



# CERTIFICATE

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

hereby certifies in accordance with TÜV CERT  
procedure that

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

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

has established and applies a quality system for

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

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

Proof has been furnished that the requirements according to  
**ISO 9001 : 2000 / EN ISO 9001 : 2000 / JIS Q 9001 : 2000 / ANSI/ASQC Q9001 : 2000**

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

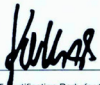
Certificate Registration No. **04100 2000 1325**

The company has been certified since **2000**



Essen, 04.03.2004



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



# ISO14001 CERTIFICATE

Certificate NO.: 05-2001-065

We hereby certify that  
**ECS Manufacturing(Shenzhen) 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:

The manufacture of Mother Board and Peripheral Card and interrelated  
management activities of ECS Manufacturing(Shenzhen) Co.,Ltd.  
which is located in No.20,Free Trade Zone,Shatuojiiao,Shenzhen, P. R.China.

Date of issue: 30th Dec 2001

Date of expiry: 29th Dec 2004

Signed by:



SHENZHEN ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION CENTER

# 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*

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#### **Introduction**

Thank you for choosing the RS480-M motherboard. This motherboard is a high performance, enhanced function motherboard that supports Socket 939 AMD Athlon 64/Athlon 64 FX and CPUs for high-end business or personal desktop markets.

The motherboard incorporates the RS480 Northbridge (NB) and SB400 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport (HT) interface speeds up to 2000MT/s data rate. The memory controller supports DDR SDRAM interface of DDR400/333/266 MHz. It supports two DDR Sockets with up to maximum memory size of 2GB. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification revision 1.0a.

The SB400 Southbridge supports three PCI slots which are PCI 2.3 compliant. It implements an EHCI compliant interface that provides 480Mb/s bandwidth for eight USB 2.0 ports (rear panel x 4, header x 4). Two onboard IDE connectors support 4 IDE devices in UDMA 133/100/66/33 modes. The Southbridge integrates a Serial ATA host controller that is SATA v1.0 compliant, supporting four SATA ports with maximum transfer rate up to 150 MB/s each.

The RS480-M motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, LPT1, VGA, four USB ports, one optional LAN port, one optional 1394a port, and audio jacks for microphone, line-in and line-out.

## Feature

### Processor

The RS480-M uses an 939-pin socket that carries the following features:

- Accommodates AMD Athlon64/Athlon 64 FX processors
- Supports up to 2000MT/s HyperTransport™ (HT) interface speeds

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

### Chipset

The RS480 Northbridge (NB) and SB400 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- RS480 (NB)**
- 1 x2 (expandable to x4) A-Link Express interface (PCI Express 1.0a compliant) for connection to the ATI IXP
  - Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Base Specification revision 1.0a.
  - Full support for 3D primitive, Direct3D texture lighting, and OpenGL format for Indirect Vertices in Vertex Walker
  - Full DirectX 9.0 support (Vertex Shader version 2.0 and Pixel Shader version 2.0)
- SB400 (SB)**
- 2-lane A-Link Express interface (PCI Express 1.0a compliant) to RADEON IGPs
  - Compliant with PCI 2.3 specification, up to 7 bus master devices supported
  - Four Serial ATA devices supported, compliant with Serial ATA 1.0 specification, RAID 0 and RAID 1 accommodated
  - Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports
  - Integrated IDE controller supports Ultra DMA 133/100/66/33 modes

### Memory

- DDR 400/333/266 DDR SDRAM with Dual Channel supported
- Accommodates two unbuffered DIMMs, up to 2 GB maximum memory size

### Audio

- Compliant with AC'97 2.3 specification
- 16-bit Stereo full-duplex CODEC with 48KHz sampling rate
- Supports double sampling rate (96KHz) of DVD audio playback
- Direct Sound 3D™ compatible

### 1394a FireWire (Optional)

- Fully compliant with provisions of IEEE Std 1394-1995 for a high-performance serial bus and IEEE Std 1394a-2000
- Two IEEE Std 1394a-2000 fully compliant cable ports at 400M bits/s

## Introducing the Motherboard

## Onboard LAN (Optional)

This motherboard may support either of the following LAN with following features:

<ul style="list-style-type: none"> <li>• Support 10/100 Mbps N-way Auto-negotiation operation</li> <li>• Supports Wake-On-LAN function and remote wake-up</li> <li>• Supports LED pins for various network activity indications</li> <li>• Supports Full Duplex Flow Control (IEEE 802.3x)</li> </ul>
<ul style="list-style-type: none"> <li>• Integrated 10/100/1000 transceiver</li> <li>• Supports PCI rev. 2.3, 32-bit, 33/66MHz</li> <li>• Crossover Detection &amp; Auto-Correction</li> <li>• Wake-on-LAN and remote wake-up support</li> </ul>

## Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphic Interface
- Three 32-bit PCI v2.3 compliant slots
- Two 40-pin IDE connectors supporting up to 4 IDE devices
- One floppy disk drive interface
- Four 7-pin SATA connector

The RS480-M motherboard supports UltraDMA bus mastering with transfer rates of 133/100/66/33 MB/s.

## Integrated I/O

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

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- One VGA port
- One 1394a port (optional)
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

## BIOS Firmware

This 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

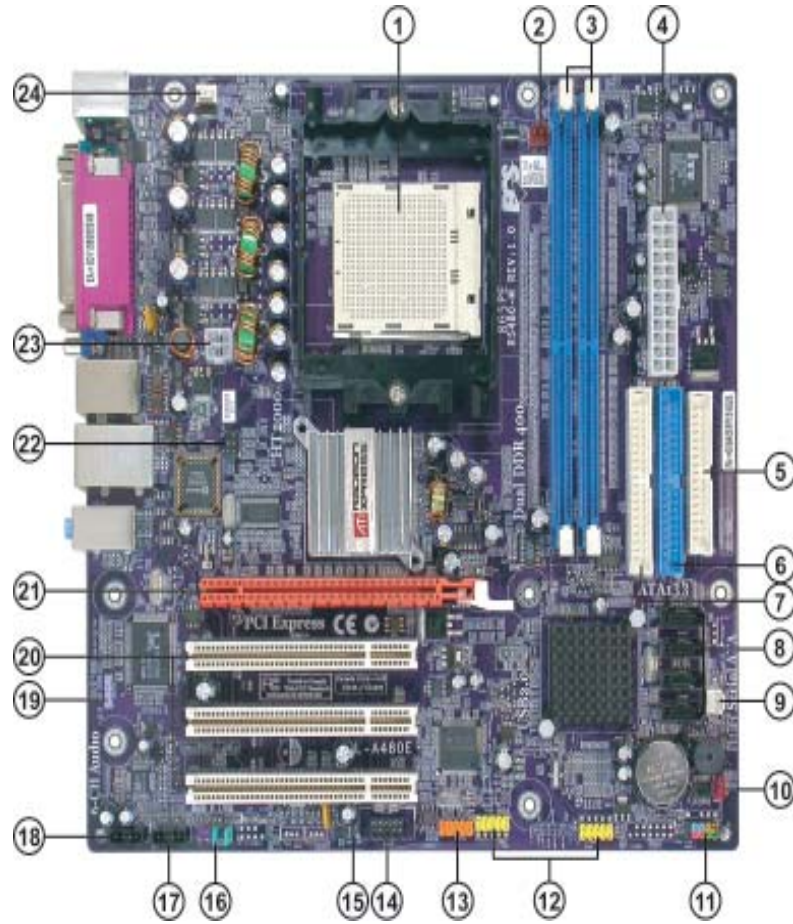
The firmware can also be used to set parameters for different processor clock speeds.



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

## Introducing the Motherboard

## Motherboard Components



Introducing the Motherboard

**Table of Motherboard Components**

<b>LABEL</b>	<b>COMPONENT</b>
1 CPU Socket	Socket 939 for AMD K8 processor
2 CPU_FAN	CPU cooling fan connector
3 DIMM1~2	184-pin DDR SDRAM slots
4 ATX_POWER	Standard 24-pin ATX power connector
5 FDD	Floppy diskette drive connector
6 IDE1	Primary IDE channel
7 IDE2	Secondary IDE channel
8 SATA1~4	Serial ATA connectors
9 PWR_FAN	Power fan connector
10 CLR_CMOS	Clear CMOS jumper
11 PANEL1	Front panel switch/LED header
12 USB3-4	Front Panel USB headers
13 1394A2*	Onboard 1394a header
14 COM2*	Onboard serial port header
15 BIOS_WP	BIOS protection jumper
16 AUDIO1	Front panel audio header
17 CD_IN	Analog audio input connector
18 AUX_IN*	Auxiliary-in header
19 SPDIF01	SPDIF out header
20 PCI1~3	32-bit add-on card slots
21 PCIEX16	PCI Express x16 graphics card slot
22 TV_OUT*	TV-out header
23 ATX12V	4-pin +12V power connector
24 SYS_FAN*	System cooling fan connector

*\*" stands for optional components.*

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

## Introducing the Motherboard

*Memo*

Introducing the Motherboard

## Chapter 2

### ***Installing the Motherboard***

---

#### **Safety Precautions**

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

#### **Choosing a Computer Case**

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro-ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, RS480-M 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.

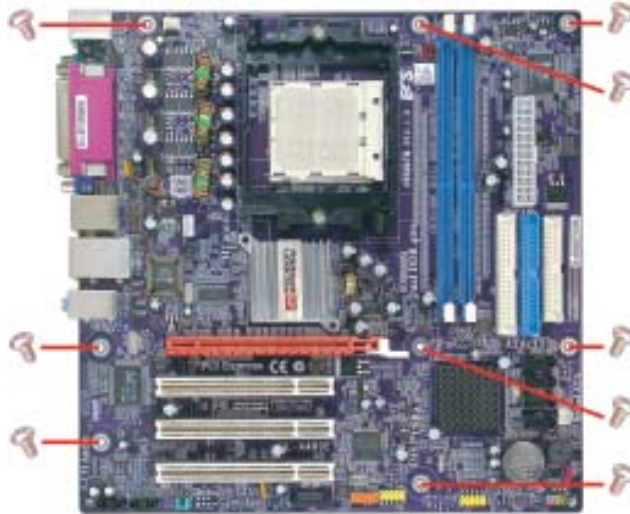
This motherboard carries a Micro-ATX form factor of 244 x 244 mm. Choose a case that accommodates this form factor.

#### **Installing the Motherboard in a Case**

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

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

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



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

## Checking Jumper Settings

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

### *Setting Jumpers*

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

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



**SHORT**



**OPEN**

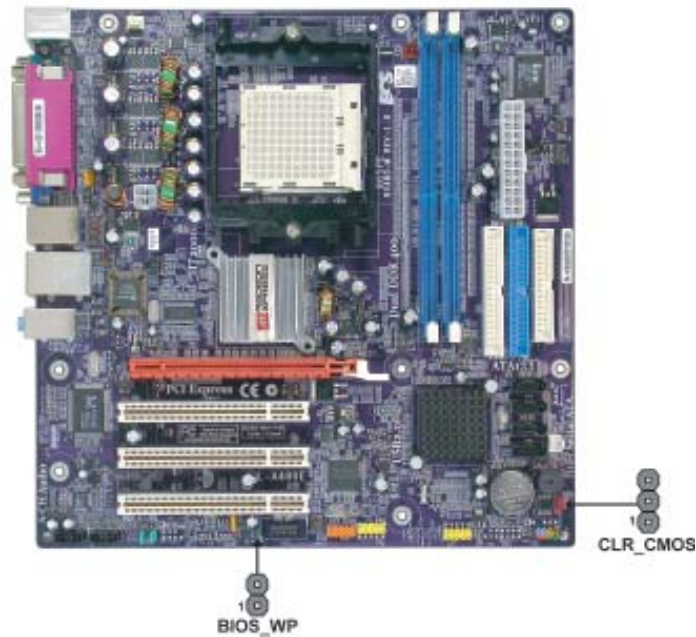
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.





## Installing the Motherboard

### Checking Jumper Settings

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



### Jumper Settings

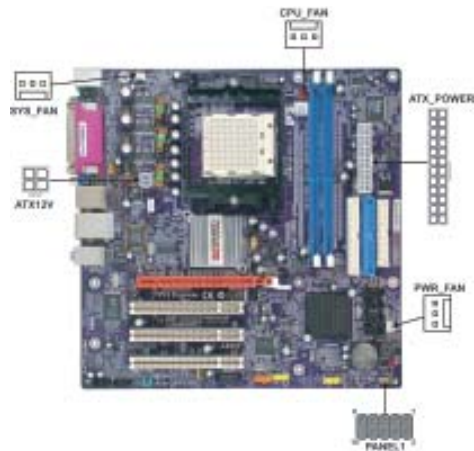
Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	CLEAR CMOS	1-2: CLEAR 2-3: NORMAL  Before clearing the CMOS, make sure to turn off the system.	CLR_CMOS  1
BIOS_WP	2-pin	BIOS WRITE	OPEN: ENABLE SHORT: DISABLE	BIOS_WP  1

## Installing the Motherboard

## Connecting Case Components

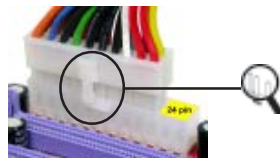
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPU\_FAN**.
- 2 Connect the system cooling fan connector to **SYS\_FAN**.
- 3 Connect the power fan connector to **PWR\_FAN**.
- 4 Connect the case switches and indicator LEDs to the **PANEL1**.
- 5 Connect the standard power supply connector to **ATX\_POWER**.
- 6 Connect the auxiliary case power supply connector to **ATX12V**.



### Connecting 20/24-pin power cable

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



*20-pin power cable*

Users please note that when installing 20-pin power cable, the latch of power cable clings to the left side of the ATX\_POWER connector latch, just as the picture shows.



*24-pin power cable*

Users please note that when installing 24-pin power cable, the latches of power cable clings to the right side of the ATX\_POWER connector latch.

## Installing the Motherboard

**CPU\_FAN/SYS\_FAN/PWR\_FAN: FAN Power Connectors**

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

**ATX12V: ATX 12V Power Connector**

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

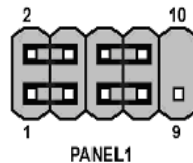
**ATX\_POWER: ATX 24-pin Power Connector**

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

**Installing the Motherboard**

### Front Panel Connector

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



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

\*MSG LED (dual color or single color)

#### Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SATA (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 a Socket 939 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

## 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 the Motherboard

### ***Installing Memory Modules***

This motherboard accommodates two memory modules. It can support two 184-pin 2.5V unbuffered DIMM, DDR 400/333/266. The maximum memory capacity is 2GB.

#### **DDR SDRAM memory module table**

Memory module	Memory Bus
<i>DDR 266</i>	<i>133MHz</i>
<i>DDR 333</i>	<i>166MHz</i>
<i>DDR 400</i>	<i>200MHz</i>

You must install at least one module in any of the two slots. Each module can be installed with 256MB to 1GB of memory. ***Based on Dual DDR structure, when only one DDR SDRAM DIMM is available, please insert it to DIMM1 slot, rather than DIMM2 slot, in case that the system may not boot.***



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

### **Installation Procedure**

Refer to the following to install the memory modules.

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



## **Installing the Motherboard**

**Table A: DDR QVL (Qualified Vender List)**

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

Size	Vendor	Model Name
128MB	Infineon	HYB25D256160BT-5B
	NANYA	NT5DS16M16BT-5
	NANYA	NT5DS16M16BT-5T
256MB	Infineon	HYB25D256800BT-5B
	Infineon	HYB25D256800CE-5C
	Micron	MT46V32M8-5BC
	NANYA	NT5DS32M8BT-5T
	Ramaxel	HYB25D256800CE-5C
512MB	Apacer	V58C2256804SAT5
	Apacer	HYB25D256800BT-5B
	Apacer	A2S56D30ATP
	Infineon	HYB25D256800CE-5C
	NANYA	NT5DS32M8BT-5T
	SAMSUNG	K4H560838D-TCC4
	SAMSUNG	K4H560838E-TCCC

**Table B: Unbuffered DIMM Support for 939-pin**

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

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

## Installing the Motherboard

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

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

### **About IDE Devices**

Your motherboard has two IDE channel interfaces (IDE1 & IDE2). Two IDE ribbon cables supporting four 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.

## **Installing the Motherboard**

### About SATA Connectors

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

### Installing Serial ATA Hard Drives

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



**SATA cable** (optional)



**SATA power cable** (optional)

Refer to the illustration below for proper installation:

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



*This motherboard does not support the “Hot-Plug” function.*

## Installing the Motherboard

### ***Installing a Floppy Diskette Drive***

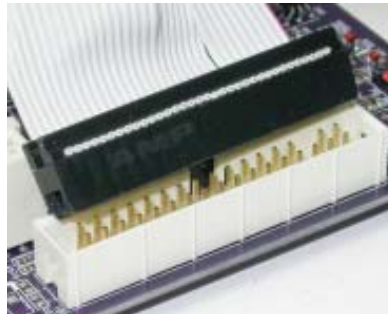
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch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



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

### **FDD: Floppy Disk Connector**

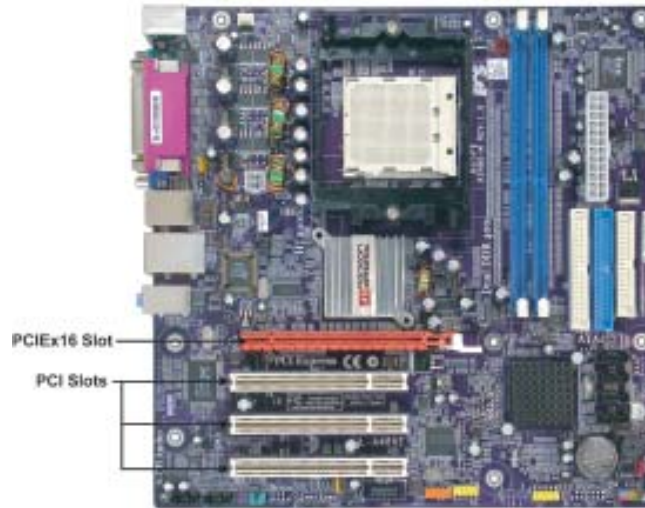
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



## **Installing the Motherboard**

### *Installing Add-on Cards*

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



**PCIEX16 Slot** The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.

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



1. *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.*
2. *Some PCI-E x16 graphics cards may be so bulky that it could block one PCI-E x1 slot.*
3. *Please pull out the PCI-Ex16 graphics card straightway to remove it when you want to uninstall it.*

## 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.

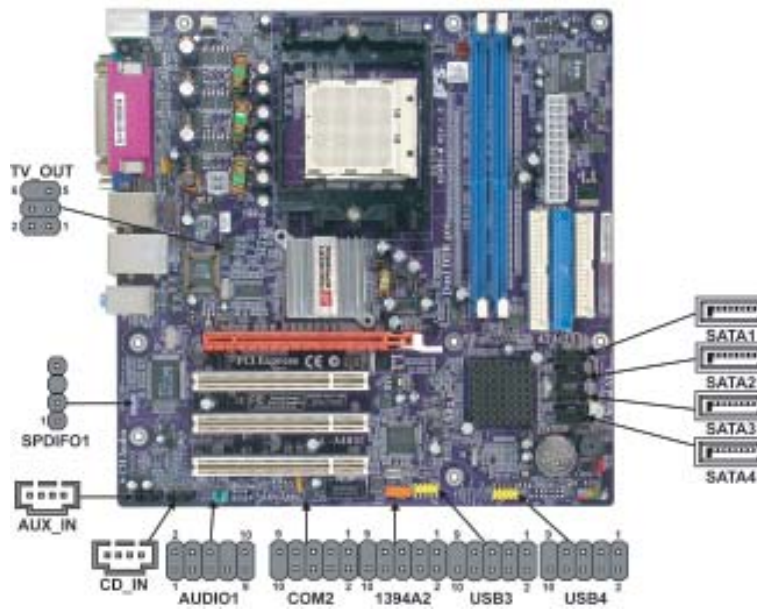


*For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.*

## 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

## Installing the Motherboard

**CD\_IN: Analog audio input header**

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

**SATA1/2/3/4: Serial ATA connectors**

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (150 MB/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	-	-

**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

**TV\_OUT: TV-out header (optional)**

Users may connect this header to your TV set to achieve the TV-out function.

Pin	Signal Name	Function
1	GND	Ground
2	COMP	Composite
3	Y	Luminance
4	GND	Ground
5	C	Chrominance
6	KEY	No pin

## Installing the Motherboard

**USB3/4: Front Panel USB header**

The motherboard has four USB ports installed on the rear edge I/O port array. Additionally, there are two USB headers onboard. Use the auxiliary USB headers to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal

**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 Data 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	Key

**1394A2: Onboard IEEE 1394a headers (optional)**

Connect this header to any device with IEEE 1394a interface.

Pin	Signal Name	Pin	Signal Name
1	TPA+	2	TPA-
3	GND	4	GND
5	TPB+	6	TPB-
7	Cable-Power	8	Cable-Power
9	Key Pin	10	GND

## Installing the Motherboard

**AUX\_IN: Auxiliary In header (optional)**

Pin	Signal Name	Function
1	AUX_L	AUX In left channel
2	GND	Ground
3	GND	Ground
4	AUX_R	AUX In right channel

**Installing the Motherboard**

## Connecting I/O Devices

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



<b>PS2 Mouse</b>	Use the upper PS/2 port to connect a PS/2 pointing device.
<b>PS2 Keyboard</b>	Use the lower PS/2 port to connect a PS/2 keyboard.
<b>Parallel Port (LPT1)</b>	Use LPT1 to connect printers or other parallel communications devices.
<b>Serial Port (COM1)</b>	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
<b>VGA Port</b>	Connect your monitor to the VGA port.
<b>LAN Port (optional)</b>	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
<b>USB Ports</b>	Use the USB ports to connect USB devices.
<b>1394a Port (optional)</b>	Use the 1394a port to connect any 1394a device.
<b>Audio Ports</b>	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*

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#### **About the Setup Utility**

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

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

#### ***The Standard Configuration***

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

This Setup Utility should be used:

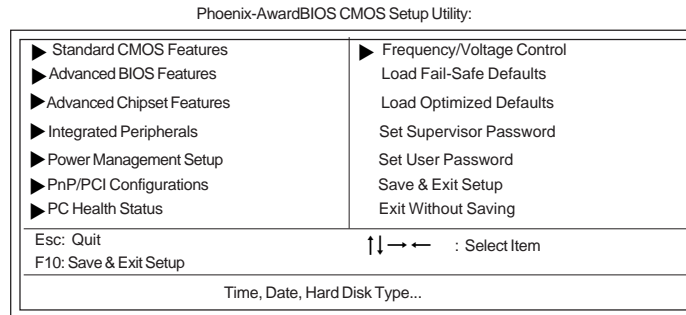
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security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

#### ***Entering the Setup Utility***

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

**Press DEL to enter SETUP**

Pressing the delete key accesses the BIOS Setup Utility:

***BIOS Navigation Keys***

The BIOS navigation keys are listed below:

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

## Using BIOS

### ***Updating the BIOS***

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

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
- 3 Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
- 5 Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
- 6 At the A:\ prompt, type the Flash Utility program name and press <Enter>.
- 7 Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the motherboard BIOS.
- 8 When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

### **Using BIOS**

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

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

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

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

## **Using BIOS**

### Standard CMOS Features

This option displays basic information about your system.

Phoenix-AwardBIOS CMOS Setup Utility  
Standard CMOS Features

Date (mm:dd:yy)	Wed, Jan 25 2005	Item Help
Time (hh:mm:ss)	9 : 33 : 26	Menu Level ▶
▶ IDE Channel 0 Master		Change the day, month, year and century
▶ IDE Channel 0 Slave		
▶ IDE Channel 1 Master		
▶ IDE Channel 1 Slave		
▶ IDE Channel 2 Master		
▶ IDE Channel 2 Slave		
▶ IDE Channel 3 Master		
▶ IDE Channel 3 Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65535K	
Total Memory	1024K	

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

#### Date and Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

#### ▶ IDE Devices (None)

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

Press <Enter> to display the IDE submenu:

Phoenix-AwardBIOS CMOS Setup Utility  
IDE Channel 0 Slave

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

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

#### IDE HDD Auto-Detection

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

## Using BIOS



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

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

Leave this item at Auto to enable the system to automatically detect and configure IDE devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below. Please 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 disks such as LBA (Large Block Addressing). Leave this value at Auto and the system will automatically decide the fastest way to access the hard disk drive. If you choose IDE Channel 2/3 Master, the item only have Large and Auto.

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

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

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

#### **Floppy 3 Mode Support (Disabled)**

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

#### **Video (EGA/VGA)**

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

#### **Halt On (All Errors)**

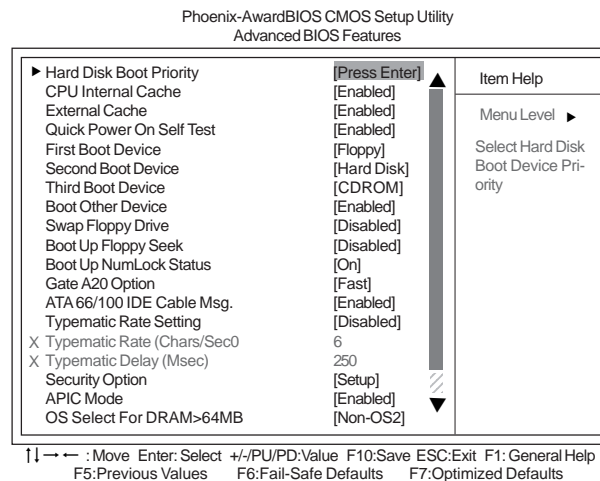
This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

#### **Base Memory, Extended Memory, and Total Memory**

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

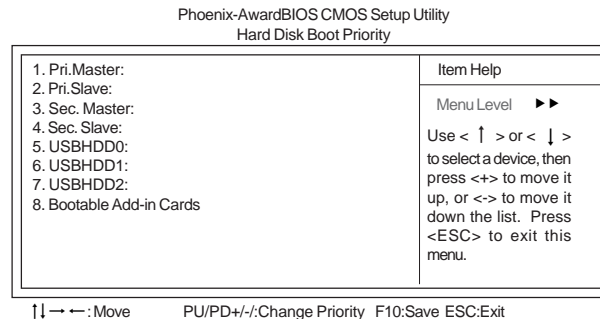
### Advanced BIOS Features

This option defines advanced information about your system.



#### ▶ Hard Disk Boot Priority (Press Enter)

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



#### CPU Internal Cache (Enabled)

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

#### External Cache (Enabled)

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

#### Quick Power On Self Test (Enabled)

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

## Using BIOS

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

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

**Boot Other Device (Enabled)**

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

**Swap Floppy Drive [Disabled]**

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

**Boot Up Floppy Seek (Disabled)**

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

**Boot Up NumLock Status (On)**

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

**Gate A20 Option (Fast)**

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

**ATA 66/100 IDE Cable Msg. (Enabled)**

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

**Typematic Rate Setting (Disabled)**

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

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

**Security Option (Setup)**

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

**APIC Mode (Enabled)**

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

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

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

**HDD S.M.A.R.T Capability [Disabled]**

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

## Using BIOS

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.

#### **Small Logo (EPA) Show [Disabled]**

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

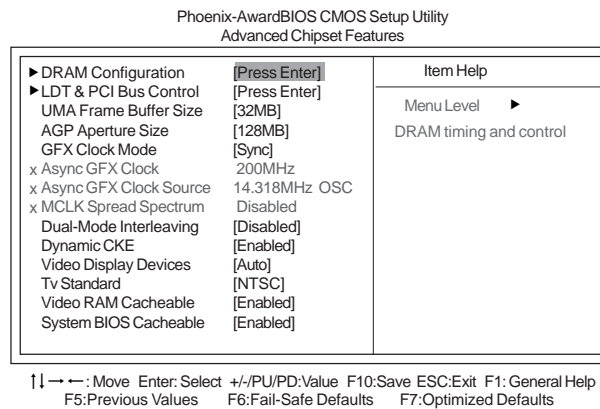
#### **BIOS Rom TBL protect [Disabled]**

This item enables or disables the BIOS Bootblock protect.

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

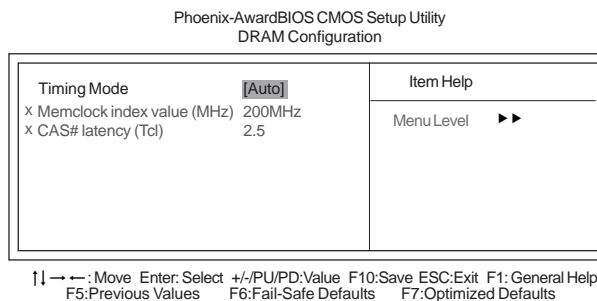
### *Advanced Chipset Features*

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.



#### **▶ DRAM Configuration (Press Enter)**

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



## Using BIOS

**Timing Mode (Auto)**

This item allows you to set up the DRAM timing manually or automatically.

**Memclock index value (Mhz) (200MHz)**

When DDR Timing Setting by is set to Manual, use this item to set the DRAM frequency.

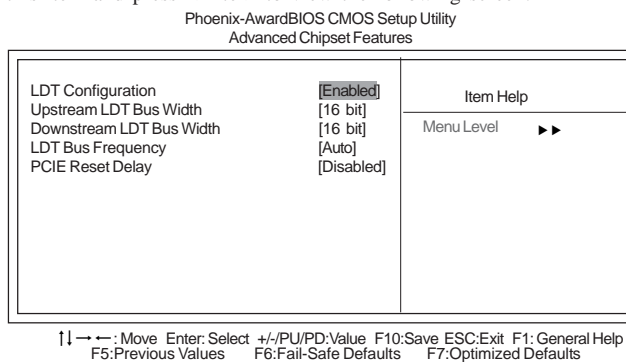
**CAS# latency (Tcl) (2.5)**

This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.

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

**▶LDT & PCI Bus Control (Press Enter)**

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

**LDT Configuration (Enabled)**

This item enables or disables the LDT configuration.

**Upstream LDT Bus Width (16 bit)**

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

**Downstream LDT Bus Width (16 bit)**

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

**LDT Bus Frequency (Auto)**

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

**PCIE Reset Delay (Disabled)**

This item enables or disables the PCIE reset delay.

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

**UMA Frame Buffer Size [32MB]**

This item allows users to manually adjust the UMA frame buffer size, from 16MB to 128MB.

**AGP Aperture Size [128MB]**

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

## Using BIOS

**GFX Clock Mode [Sync]**

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

**Async GFX Clock [200MHz]**

This item allows users to manually adjust the GFX clock, from 200MHz to 350MHz.

**Async GFX Clock Source [14.318MHz OSC]**

This item allows users to set the GFX Clock Source, either to be 14.318MHz OSC or 100MHz PCIE.

**MCLK Spread Spectrum [Disabled]**

This item allows users to enable or disable the MCLK spread spectrum function.

**Dual-Mode Interleaving [Disabled]**

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

**Dynamic CKE [Enabled]**

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

**Video Display Devices [Auto]**

This item allows users to manually select the video display device.

**Tv Standard [NTSC]**

This item allows users to manually select the TV picture format.

**Video RAM Cacheable [Enabled]**

This item allows users to enable or disable the video ram cacheable function.

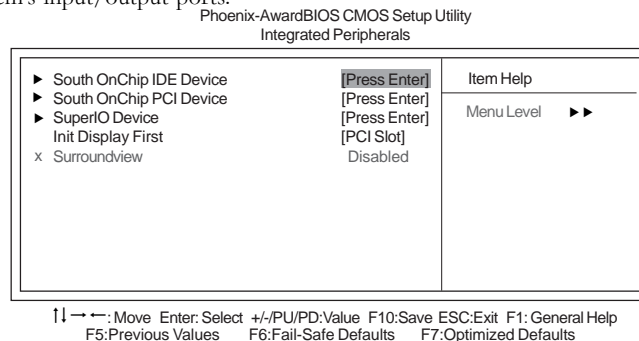
**System BIOS Cacheable (Enabled)**

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

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

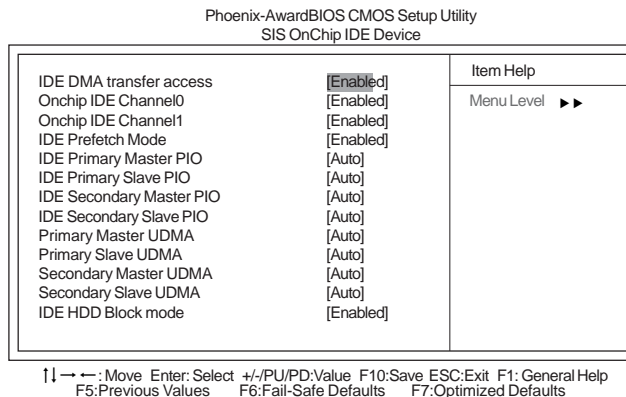
***Integrated Peripherals***

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

**Using BIOS**

### ► South OnChip IDE Device (Press Enter)

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



#### **IDE DMA transfer access (Enabled)**

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

#### **OnChip IDE Channel0/1 (Enabled)**

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

#### **IDE Prefetch Mode (Enabled)**

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

#### **IDE Primary/Secondary Master/Slave PIO (Auto)**

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

#### **Primary/Secondary Master/Slave UDMA (Auto)**

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

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

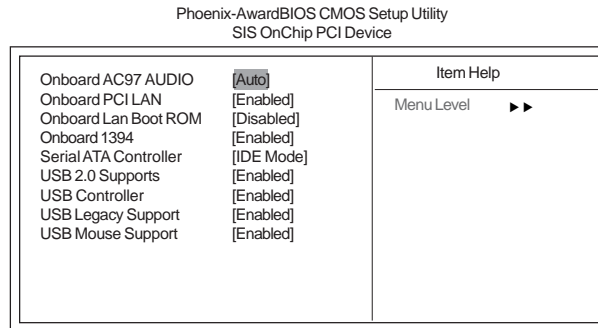
#### **IDE HDD Block Mode (Enabled)**

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

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

### ► South OnChip PCI Device (Press Enter)

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



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

#### **Onboard AC' 97 AUDIO (Auto)**

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

#### **Onboard PCI LAN (Enabled)**

This option allows you to control the onboard LAN device.

#### **Onboard LAN Boot ROM (Disabled)**

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

#### **Onboard 1394 (Enabled)**

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

#### **SATA Controller (IDE Mode)**

This item allows you to controller Serial ATA controller.

#### **USB 2.0 Supports (Enabled)**

Enable this item if your system supports USB 2.0.

#### **USB Controller (Enabled)**

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

#### **USB Legacy Support (Enabled)**

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

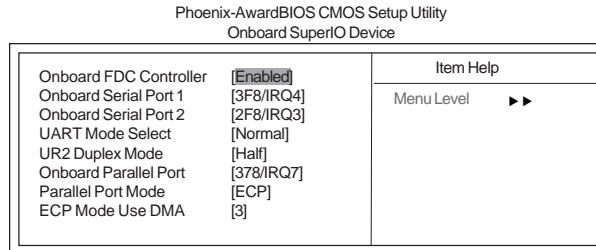
#### **USB Mouse Support (Enabled)**

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.

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

### ► Onboard SuperIO Device (Press Enter)

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



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

#### Onboard FDC Controller (Enabled)

This option enables the onboard floppy disk drive controller.

#### Onboard Serial Port 1/2 (3F8/IRQ4) (2F8/IRQ3)

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

#### UART Mode Select (Normal)

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

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

#### Onboard Parallel Port (378/IRQ7)

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

#### Parallel Port Mode (ECP)

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

#### ECP Mode Use DMA (3)

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

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

#### **Init Display First (PCI Slot)**

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the motherboard. If a PCI graphics card is installed, the onboard VGA will be disabled.

#### **Surroundview (Disabled)**

This item allows you to enable or disable Surroundview function. Surroundview™ provides the power and convenience of multiadapter, multimonitor support for computers that use an AGP or PCI-E based graphics card in conjunction with ATI integrated graphics processors.

## Using BIOS

### Power Management Setup

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

Phoenix-AwardBIOS CMOS Setup Utility  
Power Management Setup

ACPI Suspend Type	[S3<STR>]	Item Help
HDD Power Down	[Disabled]	Menu Level ▶
Video Off Option	[Susp, Stby --> Off]	
Video Off Method	[DPMS Supported]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instant-Off]	
PWRON After Pwr-Fail	[Off]	
▶ Resume Event Control	[Press Enter]	

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

#### ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3 (STR), the suspend mode is a suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.

#### HDD Power Down (Disabled)

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

#### Video Off Option (Susp, Stby → Off)

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

#### Video Off Method (DPMS Supported)

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

#### MODEM Use IRQ (3)

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

#### Soft-Off by PWRBTN (Instant Off)

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

#### PWRON After PWR-Fail (Off)

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

## Using BIOS

### ►Resume Event Control (Press Enter)

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

Phoenix-AwardBIOS CMOS Setup Utility  
Resume Event Control

Resume By PCI PME	[Enabled]	Item Help
Resume By USB (S3)	[Disabled]	
Resume By WOL/WOM/Ring	[Disabled]	
Resume By Mouse	[Disabled]	Menu Level ►►
Resume By Keyboard	[Disabled]	
x KB Resume Password	[Enter]	
x Hot Key Resume	[Ctrl-F1]	
RTC Alarm Resume	[Disabled]	
x Date (of Month) Alarm	0	
x Time (hh:mm:ss) Alarm	0 0 0	

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

#### Resume by 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 USB (S3) (Disabled)

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

#### Resume by WOL/WOM/Ring (Disabled)

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

#### Resume by Mouse (Disabled)

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

#### Resume by Keyboard (Disabled)

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

#### KB Resume Password (Enter)

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

#### Hot Key Resume (Ctrl-F1)

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

#### RTC Alarm Resume (Disabled)

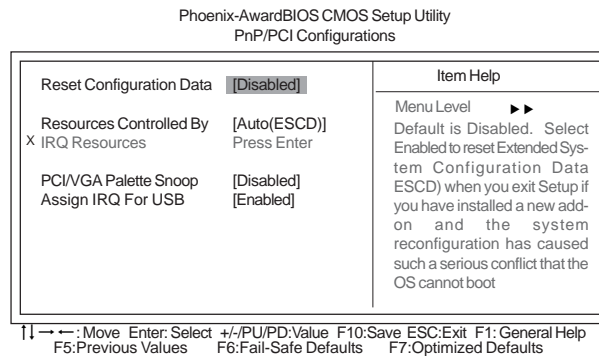
When set to Enabled, additional fields become available and you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

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

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

### ***PNP/PCI Configurations***

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



#### **Reset Configuration Data [Disabled]**

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

#### **Resources Controlled By Auto [Auto(ESCD)]**

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

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

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

#### **PCI/VGA Palette Snoop [Disabled]**

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

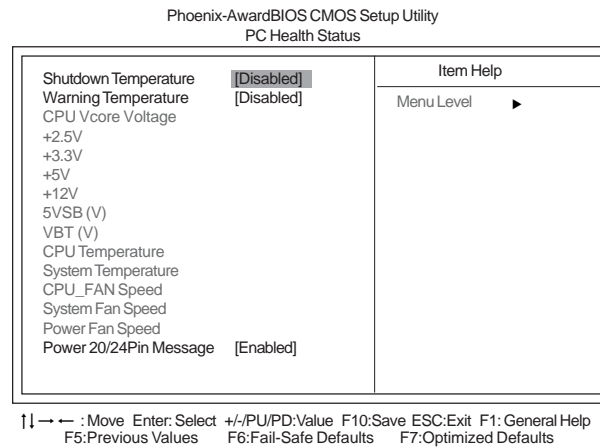
#### **Assign IRQ For USB [Enabled]**

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

## Using BIOS

### PC Health Status

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



#### Shutdown Temperature [Disabled]

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

#### Warning Temperature [Disabled]

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

#### System Component Characteristics

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

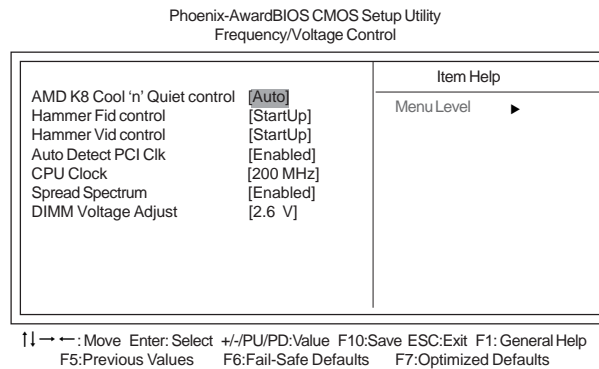
- CPU Vcore Voltage
- Memory Voltage
- CPU Temperature
- System Temperature
- CPU\_FAN Speed
- SYSTEM Fan Speed
- Power Fan Speed

#### Power 20/24Pin Message [Enabled]

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

### ***Frequency/Voltage Control***

This item enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.



#### **AMD K8 Cool 'n' Quiet control (Auto)**

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

#### **Hammer FID Control (StartUp)**

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

#### **Hammer VID Control (StartUp)**

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

#### **Auto Detect PCI Clk (Enabled)**

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

#### **CPU Clock (200 MHz)**

This item allows users to manually adjust the CPU lock.

#### **Spread Spectrum (Enabled)**

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

#### **DIMM Voltage Adjust (2.6V)**

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

### ***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 the <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>.

### ***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.

## Chapter 4

### ***Using the Motherboard Software***

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#### **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 98/ME/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 98/ME/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

<b>Setup</b>	Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.
<b>Browse CD</b>	<p>The <b>Browse CD</b> button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, or WIN98/95. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.</p>
<b>Exit</b>	The <b>EXIT</b> button closes the Auto Setup window.

### Application Tab

Lists the software utilities that are available on the CD.

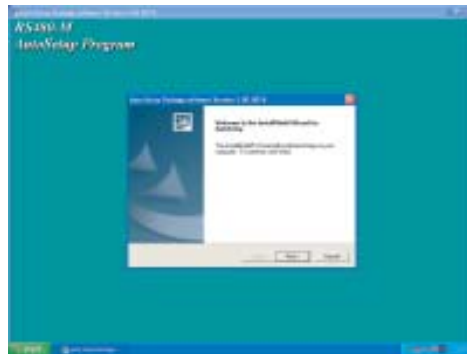
### Read Me Tab

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:

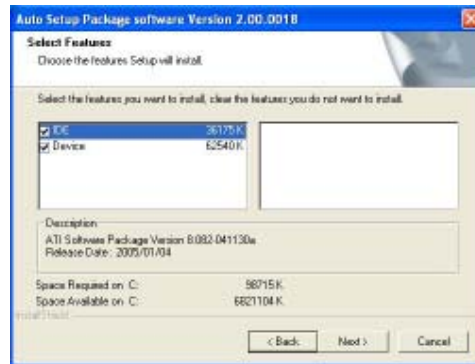


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

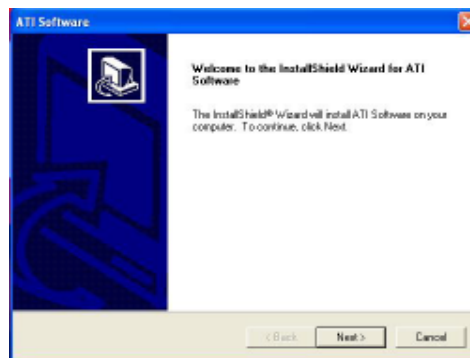
The motherboard identification is located in the upper left-hand corner.

## 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 Memory Utility**

*This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, Using BIOS for more information.*

### **WinFlash Utility**

The Award WinFlash utility is a Windows version of the DOS Award BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the motherboard while in a Windows environment. This utility is currently available for WINXP\ME\2000\98SE. To install the WinFlash utility, run WINFLASH.EXE from the following directory: \UTILITY\WINFLASH 1.51

This concludes Chapter 4.

## Caractéristiques

### Processeur

La RS480-M utilise un socket de 939 broches ayant les caractéristiques suivantes :

- Peut recevoir les processeurs AMD Athlon64/Athlon 64 FX
- Prend en charge des vitesses d'interface HyperTransport™ (HT) allant jusqu'à 2000MT/s

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

### Chipset

Les chipsets RS480 Northbridge (NB) et SB400 Southbridge (SB) sont basés sur une architecture novatrice et dimensionnable avec une fiabilité et des performances prouvées.

- |                   |  |
|-------------------|--|
| <b>RS480 (NB)</b> | <ul style="list-style-type: none"> <li>• 1 x2 (extensible à x4) interface A-Link Express (conforme PCI Express 1.0a) pour connexion à la ATI IXP</li> <li>• Prend en charge un PCI Express x16 pour Interface Graphique, entièrement conforme à la Spécification de Base PCI Express révision 1.0a.</li> <li>• Prise en charge totale pour 3D primitive, éclairage de texture Direct3D, et format OpenGL pour Indirect Vertices dans Vertex Walker</li> <li>• Prise en charge de DirectX 9.0 complète (Vertex Shader version 2.0 et Pixel Shader version 2.0)</li> </ul> |
| <b>SB400 (SB)</b> | <ul style="list-style-type: none"> <li>• Interface 2-lane A-Link Express (conforme PCI Express 1.0a) à RADEON IGPs</li> <li>• Conforme aux spécifications PCI 2.3, jusqu'à 7 périphériques maîtrise de bus pris en charge</li> <li>• Quatre périphériques Serial ATA pris en charge, conforme aux spécifications Serial ATA 1.0, RAID 0 et RAID 1 accommodés</li> <li>• Contrôleur d'Hôte USB 2.0 intégré prenant en charge jusqu'à huit ports USB 2.0</li> <li>• Contrôleur IDE intégré prenant en charge les modes Ultra DMA 133/100/66/33</li> </ul>                  |

### Mémoire

- SDRAM DDR 400/333/266 DDR avec double canal pris en charge
- Peut recevoir deux DIMM sans tampon, taille mémoire maximum de 2 Go

### CODEC Audio AC'97

- Conforme aux spécifications AC'97 2.3
- CODEC full-duplex 16 bits avec vitesse d'échantillonnage de 48MHz
- Prend en charge la vitesse d'échantillonnage double (96KHz) de la lecture audio DVD
- Compatible Direct Sound 3D™

### 1394a FireWire (Optionnel)

- Entièrement conforme avec provisions de IEEE Std 1394-1995 pour les bus série de hautes performances et IEEE Std 1394a-2000
- Deux ports de câble entièrement conforme IEEE Std 1394a-2000 à 400M bits/s

## LAN interne (optionnel)

Cette carte mère prend en charge les chipsets LAN suivants :

- |   |
|---|
| <ul style="list-style-type: none"> <li>• Supporte le fonctionnement en Auto-négociation N-Way en 10/100Mbps</li> <li>• Prend en charge la fonction Wake-On-LAN (WOL) (réveil par appel réseau) et le réveil à distance</li> <li>• Prend en charge les broches LED pour diverses indications d'activités de réseau</li> <li>• Prend en charge le Contrôle de Flux Full Duplex (IEEE 802.3x)</li> </ul> |
| <ul style="list-style-type: none"> <li>• Emetteur-récepteur 10/100/1000 intégré</li> <li>• Prend en charge PCI v2.3, 32 bits, 33/66-MHz</li> <li>• Détection de croisement &amp; Correction auto</li> <li>• Prise en charge de Réveil par LAN et réveil distant</li> </ul>  |

## Options d'extension

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

- Un PCI Express x16 pour Interface Graphique
- Trois emplacements PCI v2.3 bits
- Deux connecteurs IDE de 40 broches prenant en charge jusqu'à quatre périphériques IDE
- Une interface de lecteur de disquette
- Quatre connecteurs SATA à 7 broches

La RS480-M carte mère prenant en charge la maîtrise de bus UltraDMA avec vitesses de transfert de 133/100/66/33 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 VGA
- Un port 1394a (optionnel)
- Un port LAN (optionnel)
- Prises audio pour microphone, ligne d'entrée et ligne de sortie

## Microprogramme BIOS

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

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

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



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

## Feature

### Prozessor

Das RS480-M verwendet einen 939-Pin Socket mit den folgenden Merkmalen:

- Nimmt AMD Athlon64/Athlon 64 FX Prozessoren auf
- Unterstützt bis zu 2000MT/s HyperTransport™(HT) Interface-Geschwindigkeiten

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

### Chipsatz

Die RS480 Northbridge (NB) und SB400 Southbridge (SB) Chipsätze basieren auf einer innovativen und skalierbaren Architektur mit bewiesener Zuverlässigkeit und Leistung.

- |                   |   |
|-------------------|---|
| <b>RS480(NB)</b>  | <ul style="list-style-type: none"> <li>• 1 x2 (auf x4 erweiterbar) A-Link Express Interface (entspricht PCI Express 1.0a) für die Verbindung zu ATI IXP</li> <li>• Unterstützt eine PCI Express x16 Grafik-Interface, mit vollständiger Entsprechung zur PCI Express Base Spezifikation Revision 1.0a.</li> <li>• Vollständige Unterstützung für 3D-Primitive, Direct3D Texture-Lighting und OpenGL-Format für Indirect Vertices im Vertex Walker</li> <li>• Vollständige Unterstützung für DirectX 9.0 (Vertex Shader Version 2.0 und Pixel Shader Version 2.0)</li> </ul> |
| <b>SB400 (NB)</b> | <ul style="list-style-type: none"> <li>• 2-Lane A-Link Express Interface (entspricht PCI Express 1.0a) zu RADEON IGPs</li> <li>• Entspricht PCI 2.3 Spezifikation, es werden bis zu 7 Busmaster-Geräte unterstützt</li> <li>• Unterstützung für vier Serial ATA-Geräte, entspricht Serial ATA 1.0 Spezifikation, nimmt RAID 0 und RAID 1 auf</li> <li>• Integrierter USB 2.0 Host-Controller unterstützt bis zu acht USB 2.0 Ports</li> <li>• Integrierter IDE-Controller unterstützt Ultra DMA 133/100/66/33 Modi</li> </ul>   |

### Speicher

- Unterstützung für DDR 400/333/266 DDR SDRAM mit Dualkanal
- Nimmt zwei ungepufferte DIMMs auf; die maximale Speichergröße beträgt bis zu 2 GB

### AC'97 Audio CODEC

- Entspricht AC'97 2.3 Spezifikationen
- 16-Bit Stereo-Vollduplex CODEC mit einer Samplingrate von 48MHz
- Unterstützt bei der DVD-Audiowiedergabe die doppelte Samplingrate (96KHz)
- Kompatibel mit Direct Sound 3D™

### 1394a FireWire (Optional)

- Vollständige Entsprechung zu den Vorschriften des IEEE Std 1394-1995 für den Hochleistungs-Serial-Bus und IEEE Std 1394a-2000
- Zwei vollständig IEEE Std 1394a-2000 konforme Kabelports bei 400M Bits/s

## Integriertes LAN (optional)

Dieses Mainboard kann einen der folgenden LAN-Chipsätze unterstützen:

<ul style="list-style-type: none"> <li>• Unterstützt den Betrieb bei 10/100Mbps N-Way Auto-Negotiation</li> <li>• Unterstützt Wake-On-LAN-Funktion und Remote-Wake-up</li> <li>• Unterstützt LED-Pins für die Anzeige verschiedener Netzwerkaktivitäten</li> <li>• Unterstützt Vollduplex-Flusskontrolle (IEEE 802.3x)</li> </ul>
<ul style="list-style-type: none"> <li>• Enthält 10/100/1000 Transceiver</li> <li>• Unterstützung von PCI v2.3, 32-Bit, 33/66-MHz</li> <li>• Crossover Detection &amp; Auto-Correction</li> <li>• Unterstützung für Wake-on-LAN und Remote Wake-up</li> </ul>

## Erweiterungsoptionen

Das Motherboard bietet die folgenden Erweiterungsoptionen:

- Ein PCI-Express x16 für eine Grafikschnittstelle
- Drei 32-bit PCI v2.3-Steckplätze
- Zwei 40-Pin IDE Stecker, vier IDE-Kanäle unterstützen
- Ein Steckplatz für ein Diskettenlaufwerk
- Vier 7-Pin SATA-Stecker

Die RS480-M-Motherboard unterstützt UltraDMA Bus Mastering mit einer Übertragungsrate von 133/100/66/33 MB/Sek.

## Integrierte I/O-Schnittstellen

Das Motherboard 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
- Eine VGA- Schnittstelle
- Eine 1394a-Schnittstelle (optional)
- Eine LAN-Schnittstelle (optional)
- Audiobuchsen für Mikrofon, Line-In und Line-Out

## BIOS Firmware

Dieses Motherboard 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

RS480 è dotata di una presa a 939 pin che offre le seguenti caratteristiche:

- Compatibilità con processori AMD Athlon64/Athlon 64 FX
- Supporto di velocità di interfaccia HyperTransport™ (HT) fino a 2000 MT/s

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

### Chipset

I chipset RS480 Northbridge (NB) e SB400 Southbridge (SB) sono basati su un'innovativa architettura scalabile e offrono collaudata affidabilità e prestazioni comprovate.

- RS480 (NB)**
- 1 interfaccia Express A-Link x2 (espandibile a x4), conforme a PCI Express 1.0a, per collegamenti a ATI IXP
  - Supporto di una PCI Express x16 per interfaccia grafica con conformità completa alla revisione 1.0a della specifica PCI Express Base
  - Supporto completo di primitive 3D, Texture Lighting Direct3D e il formato OpenGL per vertici indiretti in Vertex Walker
  - Supporto completo di DirectX 9.0 (Vertex Shader versione 2.0 e Pixel Shader versione 2.0)
- SB400 (SB)**
- Interfaccia A-Link Express a 2 vie (conforme a PCI Express 1.0a) ai protocolli IGP RADEON
  - Conforme alla specifica PCI 2.2 a 33 MHz, con supporto di fino a 7 periferiche master bus
  - Supporto di quattro periferiche ATA seriali, conforme alla specifica Serial ATA 1.0, compatibile con RAID 0 e RAID 1
  - Controller host USB 2.0 integrato con supporto di fino a otto porte USB 2.0
  - Controller IDE integrato con supporto di modalità Ultra DMA 133/100/66/33

### Memoria

- Supporto di SDRAM DDR 400/333/266 con Dual Channel
- Compatibile con due DIMM senza buffer con una capacità massima di memoria di 2 GB

### CODEC Audio AC'97

- Conforme alle specifiche AC'97 2.3
- CODEC full-duplex stereo a 16 bit con velocità di campionamento di 48 KHz
- Supporto di velocità di campionamento doppia (96 KHz) per la riproduzione audio di DVD
- Compatibile con Direct Sound 3D™

### FireWire 1394a (Opzionale)

- Conformità completa a disposizioni IEEE Std 1394-1995 per bus seriale a elevate prestazioni e IEEE Std 1394a-2000
- Due porte cable a 400M bit/s conformi a IEEE Std 1394a-2000

## LAN integrata (opzionale)

La scheda madre offre supporto per uno dei seguenti chipset LAN:

- |   |
|---|
| <ul style="list-style-type: none"> <li>• Supporto di NWay Auto-negotiation a 10/100 Mbps</li> <li>• Supporto di funzionalità Wake-On-LAN e riattivazione remota del sistema</li> <li>• Supporto di pin LED per indicazioni di attività di rete</li> <li>• Supporto di controllo flusso full duplex (IEEE 802.3x)</li> </ul> |
| <ul style="list-style-type: none"> <li>• Transceiver 10/100/1000 integrato</li> <li>• Supporta PCI v2.3, 32-bit, 33/66-MHz</li> <li>• Rilevazione e crossover e autocorrezione</li> <li>• Supporto di funzionalità Wake-on-LAN e riattivazione remota</li> </ul>  |

## Opzioni di espansione

La scheda madre è dotata delle seguenti opzioni di espansione:

- Un PCI Express x16 per interfaccia grafica
- Tre slot PCI v2.3 a 32 bit
- Due connettori 40pin IDE per il supporto di fino a quattro dispositivi IDE
- Un'interfaccia per unità disco floppy
- Quattro connettori SATA a 7 pin

La scheda madre RS480-M supporta bus master UltraDMA con tasso di trasferimento di 133/100/66/33 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
- Una porta VGA
- Una porta 1394a (opzionale)
- Una porta LAN (opzionale)
- Prese jack audio per microfono, line-in e line-out

## Firmware BIOS

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

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

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



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

## Característica

### Procesador

La RS480-M usa un zócalo 939-pin que lleva las sigtes. características:

- Acomoda procesadores AMD Athlon64/Athlon 64 FX
- Soporta hasta las velocidades de interfaz 2000MT/s HyperTransport™ (HT)

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

### Chipset

El chipset RS480 Northbridge (NB) y SB400 Southbridge (SB) se basan de una arquitectura innovadora y escalable con fiabilidad y rendimiento comprobados.

- |                   |   |
|-------------------|---|
| <b>RS480 (NB)</b> | <ul style="list-style-type: none"> <li>• 1 interfaz x2 (expansible a x4) A-Link Express (conformidad PCI Express 1.0a) para conectar al ATI IXP</li> <li>• Soporta un PCI Express x16 para la Interfaz de Gráficas, conformidad completa a la revisión de la Especificación Base de PCI Express 1.0a.</li> <li>• Soporte total para el formato 3D primitive, Direct3D texture lighting, y OpenGL para Indirect Vertices en Vertex Walker</li> <li>• Soporte total de DirectX 9.0 (Vertex Shader versión 2.0 y Pixel Shader versión 2.0)</li> </ul>        |
| <b>SB400 (SB)</b> | <ul style="list-style-type: none"> <li>• Interfaz 2-lane A-Link Express (conformidad PCI Express 1.0a) a los RADEON IGP's</li> <li>• Conformidad con la especificación PCI 2.3, hasta dispositivos másters de bus 7 soportados</li> <li>• Cuatro dispositivos Serial ATA soportados, conformidad con la especificación Serial ATA 1.0, acomodando RAID 0 y RAID 1</li> <li>• Controlador Anfitrión USB 2.0 integrado que soporta hasta ocho puertos USB 2.0</li> <li>• Controlador IDE integrado que soporta los modos Ultra DMA 133/100/66/33</li> </ul> |

### Memoria

- DDR 400/333/266 DDR SDRAM con soporte de Canal Dual
- Acomoda dos DIMMs sin buffer, hasta 2 GB de tamaño de memoria máximo

### CODEC de audio AC'97

- Conformidad con las especificaciones AC'97 2.3
- CODEC de full-duplex estéreo de 16-bit con índice de muestreo de 48MHz
- Soporta doble índice de muestreo (96KHz) de reproducción de audio DVD
- Compatible con Direct Sound 3D™

### 1394a FireWire (optativo)

- Conformidad total con las provisiones de IEEE Std 1394-1995 para un bus serial de alto rendimiento y IEEE Std 1394a-2000
- Dos puertos de cable con conformidad total de IEEE Std 1394a-2000 en 400M bits/s

## LAN Abordo (optativo)

Esta placa principal puede soportar uno de los sigtes. chipset LAN:

<ul style="list-style-type: none"><li>• Soporta operación de Autonegociación N-Way de 10/100Mbps</li><li>• Soporta la función Wake-On-LAN y despertar remoto</li><li>• Soporta pins de LED para varias indicaciones de actividad de red de trabajo</li><li>• Soporta Full Duplex Flow Control (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• Transceptor 10/100/1000 integrado</li><li>• Soporta PCI v2.3, 32-bit, 33/66-MHz</li><li>• Detección Cruzada &amp; Autocorrección</li><li>• Soporte de Despertar-en-LAN y Despertar remoto</li></ul>

## Opciones de Expansión

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

- Un PCI Express x16 para la Interfaz de Gráficas
- Tres ranuras conforme con 32-bit PCI v2.3
- Dos conectores 40-pin IDE que soporta hasta cuatro dispositivos
- Una interfaz de la unidad de disco floppy
- Cuatro conectores SATA de 7-pin

La placa principal RS480-M soporta el mastering de bus UltraDMA con índices de transferencia de 133/100/66/33 MB/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
- Un puerto VGA
- Un puerto 1394a (optativo)
- Un puerto LAN (optativo)
- Clavijas de audio para micrófono, entrada y salida de línea

## BIOS Firmware

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

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

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



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

## Características

### Processador

O RS480-M usa uma ficha de 939 pinos que comporta as seguintes características:

- Acomoda processadores AMD Athlon64/Athlon 64 FX
- Suporta velocidades de interface de HyperTransport™ (HT) até 2000MT/s

Tecnologia de HyperTransport™ Tê 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 RS480 Northbridge (NB) e SB400 Southbridge (SB) é baseado numa arquitectura inovadora e escalável com fiabilidade e performance provadas.

#### **RS480 (NB)**

- 1 x2 (expansível para x4) interface A-Link Express (compatível com PCI Express 1.0a) para ligação ao ATI IXP
- Suporta um PCI Express x16 para Interface de Gráficos, cumpre totalmente com a revisão 1.0a. da Especificação de Base de PCI Express.
- Suporte completo para 3D original, iluminação de textura Direct3D, e formato OpenGL para Vértices Indirectos em Vertex Walker
- Suporte completo DirectX 9.0 (Vertex Shader versão 2.0 e Pixel Shader versão 2.0)

#### **SB400 (SB)**

- Interface Express A-Link de 2 vias (compatível com PCI Express 1.0a) para RADEON IGPs
- Cumpre com a especificação 2.3 PCI, suporta até 7 dispositivos bus mestre
- Suporta quatro dispositivos ATA de Série, cumprindo com a especificação 1.0 ATA de Série, RAID 0 e RAID 1 acomodados
- Controlador Host 2.0 USB Integrado suportando até oito portas USB 2.0
- Controlador IDE integrado que suporta modos Ultra DMA 133/100/66/33

### Memória

- DDR 400/333/266 DDR SDRAM com suporte de Bicanal
- Acomoda dois DIMMs sem buffers, com até 2 GB de limite de memória máxima

### Codec Áudio AC'97

- Cumpre com as especificações AC'97 2.3
- CODEC duplex total Estéreo de 16 bits com taxa de amostragem de 48MHz
- Suporta taxa de amostragem dupla (96KHz) de reprodução áudio DVD
- Compatível com Direct Sound 3D™

### 1394a FireWire (opcional)

- compatível com provisões de IEEE Std 1394-1995 para um bus de série de elevada performance e IEEE Std 1394a-2000
- Duas portas para cabo totalmente compatíveis com IEEE Std 1394a-2000 a 400M bits/s

## Onboard LAN (opcional)

Esta motherboard poderá suportar qualquer um dos seguintes conjuntos de chips LAN:

<ul style="list-style-type: none"><li>• Suporta operação de Auto-negociação N-Way 10/100Mbps</li><li>• Suporta função LAN de Despertar e despertar remoto</li><li>• Suporta pinos LED para várias indicações de actividade de rede</li><li>• Suporta Controlo de Fluxo Duplo Completo (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• Transreceptor integrado 10/100/1000</li><li>• Suporta PCI v2.3, 32-bit, 33/66-MHz</li><li>• Detecção Crossover &amp; Auto Correção</li><li>• Suporte Wake-on-LAN e wake-up remoto</li></ul>

## Opções de Expansão

A motherboard é fornecida com as seguintes opções de expansão:

- Um PCI Express x16 para Interface de Gráficos
- Três ranhuras compatíveis com PCI v2.3 de 32 bits
- Dois conectores IDE 40 pinos, que suportam até quatro dispositivos IDE
- Um interface com drive de disco flexível
- Quatro conectores SATA de 7 pin

A motherboard RS480-M suporta um domínio bus UltraDMA bus com taxas de Transferência de 133/100/66/33 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
- Uma porta VGA
- Uma porta 1394a (opcional)
- Uma porta LAN (opcional)
- Fichas áudio para microfone, entrada de linha e saída de linha

## Microprogramação BIOS

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

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

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



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

## 機能

### プロセッサ

RS480-M が採用した939ピン仕様のソケットは、次の特徴があります：

- AMD Athlon64/Athlon 64 FX プロセッサを搭載可能
- 転送率が最大2000MT/秒までの HyperTransport™ (HT) インターフェースを採用

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

### チップセット

RS480 Northbridge (NB) と SB400 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。

- RS480 (NB)**
- 1つの x2 ( x4に拡張可能) A-Link Express インターフェース (PCI Express 1.0a に対応) でATI IXPに接続
  - グラフィックスインターフェースとなる PCI Express x16 インターフェースを搭載し、それでPCI Express Base Specification revision 1.0aに完全対応
  - Vertex WalkerにあるIndirect Verticesの3D primitiveや Direct3D texture lightingやOpenGL 形式に完全対応
  - DirectX 9.0に完全対応 (Vertex Shader version 2.0 とPixel Shader version 2.0)
- SB400 (SB)**
- 2レインのA-Link Express インターフェース (PCI Express 1.0a に対応) でRADEON IGPの間を接続
  - PCI 2.3 規格に対応し、最大7つまでのマスター装置の取り付けを可能に
  - 4つまでのSerial ATA 装置をサポートし、Serial ATA 1.0 規格に対応しており、目次RAID 0 とRAID 1 の機能を提供
  - 内蔵のUSB 2.0 ホストコントローラで最大8つまでのUSB 2.0ポートをサポート
  - 内蔵のIDEコントローラでUltra DMA 133/100/66/33の諸モードをサポート

### メモリ

- デュアルチャネルのDDR 400/333/266 DDR SDRAMを採用
- 搭載されている2つの非バッファードDIMMで最大2 GBまでのメモリーの取り付けを可能に

### AC'97 Audio CODEC

- AC'97 2.3 規格に準拠
- 48MHzサンプリングレートの16ビットステレオ全二重CODEC
- DVD音声再生のダブルサンプリングレート(96KHz)に対応
- Direct Sound 3D™ に対応

### 1394a (オプション)

- “IEEE Std 1394-1995 for a high-performance serial bus and IEEE Std 1394a-2000”の基準に完全対応
- IEEE Std 1394a-2000 完全対応の2つのポートのそれぞれが400M bits/秒の転送率を実現

## オンボードLAN (オプション)

当マザーボードは次のLANチップセットのいずれかを搭載しております：

<ul style="list-style-type: none"><li>• 10/100Mbps N-way自動ネゴシエーション操作をサポート</li><li>• Wake-On-LANと遠隔wake-up機能をサポート</li><li>• ネットワーク状態インジケータ用のLEDピンを搭載</li><li>• 全二重フロー制御 (IEEE 802.3x) をサポート</li></ul>
<ul style="list-style-type: none"><li>• 10/100/1000 トランシーバーを搭載済み</li><li>• PCI v2.3, 32-bit, 33/66-MHzへの対応</li><li>• クロスオーバー検出機能と自動修正機能を搭載</li><li>• Wake-on-LANと遠隔 wake-upとの機能をサポート</li></ul>

## 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。

- グラフィック用のPCI Express x16 インターフェース x1
- 32ビットPCI v2.3 互換性スロット x2
- 40ピンIDEロープロファイルヘッダー (4つのIDEチャンネルをサポート) が2つ
- フロッピーディスクドライブインターフェイス x1
- 7ピンSATAコネクタ X4

このマザーボードは、133/100/66/33MB/秒の転送速度でのUltra DMAバスマスタリングをサポートします。

## 統合の入出力ポート

マザーボードには、次のI/Oポートやコネクタを揃えています。

- マウスとキーボード用のPS/2ポート x2
- シリアルポート x1
- パラレルポート x1
- VGAポート x1
- 1394a ポート x1 (オプション)
- LANポート x1 (オプション)
- マイク、ラインイン、ラインアウト用オーディオジャック

## BIOSファームウェア

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

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

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



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

## 특성

### 프로세서

RS480-M 는 939 핀 소켓을 사용하여 다음과 같은 특성을 지니다:

- AMD 애슬론 64/애슬론 64 FX 프로세서 사용
- HyperTransport™ (HT) 인터페이스 속도 최대 2000MT/s 지원

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

### 칩셋

RS480 Northbridge (NB) 및 SB400 Southbridge (SB) 칩셋은 혁신적이고 범위성을 지닌 아키텍처를 기반으로 인정된 신뢰성과 성능을 지니다.

#### **RS480 (NB)**

- ATI IXP 연결을 위한 1 x2 (x4 확장 가능) A-Link Express 인터페이스 (PCI Express 1.0a 부합)
- 그래픽 인터페이스로 1 개의 PCI Express x16 지원, PCI Express Base 사양 1.0a 부합.
- 3D primitive, Direct3D texture lighting 및 Vertex Walker의 Indirect Vertices 를 위한 OpenGL format 지원
- DirectX 9.0 지원 (Vertex Shader 버전 2.0 및 Pixel Shader 버전 2.0)

#### **SB400 (SB)**

- RADEON IGP's 용 2-lane A-Link Express 인터페이스 (PCI Express 1.0a 부합)
- PCI 2.3 사양 부합, 최대 7 개의 버스 마스터 장치 지원
- 4 개의 시리얼 ATA 장치 지원, 시리얼 ATA 1.0 사양 부합, RAID 0 및 RAID 1
- 최대 8 개의 USB 2.0 포트를 지원하는 통합 USB 2.0 호스트 컨트롤러
- Ultra DMA 133/100/66/33 모드를 지원하는 통합 IDE 컨트롤러

### 메모리

- DDR 400/333/266 DDR SDRAM, 듀얼 채널 지원
- 2 개의 unbuffered DIMMs, 최대 메모리 크기 2 GB

### AC'97 오디오 코덱

- AC'97 2.3 사양 부합
- 48MHz 샘플링 속도를 지닌 16 비트 스테레오 폴-듀플렉스 코덱
- DVD 오디오 재생 시 더블 샘플링 속도 (96KHz) 지원.
- Direct Sound 3D™ 호환

### 1394a 파이어 와이어(선택 사항)

- 고성능 시리얼 버스를 위한 IEEE Std 1394-1995 및 IEEE Std 1394a-2000 부합
- 400M bits/s 속도로 케이블 포트에 부합하는 2 개의 IEEE Std 1394a-2000

## 보드 내장 LAN (선택 사항)

본 마더보드는 다음과 같은 LAN 칩셋을 지원합니다:

<ul style="list-style-type: none"><li>• 10/100Mbps N-Way Auto-negotiation 작업 지원</li><li>• Wake-On-LAN 기능 및 원격 wake-up 지원</li><li>• 다양한 네트워크 활동을 표시하는 LED 핀 지원</li><li>• Full Duplex Flow Control (IEEE 802.3x) 지원</li></ul>
<ul style="list-style-type: none"><li>• 통합 10/100/1000 트랜시버</li><li>• PCI v2.3, 32-bit, 33/66-MHz 지원</li><li>• Crossover Detection 및 Auto-Correction</li><li>• Wake-on-LAN 및 원격 wake-up 지원</li></ul>

## 확장 옵션

본 마더보드의 확장 옵션은 다음과 같다:

- 그래픽 인터페이스를 위한 PCI 익스프레스 x16 1 개
- 32 비트 PCI v2.3 호환 슬롯 3 개
- 최대 4개의 IDE 장치를 지원하는 40핀IDE 커넥터 2 개
- 플로피 디스크 드라이브 인터페이스 1 개
- 7 핀 SATA 커넥터 4 개

RS480-M 마더보드는 전송 속도 133/100/66/33 MB/s의 UltraDMA 버스 마스터링을 지원한다.

## 통합 I/O

본 마더보드는 풀 셋트의 I/O 포트 및 커넥터가 있다:

- 마우스 및 키보드용 PS/2 포트 2 개
- 시리얼 포트 1 개
- 패러럴 포트 1 개
- VGA 포트 1 개
- 1394a 포트 1 개 (선택 사항)
- LAN 포트 1 개 (선택 사항)
- 마이크, 라인 입력 및 라인 출력용 오디오 잭

## BIOS 펌웨어

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

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

펌웨어로 다른 프로세서 클럭 속도의 파라미터를 설정할 수도 있다.



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

## 功能

### 處理器

RS480-M採用1個939針插槽，該插槽具有如下特徵：

- 可安裝AMD Athlon64/Athlon 64 FX 處理器
- 支援高達2000MT/秒的HyperTransport™ (HT)介面傳輸速率

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

### 晶片組

RS480 北橋(NB)及SB400 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。

- RS480 (NB)**
- 1個 2倍速 (可擴充至4倍速) A-Link Express介面 (PCI Express 1.0a 相容) 以連接ATI IXP
  - 支援1個繪圖介面用之PCI Express x16，完全符合PCI Express Base規格修訂版1.0a
  - 完全支援 Vertex Walker中之Indirect Vertices的 3D primitive、Direct3D texture lighting, 及OpenGL 格式
  - 完全支援 DirectX 9.0 (Vertex Shader version 2.0 及 Pixel Shader version 2.0)
- SB400 (SB)**
- 雙線道A-Link Express 介面(PCI Express 1.0a 相容)，用以在RADEON IGP間做連接
  - 符合PCI 2.3 規格，支援高達7匯流排主控裝置
  - 支援4個Serial ATA裝置，符合Serial ATA 1.0 規格，並提供RAID 0 及RAID 1功能
  - 整合有USB 2.0主控器，可支援至8個USB 2.0埠
  - 整合有IDE 控制器，可支援 Ultra DMA 133/100/66/33模式

### 記憶體

- 採用雙通道DDR 400/333/266 DDR SDRAM
- 設有2個非緩衝DIMM，最多可安裝2 GB記憶體

### AC'97 音頻編碼器

- 相容於AC'97 2.3 規格
- 16位元立體聲全雙工CODEC，取樣率48MHz
- 支援DVD音訊播放的雙取樣率(96KHz)
- Direct Sound 3D™ 相容

### 內建區域網路 (選購)

- 完全支援"IEEE Std 1394-1995 for a high-performance serial bus 及 IEEE Std 1394a-2000" 規格
- 2個IEEE Std 1394a-2000連接埠，傳輸速率達400M bits/秒

## 內建區域網路 (選購)

本主機板搭載有如下其中一種LAN晶片組：

<ul style="list-style-type: none"><li>• 支援 10/100Mbps N-way 自動協調作業</li><li>• 支援區域網路喚醒(Wake-On-LAN)及遠端喚醒功能</li><li>• 配有各種網路活動指示器用之LED接腳</li><li>• 支援全雙工流量控制(IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• 整合有10/100/1000 收發器</li><li>• 支援PCI v2.3, 32位元, 33/66-MHz</li><li>• 具有跳接線偵測及自動修正功能</li><li>• 支援區域網路喚醒功能及遠距喚醒功能</li></ul>

## 擴充選項

本主機板包括下列擴充選項：

- 1 個繪圖卡用PCI Express x16 介面
- 3 個32位元PCIv2.3插槽
- 2 個 40針 IDE 接頭，支援 4個 IDE 裝置
- 1 個軟碟機介面
- 4個7針SATA插頭

本主機板支援傳輸率133/100/66/33 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
- 1 個VGA埠
- 1 個1394a 埠(選購)
- 1 個區域網路埠(選購)
- 麥克風音頻插座、線級輸入及線級輸出。

## BIOS 韌體

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

- 電源管理
- 喚醒警鈴
- CPU參數
- CPU及記憶體的時脈定時

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

RS480-M 主板使用一个 939-pin 插座，此插座具有以下特点：

- 支持 AMD Athlon64/Athlon 64 FX 处理器
- 支持 2000MT/s HyperTransport™ (HT) 接口速度

HyperTransport™ 技术是一种在两台设备间进行点到点连接的技术，它可以让集成电路使用比当前互连技术更高的速度进行信息交换。

### 芯片组

RS480 北桥 (NB) 和 SB400 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。

#### **RS480 (NB)**

- 1 x2 (可扩展到 x4) A-Link Express 接口 (符合 PCI Express 1.0a 标准) 用于连接到 ATI IXP
- 支持 1 个 PCI Express x16 用于图形接口，完全符合 PCI Express Base 规格 1.0a。
- 完全支持 3D 图元、Direct3D 纹理光源和 OpenGL 格式，以用于 Vertex Walker 中的 Indirect Vertices
- 完全支持 DirectX 9.0 (Vertex Shader 版本 2.0 和 Pixel Shader 版本 2.0)

#### **SB400 (SB)**

- 到 RADEON IGP 的 2-lane A-Link Express 接口 (符合 PCI Express 1.0a 标准)
- 符合 PCI 2.3 规格，最多支持 7 个总线设备
- 支持 4 个串行 ATA 设备，符合串行 ATA 1.0 规格，支持 RAID 0 和 RAID 1
- 集成 USB 2.0 主控器，最多支持 8 个 USB 2.0 端口
- 集成 IDE 控制器，支持 Ultra DMA 133/100/66/33 模式

### 内存

- DDR 400/333/266 DDR SDRAM 双通道支持
- 支持 2 个非缓冲 DIMM，内存最大支持 2 GB

### AC'97 音频编解码器

- 兼容 AC'97 v2.3 规格
- 具有 48MHz 采样速率的 16 位全双工 CODEC (编解码器)
- 支持 DVD 音频播放的双采样速率 (96KHz)
- 符合 Direct Sound 3D™ 规格

### 1394a 火线 (可选)

- 完全符合用于高性能串行总线的 IEEE Std 1394-1995 和 IEEE Std 1394a-2000
- 2 个符合 IEEE Std 1394a-2000 标准的电缆端口，传输速率可达 400M bits/s

## Onboard LAN (可选)

此主板支持以下任何一种 LAN 芯片组：

<ul style="list-style-type: none"><li>• 支持 10/100Mbps N 路自协商工作</li><li>• 支持 LAN 唤醒 (WOL) 功能和远程唤醒功能</li><li>• 支持用于各种活动指示灯的 LED 管脚</li><li>• 支持全双工流控制 (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• 支持 10/100/1000 Mbps 速度工作 (10/100 Mbps 可选)</li><li>• 支持 PCI v2.3, 32-位, 33/66-MHz</li><li>• 跨接检测和自动校正</li><li>• 支持 LAN 和远程唤醒</li></ul>

## 扩展选项

此主板提供如下扩展选项：

- 1 个用于图形接口的 PCI Express x16
- 3 个
- 2 个 40-pin IDE 接口，可支持 4 个 IDE 设备
- 1 个软驱接口
- 4 个 7-pin SATA 接口

主板 RS480-M支持 Ultra DMA 总线控制，传输速率可达 133/100/66/33MB/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
- 1 个 VGA 端口
- 1 个 1394a 端口 (可选)
- 1 个 LAN 端口 (可选)
- 麦克风、线入和线出声音插孔

## BIOS

此主板使用 AWARD BIOS，可以让用户自己配置以下系统功能：

- 电源管理
- 唤醒报警
- CPU 参数
- CPU 和记忆定时

还可用于设置不同处理器时钟速度的参数。



某些硬件规格和软件项目若有更改恕不另行通知。

## Характеристики

### Процессор

Плата RS480-М использует 939-штырьковый сокет и обладает следующими характеристиками:

- Размещает процессоры AMD Athlon64/Athlon 64 FX
- Поддерживает технологию 2000MT/s HyperTransport™ (HT)

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

### Чипсет

Чипсеты RS480 «Северный мост» (Northbridge, NB) и SB400 «Южный мост» (Southbridge, SB) построены с использованием инновационной масштабируемой архитектуры, обеспечивающей высокую надежность и производительность.

#### **RS480 (NB)**

- Один разъем A-Link Express x2 (с возможностью расширения до x4) (совместимый с PCI Express 1.0a) для подключения ATI IXP
- Поддерживает одну шину PCI Express x16 для графического интерфейса, полностью совместима со спецификацией PCI Express Base 1.0a.
- Полностью поддерживает технологию 3D primitive, Direct3D освещенная текстуры и формат OpenGL для Indirect Vertices в Vertex Walker
- Полностью поддерживает DirectX 9.0 (Vertex Shader версия 2.0 и Pixel Shader версия 2.0)

#### **SB400 (SB)**

- Интерфейс 2-lane A-Link Express (совместимость с PCI Express 1.0a) для RADEON IGP
- Совместимость со спецификацией PCI 2.3, поддержка до 7 устройств типа master
- Поддержка четырех устройств Serial ATA, совместимость со спецификацией Serial ATA 1.0, размещение RAID 0 и RAID 1
- Встроенный контроллер хоста USB 2.0 с поддержкой до восьми портов USB 2.0
- Встроенный контроллер IDE с поддержкой режимов Ultra DMA 133/100/66/33

### Память

- DDR 400/333/266 DDR SDRAM с поддержкой двухканального режима
- Размещает два модуля небуферируемой памяти DIMM с максимальным объемом памяти до 2 ГБ

### AC'97 Аудио CODEC

- Совместимость со спецификацией AC'97 2.3
- 16-битный стерео CODEC (полный дуплекс) с частотой сэмплирования 48 МГц
- Поддержка двойной скорости сэмплирования аудиовыхода DVD (96 кГц)
- Совместимость с Direct Sound 3D™

### Встроенный сетевой адаптер LAN (опционально)

- Полная совместимость с требованиями стандарта IEEE Std 1394-1995 для скоростных серийных шин и стандарта IEEE Std 1394a-2000
- Два кабельных порта, совместимых с IEEE Std 1394a-2000, со скоростью передачи 400М бит/с

**Multi-Language Translation**

## Встроенный сетевой адаптер LAN (опционально)

Встроенный сетевой адаптер LAN обладает следующими характеристиками:

<ul style="list-style-type: none"><li>• Поддерживает автоматическое определение скорости и режима соединения 10/100Mbps</li><li>• Поддерживает функции Wake-On-LAN и remote wake-up</li><li>• Поддержка светодиодов для индикации различной активности в сети</li><li>• Поддерживает режим управления потоком Full Duplex Flow Control (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• Интегрированный трансивер 10/100/1000</li><li>• Поддержка PCI v2.3, 32-бит, 33/66-МГц</li><li>• Детекция и автокоррекция Crossover</li><li>• Функция Wake-on-LAN и удаленного пробуждения</li></ul>

## Возможности расширения

Существуют следующие опции расширения данной материнской платы:

- Один разъем для карты графики PCI Express x16
- Три 32-битных слота PCI v2.3
- Два разъема 40-штырьковый IDE с поддержкой до четырех устройств IDE
- Один разъем для накопителя на гибких дисках
- Четыре разъема 7-pin SATA

Плата RS480-M поддерживает технологию захвата управления шиной UltraDMA bus mastering со скоростью передачи данных 133/100/66/33 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
- Один порт VGA
- Один порт 1394a (опционально)
- Один порт LAN (опционально)
- Гнездо для подключения микрофона, гнезда аудио-входа и выхода

## BIOS

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

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

BIOS допускает также установку параметров для различных частот процессора.



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

## Cechy

### Procesor

Płyta główna RS480-M dostosowana jest do 939-nóżkowego gniazda i posiada następujące właściwości:

- Przystosowana do procesorów firmy AMD Athlon64/Athlon 64 FX
- Obsługuje złącze HyperTransport™ (HT) z szybkością do 2000MT/s

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

### Chipset

Mostek północny (NB) RS480 i mostek południowy (SB) SB400 chipsetu oparty jest na nowatorskiej i skalowalnej architekturze o sprawdzonej niezawodności i funkcjonalności.

- |                   |  |
|-------------------|--|
| <b>RS480 (NB)</b> | <ul style="list-style-type: none"><li>• 1 złącze x2 (rozszerzalne do x4) A-Link Express (zgodne ze standardem PCI Express 1.0a) służące do podłączenia ATI IXP</li><li>• Obsługuje jedno graficzne złącze PCI Express x16, w pełni zgodne ze standardem PCI Express Base w wersji 1.0a.</li><li>• W pełni obsługuje podstawowe 3D oświetlenie tekstury Direct3D, oraz format OpenGL dla Indirect Vertices w Vertex Walker</li><li>• W pełni obsługuje DirectX 9.0 (Vertex Shader wersja 2.0 i Pixel Shader wersja 2.0)</li></ul>     |
| <b>SB400 (SB)</b> | <ul style="list-style-type: none"><li>• 2-drożne złącze A-Link Express (zgodne ze standardem PCI Express 1.0a) dla RADEON IGP's</li><li>• Zgodne ze standardem PCI w wersji 2.3 obsługujące do 7 urządzeń bus master</li><li>• Obsługująca cztery urządzenia Serial ATA, zgodne ze standardem Serial ATA wersja 1.0, przystosowana do RAID 0 i RAID 1</li><li>• Zintegrowany kontroler USB 2.0 obsługujący do do ośmiu gniazd USB 2.0</li><li>• Zintegrowany kontroler IDE obsługujący tryby pracy Ultra DMA 133/100/66/33</li></ul> |

### Pamięć

- DDR 400/333/266 DDR SDRAM z obsługą dwu kanałów
- Przystosowana do obsługi dwu banków niebuforowanej pamięci DIMM o pojemności do 2 GB.

### AC'97 audio CODEC

- Zgodne ze specyfikacją AC'97 w wersji 2.3
- 16 bitowe full-duplex CODEC z częstotliwością próbkowania 48MHz.
- DVD audio playback obsługuje z podwójną częstotliwością próbkowania (96KHz)
- Zgodny z Direct Sound 3D™

### 1394a FireWire (opcjonalnie)

- W pełni zgodna z zabezpieczeniem standardu IEEE 1394-1995 dla wysokiej wydajności szyny szeregowej oraz standardu IEEE 1394a-2000
- Dwa złącza całkowicie zgodne ze standardem IEEE 1394a-2000 o szybkości przesyłania 400M bits/s

Multi-Language Translation

## Zintegrowana obsługa sieci LAN (opcjonalnie)

Zintegrowana obsługa sieci LAN posiada następujące właściwości:

- |  |
|--|
| <ul style="list-style-type: none"><li>• Obsługuje N-drożne automatycznie ustalone operacje z szybkościami 10/100Mbps</li><li>• Obsługuje funkcję Wake-On-LAN i zdalnie sterowane wake-up (uruchamianie komputera)</li><li>• Obsługuje diody świetlne sygnalizujące różne aktywności w sieci</li><li>• Obsługuje Full Duplex Flow Control (zgodnie ze standardem IEEE 802.3x)</li></ul> |
| <ul style="list-style-type: none"><li>• Zintegrowany terminal nadawczo-odbiorczy 10/100/1000</li><li>• Obsługuje 32 bitowe PCI w wersji 2.3 o częstotliwościach 33/66-MHz</li><li>• Detekcja Crossover i autokorekcja</li><li>• Obsługuje Wake-on-LAN i zdalne wake-up</li></ul>   |

## Możliwości rozbudowy

Płyta główna wyposażona jest w następujące gniazda:

- Jedno gniazdo PCI Express x16 dla karty graficznej
- Trzy 32-bitowych gniazda zgodnych z PCI w wersji 2.3
- Dwa 40-nóżkowe złącza IDE mogące obsłużyć do czterech urządzeń IDE
- Jedno złącze obsługujące stacje dyskiety
- Cztery 7-nóżkowe złącza SATA

Płyta główna RS480-M obsługuje szynę UltraDMA z szybkością transferu 133/100/66/33 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 szeregowe
- Jedno gniazdo równoległe
- Jedno gniazdo VGA
- Jedno gniazdo 1394a (opcjonalnie)
- Jedno gniazdo LAN (opcjonalnie)
- Gniazdo wejściowe mikrofonowe, gniazdo wejściowe i wyjściowe dźwięku (audio)

## Firmowy BIOS

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

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

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



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

## Vlastnosti

### Procesor

Základní deska RS480–M využívá 939kolíkovou patici nabízející následující vlastnosti:

- Podpora procesorů AMD Athlon 64/Athlon 64 FX
- Podpora rychlostí rozhraní HyperTransport™ (HT) až 2000 MT/s

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

### Čipová sada

Čipy northbridge (NB) RS480 a southbridge (SB) SB400 jsou založeny na inovativní a škálovatelné architektuře s ověřenou spolehlivostí a výkonností.

- RS480 (NB)**
- 1 x2 (rozšířitelné až na x4) rozhraní A–Link Express (splňuje požadavky standardu PCI Express 1.0a) pro připojení k ATI IXP
  - Podpora jednoho rozhraní PCI Express x16 pro grafiku, zcela splňující základní požadavky standardu PCI Express, revize 1.0a.
  - Plná podpora jednoduchého 3D nasvětlování textur Direct3D a formátu OpenGL pro nepřímé vrcholy v nástroji Vertex Walker
  - Plná podpora DirectX 9.0 (Vertex Shader verze 2.0 a Pixel Shader verze 2.0)
- SB400 (NB)**
- 2kanálové rozhraní A–Link Express (splňuje požadavky standardu PCI Express 1.0a) pro RADEON IGP
  - Splňuje požadavky standardu PCI 2.3 s podporou až 7 hlavních kanálů
  - Podpora čtyř sériových rozhraní ATA, splňuje požadavky standardu Serial ATA 1.0, součástí jsou řadiče RAID 0 a RAID 1
  - Integrované hostitelské řadiče USB 2.0 podporující až osm portů
  - Integrovaný řadič IDE podporující Ultra ATA s režimy 133/100 /66/33

### Paměť

- Paměti DDR 400/333/266 DDR SDRAM s dvoukanálovým přenosem
- Podpora dvou modulů DIMM bez vyrovnávací paměti s maximální kapacitou 2 GB

### Zvukový kodek AC'97

- Splňuje požadavky standardu AC'97 2.3
- 16bitový stereo plní duplexní kodek se vzorkovací frekvencí 48 MHz
- Podpora dvojnásobné vzorkovací frekvence (96 kHz) pro přehrávání DVD audio
- Kompatibilita s Direct Sound 3D™

### 1394a FireWire (volitelné)

- Plná podpora standardu IEEE 1394–1995 pro vysokovýkonnou sériovou sběrnici a IEEE standard 1394a–2000
- Dva kabelové porty podle standardu IEEE 1394a–2000 s rychlostí až 400 Mb/s

## Vestavění síťové rozhraní LAN (volitelně)

Vestavěné síťové rozhraní LAN nabízí následující možnosti:

<ul style="list-style-type: none"><li>• Podpora 10/100Mbps N–cestného automatického přepínání provozu</li><li>• Podpora funkce Wake–On–LAN a aktivace na dálku</li><li>• Podpora kolíků LED pro různou indikaci síťové činnosti</li><li>• Podpora plně duplexního řízení toku dat (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• Integrovaný transceiver 10/100/1000</li><li>• Podpora rozhraní PCI v2.3, 32bitové, 33/66 MHz</li><li>• Detekce přeslechu a automatická korekce</li><li>• Podpora funkce Wake–on–LAN (WOL) a vzdálené aktivace</li></ul>

## Možnosti rozšíření

Základní deska je dodávána s následujícími možnostmi rozšíření

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

Základní deska RS480-M podporuje sběrnici Ultra DMA s přenosovými rychlostmi 133/100/66/33 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
- Jeden VGA port
- Jeden port 1394a (volitelně)
- Jeden port LAN (volitelně)
- Zvukové konektory pro mikrofon, zvukový vstup a výstup

## Firmware BIOS

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

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

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



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

## Caracteristici

### Procesorul

RS480-M utilizează un soclu de 939 de ace care are următoarele caracteristici:

- Funcționează cu procesoare AMD Athlon64/Athlon 64 FX
- Suportă interfețe HyperTransport™ (HT) cu viteze de până la 2000 MT/s

Tehnologia HyperTransport™ este o legătură punct-la-punct între două aparate, care permite viteze mult mai mari de schimb al informațiilor între circuitele integrate, decât cel asigurat de tehnologiile de interconectare actuale.

### Setul de chipuri

Seturile de chipuri RS480 Northbridge (NB) și SB400 Southbridge (SB) se bazează pe o arhitectură inovatoare și scalabilă, care s-a impus deja prin fiabilitate și performanță.

#### **RS480 (NB)**

- O interfață x2 (extensibil la x4) A-Link Express (compatibilă cu PCI Express 1.0a) pentru conectare la ATI IXP
- Suportă o interfață grafică PCI Express x16, pe deplin compatibil cu specificația de bază PCI Express, versiunea 1.0a.
- Suport deplin pentru primitivi 3D, iluminare textură Direct3D și pentru un format OpenGL pentru vârfuri indirecte în Vertex Walker
- Suport deplin DirectX 9.0 (Vertex Shader, versiunea 2.0 și Pixel Shader, versiunea 2.0)

#### **SB400 (SB)**

- Interfață A-Link Express cu două magistrale (compatibilă cu PCI Express 1.0a) pentru RADEON IGP-uri
- Compatibilă cu specificația PCI 2.3, suportând până la 7 unități bus master
- Suportă patru unități Serial ATA, compatibilă cu specificația Serial ATA 1.0, RAID 0 și RAID 1 încorporat
- Controler gazdă USB 2.0, suportând până la opt porturi USB 2.0
- Controler IDE integrat care suportă modulele Ultra DMA 133/100/66/33

### Memoria

- Suport DDR 400/333/266 DDR SDRAM cu canal dual
- Funcționează cu două module fără zonă tampon DIMM, cu capacitate maximă de 2 GB

### AC'97 Audio CODEC

- Compatibil cu specificația AC'97 2.3
- CODEC de 16 biți stereo cu duplex complet și viteză de eșantionare de 48 MHz
- Suport pentru viteză dublă de eșantionare (96 kHz) pentru redare audio de pe DVD
- Compatibil cu Direct Sound 3D™

### 1394a Fire Wire (opțional)

- Compatibil deplin cu prevederile standardului IEEE 1394-1995, oferind un bus serial de înaltă performanță și compatibilitate cu standardul IEEE 1394a-2000
- Două porturi de cablu compatibile deplin cu standardul IEEE 1394a-2000, la viteza de 400 Mb/s

**Multi-Language Translation**

## Onboard LAN (opțional)

Onboard LAN are următoarele caracteristici:

- |   |
|---|
| <ul style="list-style-type: none"><li>• Suportă operații de autonegociere N-way de 10/100 Mbps</li><li>• Suportă funcția Wake-On-LAN și trezirea de la distanță</li><li>• Suportă ace LED pentru a indica diversele activități din rețea</li><li>• Suportă controlul proceselor de duplex total (IEEE 802.3x)</li></ul> |
| <ul style="list-style-type: none"><li>• Unitate de emisie/recepție 10/100/1000 integrat</li><li>• Suportă PCI, versiunea 2.3, de 32 biți, la 33/66 MHz</li><li>• Detectare tranziție și corectare automată</li><li>• Suport pentru funcțiile Wake-on-LAN și trezire la distanță</li></ul>                               |

## Opțiuni de extindere

Placa de bază este dotată următoarele posibilități de extindere:

- Un PCI Express de 16x pentru interfața grafică
- Trei sloturi de 32 biți compatibile PCI, versiunea 2.3
- Două conecitoare IDE 40 cu care suport cel mult 4 instrumente IDE
- O interfață pentru unitate floppy
- Patru conecitoare SATA 7

Placa de bază RS480-M suportă bus mastering UltraDMA cu viteze de transfer de 133/100/66/33 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
- Un port VGA
- Un port 1394a (opțional)
- Un port LAN (opțional)
- Mufe audio pentru microfon, intrare și ieșire audio

## Firmware BIOS

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

- Gestionarea energiei
- 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.*

## Спецификация

### Процесор

RS480-M използва сокет 939-pin със следните спецификации:

- Поддръжка на процесори AMD Athlon64/Athlon 64 FX
- Поддръжка на технологията HyperTransport™ (HT) със скорост до 2000MT/s

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

### Чипсет

Чипсетът със северен мост RS480 (NB) и южен мост SB400 (SB) е изграден на базата на оригинална архитектура с възможност за надстройка с доказана надеждност и производителност.

#### **RS480 (NB)**

- Интерфейс A-Link Express x2 с възможност за разширение до x4 (съвместим с PCI Express 1.0a) за връзка към ATI IXP
- Графичен интерфейс PCI Express x16 напълно съвместим със спецификацията PCI Express Base 1.0a.
- Пълна поддръжка на 3D primitive, Direct3D texture lighting и OpenGL формат за индиректните върхове във Vertex ядрото (Indirect Vertices in Vertex Walker)
- Пълна поддръжка на DirectX 9.0 (Vertex Shader версия 2.0 и Pixel Shader версия 2.0)

#### **S400 (SB)**

- Двуканален интерфейс A-Link Express (съвместим с PCI Express 1.0a) към RADEON IGP
- Съвместимост със спецификацията PCI 2.3 с поддръжка на до 7 bus master устройства
- Поддръжка на четири устройства Serial ATA, съвместимо със спецификацията Serial ATA 1.0, поддръжка на RAID 0 и RAID 1
- Интегриран контролер USB 2.0 с поддръжка до осем порта USB 2.0
- Интегриран IDE контролер Ultra DMA 133/100/66/33

### Памет

- Поддръжка на двуканална памет DDR 400/333/266 DDR SDRAM
- Поддръжка на два небуферирани слота DIMM с общ максимален капацитет 2 GB

### AC'97 Audio CODEC

- Съвместимост със спецификацията AC'97 2.3
- 16-bit Stereo full-duplex CODEC с честота 48MHz
- Поддръжка на двойна честота (96KHz) при възпроизвеждане на DVD audio
- съвместимост с Direct Sound 3D™

### 1394a FireWire контролер (опция)

- Пълна съвместимост със стандартите IEEE 1394 -1995 за високоскоростна серийна шина и IEEE 1394a -2000
- Два кабелни порта (400M bits/s) напълно съвместими със стандарта IEEE 1394a-2000

Multi-Language Translation

## Интегриран мрежов контролер (опция)

Спецификация на интегрирания мрежов контролер:

<ul style="list-style-type: none"><li>• поддръжка на 10/100Mbps, N-Way Auto-negotiation operation</li><li>• поддръжка на функция за "събуждане" Wake-On-LAN и дистанционен wake-up</li><li>• LED-индикатори за мрежова активност</li><li>• поддръжка на Full Duplex Flow Control (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• Интегриран 10/100/1000 контролер</li><li>• поддръжка на PCI v2.3, 32-bit, 33/66-MHz</li><li>• Автоматично разпознаване и конфигурация</li><li>• Поддръжка на функции Wake-on-LAN и remote wake-up</li></ul>

## Възможности за разширяване

Дънната платка има следните разширителни възможности:

- един слот PCI Express x16 за графичен интерфейс
- три слота 32-bit PCI v2.3
- Два колектора 40-pin IDE с поддръжка на четири IDE устройства
- един конектор за флопидисково устройство
- четири 7-цифтови SATA конекторас

Дънната платка RS480-M поддържа шина UltraDMA 133/100/66/33 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
- един VGA порт
- един 1394a порт (опция)
- един LAN порт (опция)
- Аудио жакове за микрофон, линеен вход и линеен изход

## BIOS Firmware

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

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

настройка на скоростта на часовника на процесора



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

## Jellemző

### Processzor

Az RS480-M 939 tús foglalattal rendelkezik, ennek jellemzői pedig a következők:

- AMD Athlon64/Athlon 64 FX processzorokkal működik
- Maximum 2000 MT/s HyperTransport™ (HT) sebességű interfészt támogat

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

### Lapkakészlet

A RS480 Northbridge (NB) és SB400 Southbridge (SB) lapkakészletek egy új és méretezhető, nagy megbízhatóságú és teljesítőképességű architektúrára épülnek.

- RS480 (NB)**
  - Egy 2-szeres (4-szeresre bővíthető) A-Link Express interfész (PCI Express 1.0a kompatibilis) az ATI IXP kapcsolására
  - Egy 16-szoros PCI Express a grafikus interfész számára, amely teljesen kompatibilis a PCI Express alapspecifikáció 1.0a változatával.
  - A 3D primitív, Direct3D mintázat megvilágítás teljes támogatása, valamint OpenGL formátum a Vertex Walker (gráfbejáró) közvetett gráfpointjai számára
  - Teljes DirectX 9.0 támogatás (Vertex Shader 2.0 és Pixel Shader 2.0)
- SB400 (SB)**
  - Kétsávós A-Link Express interfész (PCI Express 1.0a verzióval kompatibilis) a RADEON IGP-k számára
  - A PCI 2.3-as specifikációjával kompatibilis, akár 7 bus master eszközt támogat
  - Négy soros ATA eszközt támogat, kompatibilis a soros ATA 1.0 specifikációjával, RAID 0 és RAID 1 beépítve
  - Beépített USB 2.0 gazda vezérlő, legtöbb nyolc USB 2.0 portot támogat
  - Beépített IDE vezérlő, amely az Ultra DMA 133/100/66/33 módokat támogatja

### Memória

- DDR 400/333/266 DDR SDRAM, duál csatorna támogatásával
- Két puffer nélküli DIMM, maximum 2 GB-os memóriakapacitással

### AC'97 Audio CODEC

- Megfelel az AC'97 2.3-as specifikációnak
- 16 bites sztereo teljes duplex CODEC 48 MHz-es mintavételezési sebességgel
- Dupla mintavételezési arányú (96 kHz) DVD audio lejátszást teszthetővé
- Kompatibilis a Direct Sound 3D™ technológiával

### 1394a FireWire (opcionális)

- Teljesen kompatibilis az IEEE 1394-1995 szabvány előírásaival, csúcsteljesítményű soros busszal, és megfelel az IEEE 1394a-2000 szabványnak
- Két, az IEEE 1394a-2000 szabvánnyal teljesen kompatibilis kábelportok, 400 Mbit/s sebességen

Multi-Language Translation

## Alaplapon levő LAN (választható)

Az alaplapon levő LAN jellemzői:

<ul style="list-style-type: none"><li>• 10/100Mbps N-Way automatikus beállítással</li><li>• Támogatja a Wake-On-LAN funkciót és a távoli ébresztést</li><li>• LED csatlakozótűket támogat különféle hálózati tevékenység-kijelzők számára</li><li>• Támogatja a teljes duplex folyamatvezérlést (IEEE 802.3x)</li></ul>
<ul style="list-style-type: none"><li>• Integrált 10/100/1000 adó-vevő</li><li>• Támogatja a 32 bites, 33/66 MHz-es PCI 2.3-as változatát</li><li>• Rendszerváltás érzékelés és automatikus javítás</li><li>• A Wake-on-LAN és a távoli ébresztés funkciók támogatása</li></ul>

## Bővítési lehetőségek

Az alaplap a következő bővítési lehetőségekkel rendelkezik:

- Egy 16-szoros PCI Express a grafikus interfész számára
- Három 32 bites, a PCI 2.3-as változatával kompatibilis foglalattal
- Két 40 tűs IDE csatlakozó négy IDE eszköz támogatására
- Egy hajlékonylemez meghajtó interfész
- Négy 7 tűs SATA csatlakozó

A RS480-M alaplap támogatja az UltraDMA bus mastering megoldást, 133/100/66/33 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
- Egy VGA port
- Egy 1394a port (választható)
- Egy LAN port (választható)
- Audio csatlakozók mikrofon, bemenet és kimenet számára

## BIOS Firmware

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

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

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



*Bizonyos hardverjellemzők és szoftverelemek előzetes bejelentés nélkül módosulhatnak.*