TÜV CERT

CERTIFICATE

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

hereby certifies in accordance with TÜV CERT
procedure that

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

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

has established and applies a quality system for

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

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

Proof has been furnished that the requirements according to

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

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

Certificate Registration No. **04100 2000 1325**

The company has been certified since **2000**

TGA-ZM-30-96-00

Essen, 04.03.2004

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

RWTÜV

CERTIFICATION

S S C C

ISO14001
CERTIFICATE

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

We hereby certify that

ECS MANUFACTURING (SHANZHEN) CO., LTD.

by reason of its

Environmental Management System
has been awarded this certificate for
compliance with the standard
ISO14001:1996
The Environmental Management System

applies in the following area:
ECS MANUFACTURING (SHANZHEN) CO., LTD.
located at No. 20 & 26 (except 1F, 2F), Free Trade Zone,
Shatuojiao, Shenzhen City, Guangdong Province, P. R. China.
is engaged in manufacturing of Mother Board and Peripheral Card,
and interrelated managerial activities.

Date of issue: 28th Sept. 2004
Date of expiry: 27th Sept. 2007
Signed by:

CNAB

SHENZHEN SOUTHERN CERTIFICATION CO., LTD.

Preface

Copyright

This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. Neither this manual, nor any of the material contained herein, may be reproduced without written consent of the author.

Version 1.0

Disclaimer

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. The manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

Trademark Recognition

Microsoft, MS-DOS and Windows are registered trademarks of Microsoft Corp.

AMD, Athlon, Sempron and Duron are registered trademarks of AMD Corporation.

Other product names used in this manual are the properties of their respective owners and are acknowledged.

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.

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 Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

Preface

TABLE OF CONTENTS

Multi-Language Translation

Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the 756-A motherboard. This motherboard is a high performance, enhanced function motherboard that supports Socket 939 AMD Athlon 64/Athlon 64 FX CPUs for high-end business or personal desktop markets.

The motherboard incorporates the SiS756 Northbridge (NB) and SiS965/SiS965L Southbridge (SB) chipsets. The SiS756 Northbridge on this motherboard features the HyperTranport™ complaint bus driver technology to support AMD Athlon 64/Athlon 64FX processors up to 2000MT/s data rate. The memory controller supports DDR SDRAM interface of DDR400/333/266 MHz. It supports four DDR Sockets with up to maximum 4GB. Aside from the onboard AGP Express, one PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification revision 1.0a. Plus, SiS MuTIOL, a high bandwidth and mature technology, is incorporated to connect SiS756 and SiS965/SiS965L MuTIOL Media IO together.

The SiS965/SiS965L Southbridge on this motherboard support two PCI slots which are PCI 2.3 compliant. In addition, two PCI Express x1 slots are supported, fully compliant to the PCI Express base Specification, Revision 1.0a. It implements an EHCI compliant interface that provides 480Mb/s bandwidth for eight USB 2.0 ports, integrates AC'97 v2.3 compliant audio controller that features a 6-channel audio speaker out and HSP v.90 modem support. The Southbridge integrates a Serial ATA host controller with four onboard SATA ports (*SiS965L features two SATA ports*) that is SATA v1.0 compliant, and supports 1.5Gb/s bandwidth for each serial port and LAN controller supporting 10/100/1000Mbit/s ethernet (*SiS965L features* 10/100Mbit/s ethernet). The integrated IDE Master/Slave controllers feature Dual Independent IDE channels supporting PIO mode 0,1,2,3,4, and Ultra DMA 133/100/66.

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

Feature

Processor

This motherboard uses a 939-pin socket that carries the following features:
- Accommodates AMD Athlon 64/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 SiS756 Northbridge (NB) and SiS965/SiS965L Southbridge (SB) chipset are based on an innovative and scalable architecture with proven reliability and performance.

SiS756(NB)	• Supports HyperTransport™ Technology up to 2000MT/s bandwidth
	• Integrated Host-to-PCI Express Bridge, compliant with PCI Express SPEC 1.0a
	• High throughout MuTIOL interface to SiS965 MuTIOL Media I/O, supporting Bi-directional 16 bit data bus
	• 1.8V CMOS Technology, 1.2V HyperTransport™ Compliant Signaling
SiS965/ SiS965L (SB)	• Concurrent servicing of all DMA Devices: Dual IDE Controllers, SATA controller, three USB 1.1 host controllers and one USB 2.0 host controller, and LAN MAC Controller
	• Integrated MuTIOL 1G to PCI Express x1 Bridge, compliant with PCI Express 1.0a
	• Compliant with PCI 2.3 specificaiton
	• Compliant with Serial ATA 1.0 specification, supports up to four independent ports (*SiS965 only*)
	• Integrated Audio Controller with AC'97 Interface
	• Integrated USB 2.0/1.1 Controller sopporting up to eight USB ports

Memory

- Supports DDR400/333/266/200 memory types
- Accommodates four unbuffered 2.5V 184-pin DDR SDRAM DIMM sockets
- A total maximum capacity 4 GB

AC'97 Audio CODEC

- Compliant with AC'97 v2.3 specification
- 18-bit stereo full-duplex CODEC with independent and variable sampling rate
- Dual power support: Digital: 5V/3.3V Analog: 5V

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 slot
- Two PCI Express x1 slots
- One AGP Express slot
- Two 32-bit PCI slots
- Two IDE headers which support four IDE devices
- One floppy disk drive interface
- Four 7-pin SATA connectors (*SiS965 only)*
- One Communications Network RiserI(CNR) slot

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

Onboard LAN (optional)

• Supports 100/10 Mb/s N-Way Auto negotiation operation • Half/Full duplex capability • Supports Wake-On-LAN(WOL) function and remote wake-up
• Integrate 10/100/1000 transceiver • Supports PCI v2.3, 32-bit, 33/66MHz • Supports fully with IEEE802.3, IEEE802.3u and IEEE802.3ab   (*Please note that only SiS965 supports Giga LAN*)
• Supports 10/100Mbps operation • Half/full duplex operation • Supports 802.3/802.3u compliant

Integrated I/O

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

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

BIOS Firmware

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

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

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

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

Introducing the Motherboard
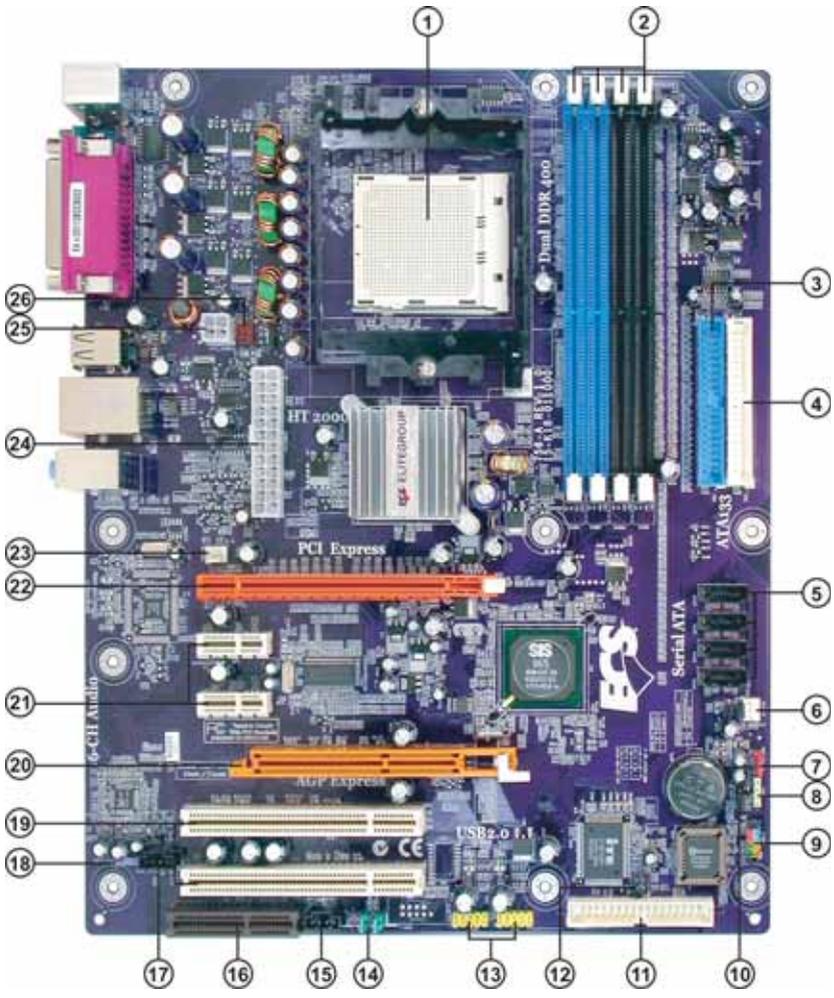
Motherboard Components

Table of Motherboard Components

LABEL	COMPONENT
1 CPU Socket	Socket 939 for AMD K8 processor
2 DIMM1~4	184-pin DDR SDRAM slots
3 IDE1	Primary IDE connector
4 IDE2	Secondary IDE connector
5 SATA1~SATA4	Serial ATA connectors
6 SYS_FAN	System fan connector
7 CLR_CMOS	Clear CMOS jumper
8 SPK1	Speaker header
9 PANEL1	Front Panel switch/LED header
10 BIOS_WP	BIOS flash protect jumper
11 FDD	Floppy disk drive connector
12 IR1	Internal infrared header
13 USB2~3	Front Panel USB headers
14 AUDIO1	Front panel audio header
15 CD_IN	Analog Audio Input connector
16 CNR1	Communication Networking Riser slot
17 AUX_IN*	Auxiliary in connector
18 SPDIF-O1	SPDIF out header
19 PCI1~2	32-bit add-on card slots
20 AGP1	AGP Express slot
21 PCIE1~2	PCI Express x1 slots
22 PCIEX16	PCI Express x16 slot
23 PWR_FAN*	Power fan connector
24 ATX_POWER1	Standard 24-pin ATX power connector
25 ATX_POWER	4-pin +12V power connector
26 CPU_FAN	CPU Cooling fan connector

* stands for optional component

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

Introducing the Motherboard

Memo

Chapter 2
Installing the Motherboard

Safety Precautions

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

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, 756-A 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 ATX form factor of 305 X 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

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

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

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

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

Checking Jumper Settings

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

Setting Jumpers

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

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

SHORT   **OPEN**

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

Installing the Motherboard
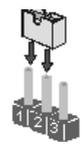
Checking Jumper Settings

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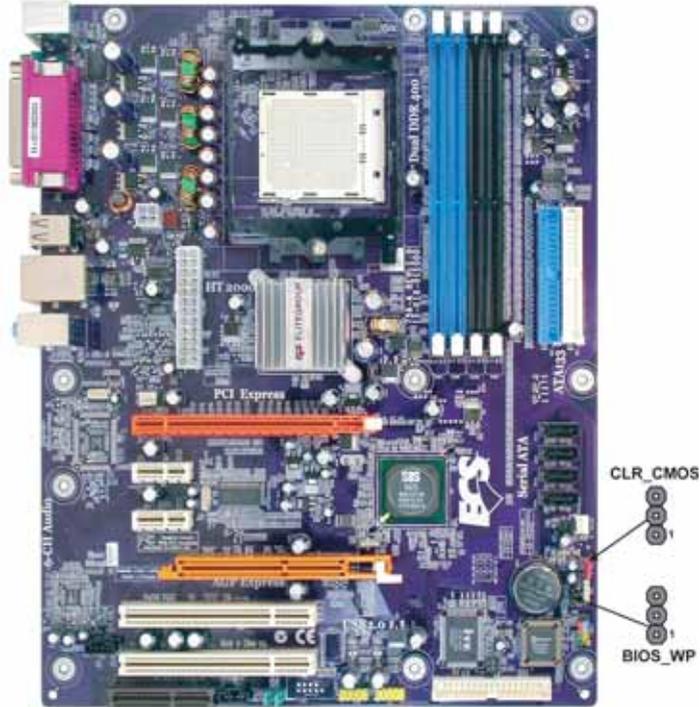
Jumper Settings

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

Installing the Motherboard

Connecting Case Components

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

1   Connect the CPU cooling fan cable to **CPU_FAN**.
2   Connect the case cooling fan connector to **SYS_FAN**.
3   Connect the power cooling fan connector to **PWR_FAN**.
4   Connect the case speaker cable to **SPK1.**
4   Connect the case switches and indicator LEDs to the **PANEL1**.
5   Connect the standard power supply connector to **ATX_POWER1**.
6   Connect the auxiliary case power supply connector to **ATX_POWER**.

Connecting 20/24-pin power cable

Users please note that the 20-pin and 24-pin power cables can both be connected
to the ATX_POWER1 connector. With the 20-pin power cable, just align the 20-
pin power cable with the pin 1 of the ATX_POWER1 connector. However, using
20-pin power cable may cause the system to become unbootable or unstable
because of insufficient electricity. A minimum power of 300W is recommended
for a fully-configured system.
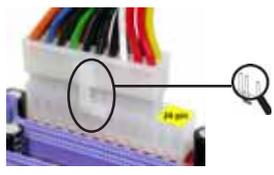
20-pin power cable

With ATX v1.x power supply, users please note
that when installing 20-pin power cable, the
latche of power cable falls on the left side of
the ATX_POWER1 connector latch, just as the
picture shows.
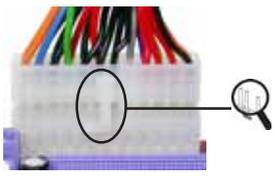
24-pin power cable

With ATX v2.x power supply, users please note
that when installing 24-pin power cable, the
latches of power cable and the ATX_POWER1
match perfectly.

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

SPK1: Internal speaker

Pin	Signal Name
1	VCC
2	Key
3	Ground
4	Signal

ATX_POWER1: ATX 24-pin Power Connector

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

ATX_POWER: ATX 12V Power Connector

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

Installing the Motherboard

Front Panel Header

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

PANEL1
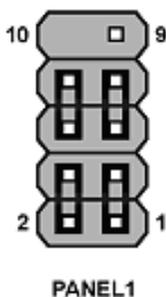
Pin	Signal Name	Function	Pin	Signal Name	Function
1	HD_LED_P	Hard disk LED+	2	FP PWR/SLP	*MSG LED+
3	HD_LED_N	Hard disk LED-	4	FP PWR/SLP	*MSG LED-
5	RST_SW_N	Reset Switch	6	PWR_SW_P	Power Switch
7	RST_SW_P	Reset Switch	8	PWR_SW_N	Power Switch
9	RSVD	Reserved	10	Key	No pin

* MSG LED (dual color or single color)

Hard Drive Activity LED

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

Power/Sleep/Message waiting LED

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

Reset Switch

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

Power Switch

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

Installing the Motherboard

Installing Hardware

Installing the Processor

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

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

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

Before installing the Processor

This motherboard 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.

CPU Installation Procedure

The following illustration shows CPU installation components.

1   Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
2   Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
3   Press the lever down and apply thermal grease on top of the CPU.
4   Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
5   Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.
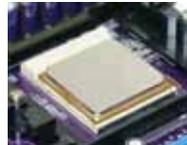
To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates four 184-pin 2.5V unbuffered Double Data Rate (DDR) SDRAM (Synchronous Dynamic Random Access Memory) memory modules, and can support DDR400/DDR333/DDR266/DDR200 memory types and its total maximum memory size is 4 GB.

DDR SDRAM memory module table

Memory module	Memory Bus
DDR200	100MHz
DDR266	133MHz
DDR333	166MHz
DDR400	200MHz

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.

Installing the Motherboard

Installation Procedure

Refer to the following to install the memory modules.

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

Installing the Motherboard

Table A: Unbuffered DIMM Support for 939-pin

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

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

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

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

Size	Vendor	Module Name
128MB	NANYA	NT128D64SH4B1G-5
	Infineon	HYS64D16301GU-5-B
	NANYA	NT128D64SH4B1G-5T
256MB	Micron	MT16VDDT3264AG-403B2
	Infineon	HYS64D32300GU-5-B
	SAMSUNG	M368L3223DTM-CC4
	NANYA	NT256D64S88B1G-5T
	Infineon	HYS64D32300HU-5-C
	Ramaxel	HYB25D256800CE-5C
	Micron	MT8VDDT3264AG-40BC4
512MB	NANYA	NT512D64S8HB1G-5T
	Apacer	HYB25D256800BT-5B
	Apacer	V58C2256804SAT5
	Infineon	HYS64D64320HU-5-C
	Apacer	A2S56D30ATP

Installing the Motherboard

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

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

About IDE Devices

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

> *You must orient the cable connector so that the pin1 (color) edge of the cable correspoinds 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 cinfiguration is the same as IDE1.

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

About UltraDMA

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

Installing the Motherboard

About SATA Connectors

Your motherboard features four SATA connectors supporting a total of four drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard (see page 22) 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 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.
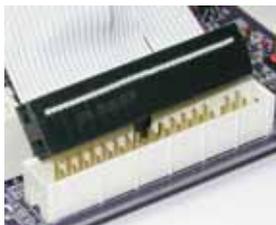
Installing Add-on Cards

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

PCIEx1 Slots

AGP Slot

PCI Slots

CNR Slot
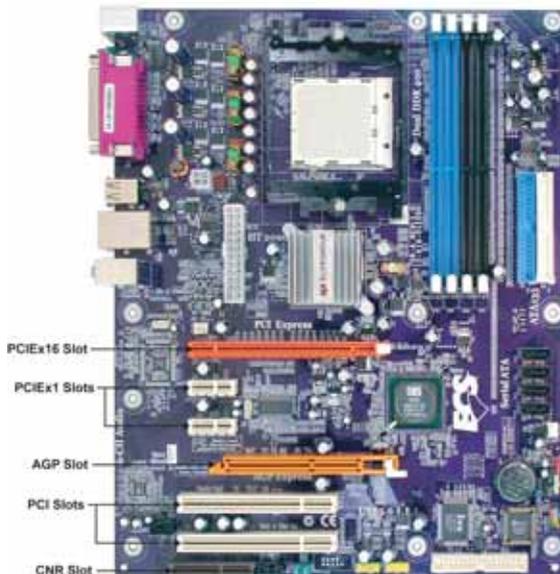
Installing the Motherboard

AGP1   The AGP Express slot is used to install an AGP graphics card that emulates the AGP function. To get better performance and compatibility on our special designed AGP Express slot, we recommend users use one of the AGP graphics cards that have been tested by out company. See the "Supported AGP 8x/4x VGA Cards List" or visit our website at "http://www.ecs.com.tw" for the updated supported list.

PCIE x16 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.

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

PCI1~2 Slots   This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

CNR1 Slot   This slot is used to inser CNR cards with Modem and Audio functionality.

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

Follow these instructions to install an add-on card:

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

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

Installing the Motherboard

Table A: Supported AGP 8x/4x VGA Cards List

VGA Chip	Model name	AGP 4X/8X
ATI	ATI R7000 64MB DDR	4X
	ATI R7500 64MB DDR	
	ATI R9000 128MB DDR	
	ECS R9200LE-64T	8X
	ATI Radeon 9250 64MB DDR	
	ATI Radeon 9500 64MB DDR	
	ATI Radeon 9700pro 128MB DDR	
nVIDIA	Leadtek WinFast A250 LE TD GF4 Ti4200 64MB DDR SDRAM	4X
	GeForce FX5200 64M DDR	8X
	Gigabyte GeForce FX5700U 128MDDR	
	Leadtek WinFast A350 GeForce FX5900-TDH 256MDDR	
	Leadtek WinFast A380 GeForce FX5950 Ultra TDM 256MB DDR	
	Leadtek WinFast A280 LE TD GF4 Ti4200 128MB DDR SDRAM	
	MSI FX5600XT-128MB	
	GeForce4 MX440 64M DDR	
	MSI GeForce FX5800-TD 128MDDR	
	Millennium Silver TI4600 128MB	
SIS	ECS AG200_D32 V1.0 Xabre200 64MB DDR SDRAM	8X

GP VGA cards list, please visit

ts.com.tw

bard

Connecting Optional Devices

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

SPDIF-O1: 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

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

SATA1~SATA4: Serial ATA connectors

These connectors are use to support the new Serial ATA devices for the highest date 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	-	-

USB2/USB3: Front Panel USB headers

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

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

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

AUX_IN: Auxiliary In connector (optional)

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

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

CD_IN: Analog Audio Input connector

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

Installing the Motherboard

IR1: Infrared port

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

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

Connecting I/O Devices

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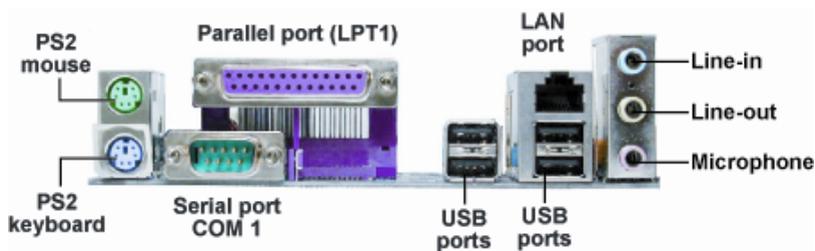
PS2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
Parallel Port (LPT1)	Use LPT1 to connect printers or other parallel communications devices.
Serial Port (COM1)	Use the COM port to connect serial devices such as mice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

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

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest American Megatrends 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:

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION	KEY	FUNCTION
← →	Select Screen	↑↓	Select Item
+/-	Change Option/Field	**Enter**	Go to Sub Screen
PGDN	Next Page	**PGUP**	Previous Page
HOME	Go to Top of Screen	**END**	Go to Bottom of Screen
F2/F3	Change Colors	**F7**	Discard Changes
F8	Load Failsafe Defaults	**F9**	Load Optimal Defaults
F10	Save and Exit	**ESC**	Exit

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 Boot Configuration Features, to force your computer to boot from the floppy diskette drive first.)

6   At the A:\ prompt, type the Flash Utility program name and the file name of the new BIOS, then press <Enter>

7   When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

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 ▶.

Main Features

This option displays basic information about your system.

```
                           BIOS ST UTILITY
  ┌────────────────────────────────────────────────────────────────────┐
  │ Main   Advanced   PCIPnP   Boot   Security   Chipset   Power   Exit │
  ├──────────────────────────────────────────┬─────────────────────────┤
  │  System Overview                         │  Use [ENTER], [TAB] or [SHIFT │
  │                                          │  TAB] to select a field.│
  │  AMIBIOS                                  │                         │
  │  Version      : 08.00.11                 │                         │
  │  Build Date   : 02/02/05                  │  Use [+] or [-] to      │
  │  ID           : 756A0202                  │  configure system Time. │
  │                                          │                         │
  │  Processor                               │  Use [+] or [-] to      │
  │  Type     : AMD Athlon(tm) 64 Processor 3800 │ configure system Time. │
  │  Speed    : 2200MHz                       │                         │
  │  Count    : 1                             │  ←→    Select Screen    │
  │                                          │  ↑↓    Select Item      │
  │  System Memory                           │  +−    Change Field     │
  │  Size     : 1024MB                        │  Tab   Select Field     │
  │                                          │  F1    General Help     │
  │  System Time         [00:18:08]          │  F10   Save and Exit    │
  │  Saystem Date        [Tue 01/01/2002]    │  ESC   Exit             │
  └──────────────────────────────────────────┴─────────────────────────┘
```

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Processor

The item is automatically detected by the system at start up time. The Processor item shows the processor type and speed installed in your computer. This is display-only field. You cannot make changes to this field.

System Memory

The item is automatically detected by the system at start up time. The is display-only field. You cannot make changes to this field.
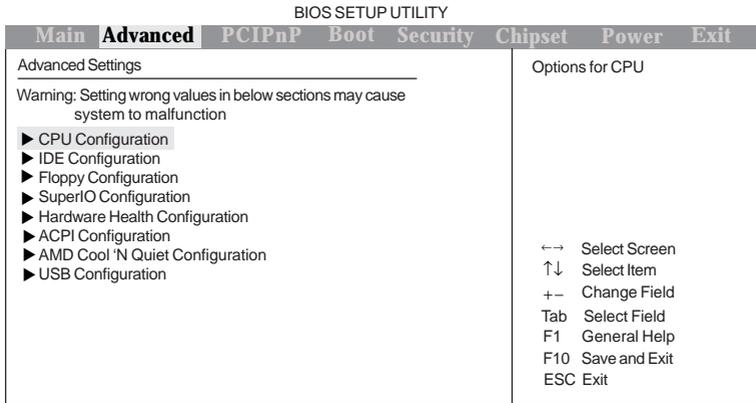
Time and Date

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.

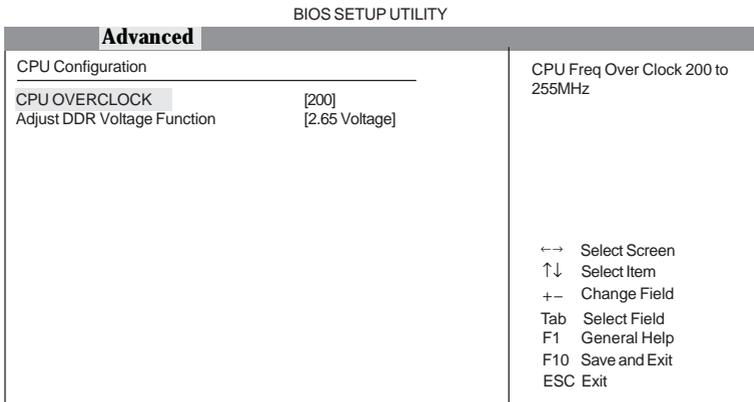Press <Esc> to return to the main menu setting page.

Advanced Settings

This option displays basic information about your system.

BIOS SETUP UTILITY

| Main | **Advanced** | PCIPnP | Boot | Security | Chipset | Power | Exit |

Advanced Settings

Options for CPU

Warning: Setting wrong values in below sections may cause
          system to malfunction

▶ CPU Configuration
▶ IDE Configuration
▶ Floppy Configuration
▶ SuperIO Configuration
▶ Hardware Health Configuration
▶ ACPI Configuration
▶ AMD Cool 'N Quiet Configuration
▶ USB Configuration

←→   Select Screen
↑↓   Select Item
+−   Change Field
Tab   Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

▶ CPU Configuration (Press Enter)

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

BIOS SETUP UTILITY

| **Advanced** |

CPU Configuration

CPU Freq Over Clock 200 to 255MHz

CPU OVERCLOCK   [200]
Adjust DDR Voltage Function   [2.65 Voltage]

←→   Select Screen
↑↓   Select Item
+−   Change Field
Tab   Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

CPU OVERCLOCK (200)

This item allows you to adjust the CPU frequency, the range is from 200 to 255.

Adjust DDR Voltage Function (2.65 Voltage)

This item allows you to adjust the DDR Voltage, the choices are 2.65, 2.73, 2.81 and 2.89.

Press <Esc> to return to the Advanced page.

▶ IDE Configuration (Press Enter)

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

```
                              BIOS SETUP UTILITY
         ┌─────────────┐
         │  Advanced   │
 ┌───────┴─────────────┴───────────────────────┬──────────────────────────────┐
 │ IDE Configuration                            │ DISABLED: disables the inte- │
 │ ─────────────────────────────────────        │ grated IDE Controller.       │
 │ OnBoard PCI IDE Controller      [Both]        │ PRIMARY: enables only the    │
 │        OnBoard PCI IDE Mode    [Legacy Mode]  │ Primary IDE Controller       │
 │                                               │ SECONDARY: enables only      │
 │ ▶  Primary IDE Master       : [Not Detected]  │ the Secondary IDE Controller.│
 │ ▶  Primary IDE Slave        : [Not Detected]  │ BOTH: enables both IDE Con-  │
 │ ▶  Secondary IDE Master     : [Not Detected]  │ trollers                     │
 │ ▶  Secondary IDE Slave      : [Not Detected]  │                              │
 │ ▶  Third IDE Master         : [Not Detected]  │ ←→    Select Screen          │
 │ ▶  Third IDE Slave          : [Not Detected]  │ ↑↓    Select Item            │
 │ ▶  Fourth IDE Master        : [Not Detected]  │ +−    Change Field           │
 │ ▶  Fourth IDE Slave         : [Not Detected]  │ Tab   Select Field           │
 │                                               │ F1    General Help           │
 │                                               │ F10   Save and Exit          │
 │                                               │ ESC   Exit                   │
 └───────────────────────────────────────────────┴──────────────────────────────┘
          v02.57  (C) Copyright 1985-2004. American Megatrends,Inc.
```

OnBoard PCI IDE Controller (Both)

This item enables or disables the integrated IDE controllers. If set to DISABLED, it disables the integrated IDE Controller, if set to Primary, it enables only the Primary IDE Controller, if set to SECONDARY, it enables only the Secondary IDE Controller, if set to BOTH, it enables both IDE Controllers.

OnBoard PCI IDE Mode (Legacy Mode)

This item allows you to select the SATA operate Mode. Users may choose Legacy mode or Native mode.

Press <Esc> to return to the Advanced page.

▶ *Primary/Secondary/Third/Fourth IDE Master/Slave(Not detected) (Press Enter)*

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

If any IDE device is detected in any one of the above items, press <Enter> to reveal the following information.

```
                              BIOS SETUP UTILITY
         ┌─────────────┐
         │  Advanced   │
 ┌───────┴─────────────┴───────────────────────┬──────────────────────────────┐
 │ Primary IDE Master                           │ Disabled:  disables the LBA  │
 │ ─────────────────────────────────────        │ Mode                         │
 │ Device      :Not Detected                     │ Auto: Enables LBA Mode if the│
 │ ─────────────────────────────────────        │ device supports it and the de-│
 │ Type                        [Auto]            │ vice is not already formatted │
 │ LBA/Large Mode              [Auto]            │ with LBA Mode disabled.      │
 │ Block (Multi-Sector Transfer [Auto]           │                              │
 │ PIO Mode                    [Auto]            │ ←→    Select Screen          │
 │ DMA Mode                    [Auto]            │ ↑↓    Select Item            │
 │ S.M.A.R.T.                  [Auto]            │ +−    Change Field           │
 │ 32Bit Data Transfer         [Enabled]         │ Tab   Select Field           │
 │                                               │ F1    General Help           │
 │                                               │ F10   Save and Exit          │
 │                                               │ ESC   Exit                   │
 └───────────────────────────────────────────────┴──────────────────────────────┘
          v02.57  (C) Copyright 1985-2004. American Megatrends,Inc.
```

Using BIOS

Type (Auto)

This item enables users to select the type of device connected to the system.

LBA/Large Mode (Auto)

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137GB. The default setting is Auto.

Block (Multi-Sector Transfer) (Auto)

Enable this item to enhance hard disk performance by reading or writing more data during each transfer. This default setting is Auto.

PIO/DMA Mode (Auto)

This item enables users to select PIO/DMA Mode.

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

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

32Bit Data Transfer (Enabled)

Use this item to enable 32-bit access to maximize the IDE hard disk data transfer rate.

Press <Esc> to return to the IDE Configuration page.

▶ Floppy Configuration (Press Enter)

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

BIOS SETUP UTILITY

Advanced		
Floppy Configuration		Select the type of floppy drive connected to the system
Floppy A	[1.44 MB 3 1/2"]	
		←→ Select Screen
		↑↓ Select Item
		+− Change Field
		Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Floppy A (1.44 MB 3 1/2 ")

Use this item to set up size and capacity of the floppy diskette drive(s) installed in the system.

Press <Esc> to return to the advanced setup page.

Using BIOS

▶ Super IO Configuration (Press Enter)

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

```
                              BIOS SETUP UTILITY
┌─────────────────────────────────────────────────────────────────────────┐
│  Advanced                                                                 │
├───────────────────────────────────────────┬───────────────────────────────┤
│ Configure ITE8705 Super IO Chipset         │ Allows BIOS to Enable or Dis- │
│                                            │ able Floppy Controller        │
│ OnBoard Floppy Controller    [Enabled]     │                               │
│ Serial Port1 Address         [3F8/IRQ4]    │                               │
│ Serial Port2 Address         [2F8/IRQ3]    │                               │
│   Serial Port2 Mode          [IrDA SIR]    │  ←→   Select Screen           │
│    IR Duplex Mode            [Half Duplex] │  ↑↓   Select Item             │
│ Parallel Port Address        [378]         │  +−   Change Field            │
│   Parallel Port Mode         [Normal]      │  Tab  Select Field            │
│   Parallel Port IRQ          [IRQ7]        │  F1   General Help            │
│                                            │  F10  Save and Exit           │
│                                            │  ESC  Exit                    │
└───────────────────────────────────────────┴───────────────────────────────┘
```

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Onboard Floppy Controller (Enabled)

Use this item to enable or disable the onboard floppy disk drive interface.

Serial Port1/2 Address (3F8/IRQ4/2FB/IRQ3)

Use this item to enable or disable the onboard COM1/2 serial port, and to assign a port address.

Serial Port2 Mode (Normal)

It Serial Port2 Address is not disabled, it allows you to set the Serial Port 2 Mode.

IR Duplex Mode (Half Duplex)

This option specifies the Infrared transfer used when any infrared option is enabled on serial port2. The optimal and Fail-Safe settings hide this option completely. The default setting is Half Duplex.

Parallel Port Address (378)

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

Parallel Port Mode(Normal)

Use this item to select the parallel port mode.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

Press <Esc> to return to the Advanced page.

▶**Hardware Health Configuration (Press Enter)**

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

BIOS SETUP UTILITY

Advanced	
Hardware Health Function	Enables Hardware Health Monitoring Device.
H/W Health Configuration [Enabled]	
Hardware Health Event Monitoring	
System Temperature : 34°C/93°F	
CPU Temperature : 49°C/120°F	
CPU_Fan Speed :3068 RPM	←→ Select Screen
SYS_Fan Speed : N/A	↑↓ Select Item
CPU Vcore : 1.526V	+− Change Field
DDR Voltage : 2.592V	Tab Select Field
Shutdown Temperature [Disabled]	F1 General Help
	F10 Save and Exit
	ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

H/W Health Function (Enabled)

This items allow end users to monitor the Hardware data of the computer.

- System Temperature
- CPU Temperature
- CPU_Fan Speed
- SYS_Fan Speed
- CPU Vcore
- DDR Voltage

Shutdown Temperature (Disabled)

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

Press <Esc> to return to the Advanced page.

Using BIOS

▶**ACPI Configuration (Press Enter)**

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

BIOS SETUP UTILITY

Advanced	
ACPI Settings	General ACPI Configuration settings
▶ General ACPI Configuration	
	←→ Select Screen
	↑↓ Select Item
	+− Change Field
	Tab Select Field
	F1 General Help
	F10 Save and Exit
	ESC Exit
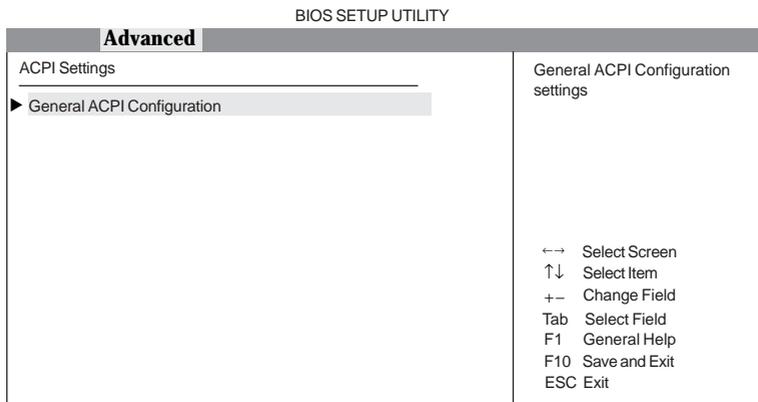
v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

▶**General ACPI Configuration (Press Enter)**

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

BIOS SETUP UTILITY

Advanced	
General ACPI Configuration	Select the ACPI state used for System Suspend.
Suspend mode [S3(STR)]	
	←→ Select Screen
	↑↓ Select Item
	+− Change Field
	Tab Select Field
	F1 General Help
	F10 Save and Exit
	ESC Exit
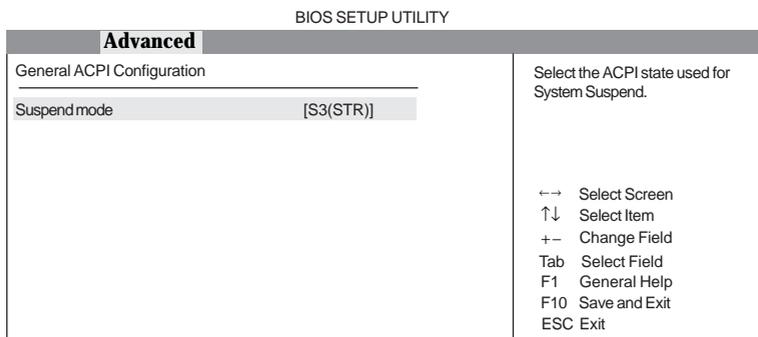
v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Suspend mode (S3(STR))

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

Press <Esc> to return to the Advanced page.

Using BIOS

▶AMD Cool 'N Quiet Configuration (Press Enter)

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

BIOS SETUP UTILITY

Advanced	
AMD Cool "N Quiet Configuration	Enabled/Disabled Cool N'Quiet
Cool N'Quiet [Enabled]	
	←→ Select Screen
	↑↓ Select Item
	+− Change Field
	Tab Select Field
	F1 General Help
	F10 Save and Exit
	ESC Exit
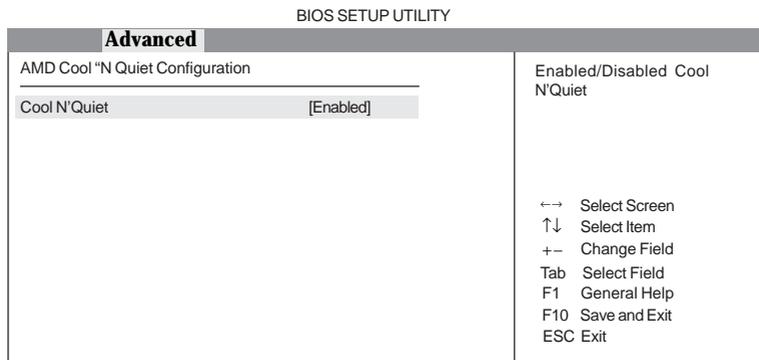
v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Cool N'Quiet (Enabled)

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

Press <Esc> to return to the Advanced page.

▶USB Configuration (Press Enter)

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

BIOS SETUP UTILITY

Advanced	
	Options
USB Configuration	Disabled
Module Version -2.24.0-10.4	Enabled
USB Devices Enabled:	
None	
Legacy USB Support [Enabled]	←→ Select Screen
USB 2.0 Controller Mode [HiSpeed]	↑↓ Select Item
\	+− Change Field
	Tab Select Field
	F1 General Help
	F10 Save and Exit
	ESC Exit
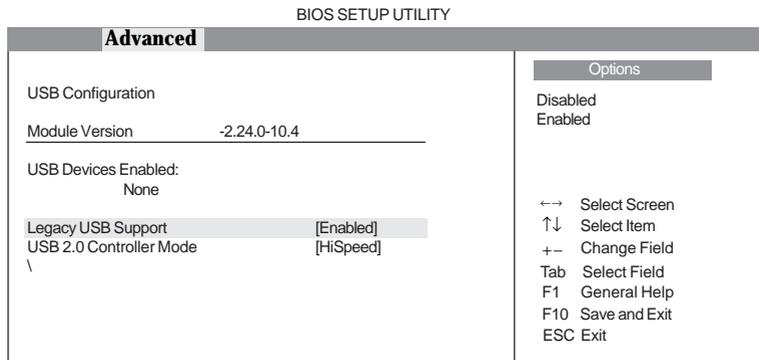
v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Module Version

This item shows AMI SUB Module version.

Legacy USB Support (Enabled)

This item allows you to enable or disable Legacy USB support.

USB 2.0 Controller Mode (HiSpeed)

This item allows you to configure the USB 2.0 controller in HiSpeed(480 Mbps) or Full Speed (12 Mbps). The choices are HighSpeed and FullSpeed.

Press <Esc> to return to the Advanced page.

PCIPnP Settings

This option displays basic information about your system.

BIOS SETUP UTILITY

Main	Advanced	**PCIPnP**	Boot	Security	Chipset	Power	Exit

Advanced PCI/PnP Settings

Warning: Setting wrong values in below sections may cause system to malfunction

Clear NVRAM	[No]
Plug & Play O/S	[No]
Allocate IRQ to PCI VGA	[Yes]
Palette Snooping	[Disabled]
PCI IDE Bus Master	[Disabled]
OffBoard PCI/ISA IDE Card	[Auto]
Auto Detect PCI Clock	[Enabled]
IRQ3	[Available]
IRQ4	[Available]
IRQ5	[Available]
IRQ7	[Available]
IRQ9	[Available]
IRQ10	[Available]

Clear NVRAM during System Boot

←→ Select Screen
↑↓ Select Item
+− Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Clear NVRAM (No)

This item helps users clear NVRAM during System Boot.

Plug & Play O/S (No)

Enable this item if you are using an O/S that supports Plug and Play such as Windows 95/98/ME.

Allocate IRQ to PCI VGA (Yes)

This option will be used to allocate IRQ for PCI VGA card. In general, some of PCI VGA cards need IRQ support.

Palette Snooping (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.

PCI IDE BusMaster (Disabled)

Set this option to Enabled to specify that the IDE controller on the PCI bus has bus mastering capability.

OffBoard PCI/ISA IDE Card (Auto)

This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller is automatically disabled.

Auto Detect PCI Clock (Enabled)

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

IRQ3,4,5,7.9,10,11,14,15 (Available)

These items mean the specified IRQs are available to be used by PCI/PnP devices.

Using BIOS

Reserved Memory Size (Disabled)

This item shows the size of memory block to reserve for legacy ISA devices.

Boot Settings

This option displays basic information about your system.
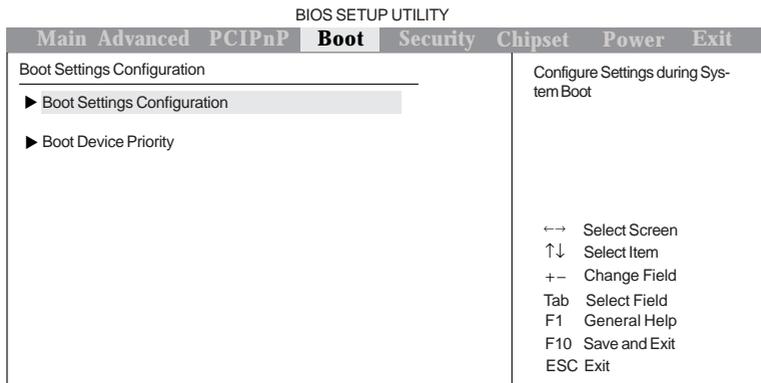
```
                         BIOS SETUP UTILITY
 Main  Advanced  PCIPnP    Boot    Security  Chipset   Power    Exit

 Boot Settings Configuration                    Configure Settings during Sys-
                                                tem Boot
 ▶ Boot Settings Configuration

 ▶ Boot Device Priority



                                                ←→   Select Screen
                                                ↑↓   Select Item
                                                +−   Change Field
                                                Tab   Select Field
                                                F1    General Help
                                                F10  Save and Exit
                                                ESC  Exit

          v02.57  (C) Copyright 1985-2004. American Megatrends,Inc.
```

▶Boot Settings Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:
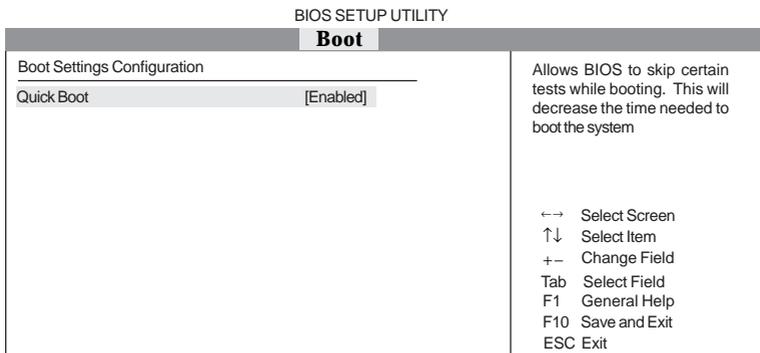
```
                         BIOS SETUP UTILITY
                            Boot

 Boot Settings Configuration                    Allows BIOS to skip certain
 Quick Boot                  [Enabled]          tests while booting.  This will
                                                decrease the time needed to
                                                boot the system



                                                ←→   Select Screen
                                                ↑↓   Select Item
                                                +−   Change Field
                                                Tab   Select Field
                                                F1    General Help
                                                F10  Save and Exit
                                                ESC  Exit

          v02.57  (C) Copyright 1985-2004. American Megatrends,Inc.
```

Quick Boot (Enabled)

If you enable this item, the system starts up more quickly be elimination some of the power on test routines.

Press <Esc> to return to the Boot Settings page.

▶**Boot Device Priority (Press Enter)**

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

BIOS SETUP UTILITY

Boot	

Boot Device Priority		Specifies the boot sequence from the available devices.
1st Boot Device	[1st FLOPPY DRIVE]	A device enclosed in parenthesis has been disabled in the corresponding type menu.

←→ Select Screen
↑↓ Select Item
+− Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

1st Boot Device

Use this item to select the priority and order of the device that your system searches for an operating system at start-up time.

Press <Esc> to return to the Boot Settings page.

Security Settings

This option displays basic information about your system.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Security Settings		Install or Change the password
Supervisor Password	: Not Installed	
User Password	: Not Installed	
Change Supervisor Password		
Change User Password		
Boot Sector Virus Protection	[Disabled]	

←→ Select Screen
↑↓ Select Item
+− Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Supervisor Password/User Password (Not Installed)

This item indicates whether a supervisor password/user password has been set. If the password has benn installed, *Installed* displays. If not, *Not Installed* displays.

Using BIOS

Change Supervisor Password/Change User Password (Press Enter)

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

Boot Sector Virus Protection (Disabled)

If set to Disabled, when anything attempts to access the boot sector or hard disk partition table, there will be no warning message to appear.

Chipset Settings

This option displays basic information about your system.
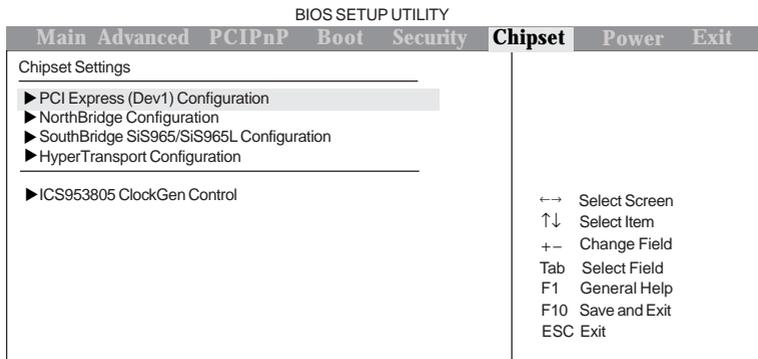
```
                            BIOS SETUP UTILITY
  Main  Advanced  PCIPnP  Boot  Security  Chipset  Power  Exit

  Chipset Settings

  ▶ PCI Express (Dev1) Configuration
  ▶ NorthBridge Configuration
  ▶ SouthBridge SiS965/SiS965L Configuration
  ▶ HyperTransport Configuration

  ▶ ICS953805 ClockGen Control
                                              ←→   Select Screen
                                              ↑↓   Select Item
                                              +−   Change Field
                                              Tab  Select Field
                                              F1   General Help
                                              F10  Save and Exit
                                              ESC  Exit

          v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.
```

▶ PCI Express Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:
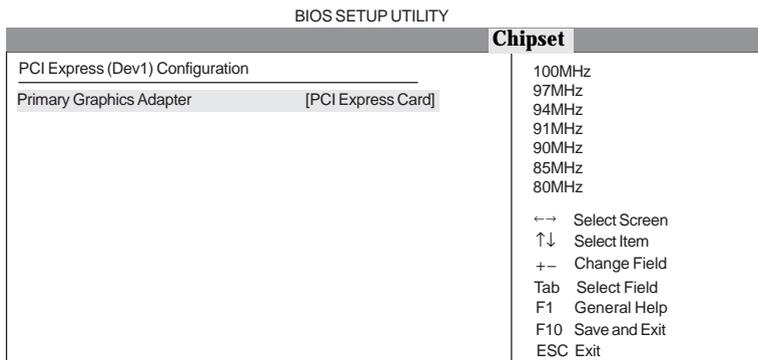
```
                            BIOS SETUP UTILITY
                                              Chipset

  PCI Express (Dev1) Configuration           100MHz
                                             97MHz
  Primary Graphics Adapter   [PCI Express Card]  94MHz
                                             91MHz
                                             90MHz
                                             85MHz
                                             80MHz

                                              ←→   Select Screen
                                              ↑↓   Select Item
                                              +−   Change Field
                                              Tab  Select Field
                                              F1   General Help
                                              F10  Save and Exit
                                              ESC  Exit

          v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.
```

Primary Graphics Adapter (PCI Express Card)

This item indicates if the primary graphics adapter uses the PCI Express VGA, PCI VGA or AGP VGA.

Press <Esc> to return to the Chipset Setting page.

▶ NorthBridge Chipset Configuration (Press Enter)

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

BIOS SETUP UTILITY

Chipset

NorthBridge Chipset Configuration

▶Memory Configuration

Memory CLK	:200 MHz
CAS Latency (Tcl)	: 3.0
RAS/CAS Delay (Trcd)	: 3 CLK
Min Active RAS (Tras)	: 8 CLK
Row Precharge Time (Trp)	: 3 CLK
RAS/RAS Delay (Trrd)	: 2 CLK
Row Cycle (Trc)	: 11 CLK
Row Refresh Cycle (Trfc):	: 14 CLK
Read Write Delay (Trwt)	: 4 CLK
Read Preamble	: 6.0 ns
Asynchronous Latency	: 6 ns

←→   Select Screen
↑↓   Select Item
+−   Change Field
Tab   Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

▶ Memory Configuration (Press Enter)

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

BIOS SETUP UTILITY

Chipset

Memory Configuration

Memclock Mode	[Auto]

MEMCLK can be set by the code using AUTO, or if you use LIMIT, you can set one of the standard values.

←→   Select Screen
↑↓   Select Item
+−   Change Field
Tab   Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Memclock Mode (Auto)

This item allows you to set the memory frequency.

Press <Esc> to return to the Chipset Setting page.

Northbridge Chipset Configuration

These items are memory information on this computer.

- Memory ClK
- CAS Latency (Tcl)
- RAS/CAS Delay(Trcd)
- Min Active RAS (Tras)
- Row Precharge Time (Trp)
- RAS/RAS Delay(Trrd)
- Row Cycle (Trc)
- Row Refresh Cycle (Trfc)
- Read Write Delay (Trwt)
- Read Preamble
- Asynchronous Latency

Using BIOS

▶ **South Bridge SiS965/SiS965L Chipset Configuration (Press Enter)**

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

BIOS SETUP UTILITY

Chipset

		Options
		Disabled
		Enabled
OnBoard AC97 Audio DEVICE	[Enabled]	
Onboard Lan:	[Enabled]	
Onboard LAN BOOT ROM:	[Disabled]	
OnBoard AC97 Modem DEVICE	[Auto]	
		←→ Select Screen
		↑↓ Select Item
		+− Change Field
		Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit
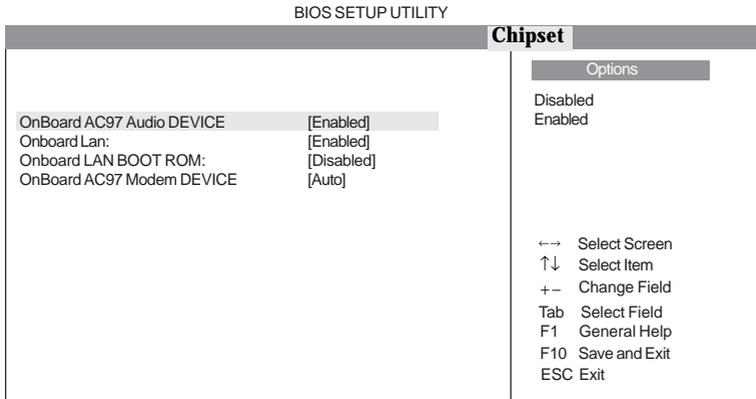
v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

OnBoard AC97 Audio DEVICE (Enabled)

Use this item to enable and disable the onboard AC97 Audio device.

Onboard LAN (Enabled)

Enables and disables the onboard LAN.

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 AC97 Modem DEVICE (Auto)

Use this item to enable or disable Communications Networking Riser. (CNR)

Press <Esc> to return to the Chipset Setting page.

Using BIOS

▶ HyperTransport Configuration (Press Enter)

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

BIOS SETUP UTILITY

Chipset

HyperTransport Configuration		Options
HT Width	[Auto]	8 BIT
HT Speed	[1000 MHz]	16 BIT
		Auto

←→ Select Screen
↑↓ Select Item
+−   Change Field
Tab Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

HT Width (Auto)

This item shows HyperTransport™ 's, bus size of Local Descriptor Table (LDT). The bus size is automatically calculated by the CPU. Therefore, we strongly recommend that you do not change this setting.

HT Speed (1000 MHz)

This item shows the bus frequency of Local Descriptor Table. Its default is set as 800 MHz.

Press <Esc> to return to the Chipset Setting page.

▶ ICS953805 ClockGen Control (Press Enter)

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

BIOS SETUP UTILITY

Chipset

ICS953805 ClockGen Control		Options
PCI Express Clock Control	[100MHz]	100MHz
Spread Spectrum Control	[PLL1/2 Spread Enab]	97MHz
Select Synchronous PCI Freq	[PCI Sync freq]	94MHz
ZCLK PLL CTRL	[PLL2]	91MHz
		90MHz
		85MHz
		80MHz

←→ Select Screen
↑↓ Select Item
+−   Change Field
Tab Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

PCI Express Clock Control (100MHz)

This item allows you to adjust PCI Express Clock. The choices are 100MHz, 97MHz, 94MHz, 91MHz, 90MHz, 85MHz and 80MHz.

Using BIOS

Spread Spectrum Control (PLL1/2 Spread Enab)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system, and it can control PLL1 and PLL2 individually.

Select Synchronous PCI Freq (PCI Sync freq)

This item allows you to adjust PCI Clock.

ZCLK PLL CTRL (PLL2)

This item allows users to choose Z clock. Z clock frequency varies with PLL2; if PLL2 overclocks, this item would overclock as well.

Press <Esc> to return to the Chipset Setting page.

Power Settings

This option displays basic information about your system.

BIOS SETUP UTILITY

| Main | Advanced | PCIPnP | Boot | Security | Chipset | **Power** | Exit |

APM Configuration		Enable or disable APM
Power Management/APM	[Enabled]	
Power Button Mode	[On/Off]	
Suspend Time Out	[Disabled]	
Hard Disk Time Out (Minute)	[Disabled]	
Resume On Ring	[Disabled]	
Resume On PME#	[Disabled]	
Resume On KeyBoard	[Disabled]	
Resume On PS2 Mouse	[Disabled]	←→ Select Screen
Resume On RTC	[Disabled]	↑↓ Select Item
Restore on AC Power Loss	[Power Off]	+ − Change Field
		Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit

v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Power Management/APM (Enabled)

Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Only APM is supported.

Power Button Mode (On/Off)

This item lets you install a software power down controlled by the normal power button on your system.

Suspend Time Out (Disabled)

This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.

Hard Disk Time Out (Minute) (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.

Resume On Ring (Disabled)

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

Using BIOS

Resume On PME# (Disabled)

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

Resume On KeyBoard/PS2 Mouse (Disabled)

These items enable or disable you to allow keyboard or mouse activity to awaken the system from power saving mode.

Resume On RTC (Disabled)

The system can be turned off with a softward command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC. (realtime clock). You must use an ATX power supply in order to use this feature.

Restore on AC Power Loss (Power Off)

This item defines how the system will act after AC power loss during system operation. When you set to Off, it will keep the system in Off state until the power button is pressed.

Exit Settings

This option displays basic information about your system.

BIOS SETUP UTILITY

| Main | Advanced | PCIPnP | Boot | Security | Chipset | Power | **Exit** |

Exit Options

Save Changes and Exit
Discard Changes and Exit
Discard Changes

Load Optimal Defaults
Load Failsafe Defaults

Exit system setup after saving the changes

F10 key can be used for thisoperation

←→   Select Screen
↑↓   Select Item
+−   Change Field
Tab   Select Field
F1   General Help
F10 Save and Exit
ESC Exit
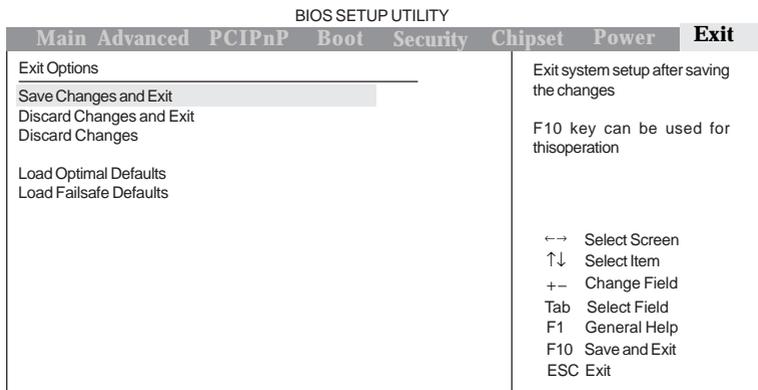
v02.57 (C) Copyright 1985-2004. American Megatrends,Inc.

Save Changes and Exit

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 <OK> to save and exit, or press <Cancel> to return to the main menu.

Discard Changes and Exit

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 <OK> to discard changes and exit, or press <Cancel> to return to the main menu.

If you have made settings that you do not want to save, use the "Discard Changes and Exit" item and press <OK> to discard any changes you have made.

Load Optimal Defaults

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <OK> and then <Enter> to install the defaults. Press <Canel> 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 <F9>.

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

Load Failsafe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility: Press <OK> and the <Enter> to install the defaults. Press <Canel> 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 <F8>.

Using BIOS

Chapter 4
Using the Motherboard Software

About the Software CD-ROM

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

> *Never try to install all software from folfer 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.*

Setup Tab

Setup	Click the **Setup** button to run the software installation program. Select from the menu which software you want to install.
Browse CD	The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.
	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.
	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.
	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.
Exit	The **EXIT** button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

Read Me Tab

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

Running Setup

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

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

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

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

Using the Motherboard Software

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

3. *Check the box next to the items you want to install. The default options are recommended.*

4. *Click **Next** run the Installation Wizard. An item installation screen appears:*

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

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

Using the Motherboard Software

Manual Installation

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

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

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

Utility Software Reference

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

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

AMI/AWARD Flash 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. Refer to the next chapter for information about SATA RAID Setup.

Chapter 5
SiS965/SiS965L SATA RAID Setup Guide

Introduction for SiS965/SiS965L SATA RAID Function

The SiS965 S-ATA Host controller supports up to four serial ATA on four independent ports, but the SiS965L S-ATA controller only supports two SATA ports of up to two Serial ATA drives. The Serial ATA RAID is designed to provide a cost-effective, high performance RAID solution that adds performance and/or reliability to PC desktops and/or servers using Serial ATA/150 hard disks.

Serial ATA RAID function supports striping (RAID 0), mirroring (RAID 1), striping+mirroring (RAID0+1) and span (JBOD). Please note that the function supports hard disk drives only.

With striping, identical drives can read and write data in parallel to increase performance. Mirroring increases read performance through load balancing and elevator sorting while creating a complete backup of your files. Span would increase the logic hard disk space.

Serial ATA RAID striped arrays can double the sustained data transfer rate of Serial ATA/ 150. Serial ATA RAID fully supports Serial ATA/150 specification of up to 150MB/sec per drive, depending on individual drive specifications.

Features
- The SiS965 controller supports up to four Serial ATA (Serial ATA RAID) drivers, but SiS965L controller suppotrs up to two Serial ATA drives.
- Support RAID function: RAID 0, RAID 1, RAID 0+1, JBOD. *(SiS965L does not support RAID 0+1)*
- Support bootable disk.
- Windows-based RAID Utility software tool (only support Windows XP and 2000).
- BIOS Utility.

Support Operating Systems

Support Microsoft Windows 98/98SE/ME/2000 Professional and Server/XP.

What is RAID?

This section will give you an overview about the RAID system and introduce the basic background and glossary which you need to know before using "SiS RAID Controller Application".

1   **RAID:** (Redundant Array of Independent Disk Drives) use jointly several hard drives to increase data transfer rates and data security. It depends on the number of drives present and RAID function you select to fulfill the security or performance purposes or both.

2   **RAID 0:** Also known as "Stripping". All of the data are distributed evenly to all of the existing drives. You gain benefits on performance because the data transfer rate is multiplied by the number of drives. However, RAID 0 has high risks of data security. All of the stored data will be lost if even any one drive in the RAID set crashes.

3   **RAID 1:** Also known as "Mirroring". Two hard drives are required. The goal of RAID 0 is to ensure data security. Data is written to two or more drives synchronously. That is, 100% duplication of data from one drive to another.

4　　**RAID 0+1:** Also known as "Stripe-Mirror". At least four hard drives are required. RAID 0+1 is a combination of RAID 0 and RAID 1. Data is striped into two drives then mirrored. It provides high performance and high data protection. This is a costly solution as RAID 1 because the two mirrored drives represent an expensive insurance.

5　　**JBOD:** (Just a Bunch of Drives). Also known as "Spanning". Two or more hard drives are required. Several hard disk types configured as a single hard disk. The hard drives are simply hooked up in series. This expands the capacity of your drive and results in a useable total capacity. However, JBOD will not increase any performance or data security.

Installing Software Drivers

SiS RAID driver support Microsoft Windows XP/2000/Me/98SE.

1　　For RAID function, SiS965 support RAID0, RAID1, RAID 0+1 and JBOD by software RAID driver.

2　　For RAID function, SiS965L support RAID0, RAID1 and JBOD by software RAID driver.

3　　Support the function of installing windows to RAID array.

New Windows 2000/XP Installation

1　　Start the installation:
Boot from the CD-ROM. Press F6 when the message "Press **F6** key if you need to install third party SCSI or RAID driver" appears.

2　　When the Windows 2000/XP Setup window is generated, press **S** key to specify an Additional Device(s).

3　　Insert the driver diskette into drive A: and press Enter.

4　　Choose one of the following items:
"Windows 32bit SiS Raid/IDE Controller",
"Windows 64bit SiS Raid/IDE Controller",
that appears on screen, and then press the Enter key.

5　　Press Enter to continue with installation or if you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, Press Enter to continue with installation.

6　　From the Windows 2000/XP Setup screen, press the Enter key. Setup will now load all device files and then continue the Windows 2000/XP installation.

7　　Please install the driver package again (ex. SiS RAID driver v2.01) while the operation system has been setup.

If you would like to install windows to any RAID set, you should create RAID from BIOS utility or SiS965/SiS965L RAID Utility first and then follow the steps above.

Existing Windows 2000/XP/98/Me Installation

1　　Install the driver by executing SiS driver setup utility.

2　　The drivers will be automatically installed.

Confirming Windows 2000/XP Driver Installation

1　　From Windows 2000/XP, open the Control Panel from "My Computer" followed by the System icon.

2　　Choose the "Hardware" tab, then click the "Device Manager" tab.

3　　Click the "+" in front of "SCSI and RAID Controllers" hardware type. The driver **"SiS182 Raid Controller"** should appear.

Confirming Windows 98/Me Driver Installation

1   From Windows 98/Me, open the Control Panel from "My Computer" followed by the System icon.
2   Choose the "Device Manager" tab.
3   Click the "+" in front of "IDE ATA/ATAPI Controllers" hardware type. The driver **"SiS965 IDE/Raid Controller"** should appear.

BIOS Utility Operation

BIOS Utility supports windows 2000/XP/98/Me.

Starting BIOS Utility

1   Boot your system. If this is the first time you have booted with the SiS965 or SiS965L and the drives installed, the BIOS will display the following:

> Silicon Integrated Systems Corp. RAID BIOS Setting Utility v0.XX
> (c) 2003-2005 Silicon Integrated Systems Corp. All Rights Reserved.
>
> Press <Ctrl.<S> to run BIOS Setting Utility

2   Press <Ctrl-S> keys to display the SiS965/SiS965L Utility Main Menu.
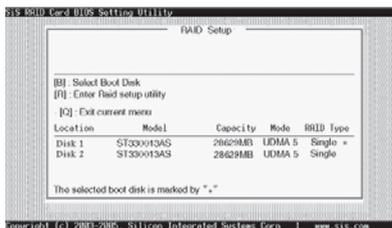
3   You can press <B> key to select the boot disk on the SiS965 controller. The yellow highlight will show on the disk and you can switch it to select the disk you wanted. Press "Enter" key to select it and the selected boot device will be marked by "*". The default boot device will be set as **Disk 1**.

4   Press <R> to display the RAID setup menu below. This is the fastest and easiest method to creating your first array.

SiS965/SiS965L SATA RAID Setup Guide
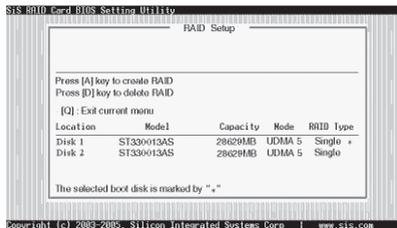
Create RAID

- SIS965 controller support RAID 0, RAID 1, RAID 0+1 and JBOD.
- SIS965L controller support RAID 0, RAID 1 and JBOD.
- The selection of RAID 0+1 will appear when 4 single HDD existing

Creating a RAID 0 (Stripe) Array for Performance

- SiS965 enables users to create striped arrays with 2, 3, or 4 drives.
- SiS965L enables users to create striped arrays with 2 drives.

To create an array for best performance, follow these steps:

1 Press <A> to start creating a RAID array.
2 Press <2> and <Enter> to select RAID 0.
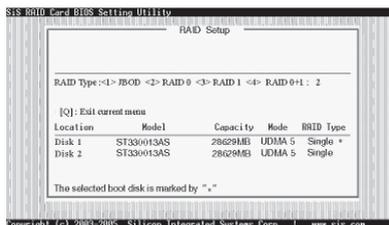
3 You will have two selections to create a RAID 0 array. **The default value is <1>**. If you select **<1>Auto Create**, you can create a RAID 0 array faster and easier. The Blocksize will be selected by its default value "64K". The result after creating will be show on **step 8**. Besides, you also can select **<2>Manual Create**, see following steps.
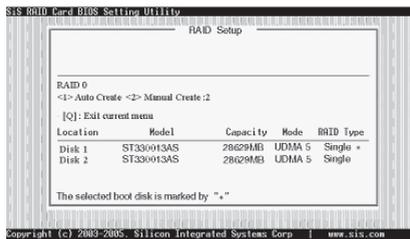
4 Press <1>-<5> keys and <Enter> to select Block Size. (Default:64K)
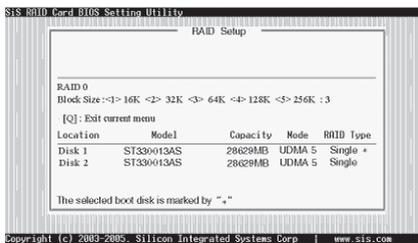
5   Use <↑ > < ↓ > to select disk, and press <Enter> to select disk, <Q> to exit.
     When you press <Enter> on the disk you wanted, the RAID Type will be
     changed from Single to RAID 0. An the disk you select first will be the SOURCE
     disk.
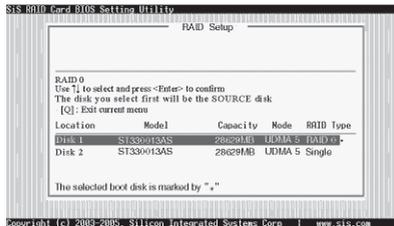
6   Next, you will see a message "Split the SOURCE(DISK x) data to RAID disks?".
     Press <N> and <Enter> to create RAID 0 array only or press <Y> and <Enter>
     to split the data from source disk to other disks.

7   Starting splitting action, the following frame will be shown.
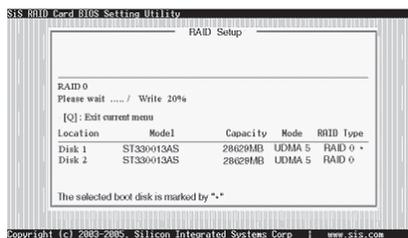
8   After all steps finished, press ,<Q> until escape the setup menu and RAID 0
     array will be show on the top of the main frame.

SiS965/SiS965L SATA RAID Setup Guide
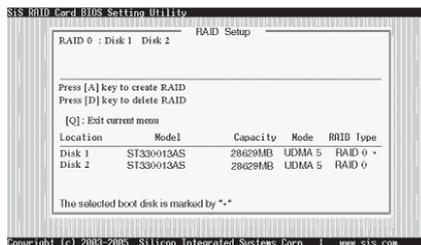
9   Press <Q> again to exit this BIOS utility and the red message frame will show. Press <Y> and <Enter> to save changes.

10   Once the array has been created, you will need to FDISK and format the array as if it were a new single hard drive.
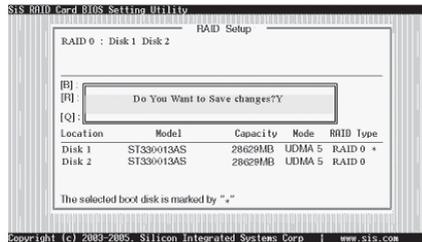

Creating a RAID 1 (Mirror) Array

- SIS965/SiS965L enables users to create a Mirror array with a pair of drives only.
- SIS965 enables users to create one or two Mirror arrays.
- SiS965L enables users to create one Mirror array only.

To create a Mirror array, follow these steps:

1   Press <A> to start creating a RAID array.

2   Press <3> and <Enter> to select Mirror.
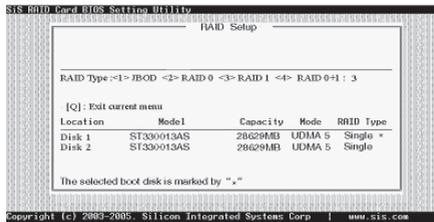
3   You will have two selections to create a RAID 1 array. **The default value is <1>**. If you select **<1>Auto Create**, you can create a RAID 1 array faster and easier. The result after creating will be show on **step 7**. Besides, you also can select **<2>Manual Create**, see following steps.
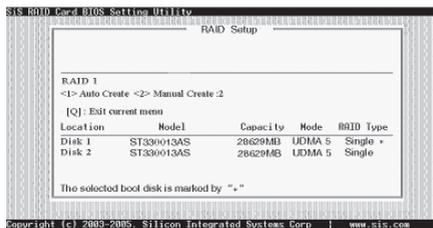
4   Use <↑ > < ↓ > to select disk, and press <Enter> to select disk, <Q> to exit.
    When you press <Enter> on the disk you wanted, the RAID Type will be
    changed from **Single** to **RAID 1**. The same as RAID 0, the disk you select first
    will be the SOURCE disk.
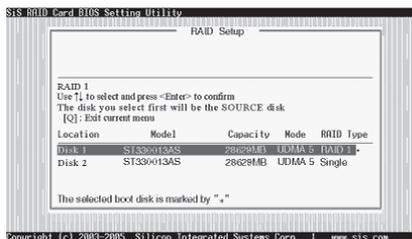
5   Next, you will see a message "Duplicate the SOURCE (DISK x) data to RAID
    disks?". Press <N> and <Enter> to create RAID 1 array only or press <Y> and
    <Enter> to duplicate the data from source disk to mirror disk.
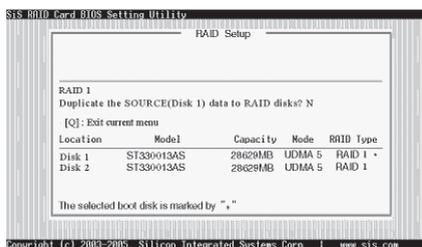
6   Starting duplicating action, the following frame will be showing.
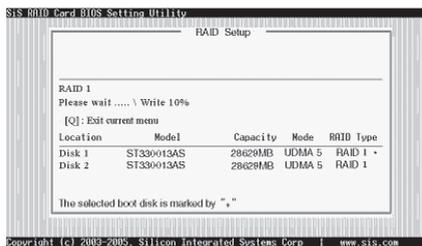
7   After all steps finished, press <Q> until escape the setup menu and RAID 1
    array will be show on the top of the main frame.

SiS965/SiS965L SATA RAID Setup Guide
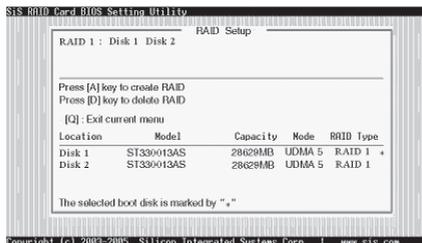
8   Press <Q> again to exit this BIOS utility and the red message frame will show as the same as the creation of the RAID 0 array. Press <Y> and <Enter> to save changes.

9   Once the array has been created, you will need to FDISK and format the array as if it were a new single hard drive.

Creating a RAID 0+1 (Stripe-Mirror) Array

•   Only SiS965 controller can support RAID 0+1 function
•   The selection of RAID 0+1 will appear when 4 single HDD existing.
•   For user's convenience, RAID 0+1 will be auto created.
•   For best performance, the sequence of RAID 0+1 is forced to set as Disk1-> Disk 3-> Disk 2-> Disk 4.

To create an a Stripe-Mirror array, follow these steps:

1   Press <A> to start creating a RAID array.
2   Press <4> and <Enter> to select RAID 0+1.
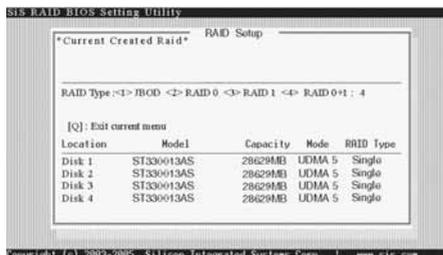
3   After step 2, RAID 0+1 array will be shown on the top of the main frame.
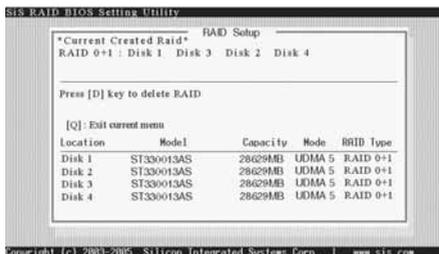
4   Press <Q> until exit this BIOS utility RAUID Setup menu and the red message frame will show as the same as the creation of the RAID 0 array. Press <Y> and <Enter> to save changes.

SiS965/SiS965L SATA RAID Setup Guide
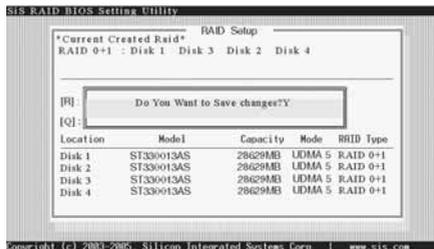
5   Once the array has been created, you will need to FDUSK and FORMAT the array as if it were a new single hard drive.

Creating a JBOD Array

- • SiS965 enables users to create a JBOD array with 2, 3, or 4 drives.
- • SiS965L enables users to create a JBOD array with 2 drives.

To create an JBOD array, follow these steps:

1   Press <A> to start creating a RAID array.
2   Press <1> and <Enter> to select JBOD.
3   You will have two selections to create a JBOD array. **The default value is <1>**. If you select **<1>Auto Create**, you can create a JBOD array faster and easier. The result after creating will be show on **step 5**. Besides, you also can select **<2>Manual Create**, see following steps.
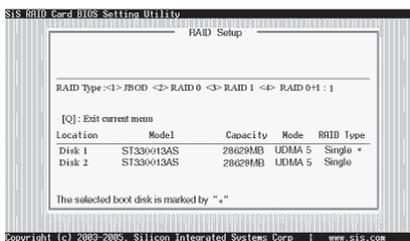
4   Use <↑> <↓> to select disk, and press <Enter> to select disk, <Q> to exit. When you press <Enter> on the disk you wanted, the RAID Type will be changed from **Single** to **JBOD**.
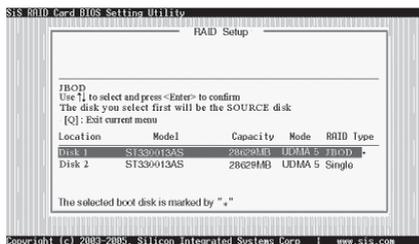
5   After all steps finished, press <Q> until escape the setup menu and JBOD array will be show on the top of the main frame.
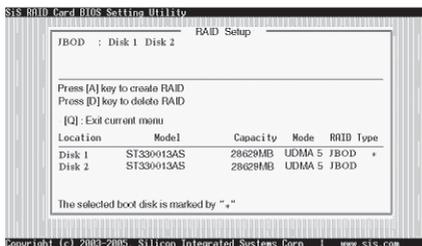
6   Press <Q> again to exit this BIOS utility and the red message frame will show
     as the same age as the creation of the RAID 0 array. Press <Y> and <Enter>
     to save changes.
7   Once the array has been created, you will need to FDISK and format the array
     as if it were a new single hard drive.

This concludes Chapter 5.

Caractéristiques

Processeur

Cette carte mère utilise un socket de 939broches présentant 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

Le chipset SiS756 Northbridge (NB) Chipset et SiS965/SiS965L Southbridge (SB) se base sur une architecture innovante et évolutive avec des performances et une fiabilité éprouvées.

SiS756(NB)
- Prend en charge la Technologie HyperTransport™ jusqu'à une bande passante de 2000MT/s
- Pont Hôte vers PCI Express x1 intégré, conforme à PCI Express SPEC 1.0a
- Interface MuTIOL à vitesse de traitement élevée vers E/S de Média SiS965 MuTIOL, prenant en charge le bus de données 16 bits Bi-directionnel
- Technologie CMOS 1,8V, Signalisation conforme Hyper-Transport™ 1,2V

SiS965/ SiS965L (SB)
- Entretien simultané pour tous les Périphériques DMA : Contrôleurs IDE Doubles, contrôleur SATA, trois contrôleurs d'hôte USB 1.1, un contrôleur d'hôte USB 2.0 et contrôleur LAN MAC
- Pont MuTIOL 1G vers PCI Express x1 integre, conforme a PCI Express 1.0a
- Conforme aux spécifications PCI 2.3.
- Conforme aux spécifications Serial ATA 1.0, prend en charge jusqu'à quatre ports indépendants(SiS965 seulement).
- Contrôleur Audio intégré avec interface AC'97
- Contrôleur USB 2.0/1.1 intégré prenant en charge jusqu' à huit USB ports .

Mémoire

- Prend en charge les types de mémoire DDR400/333/266/200 doubles
- Reçoit quatre sockets DIMM SDRAM DDR de 184 broches 2,5V sans mémoire tampon
- Capacité maximum totale de 4 Go

CODEC Audio AC'97

- Conforme aux spécifications AC'97 v2.3
- CODEC full-duplex -18 bits avec vitesse d'échantillonnage indépendante et variable
- Support d'alimentation double : Numérique : Analogique 5V/3.3V: 5V

Options d'extension

La carte mère comporte les options d'extension suivantes :

- Un PCI Express x16
- Deux PCI Express x1
- Deux emplacements PCI 32-bits
- Un logement AGP Express
- Deux en-tetes demi-hauteur supportant quatre canaux IDE
- Une interface lecteur de disquettes
- Quatre connecteurs SATA à 7 broches (SiS965 seulement).
- Un logement Communications Network Riser (CNR)

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

LAN sur carte (optionnel)

• Supporte le fonctionnement en Auto-négociation N-Way en 100/10Mbps • Capacité Half/Full duplex • Prend en charge la fonction Wake-On-LAN (WOL) (réveil par appel réseau) et le réveil à distance
• Emetteur-récepteur intégré 10/100/1000 • Prend en charge PCI v2.3, 32 bits, 33/66 MHz • Prise en charge totale de IEEE802.3, IEEE802.3u et IEEE802.3ab (Remarquez que seul SiS965 prend en charge Giga LAN)
• Prend en charge l'auto-négociation 10/100Mbps • Prend en charge le fonctionnement en half/full duplex • Conforme IEEE 802.3/802.3u

E/S intégrées

La carte mère comporte un ensemble complet de connecteurs et de ports E/S :

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

Microprogramme BIOS

La carte mère utilise AMI BIOS qui permet à l'utilisateur de configurer bon nombre de fonctions du système, dont :

- Gestion d'alimentation
- Alertes de réveil
- Paramètres de CPU
- Synchronisation de CPU et de mémoire

Le micro-programme peut également être utilisé pour définir les paramètres pour différentes vitesses d'horloge de processeur.

> *Certaines spécifications matérielles et certains éléments logiciels sont susceptibles de modification sans préavis.*

Feature

Prozessor

Dieses Motherboard verwendet einen 939-Pin Socket mit den folgenden Eigenschaften:

- 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

Der SiS756 Northbridge (NB)- sowie SiS965/SiS965L Southbridge (SB)-Chipsatz basiert sich auf eine innovative und skalierbare Architektur mit bewiesenr Zuverlässigkeit und Leistung.

SiS756 (NB)	• Unterstützt HyperTransport™ Technologie mit einer Bandbreite von bis zu 2000MT/s • Integriertes Host-zu-PCI Express Bridge, entspricht PCI Express SPEC 1.0a • High-Throughout MuTIOL-Interface zu SiS965 MuTIOL Media I/O, unterstützt bidirektionalen 16-Bit Datenbus • 1.8V CMOS-Technologie, 1.2V Signaling mit HyperTransport™ Entsprechung
SiS965/ SiS965L (SB)	• Gleichzeitige Bedienung aller DMA-Geräte: Duale IDE-Controller, SATA-Controller, drei USB 1.1 Host-Controller, ein USB 2.0 Host-Controller und LAN MAC-Controller • Integrierte MuTIOL 1G zu PCI Express x1 Bridge, entspricht PCI Express 1.0a • Gemäß Spezifikationen von PCI 2.3. • Entspricht der Serial ATA 1.0 Spezifikation, unterstützt bis zu vier unabhängige Ports (nur SiS965) • Integrierter Audio-Controller mit AC'97 Interface • Onboard-USB 2.0/1.1-Controller acht USB Port.

Speicher

- Unterstützt Dual DDR400/333/266/200 Speichertypen
- Nimmt vier ungepufferte 2.5V 184-Pin DDR SDRAM DIMM-Sockel
- Unterstützt eine Gesamtkapazität von bis zu 4 GB

AC'97 Audio CODEC

- Entspricht AC'97 v2.3 Spezifikation
- 18-Bit Stereo-Vollduplex CODEC mit unabhängigen und variablen Samplingraten
- Dual-Power-Unterstützung: Digital: 5V/3.3V Analog: 5V

Erweiterungsmöglichkeiten

Das Motherboard ist mit den folgenden Erweiterungsmöglichkeiten ausgestattet:

- Ein PCI-Express x16
- Zwei PCI Express x1
- Zwei 32-bit PCI -Steckplätze
- Ein AGP-Express-Schlitz
- Zwei IDE-Stecker, die vier IDE-Kanäle unterst tzen
- Ein Diskettenlaufwerkanschluss
- Vier 7-Pin SATA Anschlüsse (nur SiS965)
- Ein Communications Networking Riser (CNR)-Steckplatz

Das Motherboard unterstützt Ultra DMA-Busmaster mit Transferraten von 133/100/66 MB/s.

Onboard LAN (optional)

• Unterstützt den Betrieb bei 100/10Mbps N-Way Auto-Negotiation • Halb-/Vollduplexfähigkeit • Unterstützt Wake-On-LAN(WOL) Funktion und Remote-Wake-up
• Integrierter 10/100/1000 Transceiver • Unterstützt PCI v2.3, 32-Bit, 33/66MHz • Vollständige Unterstützung für IEEE802.3, IEEE802.3u und IEEE802.3ab   (Bitte beachten Sie, dass Giga LAN nur von SiS965 unterstützt wird)
• Unterstützt 10/100Mbps Auto-Negotiation • Unterstützt Halb-/Vollduplexbetrieb • IEEE 802.3/802.3u Entsprechung

Integrierte I/O

Das Motherboard hat einen vollständigen Satz von E/A-Schnittstellen bzw. -Anschlüssen:

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

BIOS-Firmware

Das Motherboard verwendet AMI BIOS, das es Benutzern gestattet, viele Systemfunktionen inkl. der Folgenden zu konfigurieren:

- Energieverwaltung
- Aufweckfunktionen
- CPU-Parameter
- CPU- und Arbeitsspeicherfrequenz

Die Firmware kann auch zur Einstellung von Parametern für verschiedene Prozessortaktge-schwindigkeiten verwendet werden.

> *Manche Hardwarespezifikationen und Softwareelemente können ohne Ankündi-gung geändert werden.*

Caratteristiche

Processore

La scheda madre utilizza una presa a Socket 939 pin che supporta 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™rappresenta un collegamento Point-to-point tra due periferiche tramite l'utilizzo di circuiti integrati ad una velocità di molto superiore a quelle delle tecnologie attuali.

Chipset

I Chipset SiS756 Northbridge (NB) e SiS965/965L Southbridge (SB) si basano su di una architettura innovativa e scalabile con affidabilità e prestazioni provate.

SiS765(NB)
- Supporto di tecnologia HyperTransport™ con larghezza di banda fino a 2000 MT/s
- Bridge Host-to-PCI Express integrato conforme alla specifica PCI Express SPEC 1.0a
- Interfaccia MuTIOL a elevata capacità di trasferimento per SiS965 MuTIOL Media I/O, con supporto di bus di dati a 16 bit bidirezionale
- 1.8Tecnologia V CMOS, con segnalazione conforme a HyperTransport™ a 1,2 V

SiS965/ SiS965L (SB)
- Supporto simultaneo di tutti i dispositivi DMA: controller IDE Dual, controller SATA, tre host controller USB 1.1, un host controller USB 2.0 e controller MAC per LAN
- Bridge MuTIOL 1G/PCI Express x1 integrato conforme a PCI Express 1.0a
- Conforme alle specifiche PCI 2.3.
- Conforme alla specifica Serial ATA 1.0, supporto di fino a quattro porte indipendenti (solo SiS965)
- Controller audio integrato con interfaccia AC'97
- Controller USB 2.0/1.1 integrati con supporto di un massimo di otto USB porte

Memoria

- Supporto di memorie Dual DDR 400/333/266/200
- Compatibile con quattro prese DIMM per DDR SDRAM da 2,5 V a 184 pin prive di buffer
- Una capacità massima totale di 4 GB

AC'97 Audio CODEC

- Conforme alla specifica AC'97 v2.3
- CODEC full-duplex stereo a 18 bit con velocità di campionamento indipendente e variabile
- Duplice supporto di alimentazione: Digitale: 5 V/3,3 V Analogico: 5 V

Opzioni d'espansione

La scheda madre è dotata delle seguenti opzioni d'espansione:

- Un slot PCI Express x16
- Due slot PCI Express x1
- Due alloggiamenti PCI 32 bit
- Uno slot AGP Express
- Due collettori IDE che supportano quattro dispositivi IDE
- Una interfaccia unità dischetti floppy
- Quattro connettori SATA a 7 pin.(solo SiS965)
- Una slot Communications e Network Riser (CNR)

Questa scheda madre supporta masterizzazione bus Ultra DMA con velocità di trasferimento di 133/100/66 MB/s.

LAN su scheda (opzionale)

• Supporto di NWay Auto-negotiation a 100/10 Mbps • Funzionalità half/Full duplex • Supporto di funzionalità WOL (Wake-On-LAN) e riattivazione remota del sistema
• Transceiver 10/100/1000 integrato • Supporto di PCI v2.3, a 32 bit, 33/66 MHz • Supporto completo degli standard IEEE802.3, IEEE802.3u e IEEE802.3ab (Solo SiS965 offre il supporto di Giga LAN)
• Supporto di auto-negotiation a 10/100 Mb/s • Supporto di funzionalità half/full duplex • Conforme a IEEE 802.3/802.3u

I/O integrato

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

- Due porte PS/2 per mouse e tastiera
- Una porta seriale
- Una porta parallela
- Quattro porte USB
- Una porta LAN (opzionale)
- Connettori audio per microfono, ingresso linea ed uscita linea

Firmware BIOS

La scheda madre impiega il software AMI BIOS che abilita gli utenti a configurare molte caratteristiche de sistema, tra cui sono incluse le seguenti:

- Risparmio energetico
- Allarmi di riattivazione
- Parametri CPU
- Temporizzazione di CPU e memoria

Il Firmware può anche essere utilizzato per impostare i parametri di diverse velocità di temporizzazione del processore.

Alcune specifiche hardware ed elementi software sono soggetti a modifica senza preavviso.

Características
Procesador

Esta placa principal usa un zócalo de 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 SiS756 Northbridge (NB) y SiS965/SiS965L Southbridge (SB) se basan de una arquitectura innovadora y escalable con fiabilidad y rendimiento comprobados.

SiS756(NB)
- Soporta la HyperTransport™ Technology hasta la ancha de banda de 2000MT/s
- Host-to-PCI Express Bridge Integrado, conformidad de la PCI Express SPEC 1.0a
- Interfaz MuTIOL de alto rendimiento a SiS965 MuTIOL Media I/O, que soporta el bus de datos bidireccional de 16 bit
- Tecnología CMOS de 1.8V, conformidad de la Señalización 1.2V HyperTransport™

SiS965/ SiS965L (SB)
- Servicio concurrente de todos los Dispositivos DMA: Controladores IDE: Dual, controlador SATA, tres controladores anfitriones USB 1.1, un controlador anfitrión USB 2.0 y Controlador LAN MAC
- MuTIOL 1G a PCI Express x1 Bridge Integrado, conforme con PCI Express 1.0a
- Conforme con la espec. PCI 2.3.
- Conformidad de la especificación Serial ATA 1.0, soporta hasta cuatro puertos independientes (SiS965 solamente)
- Controlador de Audio Integrado con la interfaz AC'97
- Controladores Anfitriones USB 2.0/1.1 integrados que soporta hasta ocho USB puertos

Memoria

- Soporta tipos de meoria Dual DDR400/333/266/200
- Acomoda cuatro zócalos DIMM SDRAM DDR de 184-pin de 2.5V sin buffer
- Una capacidad máxima total de 4 GB

CODEC de audio AC'97

- Conformidad con la especificación AC'97 v2.3
- CODEC de full duplex estéreo de 18-bit con índice de muestreo independiente y variable
- Soporte de suministro dual: Digital: 5V/3.3V Analóg: 5V

Multi-Language Translation

Opciones de expansión

La placa principal viene con las sigtes. opciones de expansión:
- Un PCI Express x16
- Dos PCI Express x1
- Dos ranuras PCI de 32-bit
- Una ranura AGP Express
- Dos conectores IDE que soporta hasta cuatro dispositivos IDE
- Una interfaz de la unidad de disco floppy
- Cuatro conectores SATA de 7-pin (SiS965 solamente)
- Una ranura de Communications Network Riser (CNR)

Esta placa base admite ultra DMA bus mastering con velocidades de transferencia de 133/100/66 MB/s.

LAN Abordo (optativo)

• Soporta operación de Autonegociación N-Way de 100/10Mbps • Capacidad Medio/Completo duplex • Soporta la función Wake-On-LAN(WOL) y despertar remoto
• Transreceptor 10/100/1000 integrado • Soporta PCI v2.3, 32-bit, 33/66MHz • Soporte total de IEEE802.3, IEEE802.3u y IEEE802.3ab   (Observe que solamente SiS965 soporta Giga LAN)
• Soporta autonegociación en 10/100Mbps • Soporta operación de duplex medio/completo • Conformidad IEEE 802.3/802.3u

I/O integrado

La placa base tiene un conjunto completo de puertos I/O y conectores:
- Dos puertos PS/2 para ratón y de teclado
- Un puerto serie
- Un puerto paralelo
- Cuatro puertos USB
- Un puerto LAN (optativo)
- Clavijas de audio para micrófono, entrada de línea y salida de línea

BIOS Firmware

La placa principal usa AMI 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 y elementos de software están sujetos a cambios sin previo aviso.

Características

Processador

Esta motherboard usa uma ficha de 939 pin que possui as seguintes características:

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

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

Conjunto de Chips

O conjunto de chips SiS756 Northbridge (NB) e SiS965/SiS965L Southbridge (SB) é baseado numa arquitectura inovadora e escalável com fiabilidade e performance provadas.

SiS756(NB)	• Suporta Tecnologia HyperTransport™ Technology com largura de banda até 2000MT/seg.
	• Ponte Integrada Express PCI Host-para-PCI, compatível com PCI Express SPEC 1.0a
	• Interface MuTIOL de elevada passagem para SiS965 MuTIOL Media I/O, suportando bus de dados de 16 bits Bi-direccional
	• Tecnologia 1.8V CMOS, Sinalização compatível com HyperTransport de 1.2V
SiS965/ SiS965L (SB)	• Serviço concorrente de todos os Dispositivos DMA: Controladores IDE Duplo, controlador SATA, três controladores host USB 1.1, um controlador host USB 2.0 e Controlador LAN MAC
	• MuTIOL 1G Integrado para PCI Express x1 Bridge, compatível com PCI Express 1.0a
	• Em conformidade com a especificação PCI 2.3
	• Cumpre com a especificação de Série 1.0 da ATA, suporta até quatro portas independentes (somente SiS965)
	• Controlador Áudio Integrado com Interface AC'97
	• Controladores USB 2.0/1.1 integrados suportando até oito USB portas

Memória

- Suporta tipos de memória DDR400/333/266/200 dupla
- Acomoda quatro fichas DDR SDRAM DIMM de 184 pinos de 2.5V sem buffers
- Capacidade total máxima de 4 GB

Codec Áudio AC'97

- Cumpre com especificação AC'97 v2.3
- CODEC com duplex completo de 18 bits com taxa de amostragem variável e independente
- Suporte duplo de potência: Digital: 5V/3.3V Analógico: 5V

Opções de Expansão

A motherboard é fornecida com as seguintes opções de expansão:

- Um PCI Express x16
- Dois PCI Express x1
- Dois ranhuras PCI de 32 bit
- Uma abertura AGP Express
- Dois conectores IDE que suportam até quatro dispositivos IDE
- Um interface com drive de disco flexível
- Quatro conectores SATA de 7 pin (somente SiS965)
- Uma ranhura de Aumento da Rede de Comunicações (CNR)

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

Onboard LAN (opcional)

• Suporta operação de Auto-negociação N-Way 100/10Mbps • Capacidade de duplex na totalidade/pela metade • Suporta função Wake-On-LAN(WOL) e wake-up remoto
• Transmissor 10/100/1000 integrado • Suporta PCI v2.3, de 32 bits, 33/66MHz • Suporta na totalidade IEEE802.3, IEEE802.3u e IEEE802.3ab   (Tenha em atenção que somente o SiS965 suporta Giga LAN)
• Suporta auto-negociação 10/100Mbps • Suporta operação de duplex pela metade/na totalidade • Compatível com IEEE 802.3/802.3u

I/O Integrado

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

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

Microprogramação BIOS

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

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

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

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

機能

プロセッサ

このマザーボードには、次の機能を持った939ピンソケットが一つあります：
- 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

SiS756 Northbridge (NB)とSiS965/SiS965L 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。

SiS756(NB)
- HyperTransport™ 技術を2000MT/秒の帯域幅でサポート
- 整合型Host-to-PCI Express Bridgeを搭載し、PCI Express SPEC 1.0aに対応済み
- SiS965 MuTIOL Media I/Oための高性能MuTIOLインターフェースを取り入れることで、双方向の16 ビットのデータバスを実現
- 1.8V CMOS 技術採用で、1.2V HyperTransport™ 対応の信号伝達を実現

SiS965/ 965L (SB)
- DMA装置を同時にサポート可能(これらのDMA装置として、デュアル IDE コントローラ、SATA コントローラ、三つのUSB 1.1 ホストコントローラ、1つのUSB 2.0 ホストコントローラ、および1つのLAN MAC コントローラがある)
- PCI Express x1 BridgeのMuTIOL 1Gを内蔵し、PCI Express 1.0aに対応
- PCI 2.3仕様に準拠
- Serial ATA 1.0規格に対応済みで、最大4つまでの独立ポートをサポート可能 (SiS965のみ)
- 整合型オーディオコントローラを搭載(AC'97 インターフェース仕様)
- 内蔵のUSB 2.0/1.1 コントローラーで、8つのポートを提供

メモリ
- デュアルDDR400/333/266/200 メモリを取り付け可能
- 4つの非バッファー2.5V 184ピンDDR SDRAM DIMM ソケットを搭載
- 合計で最大4GBまでの容量に対応可能

AC'97Audio CODEC
- AC'97 v2.3仕様に準拠
- 18ビットステレオ全二重CODECを採用し、独立で可変のサンプリングレートを可能に
- 二重電源サポート：デジタル方式の場合は5V/3.3V、アナログ方式の場合は5V

拡張オプション

本マザーボードでは、次の拡張機能が利用できます。

- PCI Express x16 インターフェースが1つ
- PCI Express x1が2つ
- 32ビットPCIスロット が2つ
- AGP Expressスロットが1つ
- IDEコネクタ が2つ (計4つのIDEチャネルをサポート)
- フロッピーディスク ドライブ インターフェイス が1つ
- 7ピンSATAコネクタ が4つ (SiS965のみ)
- CNR (Communication Networking Riser) スロット が1つ

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

オンボードLAN (オプション)

• 100/10Mbps N-way自動ネゴシエーション操作をサポート • 半/全二重動作可能 • Wake-On-LAN(WOL)機能と遠隔Wake-up機能をサポート
• 10/100/1000 トランシーバーを内蔵 • PCI v2.3(32ビット、33/66MHz仕様)に対応 • IEEE802.3、IEEE802.3u、およびIEEE802.3abに完全対応 （注意: Giga LAN機能はSiS965のみ）
• 10/100Mbps 自動折衝機能をサポート • 半/全二重動作可能 • IEEE 802.3/802.3uに対応済み

統合I/O

マザーボードには、次のI/Oポートやコネクタを揃えています。

- マウスとキーボード用のPS/2ポート が2つ
- シリアルポート が1つ
- パラレルポート が1つ
- USBポート が4つ
- LANポート が1つ(オプション)
- マイク、ラインイン、ラインアウト用オーディオジャック

BIOSファームウェア

本マザーボードはAMI BIOSを採用し、次の機能を含めた多様なシステム構成を行えます。

- 電源管理
- ウェークアップアラーム
- CPUパラメータ
- CPUおよびメモリのタイミング

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。

특징

프로세서

본 마더보드는 다음과 같은 특성을 지닌 939 핀 소켓을 사용합니다:

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

HyperTransport™ 기술은 두 장치 사이의 point-to-point 링크로, 집적 회로가 기존의 인터커넥트 기술보다 훨씬 빠른 속도로 정보를 교환할 수 있게 한다.

칩셋

SiS756 칩셋 패밀리 노스브리지(NB)와 SiS965/SiS965L 사우스브리지(SB) 칩셋은 증명된 신뢰도와 성능을 지닌 혁신적이고 확장가능한 아키텍처에 기반합니다.

SiS756(NB)	• HyperTransport™ Technology 최대 대역폭 2000MT/s 지원 • 통합 Host-to-PCI Express Bridge, PCI Express 1.0a 사양 부합 • SiS965 MuTIOL 미디어 I/O 에 고속 스루아웃 MuTIOL 인터페이스로 쌍방향 16 비트 데이터 버스 지원 • 1.8V CMOS 기술, 1.2V HyperTransport™ 부합 시그널링
SiS965/ SiS965L (SB)	• 모든 DMA 장치 동시 지원: 듀얼 IDE 컨트롤러, SATA 컨트롤러, 3 개의 USB 1.1 호스트 컨트롤러, 1 개의 USB 2.0 호스트 컨트롤러 및 LAN MAC 컨트롤러 • 통합 MuTIOL 1G to PCI Express x1 Bridge, PCI Express 1.0a 부합 • PCI 2.3 사양 호환. • Serial ATA 1.0 사양 부합, 최대 4 개의 독립 포트 지원 (SiS965 경우에 한함) • AC'97 인터페이스를 지닌 통합 오디오 컨트롤러 • 최대 8 개 포트를 지원하는 통합 USB 2.0/1.1 호스트 컨트롤러

메모리

- 듀얼 DDR400/333/266/200 메모리 타입 지원
- 4 개의 unbuffered 2.5V 184 핀 DDR SDRAM DIMM 소켓 사용
- 최대 용량 4 GB

AC'97오디오 코덱

- AC'97 v2.3 사양 부합
- 독립적이고 다양한 샘플링 속도를 지닌 18 비트 스테레오 풀-듀플렉스 코덱
- 듀얼 파워 지원: 디지털: 5V/3.3V 아날로그: 5V

확장 옵션

마더보드에는 다음과 같은 확장 옵션이 있습니다.

- PCI 익스프레스 x16 1 개
- PCI 익스프레스 x1 2 개
- 32비트 PCI 슬롯 2개
- AGP 익스프레스 슬롯 1 개
- 최대 4개의 IDE 장치를 지원하는 IDE 커넥터 2 개
- 플로피 디스크 드라이브 인터페이스 1개
- 7 핀 SATA 커넥터 4 개 (SiS965 경우에 한함)
- Communications Network Riser (CNR) 슬롯 1 개

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

온보드 LAN(선택 품목)

• 100/10Mbps N-Way Auto-negotiation 작업 지원 • Half/Full 듀플렉스 성능 • Wake-On-LAN(WOL) 기능 및 원격 wake-up 지원
• 통합 10/100/1000 트랜시버 • PCI v2.3, 32-bit, 33/66MHz 지원 • IEEE802.3, IEEE802.3u 및 IEEE802.3ab 지원   (SiS965의 경우에만 Giga LAN 지원)
• 10/100Mbps auto-negotiation 지원 • half/full 듀플렉스 오퍼레이션 지원 • IEEE 802.3/802.3u 부합

통합 I/O

마더보드에는 충분한 수의 I/O 포트 및 커넥터가 있습니다.

- 마우스 및 키보드용 PS/2 포트 2개
- 시리얼 포트 1개
- 병렬 포트 1개
- USB 포트 4개
- LAN 포트 1개(선택 품목)
- 마이크, 라인 인 및 라인 아웃용 오디오 단자

BIOS 펌웨어

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

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

펌웨어로 다른 프로세서 클록 속도의 파라미터를 설정할 수도 있다.

일부 하드웨어 사양 및 소프트웨어 항목은 사전 통보 없이 변경될 수 있습니다.

功能

處理器

本主機板設置有一個939針插座，該插座具有如下功能：
- 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™技術爲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

SiS756 北橋(NB)及SiS965/SiS965L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。

SiS756(NB)	• 支援 HyperTransport™ 技術至高達 2000MT/秒的頻寬 • 配備整合型Host-to-PCI Express 橋接器，相容於PCI Express SPEC 1.0a規格 • 具SiS965 MuTIOL Media I/O用的高效能MuTIOL介面，支援雙向16 位元資料匯流排 • 採用1.8V CMOS 技術， 提供1.2V HyperTransport™ 相容之信號傳輸功能
SiS965/ SiS965L (SB)	• 可同時對所有如下的DMA裝置提供服務：雙IDE控制器、SATA控制器、三個USB 1.1主控器、一個USB 2.0主控器及 一個LAN MAC 控制器 • 內建PCI Express x1 Bridge 用MuTIOL 1G，相容於PCI Express1.0a規格 • 符合 PCI 2.3規格 • 相容於Serial ATA 1.0 規格，支援高達4個獨立埠(僅SiS965) • 配備有具AC'97介面之整合型音訊控制器 • 內建USB 2.0/1.1控制器，提供8個連接埠

記憶體

- 支援雙通道 DDR400/333/266/200記憶體
- 配備有4個非緩衝2.5V 184針DDR SDRAM DIMM 插槽
- 最大容量 4 GB

AC'97音頻編碼器

- 相容於AC'97 v2.3規格
- 配備18位元立體聲全雙工CODEC，具獨立多種的取樣率
- 雙電源支援：數位爲5V/3.3V，類比爲5V

繁體中文

擴充選項

本主機板包括下列擴充選項：

- 1 個 PCI Express x16 插槽
- 2 個PCI Express x1 插槽
- 2 個 32-bit PCI 插槽
- 1 個AGP Express槽
- 2 個 IDE 接頭，支援 4個 IDE 裝置
- 1 個軟碟機介面
- 4 個7針SATA接頭(僅SiS965)
- 1 個通訊網路附加卡(Communications Network Riser，CNR)插槽

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

機載區域網路 (選購)

· 支援 100/10Mbps N-way 自動協調作業 · 半/全雙工功能 · 支援Wake-On-LAN(WOL)功能及遠距 wake-up功能
· 整合有10/100/1000 收發器 · 支援 PCI v2.3(32位元33/66MHz規格) · 完全支援IEEE802.3、IEEE802.3u 及IEEE802.3ab   (請注意：僅SiS965 支援 Giga LAN功能)
· 支援 10/100Mbps 自動協商功能 · 支援半/全雙工作業 · IEEE 802.3/802.3u 相容

整合 I/O

主機板具有一組齊全的 I/O 連接埠及連接頭：

- 2 個 PS/2 埠，供滑鼠與鍵盤使用
- 1 個串列埠
- 1 個平行埠
- 4 個USB埠
- 1 個區域網路埠(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AMI BIOS，使用者可以組態設定許多系統功能，包括如下：

- 電源管理
- 喚醒警鈴
- CPU參數
- CPU及記憶體的時脈定時

此外，也可藉由參數的設定，調整處理器的時脈速度。

部份硬體規格和軟體內容可能會在未經通知的情況下更動，敬請見諒。

功能

处理器

主板使用使用一个 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

SiS756 北桥 (NB) 和 SiS965/SiS965L 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。

SiS756(NB)

- 支持 HyperTransport™ 技术，带宽可达 2000MT/s
- 集成主机到 PCI Express x1 桥路，符合 PCI Express 1.0a 标准
- 到 SiS965 MuTIOL Media I/O 的高吞吐量 MuTIOL 接口，支持双向 16 位数据总线
- 1.8V CMOS 技术，1.2V 符合 HyperTransport™ 的信令

SiS965/ SiS965L (SB)

- 所有 DMA 设备的并发服务：双 IDE 控制器，SATA 控制器，3 个 USB 1.1 主机控制器，1 个 USB 2.0 主机控制器和 LAN MAC 控制器
- 集成 MuTIOL 1G 到 PCI Express x1 桥路，符合 PCI Express 1.0a 标准
- 符合 PCI 2.3 规格
- 符合串行 ATA 1.0 规格，支持 4 个独立端口(仅SiS965)
- 带 AC'97 接口的集成音频控制器
- 集成 USB 2.0/1.1 控制器，最多支持 8 个端口

内存

- 支持双 DDR400/333/266/200 内存
- 支持 4 个非缓冲 2.5V 184-pin DDR SDRAM DIMM 插槽
- 总共最大可支持 4 GB

AC'97音频编解码器

- 兼容 AC'97 v2.3 规格
- 具有可调独立采样速率的 -18 位全双工 CODEC（编解码器）
- 支持双电源：数字：5V/3.3V 模拟：5V

扩展选项

此主板提供如下扩展选项：

- 1 个 PCI Express x16 插槽
- 2 个 PCI Express x1 插槽
- 2 个 32 位 PCI 扩展插槽
- 1 个 AGP Express 插槽
- 2 个 IDE 接口，可支持 4 个 IDE 设备
- 1 个软驱接口
- 4 个 7-pin SATA 接口(仅 SiS965)
- 1 个通信网络转接 (CNR) 插槽

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

Onboard LAN（可选）

• 支持 100/10Mbps N 路自协商工作   • 半双工/全双工功能   • 支持 LAN 唤醒 (WOL) 功能和远程唤醒功能
• 集成 10/100/1000 收发器   • 支持 PCI v2.3，32-位，33/66-MHz   • 完全支持 IEEE 802.3、IEEE802.3u 和 IEEE802.3ab   (注意仅 SiS965 支持千兆 LAN)
• 支持 10/100Mbps auto-negotiation   • 支持半双工/全双工工作   • 符合 IEEE 802.3/802.3u 标准

集成 I/O

此主板具有完整的 I/O 端口和插孔：

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

BIOS

此主板使用 AMI 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。

简体中文

Характеристики

Процессор

Плата использует сокет 939-pin 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 SiS756 «Северный мост» (Northbridge, NB) и SiS965/SiS965L «Южный мост» (Southbridge, SB) построены с использованием инновационной масштабируемой архитектуры, обеспечивающей высокую надежность и производительность.

SiS756(NB)
- Поддерживает технологию HyperTransport™ со скоростью трансфера 2000 MT/c
- Встроенный мост Host-to-PCI Express, совместимый со спецификацией PCI Express SPEC 1.0a
- Скоростной интерфейс MuTIOL для SiS965 MuTIOL Media I/O, поддержка двусторонней 16-битной шины данных
- Технология 1.8V CMOS, совместимость с технологией 1.2V HyperTransport™

SiS965/ SiS965L (SB)
- Параллельное обслуживание всех устройств DMA: двойных контроллеров IDE, контроллера SATA, трех контроллеров хоста USB 1.1, один контроллер хоста USB 2.0 и контроллер LAN MAC
- Встроенный мостик MuTIOL 1G - PCI Express x1, совместимый с PCI Express 1.0a
- Совместимость с PCI 2.3
- Совместимость со спецификацией Serial ATA 1.0, поддержка до четырех независимых портов (SiS965 ТОЛЬКО)
- Встроенный контроллер аудио с интерфейсом AC'97
- Интегрированный хост-контроллер USB 2.0/1.1 с поддержкой до 8 USB портов

Память
- Поддерживает память типов DDR 400/333/266/200
- Размещает четыре 184-пиновых сокета небуферируемой памяти 2.5V DDR SDRAM DIMM
- Общий объем памяти 4 GB

AC'97 Аудио CODEC
- Совместим со спецификацией AC'97 v2.3
- 18-битный полный CODEC стерео дуплекс с независимой и переменной скоростью сэмплирования
- Поддержка двойного питания: цифрового: 5V/3.3V аналогового: 5V

Возможности расширения

Существуют следующие опции расширения данной материнской платы:
- Один разъем PCI Express x16
- Два разъема PCI Express x1
- Два32-битовых слота PCI
- Один слот AGP Express
- Два разъема IDE с поддержкой до четырех устройств IDE
- Один разъем для накопителя на гибких дисках
- Четыре разъема 7-pin SATA (SiS965 ТОЛЬКО)
- Один слот CNR

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

Встроенный сетевой адаптер LAN (опционально)

• Поддерживает автоматическое определение скорости и режима соединения 100/10Mbps • Возможность половинного/полного дуплекса • Поддерживает функции Wake-On-LAN(WOL) и remote wake-up
• Встроенный трансивер 10/100/1000 • Поддерживает PCI v2.3, 32-бит, 33/66 МГц • Поддерживает IEEE802.3, IEEE802.3u и IEEE802.3ab   (Внимание: поддержка Giga LAN возможна только в случае SiS965)
• Поддержка 10/100Mbps в режиме auto-negotiation • Поддержка режимов половинный/полный дуплекс • Совместимость с IEEE 802.3/802.3u

Интегрированный вход/выход

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

BIOS

Плата работает под AMI 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.

Multi-Language Translation

Cechy

Procesor

Ta płyta główna zaopatrzona jest w podstawkę dla procesorów z 939 nóżkami i charakteryzuje się następującymi cechami:

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

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

Chipset

Mostek północny (NB) SiS756 i mostek południowy (SB) SiS965/SiS965L chipsetu oparty jest na nowatorskiej i skalowalnej architekturze o sprawdzonej niezawodności i funkcjonalnoœci.

SiS756(NB)	• Obsługuje technologię HyperTransport™ do szybkości 2000 MT/s
	• Zintegrowany mostek Host-to-PCI Express, zgodny z protokołem PCI Express w wersji 1.0a
	• Wysokowydajny interfejs MuTIOL dla we/wy SiS965 MuTIOL, obsługujący dwukierunkową 16 bitową szynę
	• Technologia 1,8 V CMOS, zgodna sygnałowo z 1,2 V Hyper-Transport™
SiS965/ SiS965L (SB)	• Obsługuje jednocześnie wszystkie rodzaje urządzeń DMA: Podwójny kontroler IDE, kontroler SATA, trzy kontrolery hosta USB wersji 1.1, Jeden kontroler hosta USB wersji 2.0 i kontroler LAN MAC
	• Zintegrowany MuTIOL 1G do mostka PCI Express x1, zgodny z PCI Express 1.0a
	• Zgodny z PCI w wersji 2.3
	• Zgodny z Serial ATA w wersji 1.0, obsługuje do czterech niezależnych złączy (tylko SiS965)
	• Zintegrowany kontroler audio z interfejsem AC'97
	• Zcalony kontroler USB 2.0/1.1 obsługuje do ośmiu portów USB

Pamięć

- Obsługuje podwójną pamięć DDR 400/333/266/200
- Zaopatrzona w dwa 184-nóżkowe złącza niebuforowanej pamięci 2.5V DDR SDRAM DIMM
- Maksymalnie obsługuje 4GB pamięci

AC'97 audio CODEC

- Zgodny z AC'97 w wersji 2.3
- 18 bitowe stereo full-duplex CODEC z niezależnym i zmiennym samplingiem
- Obsługuje podwójne zasilanie cyfrowe 5V/3.3V i analogowe 5V

Możliwości rozbudowy

Płyta główna wyposażona jest w następujące gniazda:
- Jedno gniazdo PCI Express x16
- Dwa gniazda PCI Express x1
- Dwa 32-bitowe gniazda PCI
- Jedno gniazdo AGP Express
- Dwa złącza IDE mogące obsłużyć do czterech urządzeń IDE
- Jedno złącze obsługujące stacje dyskietek
- Cztery 7-nóżkowe złącza SATA (tylko SiS965)
- Jedno gniazdo CNR opcjonalnie

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

Zintegrowana obsługa sieci LAN (opcjonalnie)

•	Obsluguje N-drożne automatycznie ustalane operacje z szybkościami 100/10Mbps
•	Możliwość Half/Full duplex
•	Obsługuje funkcję Wake-On-LAN(WOL) I zdalne wake-up
•	Zintegrowany transceiver LAN 10/100/1000
•	Obsługuje PCI wersja 2.3, 32-bit, 33/66MHz
•	Całkowicie zgodny z IEEE802.3, IEEE802.3u and IEEE802.3ab (Uwaga: Giga LAN obsługuje tylko chipset SiS965)
•	Obsługuje szybkości przesyłania 10/100Mbps z opcją auto-wyboru
•	Obsługuje operacje half/full duplex
•	Zgodny ze standardem IEEE 802.3/802.3u

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
- Cztery portów USB
- Jedno gniazdo LAN (opcjonalnie)
- Gniazdo wejściowe mikrofonowe, gniazdo wejściowe i wyjściowe dzwięku (audio)

Firmowy BIOS

Płyta główna wyposażona jest w BIOS firmy AMI, który pozwala użytkownikowi konfigurować wiele cech systemu włączając w to następujące właściwości:
- Zarządzanie poborem mocy
- Alarmy typu Wake-up
- Parametry pracy procesora
- Ustalenia szybkości pracy procesora i pamięci

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

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

Multi-Language Translation

Vlastnosti

Procesor

Tato základní deska využívá 939kolíkovou patici, která se vyznačuje následujícími vlastnostmi:

- 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) SiS756 a southbridge (SB) SiS965/SiS965L jsou založeny na inovativní a škálovatelné architektuře s ověřenou spolehlivostí a výkonností.

SiS756(NB)	• Podpora technologie HyperTransport™ s maximální šířkou pásma 2000MT/s • Integrované přemostění mezi hostitelem a sběrnicí PCI Express, splňující požadavky PCI Express SPEC 1.0a • Rozhraní s vysokou průchodností MuTIOL napojené na SiS965 MuTIOL Media I/O, podpora obousměrné 16bitové datové sběrnice • Technologie 1,8 V CMOS, signalizace splňující požadavky 1,2 V HyperTransport™
SiS965/ SiS965L (SB)	• Současná obsluha všech zařízení DMA: Duální řadiče IDE, řadič SATA, tři řadiče USB 1.1, Jeden hostitelský řadič USB 2.0 a řadič LAN MAC • Integrovaný můstek MuTIOL 1G na PCI Express x1, podle standardu PCI Express 1.0a • Splňuje požadavky standardu PCI 2.3 • Splňuje požadavky standardu Serial ATA 1.0, podporuje až čtyři nezávislé porty (Pouze SiS965) • Integrovaný zvukový řadič s rozhraním AC'97 • Integrované řadiče USB 2.0/1.1 podporující až osm USB portů

Paměť

- Podpora duálních pamětí typu DDR 400/333/266/200
- K dispozici jsou čtyři patice 2,5 V, 184 kolíků DDR SDRAM DIMM bez vyrovnávací paměti
- Celková maximální kapacita paměti 4 GB

Zvukový kodek AC'97

- Splňuje požadavky standardu AC'97 v2.3
- 18bitový plně duplexní stereo kodek s nezávislou a proměnnou vzorkovací frekvencí
- Podpora duálního napájení: Digitální: 5 V / 3,3 V Analogové: 5 V

Možnosti rozšíření

Základní deska je dodávána s následujícími možnostmi rozšíření
- Jedna patice PCI Express x16
- Dvì patice PCI Express x1
- Dvì 32bitové patice PCI
- Jedna patice AGP Express
- Dva konektor IDE podporující až čtyři zařízení IDE
- Jedno rozraní pro disketovou mechaniku
- Čtyři 7kolíkové konektor SATA (Pouze SiS965)
- Jedna patice CNR

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

Vestavění síťové rozhraní LAN (volitelně)

• Podpora 100/10Mbps N–cestného automatického přepínání provozu • Možnost polovičního a plného duplexu • Podporuje funkci Wake-on-LAN (WOL) a vzdálené aktivace
• Integrovaný přijímač/vysílač 10/100/1000 • Podpora rozhraní PCI v2.3, 32bitové, 33/66 MHz • Plná podpora IEEE802.3, IEEE802.3u a IEEE802.3ab (Povšimněte si, že pouze SiS965 podporuje Giga LAN)
• Podpora provozu 10/100 Mbps s automatickým vyjednáváním • Podpora plného/polovičního duplexního provozu • Splňuje požadavky standardu IEEE 802.3/802.3u

Integrovaný vstup/výstup

Základní deska je vybavena kompletní sadou vstupních portů a konektorů I/O:
- Dva porty PS/2 pro myš a klávesnici
- Jeden sériový port
- Jeden paralelní port
- Čtyři USB portů
- Jeden port LAN (volitelně)
- Zvukové konektory pro mikrofon, zvukový vstup a výstup

Firmware BIOS

Základní deska využívá BIOS formy AMI, který uživateli umožňuje nakonfigurovat mnoho systémových parametrů, včetně následujících:
- Řízení spotřeby
- Alarmy při spouštění systému
- Parametry CPU
- Časování CPU a paměti

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

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

Caracteristici

Procesorul

Această placă de bază utilizează un soclu 939, având 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 SiS756 Northbridge (NB) şi SiS965/SiS965L Southbridge (SB) se bazează pe o arhitectură inovatoare şi scalabilă, care s-a impus deja prin fiabilitate şi performanţă.

SiS756(NB)
- Suportă tehnologia HyperTransport™ cu lăţime de bandă de până la 2000 MT/s
- Punte Host-to-PCI Express integrată, compatibilă cu PCI Express, specificaţia 1.0a
- Interfaţă MuTIOL cu randament ridicat pentru SiS965 MuTIOL Media I/O, suportând bus de date bidirecţional pe 16 biţi
- Tehnologie CMOS de 1,8 V CMOS, semnalizare compatibilă cu HyperTransport™ de 1,2 V

SiS965/ SiS965L (SB)
- Deservire paralelă a tuturor unităţilor DMA: Controleri IDE duali, controler SATA, trei controleri gazdă USB 1.1, un controler gazdă USB 2.0 şi un controler LAN MAC
- MuTIOL 1G integrat pentru PCI Express x1 Bridge, compatibil cu PCI Express, versiunea 1.0a
- Compatibil cu specificaţia PCI 2.3
- Compatibilitate cu Serial ATA specificaţia 1.0, suportând până la patru porturi independente (numai SiS965)
- Controler audio integrat cu interfaţă AC'97
- Controleri gazdă USB 2.0/1.1 integraţi, care suportă cel mult opt porturi

Memoria
- Suportă module de memorie duale DDR400/333/266/200
- Dispune de patru socluri pentru module fără zonă tampon DDR SDRAM DIMM de 2,5 V, cu 184 ace
- Capacitatea maximă este de 4 GB

AC'97 Audio CODEC
- Compatibil cu specificaţia AC'97, versiunea 2.3
- CODEC duplex complet stereo pe 18 biţi, cu viteză de eşantionare independentă şi variabilă
- Suport alimentare duală: Digitală: 5V/3,3V, Analogă: 5V

Opţiuni de extindere

Placa de bază este dotată următoarele posibilităţi de extindere:
- Un PCI Express de 16x
- Două PCI Express de 1x
- Două sloturi PCI de 32 biţi
- Un slot AGP Express
- Două conectoare IDE care suport cel mult 4 instrumente IDE
- O interfaţă pentru unitate floppy
- Patru conectoare SATA 7 (numai SiS965)
- Un slot CNR

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

Onboard LAN (opţional)

• Suportă operaţii de autonegociere N-way de 100/10 Mbps • Capacitate semi-duplex/duplex complet • Suportă funcţia Wake-On-LAN(WOL - activare în caz de conectare LAN) şi trezire de la distanţă
• Emiţător-receptor 10/100/1000 integrat • Suport pentru PCI vers. 2.3, pe 32 biţi, la 33/66 MHz • Compatibilitate deplină cu IEEE802.3, IEEE802.3u şi IEEE802.3ab (Reţineţi că doar SiS965 suportă Giga LAN)
• Suportă reglare automată 10/100Mbps • Suportă modul de operare duplex total/semi-duplex • Compatibilitate cu IEEE 802.3/802.3u

I/O integrată

Placa de bază este dotată cu un set complet de porturi şi conectoare I/O:
- Două porturi PS/2, pentru mouse şi tastatură
- Un port serial
- Un port paralel
- Patru porturi USB
- Un port LAN (opţional)
- Mufe audio pentru microfon, intrare şi ieşire audio

Firmware BIOS

Placa de bază utilizează AMI BIOS, care permite utilizatorului să configureze mai mulţi parametri ai sistemului, cum ar fi:
- Gestionarea energiei
- Alarme de trezire
- Parametri CPU
- Temporizare CPU şi memorie

Acest firmware poate fi utilizat şi pentru a seta parametrii diferitelor frecvenţe de comandă ale procesorului.

Anumite specificaţii hardware şi elemente de software pot fi modificate fără înştiinţare prealabilă.

Multi-Language Translation

Спецификация

Процесор

Тази дънна платка използва 939-pin сокет 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 SiS756 (NB) и южен мост SiS965/SiS965L (SB) е изграден на базата на оригинална архитектура с възможност за надстройка с доказана надеждност и производителност.

SiS756(NB)
- поддръжка на технологията HyperTransport™ с честотна лента до 2000MT/s
- Интегриран мост Host-to-PCI Express, съвместим с спецификацията PCI Express 1.0a
- Високопроизводителен интерфейс MuTIOL към SiS965 MuTIOL Media I/O, с поддръжка на двупосочна 16-битова шина за данни
- 1.8V CMOS технология, 1.2V HyperTransport™ съвместимо сигналиране

SiS965/ SiS965L (SB)
- Равностойно обслужване на всички DMA устройства: Два IDE контролера, SATA контролер, три USB 1.1 host контролера, един USB 2.0 host контролер и LAN MAC контролер
- Интегриран мост MuTIOL 1G към PCI Express x1 съвместим с PCI Express 1.0a
- поддръжка на шината PCI 2.3
- Съвместимост със спецификацията Serial ATA 1.0, с поддръжка до четири независими порта(само SiS965)
- Интегриран Аудио контролер с интерфейс AC'97
- интегрирани USB 2.0/1.1 контролери, поддържащи до осем USB порта

Памет
- Поддръжка на модули памет Dual DDR400/333/266/200
- четири небуферирани 184-pin слота DDR SDRAM DIMM с напрежение 2.5V
- общ максимален капацитет 4 GB

AC'97 Audio CODEC
- съвместимост със спецификацията AC'97 v2.3
- Поддръжка на аудио КОДЕК 18-bit stereo full-duplex с независима и изменяема честота
- Двойно захранване: Цифрово: 5V/3.3V Аналогово: 5V

Multi-Language Translation

Възможности за разширяване

Дънната платка има следните разширителни възможности:
- един слот PCI Express x16
- два слота PCI Express x1
- два слота 32-bit PCI
- един AGP Express слот
- два IDE конектора с поддръжка до четири IDE устройства
- един конектор за флопидисково устройство
- четири 7-щифтови SATA конектораs (само SiS965)
- един слот CNR

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

Интегриран мрежов контролер (опция)

• поддръжка на 100/10Mbps, N-Way Auto-negotiation operation • Half/Full duplex режими • Поддръжка на режими Wake-On-LAN (WOL) и remote wake-up
• Интегриран трансивер 10/100/1000 • Поддръжка на PCI v2.3, 32-bit, 33/66MHz • Пълна съвместимост с IEEE802.3, IEEE802.3u и IEEE802.3ab   (Моля отбележете, че Giga LAN се поддържа само от SiS965)
• Поддръжка на автосъгласуване 10/100Mbps • Поддръжка на режими half/full duplex • Съвместимост със спецификацията IEEE 802.3/802.3u

Интегриран Вход/Изход контролер

Дънната платка има пълен набор от I/O портове и конектори:
- два PS/2 порта за мишка и клавиатура
- един сериен порт
- един паралелен порт
- четири USB порта
- един LAN порт (опция)
- Аудио жакове за микрофон, линеен вход и линеен изход

BIOS Firmware

Дънната платка използва AMI BIOS с възможност за различни системни настройки, включително
- управление на захранването
- Wake-up аларми
- параметри на процесора
- синхронизиране на процесора и паметта

настройка на скоростта на часовника на процесора

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

Jellemző

Processzor

Ez az alaplap 939 tűs foglalattal rendelkezik, amelynek jellemzői:
- 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 SiS756 Northbridge (NB) és SiS965/SiS965L Southbridge (SB) lapkakészletek egy új és méretezhető, nagy megbízhatóságú és teljesítőképességű architektúrára épülnek.

SiS756(NB)	• Támogatja a max. 2000MT/s sávszélességű HyperTransport™ technológiát
	• Beépített Host-to-PCI Express híd, amely a PCI Express 1.0a változatával kompatibilis
	• Nagy teljesítményű MuTIOL interfész, amely a SiS965 MuTIOL I/O hordozóhoz egy kétirányú, 16 bites adatbusszal csatlakozik
	• 1,8 V-os CMOS technológia, az 1,2 V-os HyperTransport™ technológiával kompatibilis jelzéssel
SiS965/ SiS965L (SB)	• Az összes DMA egység egyidejű kiszolgálása: duál IDE vezérlők, SATA vezérlő, három gazda USB 1.1 vezérlő, egy gazda USB 2.0 vezérlő és LAN MAC vezérlő
	• Beépített MuTIOL 1G a PCI Express x1 híd, amely a PCI Express 1.0a változatával kompatibilis
	• Kompatibilis a PCI 2.3-as specifikációjával
	• Kompatibilis a Soros ATA 1.0 változatával, maximum négy független portot támogat (csak SiS965)
	• Beépített audio vezérlő AC'97 interfésszel
	• Beépített USB 2.0/1.1 gazda vezérlők, legtöbb nyolc portot támogatnak

Memória

- A duál DDR400/333/266/200 memóriatípusokat támogatja
- Négy puffermentes, 2,5 V-os, 184 tűs DDR SDRAM DIMM foglalattal rendelkezik
- Maximális kapacitása 4 GB

AC'97 Audio CODEC

- Kompatibilis az AC"97 2.3-as változatának szabványával
- 18 bites sztereo teljes duplex CODEC, független és változó mintavételezési sebességgel
- Duál energiaellátás: Digitális: 5V/3,3V Analóg: 5V

Bővítési lehetőségek

Az alaplap a következő bővítési lehetőségekkel rendelkezik:
- Egy 16-szoros PCI Express
- Két 1-szeres PCI Express
- Két 32 bites PCI foglalat
- Egy AGP Express foglalat
- Két IDE csatlakozó, amely összesen négy IDE eszközt támogat
- Egy hajlékonylemez meghajtó interfész
- Négy 7 tűs SATA csatlakozó (csak SiS965)
- Egy CNR foglalat

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

Alaplapon levő LAN (választható)

• 100/10Mbps N-Way automatikus beállítással • Teljes/fél duplex lehetőség • Támogatja a Wake-On-LAN (WOL - aktiválás LAN csatlakozáskor) funkciót és a távoli ébresztést
• Beépített 10/100/1000 adó-vevő • Támogatja a 32 bites, 33/66 MHz-es PCI 2.3-as változatát • Teljesen megfelel az IEEE802.3, IEEE802.3u és IEEE802.3ab szabványoknak   (Jegyezze meg, hogy csak a SiS965 támogatja a Giga LAN-t)
• 10/100Mbps automatikus beállítás támogatása • Fél, illetve teljes duplex üzemmód támogatása • IEEE 802.3/802.3u kompatibilitás

Beépített I/O

Az alaplapot az I/O portok és csatlakozók teljes készletével szerelték fel:
- Két PS/2 port az egér és a billentyűzet számára
- Egy soros port
- Egy párhuzamos port
- Négy USB port
- Egy LAN port (választható)
- Audio csatlakozók mikrofon, bemenet és kimenet számára

BIOS Firmware

Az alaplapon levő AMI 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.*