Certificate HK07/01191.00

The management system of

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

2F, No.240, Sec.1, Nei Hu Road, Taipei, Taiwan 114, R.O.C
No.20 & No.26 (Except 1F, 2F&3F) Free Trade Zone, Shatoujiao, Shenzhen City, Guangdong Province, China

has been assessed and certified as meeting the requirements of

ISO 9001:2000

For the following activities

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

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization

This certificate is valid from 16 March 2007 until 15 March 2010
Issue 1. Certified with SGS since March 2007

Multiple certificates have been issued for this scope
The main certificate is numbered HK07/01191.00

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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

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compliance with the standard

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The Environmental Management System
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located at No. 20 & 26 (except 1F, 2F), Free Trade Zone,
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is engaged in manufacturing of Mother Board and Peripheral Card,
and interrelated managerial activities.**

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

SHENZHEN SOUTHERN CERTIFICATION CO., LTD.

Preface

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Version 1.0

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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:

Chapter 1

Introducing the Motherboard

Describes features of the motherboard.

Go to ⇨ page 1

Chapter 2

Installing the Motherboard

Describes installation of motherboard components.

Go to ⇨ page 7

Chapter 3

Using BIOS

Provides information on using the BIOS Setup Utility.

Go to ⇨ page 27

Chapter 4

Using the Motherboard Software

Describes the motherboard software

Go to ⇨ page 39

Chapter 5

SIS965L SATA RAID Setup Guide

Provides information about SATA RAID Setup

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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the 761GXM-M2 motherboard. This motherboard is a high performance, enhanced function motherboard that supports Socket AM2 for AMD Athlon 64 FX/Athlon 64 X2 Dual-Core/Athlon 64/Sempron processors for high-end business or personal desktop markets.

The motherboard incorporates the SiS761GX Northbridge (NB) and SiS965L Southbridge (SB) chipsets. The SiS761GX Northbridge on this motherboard features the HyperTranport™ complaint bus driver technology to support AMD Athlon 64 FX/Athlon 64 X2 Dual-Core/Athlon 64/Sempron processors up to 2000 MT/s data rate. The Northbridge supports integrated Host-to-PCI Express Bridge, compliant with PCI Express Spec. 1.0a. Plus, SiS MuTIOL, a high bandwidth and mature technology, is incorporated to connect SiS761GX and SiS965L MuTIOL Media I/O together.

The SiS965L Southbridge on this motherboard supports Hi-Precision Event Timer (HPET) for Microsoft Windows with multiple DMA bus architecture that supports isochronous request and continuous packet transmission. It implements an EHCI compliant interface that supports up to eight USB 2.0 ports. The Southbridge integrates a Serial ATA host controller supporting two SATA ports with maximum transfer rate up to 1.5 Gb/s.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, LPT1, one VGA port and four USB ports, one optional LAN port, and audio jacks for microphone, line-in, and line-out.

Feature

Processor

This motherboard uses socket AM2 that carries the following features:

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

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

Chipset

The SiS761GX Northbridge (NB) and SiS965L Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

SiS761GX (NB)

- SiS MuTIOL is incorporated to connect SiS761GX and SiS965L MuTIOL Media I/O
- Supports HyperTransport™ Technology up to 2000 MT/s bandwidth
- Integrated MuTIOL 1G to PCI Express x1 Bridge, compliant with PCI Express spec.1.0a
- Supports up to 128 MB display memory with shared system memory
- High Performance & High quality 3D/2D Graphics Accelerator

SiS965L (SB)

- Integrated Multi-threaded I/O link Ensures Concurrency of Upstream/down Stream Data Transfer with 1.2 GB/s Bandwidth
- Compliant with PCI 2.3 specification supporting up to 6 PCI masters
- Compliant with PCI Express 1.0a
- Compliant with Serial ATA 1.0 specification
- Supports Dual IDE Master/Slave Controller supports Ultra DMA 133/100/66/33
- Integrated USB 2.0 Controller supporting up to eight ports

Memory

- Supports DDR2 800/667/533/400 DDR SDRAM with Dual-channel achitecture
- Accommodates two unbuffered DIMMs, with maximum memory size up to 16 GB

Onboard LAN (optional)

The onboard LAN provides the following features:

- Supports 10BASE-T/100BASE-TX IEEE 802.3u fast Ethernet transceiver
- Integrated voltage regulator to allow operation from a single 3.3 V/ 2.5V supply source
- Supports MII and 7-wire serial interface
- Supports low-power mode

Audio

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

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 slot for Graphics interface
- One PCI Express x1 slot
- Two 32-bit PCI slots
- One CNR slot (optional)
- Two IDE connectors which support four IDE devices
- One floppy disk drive interface
- Two 7-pin SATA connectors

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

Integrated I/O

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

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- One VGA 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.

Motherboard Components

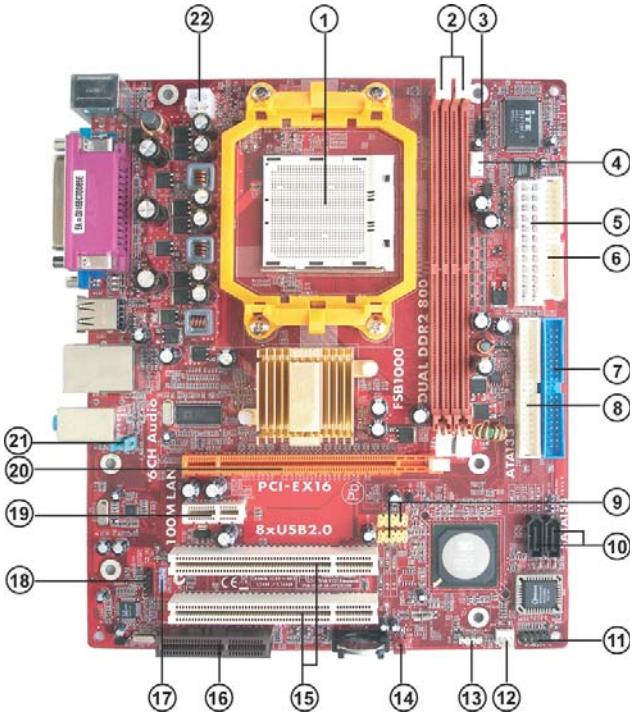


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	Socket AM2 for AMD Athlon 64 FX/Athlon 64 X2 Dual-Core/Athlon 64/Sempron CPUs
2. DDRII1~2	240-pin DDR2 SDRAM slots
3. IR1	Infrared header
4. CPU_FAN1	CPU cooling fan connector
5. PWR1	Standard 24-Pin ATX Power connector
6. FDD1	Floppy Disk Drive connector
7. IDE1	Primary IDE connector
8. IDE2	Secondary IDE connector
9. F_USB1~2	Front Panel USB headers
10. SATA1~2	Serial ATA connectors
11. PANEL1	Front panel switch/LED header
12. SYS_FAN1	System Fan connector
13. SPK1	Speaker header
14. CLR_CMOS1	Clear CMOS jumper
15. PCI1~2	32-bit add-on card slots
16. CNR1*	CNR slot
17. SPDIFO1	SPDIF out header
18. CD_IN1	Analog audio input connecor
19. PCI-E2	PCI Express x1 slot
20. PCI-E1	PCI Express x16 slot for graphics interface
21. F_AUDIO1	Front Panel Audio header
22. PWR2	4-pin +12V power connector

"*" stands for optional components

This concludes Chapter 1. The next chapter explains how to install 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 Micro ATX system case. Firstly, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports one floppy controller and four enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

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

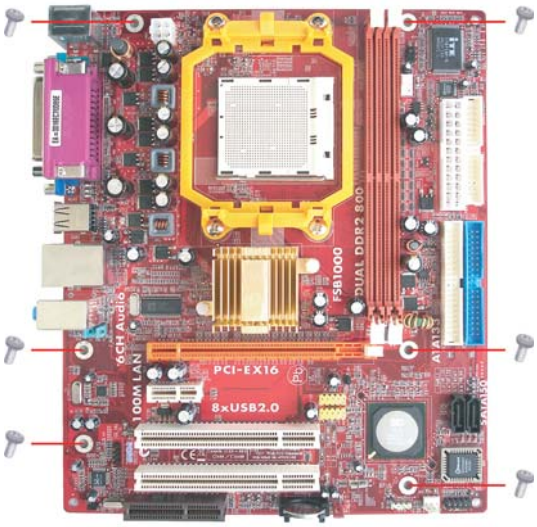
This motherboard carries a Micro ATX form factor of 244 X 200 mm. Choose a case that accommodates this form factor.

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 overtighten the screws as this can stress the motherboard.

Checking Jumper Settings

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

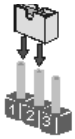
Setting Jumpers

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.

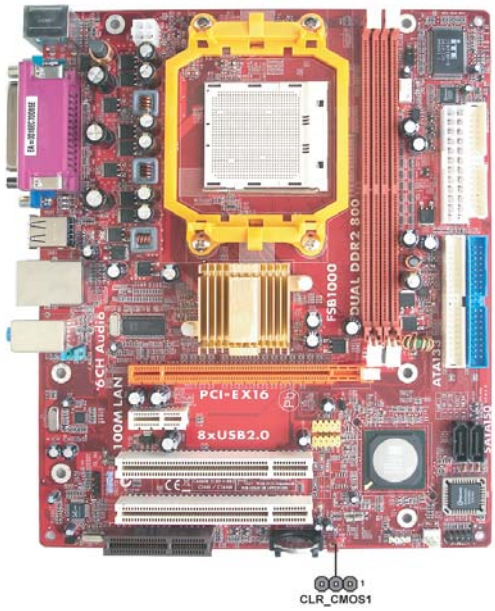
SHORT **OPEN**

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



Checking Jumper Settings

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



Jumper Settings

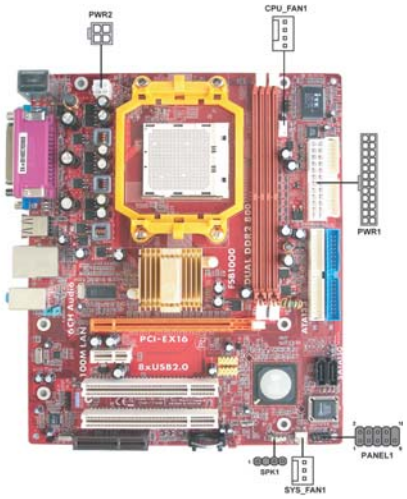
Jumper	Type	Description	Setting (default)	
CLR_CMOS1	3-pin	Clear CMOS	1-2: CLEAR CMOS 2-3: NORMAL Before clearing the CMOS, make sure to turn off the system.	 CLR_CMOS1

To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimal Defaults" and then "Save Changes and Exit".

Connecting Case Components

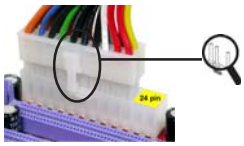
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1. Connect the CPU cooling fan cable to **CPU_FAN1**.
2. Connect the system cooling fan connector to **SYS_FAN1**.
3. Connect the case switches and indicator LEDs to the **PANEL1**.
4. Connect the standard power supply connector to **PWR1**.
5. Connect the auxiliary case power supply connector to **PWR2**.
6. Connect the case speaker cable to **SPK1**.



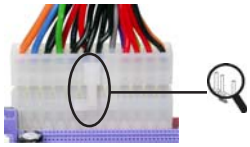
Connecting 20/24-pin power cable

Users please note that the 20-pin and 24-pin power cables can both be connected to the PWR1 connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the PWR1 connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity. A minimum power of 300W is recommended for a fully-configured system.



20-pin power cable

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latch of power cable falls on the left side of the PWR1 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 cling to the right side of PWR1 connector latch.

CPU_FAN1: CPU cooling Fan Power Connector

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

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

SYS_FAN1: FAN Power Connectors

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

PWR1: 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

PWR2: ATX 12V Power Connector

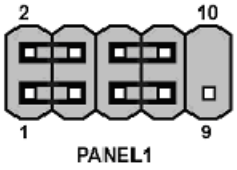
Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

SPK1: Internal speaker

Pin	Signal Name
1	+5V
2	NC
3	GND
4	SPKR

Front Panel Header

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



Pin	Signal Name	Function	Pin	Signal Name	Function
1	HD_LED_P	Hard disk LED(+)	2	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 Hardware

Installing the Processor

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

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

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

Before installing the Processor

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

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

This motherboard has an Socket AM2. 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.

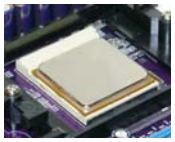
CPU Installation Procedure

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 two 240-pin DIMM sockets (Dual Inline Memory Module) for unbuffered DDR2 800/667/533/400 memory modules (Double Data Rate SDRAM), and maximum 16 GB installed memory.

DDR2 SDRAM memory module table

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

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

Installation Procedure

Refer to the following to install the memory modules.

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

Table A: Unbuffered DIMM Address Timings and Drive Strengths for AM2 Package

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

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

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

The following DDR2 800/667/533 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name
DDR2 533	256 MB	CORSAIR	4PB11D9CHM
		CORSAIR	AET94F-370
		CORSAIR	VC256MB533D2 4PB11D9CHM
		ELPIDA	E2508AA-DF-E
		ELPIDA	E2508AA-T7F-E
		Hynix	HY5PS121621
		Kingston	Infineon HYB18T512260AF-3.7
		Kingston	ELPIDA E5116AF-5C-E
		Kingmax	Hynix HY5PS121621
		Nanya	NT5TU32M16AG-37B
		Ramaxel	5PB42 D9DCD
		SAMSUNG	K4T56083QF-GCD5
		TwinMOS	ELPIDA 8D22IB-ED
	512 MB	AENEON	AET93F370A98Z
		AENEON	AET94F370A98U
		A-DATA	M2GXX2F3H4140A1B0E
		CORSAIR	VS512MB533D2 64M8CEC
		CORSAIR	K4T510830B-GCD5
		CORSAIR	4PB11D9CHM
		Infineon	HY818T512800AF373346778
		Kingston	Hynix HYB18T512800AF37
		Kingston	Hynix HY5PS12821
		Kingston	Nanya NT5TU64M8AE-37B
		Ramaxel	ELPIDA E5108AG-5C-E
		Ramaxel	5PB42 D9DCD
		Ramaxel	ELPIDA E5116AF-5C-E
		SAMSUNG	K4T56083QF
		SAMSUNG	K4T51083QB-GCD5
		TwinMOS	ELPIDA E5108AB-5C-E
	1 GB	APACER	ELPIDA E5108AB-5C-E
		GEIL	A016E2864T2AG8AKT5H120001
		Hynix	HY5P512821 F-C4
		Infineon	HY818T512800AF3733344539
		Kingmax	KKEA88E4AAKKG-37
		PQI	PQB2648D38R
		SAMSUNG	K4T51083QC
		SAMSUNG	K4T51083QB-GCD5
		UMAX	U2S12D30TP-5C
DDR2 667	256 MB	Infineon	HYS64T325001HU-3-A
		Ramaxel	5NB31 D9DCG
	512 MB	A-DATA	Eipida E5108AE-6E-E
		A-DATA	AD29608A88-3EG
		CORSAIR	VALUESELECT 32M8CEC
		CORSAIR	64M8CFEPS1000545
		GEIL	GL2L64M088BA30AW
		Infinity	0547W64M8
		Ramaxel	6AD11 D9GCT
		SyncMAX	04400WB01 R050008A
		SAMSUNG	K4T56083QF-ZCE6
		SAMSUNG	K4T51083QC
		Transcend	SAMSUNG K4T5108AE-6E-E
		Transcend	Infineon HYB18T512 800AF3S
		Transcend	Jet Ram J12Q3AB-6
		Transcend	SAMSUNG K4T51083QC
		TwinMOS	TMM6208G8M30B
	1 GB	APACER	AM4B5708GQJS7E0631F
		APACER	AM4B5708GEWS7E-0637F
		Infineon	HYB18T512800AF3S
		SAMSUNG	K4T51083QC
		UMAX	U2S12D30TP-6E
DDR2 800	1 GB	APACER	AM4B5708BPJS8E0634E
		SyncMAX	R050075B
		Transcend	Hynix HY5PS12821AFP-S5
		UMAX	U2S12D30TP-8E

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

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

About IDE Devices

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

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

IDE1: Primary IDE Connector

The first hard drive should always be connected to IDE1.

IDE2: Secondary IDE Connector

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

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

About SATA Connectors

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

Installing Serial ATA Hard Drives

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

SATA cable (optional)

SATA power cable (optional)

Refer to the illustration below for proper installation:

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

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

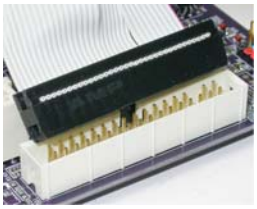
Installing a Floppy Diskette Drive

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

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

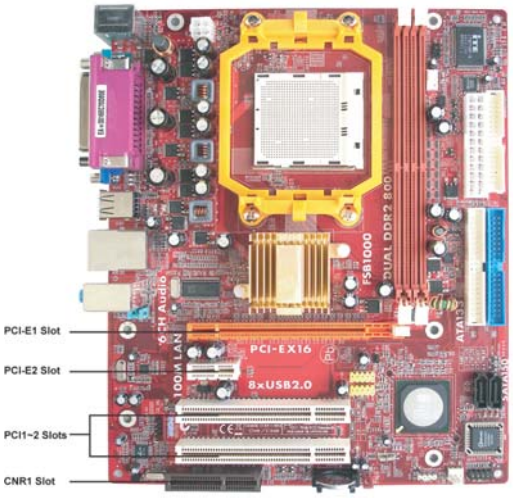
FDD1: Floppy Disk Connector

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



Installing Add-on Cards

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



PCI-E2 slot The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.0a as well.

PCI-E1 slot The PCI Express x16 slot is fully compliant to the PCI Express Base Specification revision 1.0a as well.

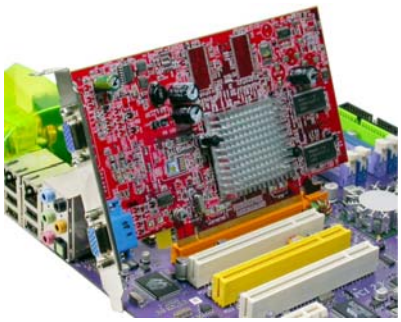
PCI1~2 Slots This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

CNR1 Slot (optional) This slot is used to insert 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:

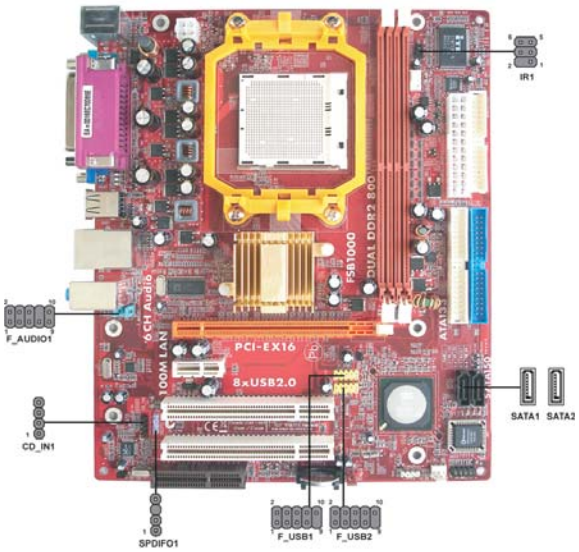
1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



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.

Connecting Optional Devices

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



F_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

F_USB1~2: Front Panel USB headers

The motherboard has two 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	USBPWR0	Front Panel USB Power
2	USBPWR1	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal

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

SATA1~2: Serial ATA connectors

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

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

IR1: Infrared header

The motherboard supports an Infrared (IR1) data port. Infrared port allows 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
1	NC
2	Key
3	+5V
4	GND
5	IRTX
6	IRRX

SPDIFO1: 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 coxial connector.

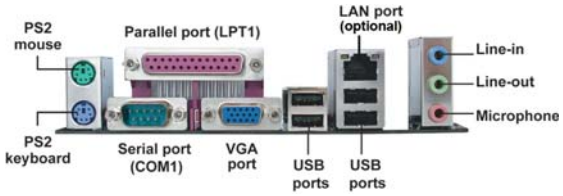
Pin	Signal Name	Function
1	SPDIF	SPDIF-OUT Signal
2	+5VA	5V analog power
3	Key	No pin
4	GND	Ground

CD_IN1: Analog Audio Input header

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

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 printer or other parallel communication devices.

Serial Port (COM1) — Use the COM port to connect serial devices such as mice or fax/modems.

VGA Port — Connect your monitor to the VGA port.

LAN Port (optional) — Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

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 Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

The Standard Configuration

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

This Setup Utility should be used:

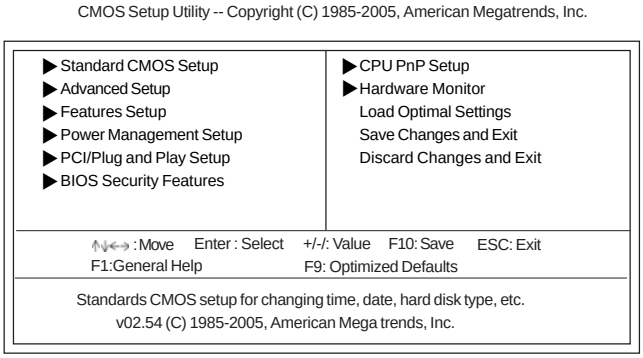
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security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

Entering the Setup Utility

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

Press DEL to enter SETUP

Press the delete key to access the BIOS Setup Utility.



BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓←→	Scrolls through the items on a menu
+/-/PU/PD	Modifies the selected field's values
F1	Displays a screen that describes all key functions
F9	Loads an optimized setting for better performance
F10	Saves the current configuration and exits setup

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. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
2. 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.
3. Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
4. At the A:\ prompt, type the Flash Utility program name and the file name of the new bios and then press <Enter>. Example: AMINF340.EXE 040706.ROM
5. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

Using BIOS

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

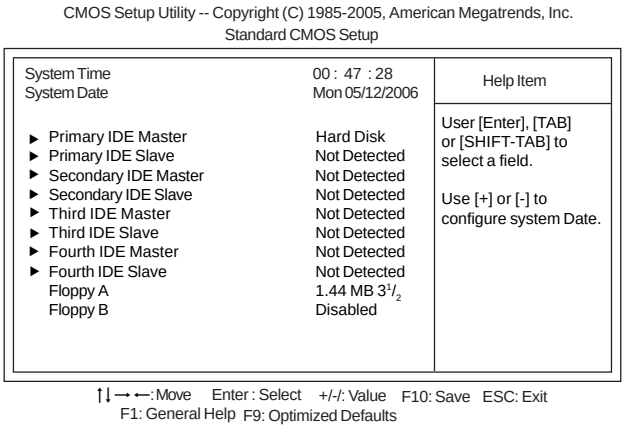
Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

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

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

Standard CMOS Setup

This option displays basic information about your system.



System Date & System Time

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

► IDE Devices

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

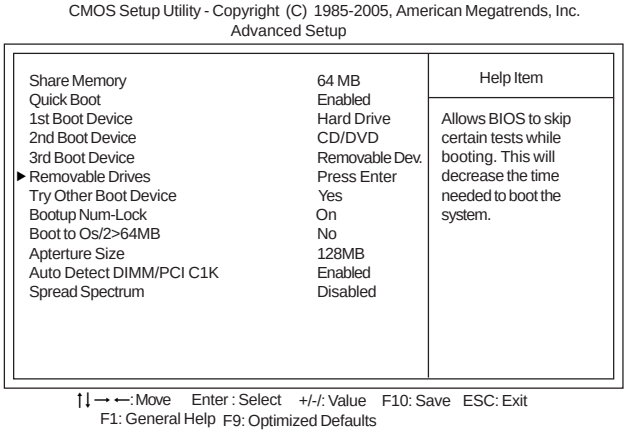
Floppy A/B (1.44 MB $3^1/_2$/Disabled)

These items set up size and capacity of the floppy diskette drive(s) installed in the system.

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

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



Share Memory (64MB)

This item lets you allocate a portion of the main memory for the onboard VGA display application with several options.

Quick Boot (Enabled)

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

1st Boot Device/2nd Boot Device/3rd Boot Device

Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.

Try Other Boot Device (Yes)

If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

BootUp Num-Lock (On)

This item determines if the Num Lock key is active or inactive at system start-up time.

Boot to OS/2 > 64MB (No)

Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.

Aperture Size (128MB)

This item defines the size of aperture if you use a graphic adapter.

Auto detect DIMM/PCI Clock (Enabled)

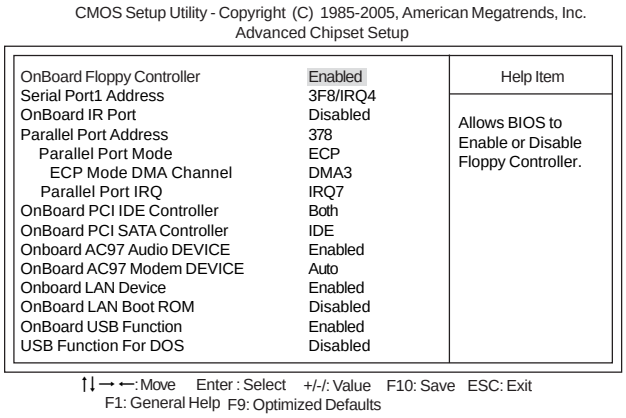
When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

Spread Spectrum (Disabled)

If you enable spread spertrum, it can significantly reduce the EMI (Electro-Magnetic interface) generated by the system.and voltage according to its temperature.

Features Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



OnBoard Floppy Controller (Enabled)

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

Serial Port1 Address (3F8/IRQ4)

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

OnBoard IR Port (Disabled)

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

Parallel Port Address (378)

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

Parallel Port Mode (ECP)

Use this item to set the parallel port mode. You can select ECP (Extended Capabilities Port) & EPP (Enhanced Parallel Port).

ECP Mode DMA Channel (DMA3)

This item assigns a DMA channel to the parallel port.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

OnBoard PCI IDE Controller (Both)

Use this item to enable or disable both of the onboard Primary and Secondary IDE channels.

OnBoard PCI S-ATA Controller (IDE)

Use this item to enable the onboard PCI SATA Controller.

Onboard AC97 Audio DEVICE (Enabled)

This item enables or disables the AC'97 audio chip.

OnBoard AC97 Modem Device (Auto)

This item enables or disables the onboard AC97 Modem device.

Onboard LAN Device (Enabled)

This item enables or disables the onboard Ethernet LAN.

OnBoard LAN Boot ROM (Disabled)

Enable this item if you want to execute the Boot ROM function of onboard LAN while starting the system.

OnBoard USB Function (Enabled)

Enable this item if you plan to use the USB ports on this motherboard.

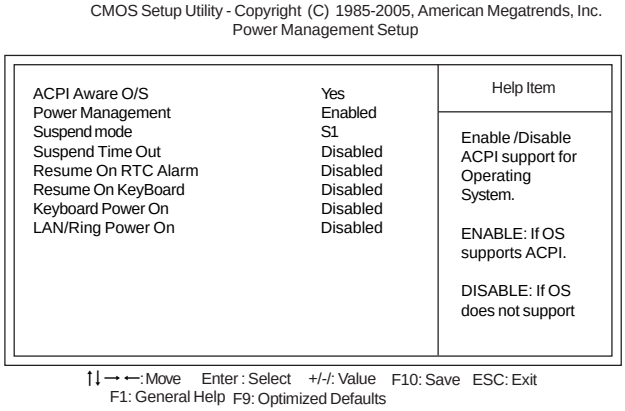
USB Function For DOS (Disabled)

Enable this item if you plan to use the USB ports on this motherboard in a DOS environment.

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

Power Management Setup

This page sets up some parameters for system power management operation.



ACPI Aware O/S (Yes)

This item supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.

Power Management (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. Both APM and ACPI are supported.

Suspend mode (S1)

This item selects the status S1 (Stop Clock) or S3 (Suspend to RAM) when the system enters the power-saving Suspend mode.

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.

Resume On RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Resume On KeyBoard (Disabled)

The system can be turned off with a software command. If you enable this item, system can automatically resume by pressing any keys or power keys on the keyboard, or typing in the password. You must use an ATX power supply in order to use this feature.

KeyBoard Power On (Disabled)

If you enable this item, system can automatically resume by pressing hot keys on the keyboard or typing in the password. You must enable the Key-board Power On jumper and use an ATX power supply in order to use this feature.

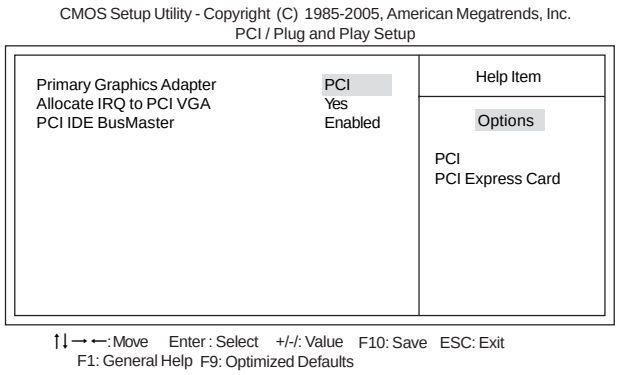
LAN/Ring Power On (Disabled)

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/ Ring, or traffic on the network adapter. You must use an ATX power supply in order to use this feature.

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

PCI / Plug and Play Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.



Primary Graphics Adapter (PCI)

This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default AGP setting still lets the onboard display work and allows the use of a second display card installed in a PCI slot.

Allocate IRQ to PCI VGA (Yes)

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

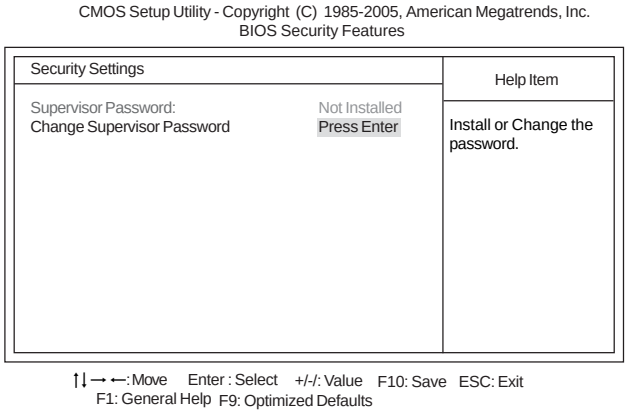
PCI IDE BusMaster (Enabled)

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

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

BIOS Security Features

This item helps you install or change a password.



Supervisor Password (Not Installed)

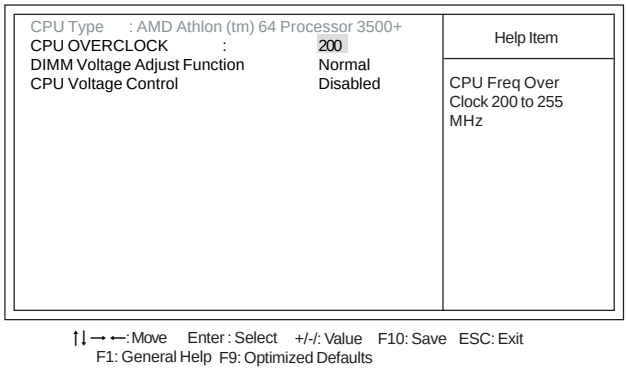
This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change Supervisor 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.

CPU PnP Setup

This item helps you manually configure the mainboard for the CPU. The system will automatically detect the type of installed CPU and make the appropriate adjustments to the items on this page.



CPU Type

This item shows the type of the CPU installed in your system.

CPU OVERCLOCK (200)

This item decides the CPU over-clocking function installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.

DIMM Voltage Adjust Function (Normal)

This item enables or disables users to adjust DIMM voltage.

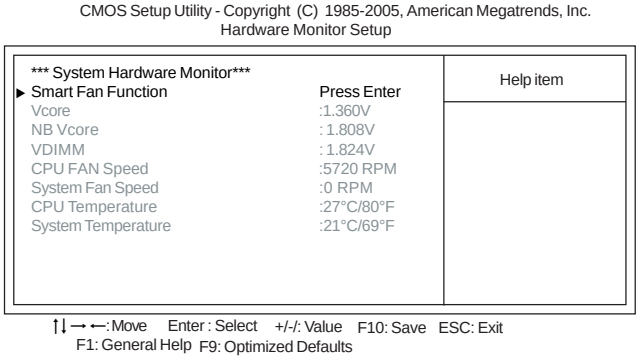
CPU Voltage Control (Disabled)

This item enables or disables users to control CPU voltage.

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

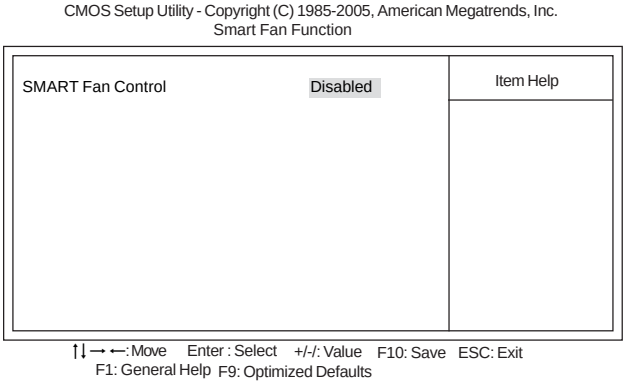
Hardware Monitor

This page sets up some parameters for the hardware monitoring function of this motherboard.



► Smart Fan Function

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



Smart Fan Control (Disabled)

This item enables or disables the control of the system fan speed by adjusting the fan parameter.

Press <Esc> to return to the Hardware Monitor setup page.

System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- Vcore
- NB Vcore
- VDIMM
- CPU FAN Speed
- System Fan Speed
- CPU Temperature
- System Temperature

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

Load Optimal Defaults

This option opens a dialog box that lets you install stability-oriented defaults for all appropriate items in the Setup Utility. Select <OK> and then press <Enter> to install the defaults. Select <Cancel> and then press <Enter> to not install the defaults.

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, select [OK] to save and exit, or select [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, select [OK] to discard changes and exit, or select [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 select [OK] to discard any changes you have made.

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

Chapter 4

Using the Motherboard Software

About the Software CD-ROM

The support software CD-ROM that is included in the motherboard package contains all thedrivers and utility programs needed to properly run the bundled products. Below you can finda brief description of each software program, and the location for your motherboardversion. More information on some programs is available in a README file, located in thesame directory as the software. Before installing any software, always inspect the folder forfiles named README.TXT, INSTALL.TXT, or something similar. These files may con-tain important information that is not included in this manual.

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

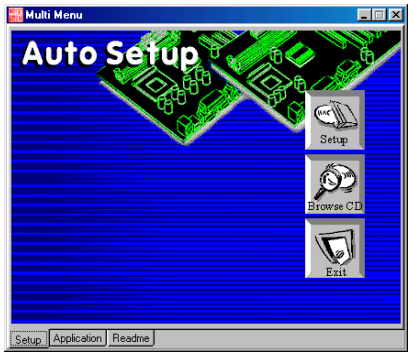
The notice of Intel HD audio installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Win-dows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Usersneed to download and install the update packages from the Microsoft DownloadCenter "before" installing HD audio driver bundled in the Driver CD. Please logon to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliestofor more information.

Auto-installing under Windows 98/2000/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 98/2000/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 Windows 98/2000/XP. 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.

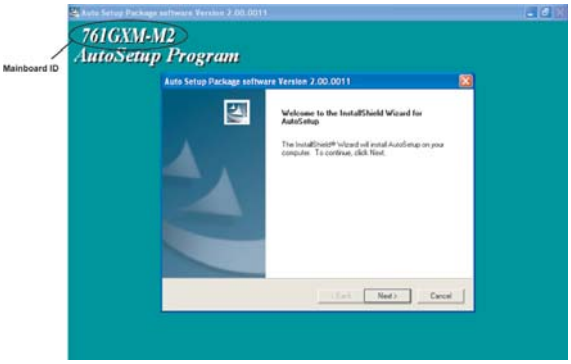
Read Me Tab

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:

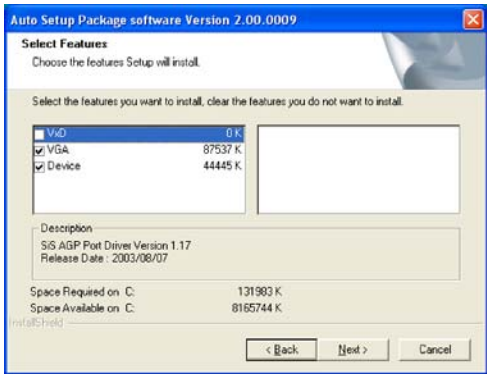
1. *Click **Setup**. The installation program begins:*



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.

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.

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.

This concludes Chapter 4.

Chapter 5

SiS965L SATA RAID Setup Guide

Introduction for SiS965L SATA RAID Function

The SiS965L S-ATA Host controller only support two serial ATA on two independent ports. 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), 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 150 MB/sec per drive, depending on individual drive specifications.

Features

- The SiS 965L controller only support two Serial ATA (Serial ATA RAID) drivers.
- Support RAID function: RAID 0, RAID 1, JBOD.
- 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 **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 provides RAID driver for SiS965L SATA with RAID function.

1 For RAID function, SiS965L support RAID0, RAID1 and JBOD by software RAID driver only.
2 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:
***“WinXP SiS Raid/IDE Controller”*,**
***“Win2000 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 v1.00) 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 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 **“SiS 180 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 **“SiS 180 IDE Dual Channel”** and **“SiS 180 IDE/RAID Controller”** should appear.

BIOS Utility Operation

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

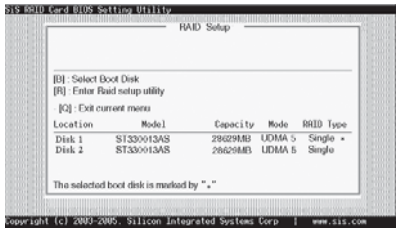
Starting BIOS Utility

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

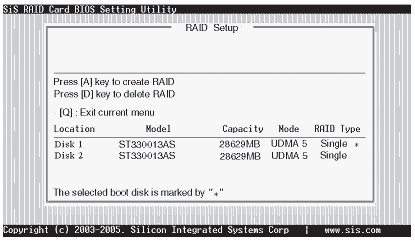
```
Silicon Integrated Systems Corp. RAID BIOS Setting Utility v0.XX
(c) 2003-2005 Silicon Integrated Systems Corp. All Rights Reserved.


Press <Ctrl.<S> to run BIOS Setting Utility
```

2 Press <Ctrl-S> keys to display the SiS965L Utility Main Menu.



3 You can press <B> key to select the boot disk on the 965L 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.



Create RAID

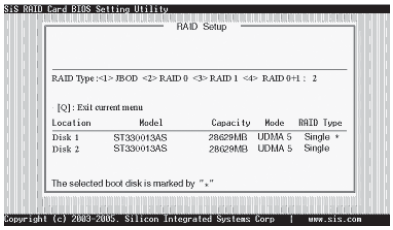
- SiS965L controller support RAID 0, RAID 1 and JBOD.

Creating a RAID 0 (Stripe) Array for Performance

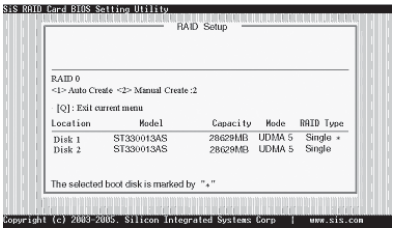
- SiS 180 enables users to create striped arrays with 2, 3, or 4 drives.
- SiS965L only supports 2 SATA drivers to create a stripe array.

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

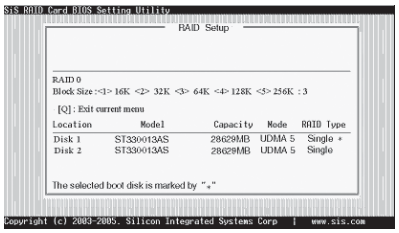
1 Press <A> to start creating a RAID array.
2 Press <2> and <Enter> to select RAID 0.



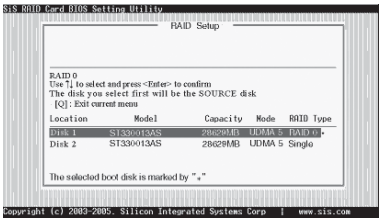
3 You will have two selections to create a RAID 0 array. **The default value is <1>**. If you select **<1>Auto Create**, you can create a RAID 0 array faster and easier. The Blocksize will be selected by its default value “64K”. The result after creating will be show on **step 8**. Besides, you also can select **<2>Manual Create**, see following steps.



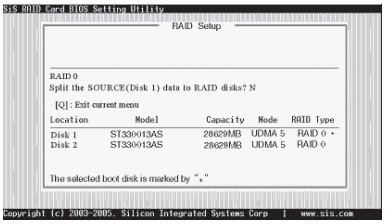
4 Press <1>-<5> keys and <Enter> to select Block Size. (Default:64K)



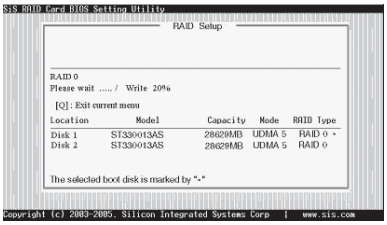
5 Use <↑ > < ↓ > to select disk, and press <Enter> to select disk, <Q> to exit. When you press <Enter> on the disk you wanted, the RAID Type will be changed from Single to RAID 0. An the disk you select first will be the SOURCE disk.



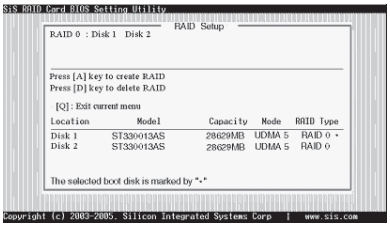
6 Next, you will see a message “Split the SOURCE(DISK x) data to RAID disks?”. Press <N> and <Enter> to create RAID 0 array only or press <Y> and <Enter> to split the data from source disk to other disks.



7 Starting splitting action, the following frame will be shown.

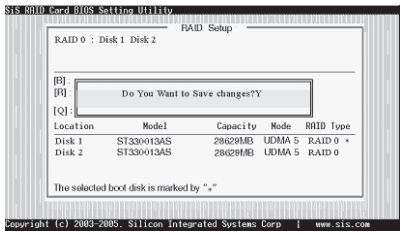


8 After all steps finished, press ,<Q> until escape the setup menu and RAID 0 array will be show on the top of the main frame.



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.



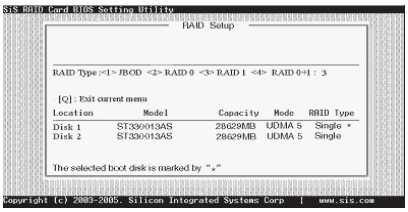
Creating a RAID 1 (Mirror) Array

SiS 965L/180 enables users to create Mirror arrays with 2 drives only.

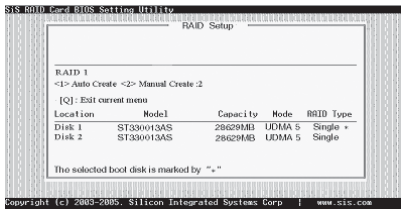
To create a Mirror array, follow these steps:

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

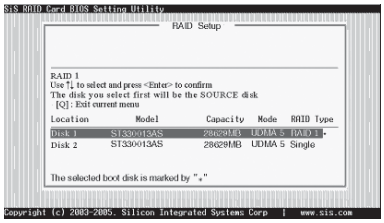
2 Press <3> and <Enter> to select Mirror.



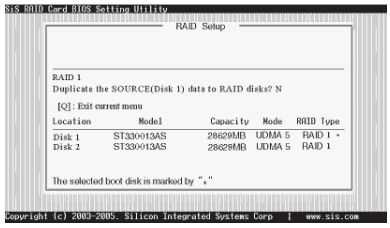
3 You will have two selections to create a RAID 1 array. **The default value is <1>**. If you select **<1>Auto Create**, you can create a RAID 1 array faster and easier. The result after creating will be show on **step 7**. Besides, you also can select **<2>Manual Create**, see following steps.



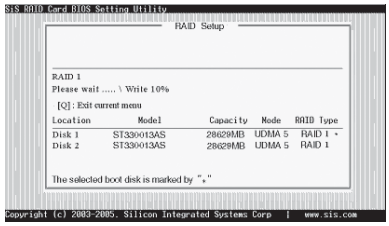
4 Use <↑ > < ↓> to select disk, and press <Enter> to select disk, <Q> to exit. When you press <Enter> on the disk you wanted, the RAID Type will be changed from **Single** to **RAID 1**. The same as RAID 0, the disk you select first will be the SOURCE disk.



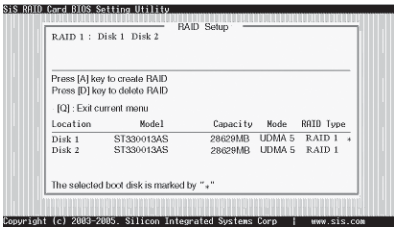
5 Next, you will see a message “Duplicate the SOURCE (DISK x) data to RAID disks?”. Press <N> and <Enter> to create RAID 1 array only or press <Y> and <Enter> to duplicate the data from source disk to mirror disk.



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.



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 JBOD Array

SiS 180 enables users to create JBOD arrays with 2,3, or 4 drives.

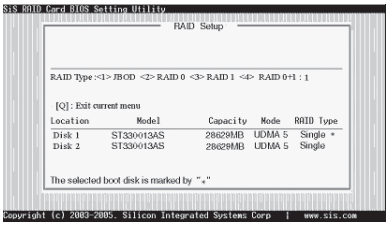
SiS965L only supports 2 SATA drivers to create a JBOD arrays.

To create an JBOD array, follow these steps:

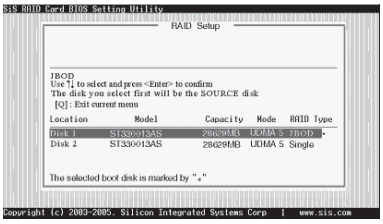
1 Press <A> to start creating a RAID array.

2 Press <1> and <Enter> to select JBOD.

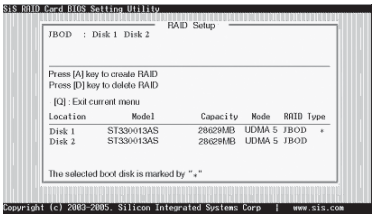
3 You will have two selections to create a JBOD array. **The default value is <1>**. If you select **<1>Auto Create**, you can create a JBOD array faster and easier. The result after creating will be show on **step 5**. Besides, you also can select **<2>Manual Create**, see following steps.



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.

Memo