възможности:

- Един слот PCI Express x16
- Един слот PCI Express x1
- Два 32-bit слота PCI с честота 33 MHz
- Два IDE конектора с поддръжка на четири IDE канала
- един конектор за флопидисково устройство
- Два 7-цифтови SATA конекторас/ четири 7-цифтови SATA конекторас (опция)

Дънната платка поддържа шина UltraDMA 133/100/66 MB/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 VGA порт
- Един LAN порт (опция)
- Един IEEE 1394 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
- Nagy teljesítményű HyperTransport technológiás központi egység interfész

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

Lapkakészlet

A nVIDIA C51PV/G Northbridge (NB) és nVIDIA MCP51/G Southbridge (SB) lapkakészletek egy új és mérhető, nagy megbízhatóságú és teljesítőképességű architektúrára épülnek.

C51PV/G (NB)

- Primary HyperTransport Link az AMD Sempron/Athlon 64/Athlon 64 FX/Athlon 64 X2 Dual-Core 940-pin CPU-hoz
- két külön PCI Express vezérlő összesen 17 sávval, egy x16 és egy x1 PCI Express sáv konfigurációval
- DirectX 9.0c Shader Model 3.0 grafikai feldolgozó egység
- Full NVIDIA® nView™ több-kijelzős technológia képesség, önálló CRT kijelző-vezérlőkkel
- megfelel a rendelkezésre álló PC (IAPC), ACPI 2.0, és PCIPM 1.1 rendszereknek és energia-gazdálkodásnak

MCP51/G (SB)

- HyperTransport x4/x8 fel és le kapcsolások, egészen 1.0 GHz-ig
- PCI 2.3 interfész, egészen 5 PCI slot bírással 33 Mhz-en
- Egy SATA II vezérlő integrált 3.0 Gb/sPHY-jal, két meghajtót biztosítva gazda módban
- Fast ATA-133 IDE controller
- USB 2.0 vezérlő, biztosítva egészen 8 USB 2.0 portot

Memória

- Duál csatornás architektúrájú DDR2 800/667/533/400 memóriamodulokat támogat
- Két puffer nélküli DIMM, maximum 16 GB-os memóriakapacitással

Audio

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

- 8 csatornás DAC támogatás 24/20/16-bit PCM formátum 7.1 hangberendezésre
- 192K/96K/48K/44.1KHz DAC sample rate támogatással
- Áramellátás: Digitális: 3.3V; Analóg: 3.5V~5.25V
- Megfelel a Microsoft WHQL/WLP 2.x audio követelményeinek
- Kompatibilis a Direct Sound 3D™ technológiával
- Dolby® Digital Encoder digitális kóder kimenet a vevő elektromos alkalmazásaihoz

Alaplapon levő LAN (választható)

Az alaplapon levő LAN a következő tulajdonságokkal rendelkezik:

<ul style="list-style-type: none">• 10/100 Mbps N-útú Auto-negotiation operáció• Fél-/teljes duplex• A Wake-on-LAN és a távoli ébresztés funkciók támogatása
<ul style="list-style-type: none">• Beépített 10/100/1000 adó-vevő• PCI v2.3, 32-bit, 33/66 MHz• Teljesen megfelel az IEEE802.3, IEEE802.3u és IEEE802.3ab szabványoknak
<ul style="list-style-type: none">• 10BASE-T/100BASE-TX IEEE 802.3u gyors Ethernet adó-vevő• biztosít MII és 7-wire SNI-t (Serial Network Interface – sorozatos hálózati interfész)• Integrált feszültség-szabályozó, mely lehetővé teszi az üzemeltetést egyetlen 3.3/2.5-os áramforrásról

Bővítési lehetőségek

Az alaplap a következő bővítési lehetőségekkel rendelkezik:

- Egy 16-szoros PCI Express
- Egy PCI Express x1 slot
- Két 32-bites PCI slot 33 MHz-en
- Két IDE csatlakozó négy IDE eszköz támogatására
- Egy hajlékonylemez meghajtó interfész
- Két 7 tűs SATA csatlakozó/Négy7 tűs SATA csatlakozó (választható)

A alaplap támogatja az UltraDMA bus mastering megoldást, 133/100/66 MB/s sebességen

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 VGA port
- Egy LAN port (választható)
- Egy IEEE 1394 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.

Multi-Language Translation