- The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to up date the information contained herein.

- Third-party brands and names are the property of their respective owners.

- Please do not remove any labels on motherboard, this may void the warranty of this motherboard.

- Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.

- Before you install PCI cards, please remove the Dual BIOS label from PCI slots if there is one.

WARNING: *Never run the processor without the heatsink properly and firmly attached. PERMANENT DAMAGE WILL RESULT!*

Mise en garde : *Ne faites jamais tourner le processeur sans que le dissipateur de chaleur soit fix correctement et fermement. UN DOMMAGE PERMANENT EN RÉSULTERA !*

Achtung: *Der Prozessor darf nur in Betrieb genommen werden, wenn der W rmeableiter ordnungsgem ß und fest angebracht ist. DIES HAT EINEN PERMANENTEN SCHADEN ZUR FOLGE!*

Advertencia: *Nunca haga funcionar el procesador sin el disipador de calor instalado correcta y firmemente. ¡SE PRODUCIRÁ UN DAÑO PERMANENTE!*

Aviso: *Nunca execute o processador sem o dissipador de calor estar adequado e firmemente conectado. O RESULTADO SERÁ UM DANO PERMANENTE!*

警告：　将散热板牢固地安装到处理器上之前，不要运行处理器。过热将永远损坏处理器!

警告:　將散熱器牢固地安裝到處理器上之前，不要運行處理器。過熱將永遠損壞處理器!

경고:　*히트싱크를 제대로 또 단단히 부착시키지 않은 채 프로세서를 구동시키지 마십시오. 영구적 고장이 발생합니다!*

警告:　*永久的な損傷を防ぐため，ヒートシンクを正しくしっかりと取り付けるまでは，プロセッサを動作させないようにしてください。*

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GMbH
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
GA-7A8DRH
is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial,scientific and medical (ISM high frequency equipment	☐ EN 61000-3-2* ☒ EN 60555-2	Disturbances in supply systems cause by household appliances and similar electrical equipment "Harmonics"
☐ EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN 61000-3-3* ☒ EN 60555-3	Disturbances in supply systems cause by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ EN 50081-1 ☒ EN 50082-1	Generic emission standard Part 1: Residual commercial and light industry Generic immunity standard Part 1: Residual commercial and light industry
☐ EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ EN 55081-2	Generic emission standard Part 2: Industrial environment
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 55082-2	Generic emission standard Part 2: Industrial environment
☒ EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ ENV 55104	Immunity requirements for household appliances tools and similar apparatus
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals	☐ EN50091-2	EMC requirements for uninterruptible power systems (UPS)
☒ CE marking		CE (EC conformity marking)	

The manufacturer also declares the conformity of above mentioned product
with the actual required safety standards in accordance with LVD 73/23 EEC

☐ EN 60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ EN 60950	
☐ EN 60335	Safety of household and similar electrical appliances	☐ EN 50091-1	

Manufacturer/Importer

Signature: Timmy Huang
Name: Timmy Huang

(Stamp)

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: **G.B.T. INC. (U.S.A.)**

Address: **17358 Railroad Street**
City of Industry, CA 91748

Phone/Fax No: **(818) 854-9338/ (818) 854-9339**

hereby declares that the product

Product Name: **Motherboard**

Model Number: **GA-7A8DRH**

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

GA-7A8DRH

AMD Socket 940 Dual Processor Motherboard

USER'S MANUAL

AMD Opteron™ Socket 940 Dual Processor Motherboard

Rev. 1001

Table of Content

Item Checklist

- ☑ The GA-7A8DRH motherboard
- ☑ PATA Cable x 2
- ☑ CD for motherboard driver & utility
- ☑ GA-7A8DRH user's manual
- ☑ Quick Reference Guide x 1
- ☑ GC-SCSI 02 Card
- ☑ FDD Cable x 1
- ☑ I/O shield x 1
- ☑ SCSI cable x 1

WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

Installing the motherboard to the chassis...

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Chapter 1 Introduction

Summary of Features

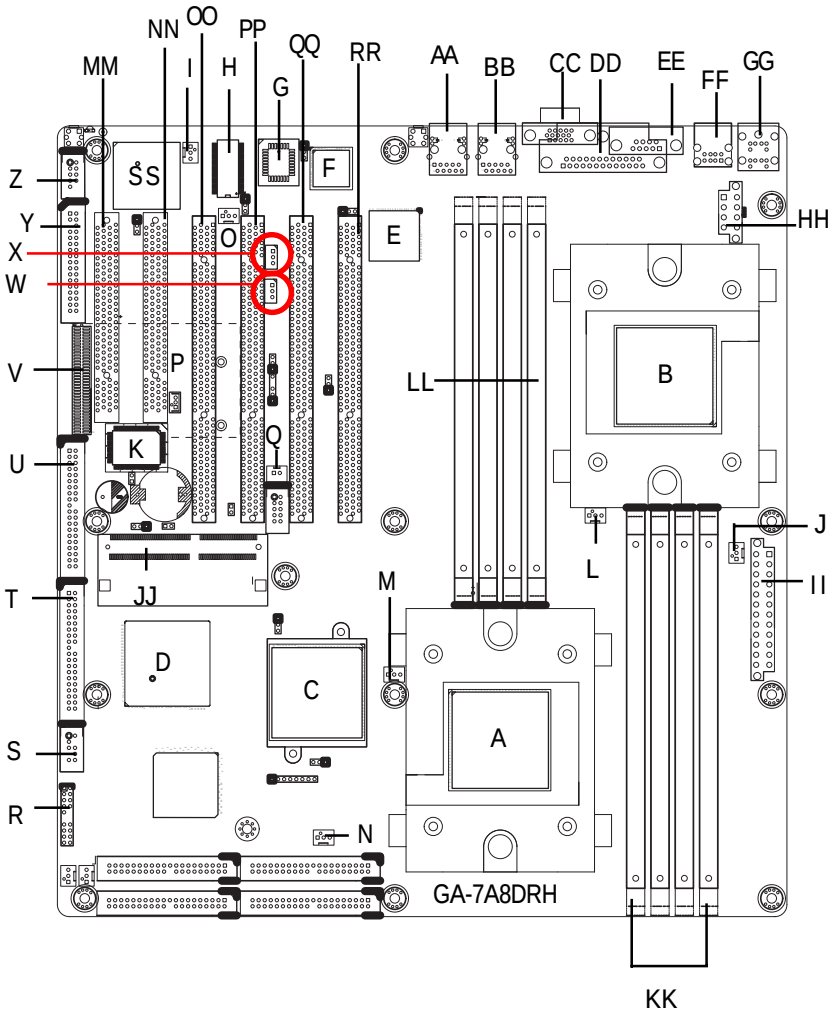
Form Factor	• 30.4cm x 26.9cm ATX size form factor, 6 layers PCB.
Motherboard	• GA-7A8DRH Motherboard
CPU	• Support Dual Opteron processors (Sledge Hammer) • The HyperTransport link of the AMD Opteron processor is capable of operating at 400, 800, 1200, and 1600 MT/s.
Chipset	• AMD-8131 North Bridge HyperTransport PCI-X chipset provides two independent, high-performance PCI-X bus bridges, interated with a high-speed HyperTransport technology tunnel. • AMD-8111 HyperTransport I/O Hub replaces the traditional southbridge. This component integrates storage, connectivity, audio, I/O expansion and system management functions into a single device.
Memory	• Supports 4 * DDR socket slots for Primary CPU • Supports 4 * DDR socket slots for Secondary CPU • CPU1 supports memory capacity up to 8GB • CPU2 supports memory capacity up to 16GB • Supports registered ECC and DDR200/266/333/400
I/O Control	• ITE IT8712F Super I/O
Expansion Slots	• Supports 2 x PCI 32Bit/ 33Mhz Slots • Supports 2 x PCI-X 64Bit/100MHz Slots • Supports 2 x PCI-X 64Bit/66MHz Slots • Supports 1 x PCI-X 64Bit/66MHz Slot by SO-DIMM(SCSI card)
On-Board Peripherals	• 1 Floppy port supports 2 FDD with 360K, 720K,1.2M, 1.44M and 2.88M bytes. • 1 Parallel port supports Normal/EPP/ECP mode • 1 Serial ports (COMA) • 1 VGA connector • 2 USB ports (USB1.1)

to be continued.....

Hardware Monitor	•	Winbond W83791D
	•	CPU/System Fan Revolution detect
	•	CPU/System temperature detect
	•	System Voltage Detect
	•	Power Management Support
Power Managerment Features	•	Wake-on-LAN (WOL), USB, PCI, mouse
	•	Supports ACPI S1/S4/S5 functions
On-Board VGA	•	Build in ATI Rage XL with 8M SDRAM on board
On-Board LAN	•	Intel 82545GM
	•	Intel 82541GI
PS/2 Connector	•	PS/2 Keyboard interface and PS/2 Mouse interface
BIOS	•	Phoenix BIOS on 4Mb flash RAM
Additional Features	•	SMBus Support
	•	IOAPIC Support
	•	Serial IRQ Support
	•	AC Recovery

Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets,SDRAM,Cards….etc.

GA-7A8DRH Motherboard Layout



A.	CPU1	X.	IPMB1
B.	CPU2	Y.	FDD1
C.	AMD8131	Z.	COMB
D.	AMD8111	AA.	GLAN2
E.	Intel 845GM	BB.	GLAN1
F.	Intel 82541GI	CC.	VGA1
G.	BIOS	DD.	LPT1
H.	EM638325TS-6	EE.	COMA1
I.	PWR_FAN2 (Power Fan)	FF.	USB3
J.	PWR_FAN1 (Power Fan)	GG.	KB_MS (Keyboard/Mouse)
K.	ITE8712	HH.	ATX2 (SSI power connector)
L.	CPU_FAN2 (CPU Fan)	II.	ATX1 (SSI power connector)
M.	CPU_FAN1 (CPU Fan)	JJ.	ZCR_CON1 (SCSI connector)
N.	SYS_FAN2 (System Fan)	KK.	CPU1 DIMM 0~3
O.	SYS_FAN1 (System Fan)	LL.	CPU2 DIMM 0~3
P.	WOL	MM.	PCI_6
Q.	WOM	NN.	PCI_5
R.	Front Panel	OO.	PCI-X_4
S.	USB1 (Front USB)	PP.	PCI-X_3
T.	IDE2	QQ	PCI-X_2
U.	IDE1	RR.	PCI-X_1
V.	GSMI (IPMI)	SS.	ATI_Rage XL
W.	IPMB2		

Chapter 2 Hardware Installation Process

To set up your computer, you must complete the following steps:

Step 1- Install the Central Processing Unit (CPU)

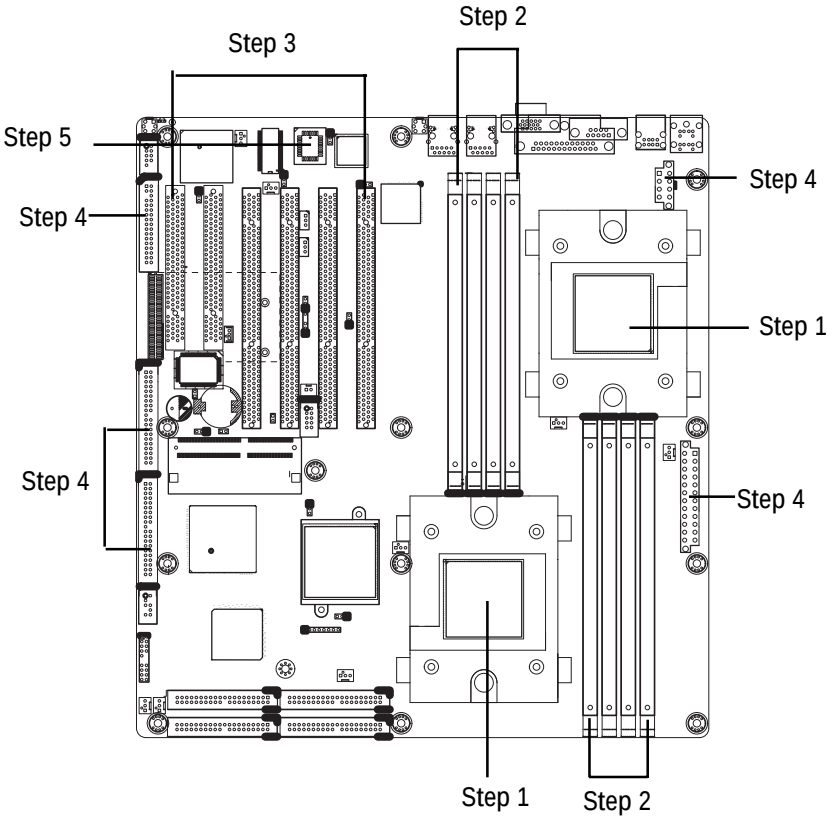
Step 2- Install memory modules

Step 3- Install expansion cards

Step 4- Connect ribbon cables, cabinet wires, and power supply

Step 5- Setup BIOS software

Step 6- Install supporting software tools



Step 1: Installing Processor and CPU Cooling Fan

Before installing the processor and cooling fan, adhere to the following cautions:

CAUTION

1. The processor will overheat without the heatsink and/or fan, resulting in permanent irreparable damage.
2. Never force the processor into the socket.
3. Apply thermal grease on the processor before placing cooling fan.
4. Please make sure the CPU type is supported by the motherboard.
5. If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation. Please use AMD approved cooling fan.

Step1-1: Installing CPU

Step 1. Rise the lever bar on the socket.

Step 2. Aligning the pins of the processor with the socket, insert the processor into the socket.

Step 3 Close the lever completely.

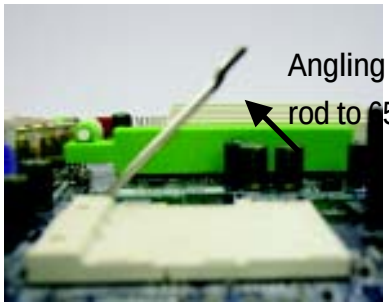


Figure 1. Angling the rod to 65-degree maybe feel a kind of tight , and then continue pull the rod to 90-degree when a noise “cough” made.

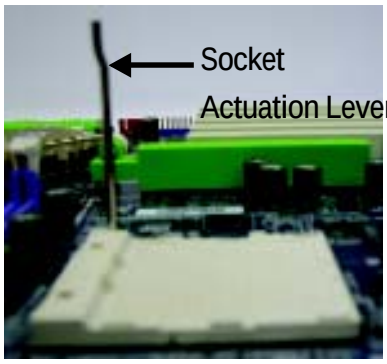


Figure 2. Pull the rod to the 90-degree directly.

Figure 3. A1 pin location on the Socket and Processor.Move the socket lever to the locked position while holding pressure on the center of the processor.

Step 4. When the processor installation is completed, apply thermal grease to the processor(as shown in Figure 4) prior to installing the heatsink. AMD recommends using a high thermal conductivity grease for the thermal interface material rather than a phase change material. Phase change materials develop strong adhesive forces between the heatsink and processor.

Removing the heatsink under such conditions can cause the processor to be removed from the socket without moving the socket lever to the unlocked position and then damage the processor pins or socket contacts.

** We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink. (The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket alone with the cooling fan, and might damage the processor. To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution.)

iFigure 4. Application of Thermal Grease to the processor.

Step1-2: Installing Cooling Fan

Step 1. Attach th cooling fan clip to the processor scoket. Align the heatsink assembly with the support frame mating with the backer plate standoffs as shown in Figure 5&6.

Step 2. Coonect the processor fan cable to the processor fan connector.

Note: ** We recommend you to buy the kind of cooling fan which is shown in Figure 8. This type of cooling fan will provide the best performance for heat releasing.

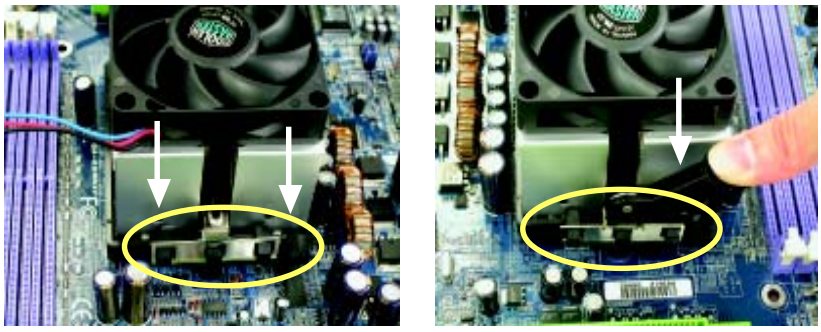


Figure 5&6 Alignment of Heatsink Assembly with Standoffs

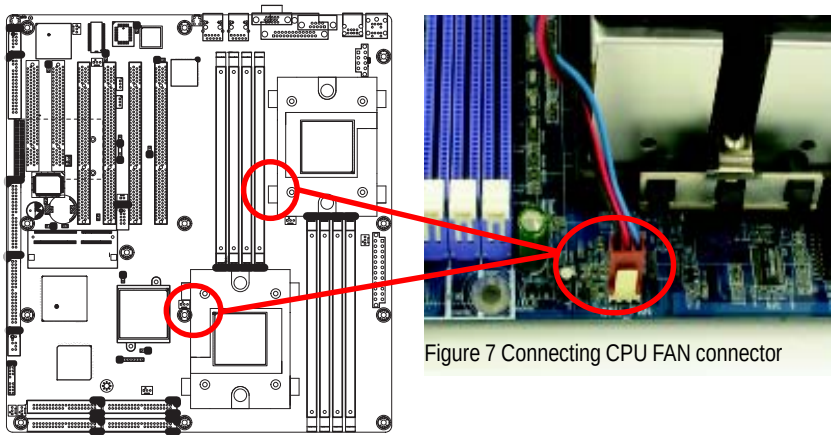


Figure 7 Connecting CPU FAN connector

Figure 8. Recommended cooling fan

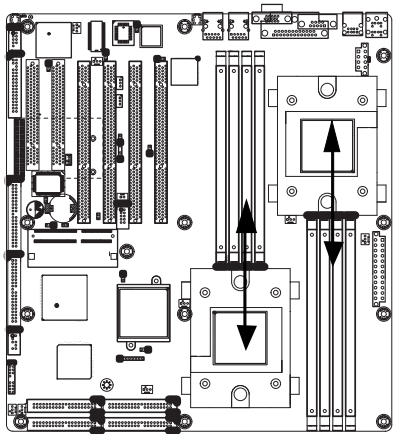


Figure 9. Air Flow direction

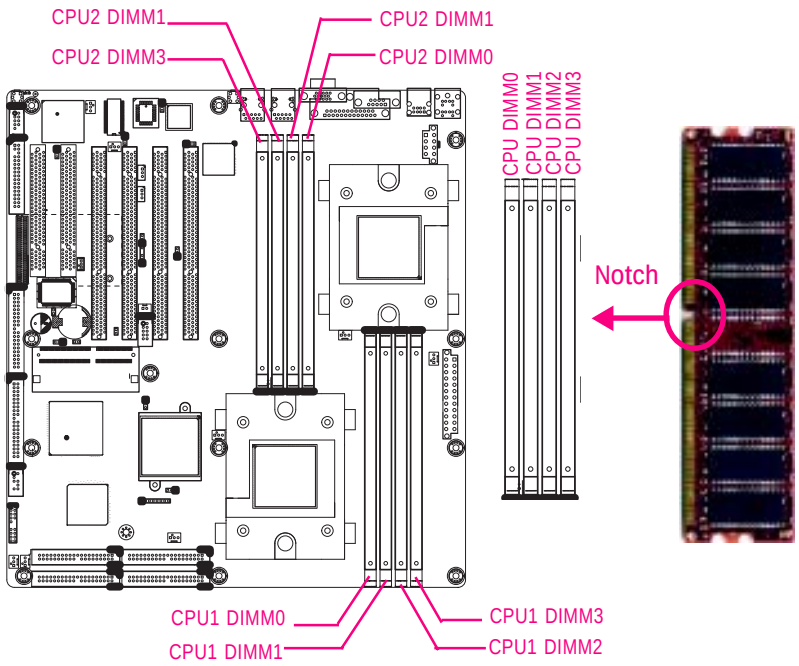
Step 2: Install memory modules

CAUTION

Before installing the processor and heatsink, adhere to the following warning:

Please note that the DIMM module can only fit in one direction due to the one notches. Wrong orientation will cause improper installation. Please change the insert orientation.

The motherboard has 8 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM socket .The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.

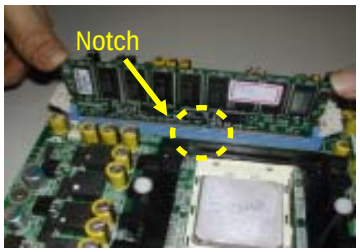


Total Memory Sizes With Registered DDR DIMM

Devices used on DIMM	1 DIMMx64/x72	2 DIMMsx64/x72	3 DIMMsx64/x72	4 DIMMsx64/x72
64 Mbit (4Mx4x4 banks)	256 MBytes	512 MBytes	768 MBytes	1 GBytes
64 Mbit (2Mx8x4 banks)	128 MBytes	256 MBytes	384 MBytes	512 MBytes
64 Mbit (1Mx16x4 banks)	64 MBytes	128 MBytes	192 MBytes	256 MBytes
128 Mbit(8Mx4x4 banks)	512 MBytes	1 GBytes	1.5 GBytes	2 GBytes
128 Mbit(4Mx8x4 banks)	256 MBytes	512 MBytes	768 MBytes	1 GBytes
128 Mbit(2Mx16x4 banks)	128 MBytes	256 MBytes	384 MBytes	512 MBytes
256 Mbit(16Mx4x4 banks)	1 GBytes	2 GBytes	3 GBytes	4 GBytes
256 Mbit(8Mx8x4 banks)	512 MBytes	1 GBytes	1.5 GBytes	2 GBytes
256 Mbit(4Mx16x4 banks)	256 MBytes	512 MBytes	768 MBytes	1 GBytes
512 Mbit(32Mx4x4 banks)	2 GBytes	4 GBytes	4 GBytes	4 GBytes
512 Mbit(16Mx8x4 banks)	1 GBytes	2 GBytes	3 GBytes	4 GBytes
512 Mbit(8Mx16x4 banks)	512 MBytes	1 GBytes	1.5 GBytes	2 GBytes

Installation Step:

1. The DIMM slot has a notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.
3. Close the plastic clip at both edges of theDIMM slots to lock the DIMM module.
4. The processor supports 64-bit mode and 128-bit mode configuration of the DIMMs. In 64 bit mode, only DIMM 0 and 2 can be populated. Possible combinations of DIMMs in 64 bit mode are listed in Table 1. In 128 bit mode, minimum of two DIMMs is required to create the 128 bit bus; therefore, DIMMs can only be populated in even numbered pairs in slot 0 & 1, and 2& 3. Each logical DIMM must be madeof two identical DIMMs having the same device size on each and the same DIMM size. Regardless of mode, DIMM must be populated in order starting at the farest slotfrom the processor. Table 2 & 3 shows the possible combination of DIMMs for 128 mode. Not all possbile combinations are listed in the tables.
5. Installed DIMMs must be the same speed and must all be registered. For a list of suuported memrory, please refer to the table of previous page.
6. Reverse the installation steps when you wish to remove the DIMM module.



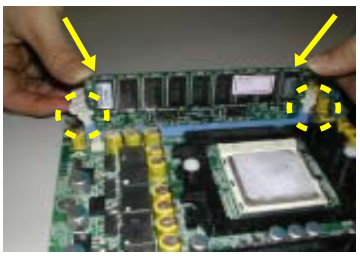


Table 1. Vaild DIMM Configuration for 64 bit Mode

DIMM 0 (MB)	DIMM 2 (MB)
X	256
256	256
X	512
512	512
X	1024
1024	1024
X	2048
2048	2048
X	4096
4096	4096
Note: X = Do not populate	

Table 2. Vaild DIMM Configuration for 128 bit Mode

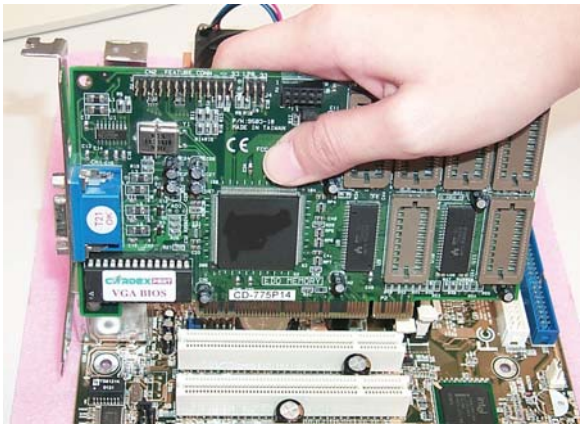
Logical DIMM 0		Ligical DIMM1	
DIMM 0 (MB)	DIMM 1 (MB)	DIMM 2 (MB)	DIMM 3 (MB)
X	X	256	256
256	256	256	256
X	X	512	512
512	512	512	512
X	X	1024	1024
1024	1024	1024	1024
X	X	2048	2048
2048	2048	2048	2048
X	X	4096	4096
4096	4096	4096	4096
Note: X = Do Not populate			

DDR Introduction

DDR memory is a great evolutionary solution for the PC industry that builds on the existing SDRAM architecture, yet make the awesome advances in solving the system performance bottleneck by doubling the memory bandwidth. Nowadays, with the highest bandwidth of 3.2GB/s of DDR400 memory and complete line of DDR400/333/266/200 memory solutions, DDR memory is the best choice for building high performance and low latency DRAM subsystem that are suitable for servers, workstations, and full range of desktop PCs.

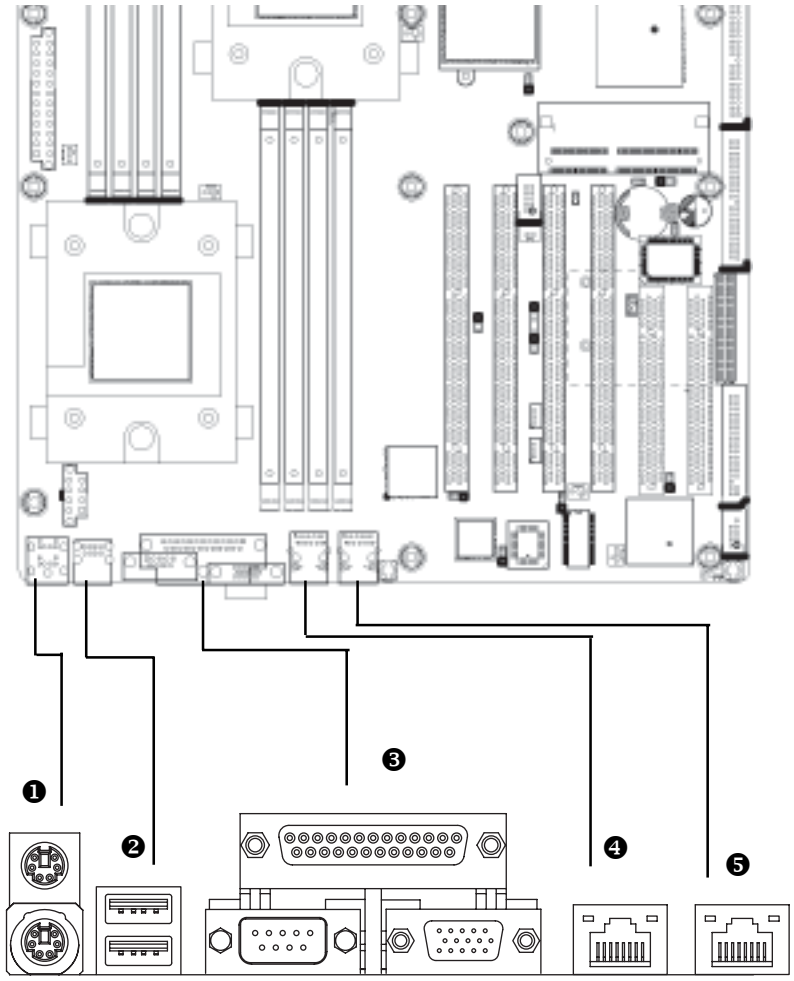
Step 3: Install expansion cards

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

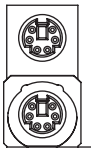


Step 4: Connect ribbon cables, cabinet wires, and power supply

Step4-1:I/O Back Panel Introduction



❶ PS/2 Keyboard and PS/2 Mouse Connector



PS/2 Mouse Connector
(6 pin Female)
PS/2 Keyboard Connector
(6 pin Female)

➢This connector supports standard PS/2 keyboard and PS/2 mouse.

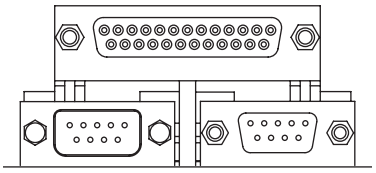
❷ USB Connector

R_USB1

➢Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard,mouse, scanner, zip, speaker.. etc. Have a standard USB interface. Also make sure your OS (Win 95 with USB supplement, Win98, Windows 2000, Windows ME, Win NT with SP 6) supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

❸ Parallel Port , Serial Ports (COMA / VGA)

Parallel Port
(25 pin Female)

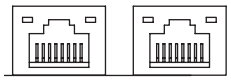


COMA VGA

Serial Port (9 pin Male)

➢This connector supports 2 standard COM ports and 1 Parallel port. Device like printer can be connected to Parallel port ; mouse and modem etc can be connected to Serial ports. COMA can be used for console redirection.

❺/❹ LAN Connectors



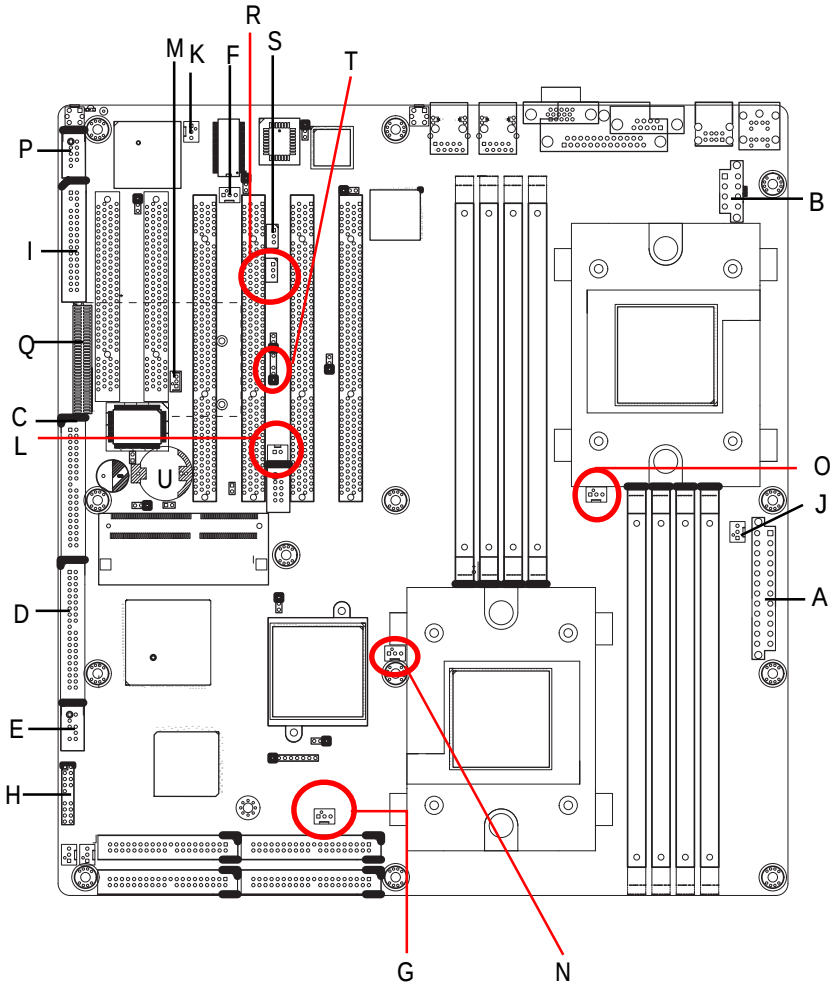
LAN1 LAN2

- LAN 1: Gigabit Ethernet 10/100/1000
- LAN 2: Giagbit Ethernet 10/100/1000

LAN1/LAN2 LED Description

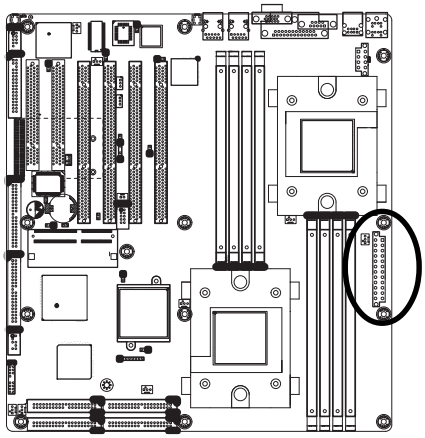
LAN Port	Status	Description
LAN 1	Yellow LED Blink	LAN1 active
	Yellow LED On	LAN1 connected
	Green LED On	LAN1 at Speed 100MB/1000MB
	Green LED Off	LAN1 at speed 10MB
LAN 2	Yellow LED Blink	LAN2 active
	Yellow LED On	LAN2 connected
	Green LED On	LAN2 at speed 100MB/1000MB
	Green LED Off	LAN2 at speed 10MB

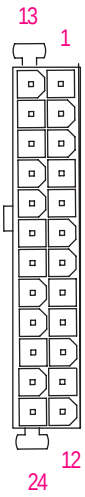
Step4-2: Connectors Introduction



A) AXT1	L) WOM1
B) ATX2	M) WOL1
C) IDE1	N) CPU_FAN1
D) IDE2	O) CPU_FAN2
E) USB1	P) COMB
F) SYS_FAN1	Q) GSMI1
G) SYS_FAN2	R) IPMB1
H) F_Panel	S) IPMB2
I) FDD1	T) SMBUS1
J) PWR_FAN1	U) Battery
K) PWR_FAN2	

A) ATX1

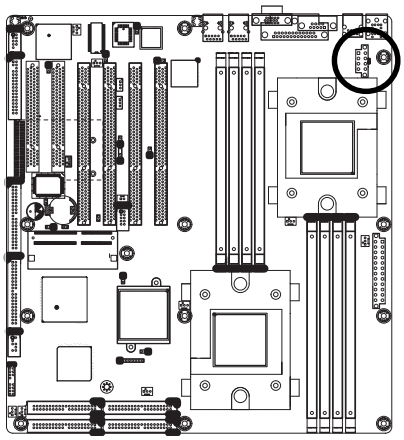


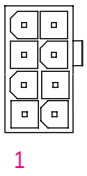


PIN No.	Definition
1	+3.3V
2	+3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	POK
9	5VSB
10	+12V
11	+12V
12	+3.3V
13	+3.3V
14	-12V
15	GND
16	PSON
17	GND
18	GND
19	GND
20	-5V
21	+5V
22	+5V
23	+5V
24	GND

➢ AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

B) ATX2



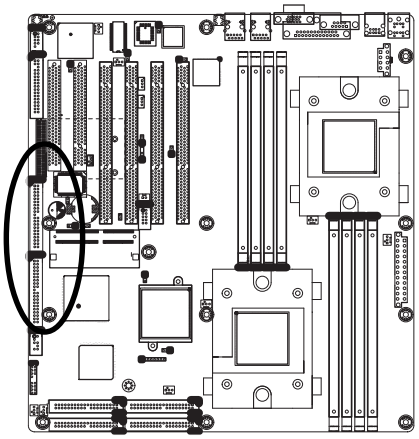


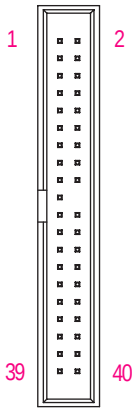
Pin No.	Definition
1	GND
2	+12v
3	GND
4	+12V
5	GND
6	+12V
7	GND
8	+12V

➢This connector (ATX +12V) is used only for CPU Core Voltage.

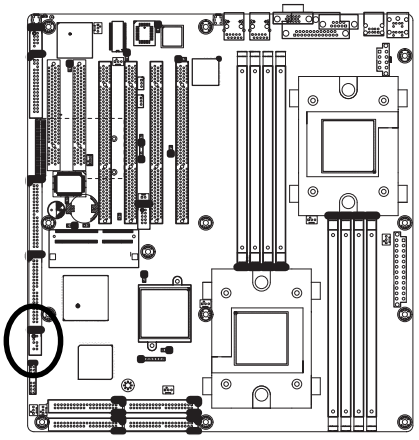
C / D) IDE 1/2

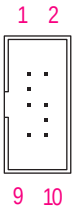
Please connect first harddisk to IDE1 and connect CDROM to IDE2. The red stripe of the ribbon cable must be the same side with the Pin1.





E) USB1

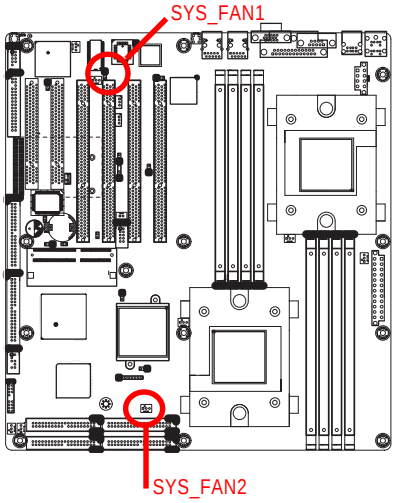




PIN No.	Definition
1	VCC
2	GND
3	-Data 0
4	Key
5	+Data 0
6	+Data 1
7	Key
8	-Data 1
9	GND
10	VCC

➢ Be careful with the polarity of the front panel USB connector. Check the pin assignment while you connect the front panel USB cable. Please contact your nearest dealer for optional front panel USB cable.

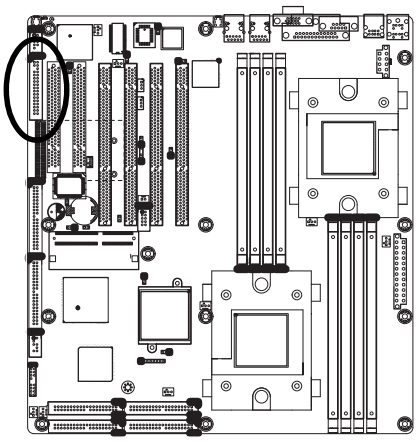
F / G) SYS_FAN1/2 (System FAN)

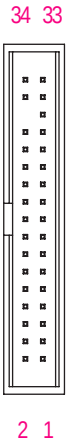


Pin No.	Definition
1	GND
2	+12V
3	Sense

I) FDD1 (Floppy Connector)

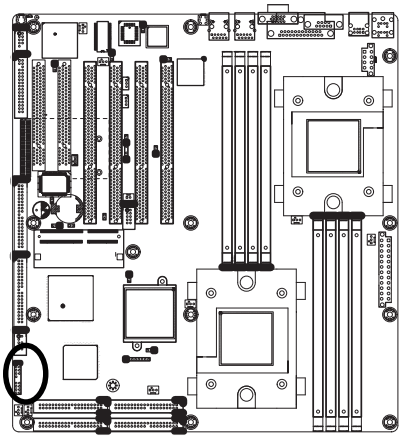
Please connect the floppy drive ribbon cables to FDD. It supports 360K,720K,1.2M,1.44M and 2.88Mbytes floppy disk types. The red stripe of the ribbon cable must be the same side with the Pin1.

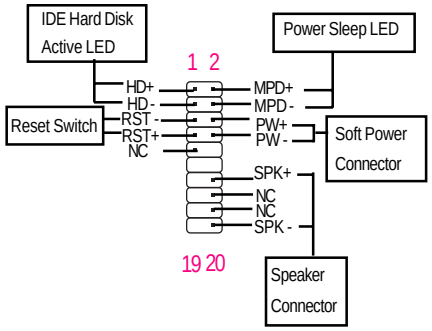




H) F_Panel1 (2X10 Pins)

Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the front panel jumper according to the pin assignment below.

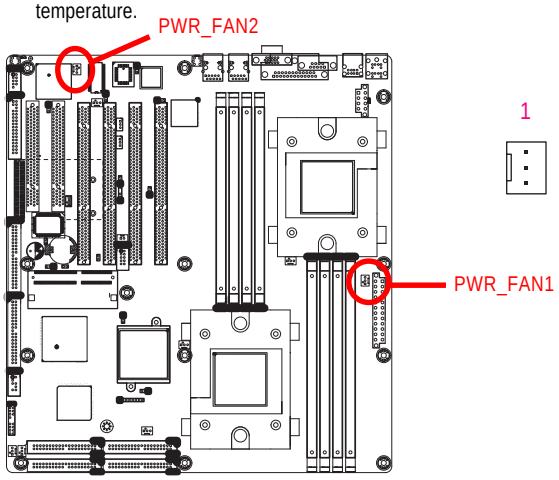




Pin No	Signal Name	Description
1	HD+	Hard Disk LED pull up (330 ohm)
2	MPD+	Pull up 330 ohm
3	HD-	Hard Disk Active LED Signal
4	MPD-	Suspend LED (Blinking)
5	RST-	Ground
6	PW+	Front Panel Power On/Off Button Signal
7	RST+	Ground
8	PW-	Front Panel Power On/Off Button Signal(GND)
9	NC	No Connect
10	KEY	KEY
11	KEY	KEY
12	KEY	KEY
13	KEY	KEY
14	SPK+	Speaker connector (5V Standby)
15	KEY	KEY
16	NC	No Connect
17	KEY	KEY
18	NC	No Connect
19	KEY	KEY
20	Speaker-	Speaker connector

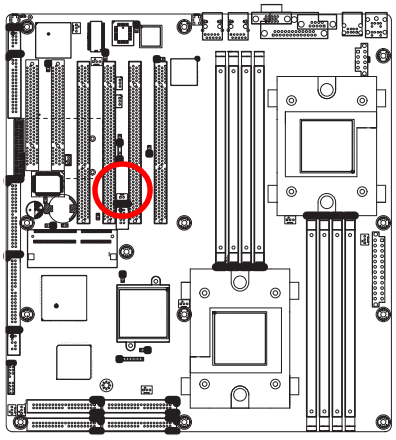
J / K) PWR_FAN1/2 (Power Fan Connectors)

This connector allows you to link with the cooling fan on the system case to lower the system temperature.



Pin No.	Definition
1	GND
2	+12V
3	Sense

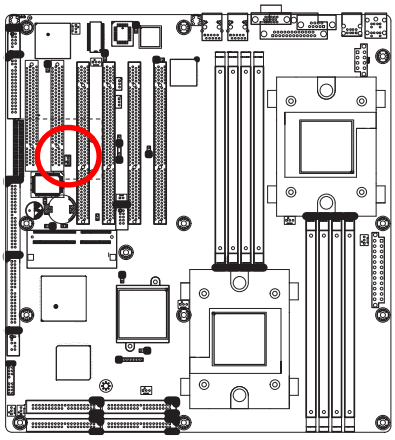
L) WOM1 (Wake on Moderm Connector)



Pin No.	Definition
1	Ring
2	GND

M) WOL1 (Wake On LAN Connector)

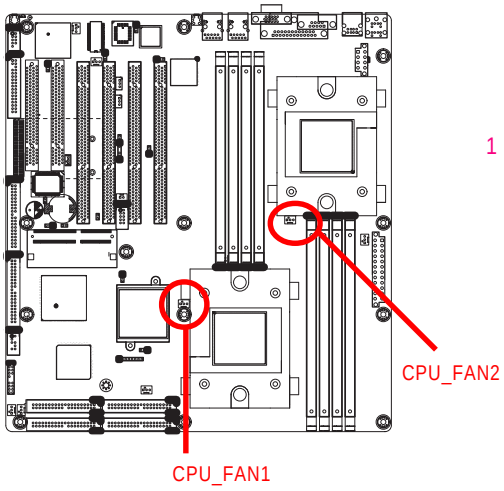
This connector allows the remove servers to manage the system that installed this mainboard via your network adapter which also supports WOL.



Pin No.	Definition
1	+5V SB
2	GND
3	Signal

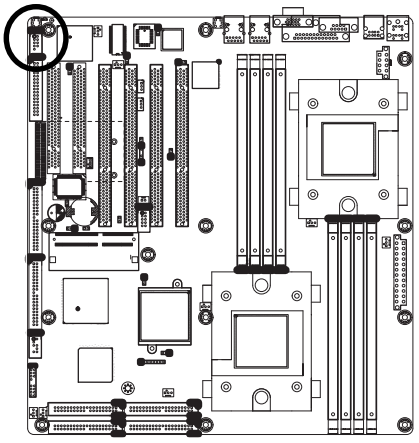
N / O) CPU_FAN 1/2 (CPU Fan Connectors)

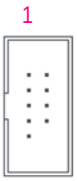
Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 600 mA.



Pin No.	Definition
1	GND
2	+12V
3	Sense

P) COMB

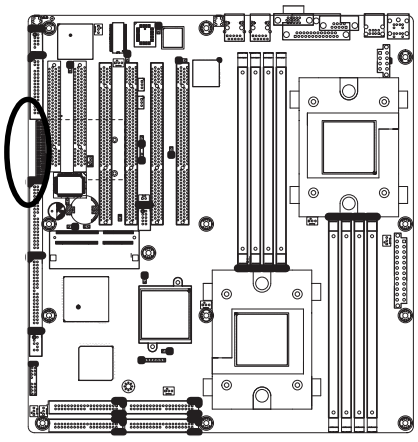




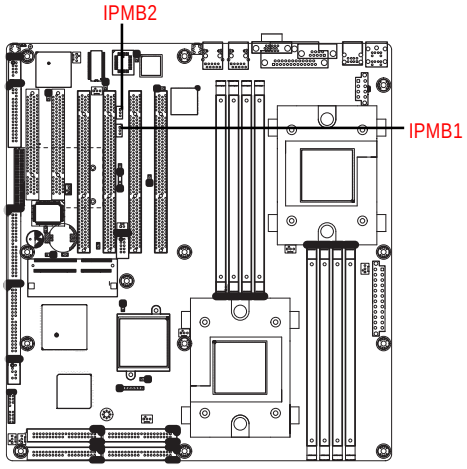
Pin No.	Definition
1	NDCDB
2	NSINB
3	NSOUTB
4	NDTRB
5	GND
6	NDSRB-
7	NRTSB-
8	NCTSB-
9	NRIB-
10	NC

Q) GSMI1

This connector is for the IPMI function and must bundle with IPMI module.

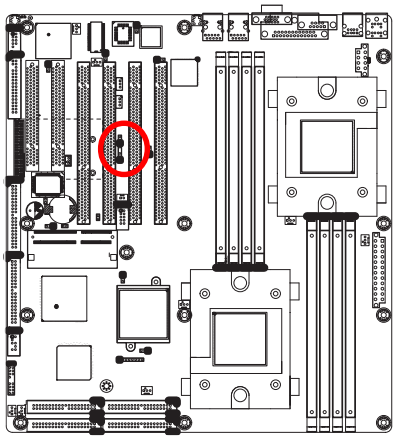


R / S) IPMB1/2 (IPMB Connectors)



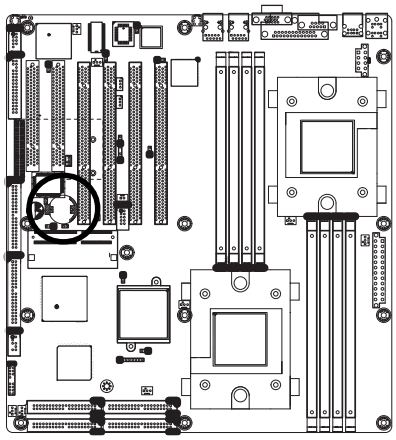
Pin No.	Definition
1	Serial Clock
2	GND
3	Serial Data

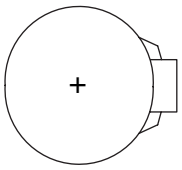
T) SMBUS1 (SMBus Connector)



Pin No.	Definition
1	GND
2	KEY
3	Data
4	Clock

U) Battery



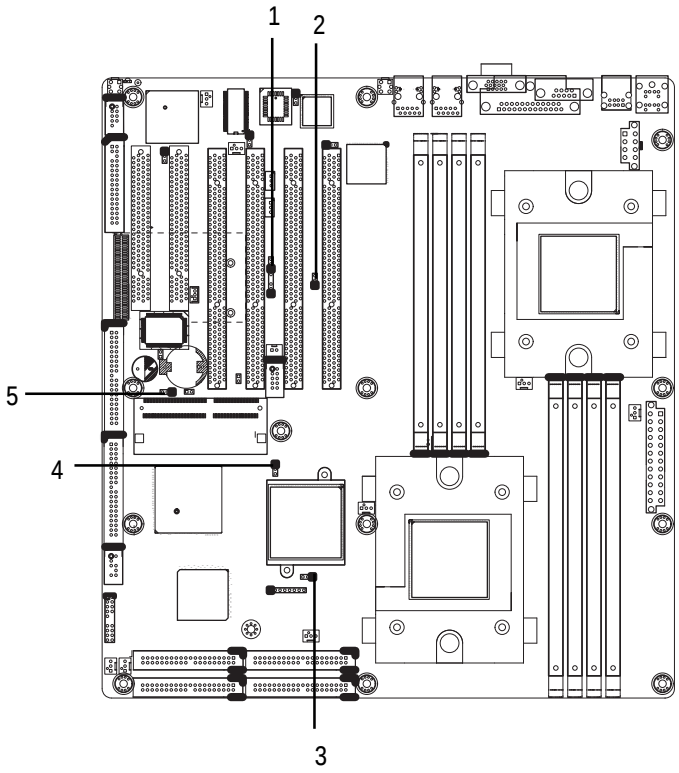


If you want to erase CMOS...
1.Turn OFF the computer and unplug the power cord.
2.Remove the battery, wait for 30 second.
3.Re-install the battery.
4.Plug the power cord and turn ON the computer.

CAUTION

- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

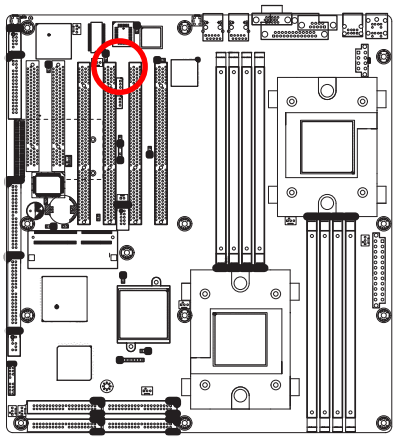
Step4-3: Jumper Setting Introduction



1) JP1	4) JP7
2) JP2	5) CLR_CMOS1 (Clear CMOS)
3) JP4	

	PCI-X 66MHz	PCI-X 100MHz	PCI-X 133MHz
PCI-X 1.2	JP2 PIN2-3 short	JP2 PIN1-2 short	JP2 PIN1-2 short
82545GM		JP7 PIN1-2 short	JP7 PIN2-3 short
PCI-X 3.4	JP1 PIN2-3 short	JP1 PIN1-2 short	JP1 PIN1-2 short
SCSI 7902		JP4 PIN1-2 short	JP4 PIN2-3 short

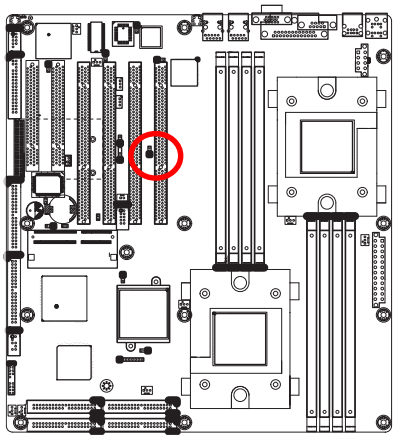
1) JP1 (PCI-X Bus Speedy Function)



1  1-2 close: Enable PCI-X 3 & 4 and SCSI 100/133 Mhz (default)

1  2-3 close: Enable PCI-X 3 & 4 and SCSI 66Mhz

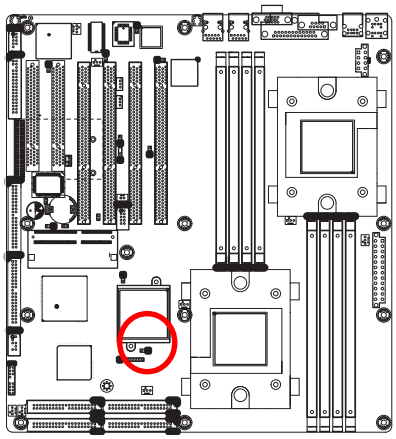
2) JP2 (PCI-X Bus Speedy Function)



1  1-2 close: Enable PCI-X 1 & 2 and 545GM 100/133 Mhz (default)

1  2-3 close: Enable PCI-X 1 & 2 and 545GM 66Mhz

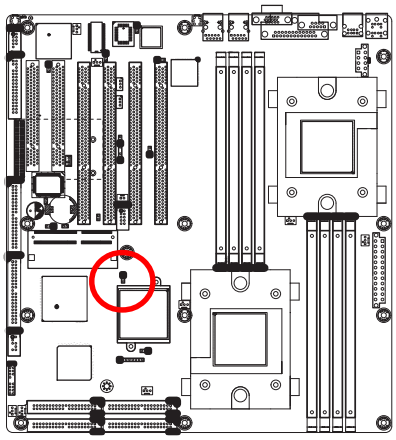
3) JP4 (PCI-X Bus Speedy Function)



1  1-2 close: Enable PCI-X 3 & 4 and SCSI at 100 Mhz (default)

1  2-3 close: Enable PCI-X 3 & 4 and SCSI at 133 Mhz

4) JP7 (PCI-X Bus Speedy Function)



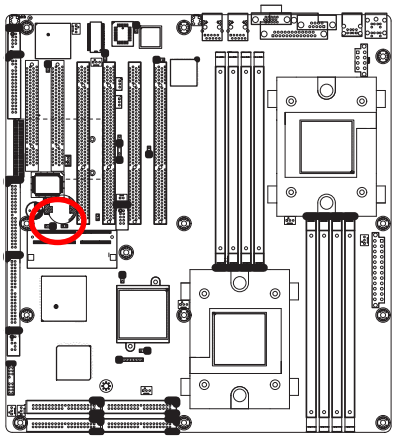
1  1-2 close: Enable PCI-X 1&2 and 545GM 100 Mhz (default)

1  2-3 close:Enable PCI-X 1 & 2 and 545GM 133 Mhz

5) CLR_CMOS1 (Clear CMOS Function)

You may clear the CMOS data to its default values by this jumper.

Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.



1  1-2 close: Clear CMOS

1  2-3 close: Normal (Default)

** Recommendation frequency setting and slot:

Mode	Frequency	Maximum slots or devices (on board)
PCI-X	133	1
PCI-X	100	2
PCI-X	66	3
PCI	66	3

Chapter 3 BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERINGSETUP

Power ON the computer and press <F2> immediately will allow you to enter Setup.

CONTROLKEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Reserved
<F7>	Load the Optimized Defaults
<F8>	Reserved
<F9>	Reserved
<F10>	Save all the CMOS changes, only for Main Menu

GETTINGHELP

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

- **Main**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced**

  This setup page includes all the items of AMI special enhanced features.

  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Security**

  Change, set, or disable password. It allows you to limit access the system and setup.

- **Boot**

  This setup page include all the items of first boot function features.

- **Exit**

  There are five optionsin this selection: Exit Saving Changes, Exit Discarding Changes, Load Optimal Defaults, Load Failsafe Defaults, and Discard Changes.

Main

Once you enter Phoenix BIOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

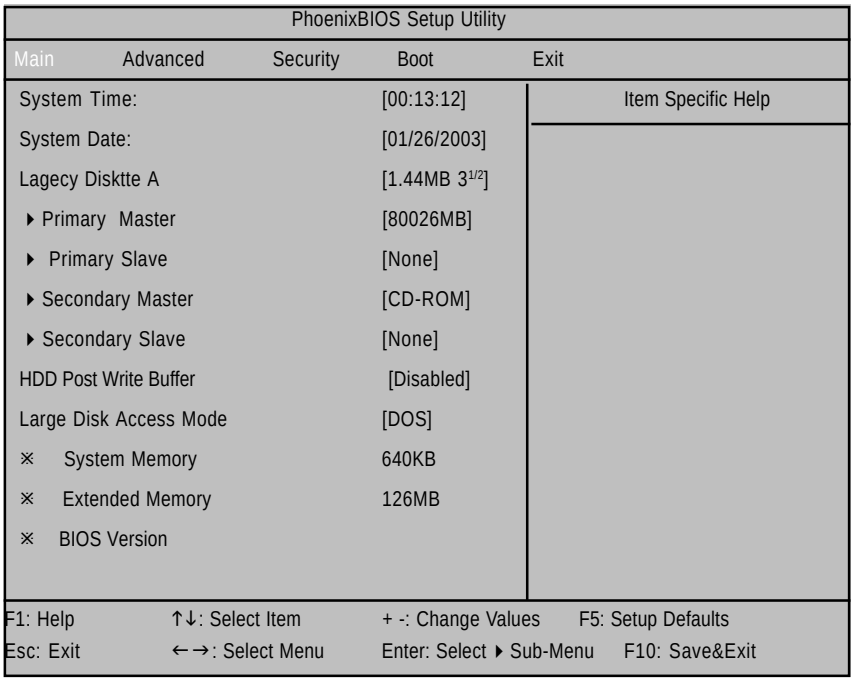


Figure 1: Main

☞ System Time

The time is calculated based on the 24-hour military time clock. Set the System Time (HH:MM:SS)

☞ System Date

Set the System Date. Note that the "Day" automatically changed after you set the date.
(Weekend: DD: MM: YY) (YY: 1099~2099)

Note!! "※"Indicates DISPLAY ONLY

Legacy Diskette A

This category identifies the type of floppy disk drive A that has been installed in the computer.

Disabled	Disable this device.
360KB, $5^{1/4}$ in.	$3^{1/2}$ inch AT-type high-density drive; 360K byte capacity
1.2MB, $3^{1/2}$ in.	$3^{1/2}$ inch AT-type high-density drive; 1.2M byte capacity
720K, $3^{1/2}$ in.	$3^{1/2}$ inch double-sided drive; 720K byte capacity
1.44M, $3^{1/2}$ in.	$3^{1/2}$ inch double-sided drive; 1.44M byte capacity.
2.88M, $3^{1/2}$ in.	$3^{1/2}$ inch double-sided drive; 2.88M byte capacity.

Note: The 1.25MB,$3^{1/2}$ reference a 1024 byte/sector Japanese media format. The 1.25MB,$3^{1/2}$ diskette requires 3-Mode floppy-disk drive.

IDE Primary Master, Slave / Secondary Master, Slave

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

- TYPE

1-39: Predefined types.

Users: Set parameters by User.

Auto: Set parameters automatically. (Default Vaules)

CD-ROM: Use for ATAPI CD-ROM drives or double click [Auto] to set all HDD parameters automatically.

ATAPI Removable: Removable disk drive is installed here.

- Multi-Sector Transfer

This field displays the information of Multi-Sector Transfer Mode.

Disabled: The data transfer from and to the device occurs one sector at a time.

Auto: The data transfer from and to the device occurs multiple sectors at a time if the device supports it.

- Maximum Capacity

This field displays the maximum capacity of primary IDE master.

LBA Mode	This field shows if the device type in the specific IDE channel support LBA Mode.
32-Bit I/O	Enable this function to max imize the IDE data transfer rate.
Transfer Mode	This field shows the information of Teansfer Mode.
Ultra DMA Mode	This filed displays the DMA mode of the device in the specific IDE channel.

HDD Post Write Buffer

This allow s users to disable / enable H DD Post Write Buffer Support.

- Enabled — Enable H DD Post Write Support.
- Disabled — Disable this function.

Large Dis k Acces s Mode

If you are using UNIX, Novell Netw are or other operating system, then select [Other]. If youare installing a new software and the device fails, change this selection agian. Different operating sy stem require different representation of device geometries.

- DOS — Select DOS as Large Disk Access Mode.
- Other — Select Other as Large Disk Access Mode.

☞ System Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640 K for sy stems with 640K or more memory installed on the motherboard.

☞ Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1 MB in the C PU's memory address map.

☞ BIOS Version

This field display s the information of BIOS v ersion.

Advanced

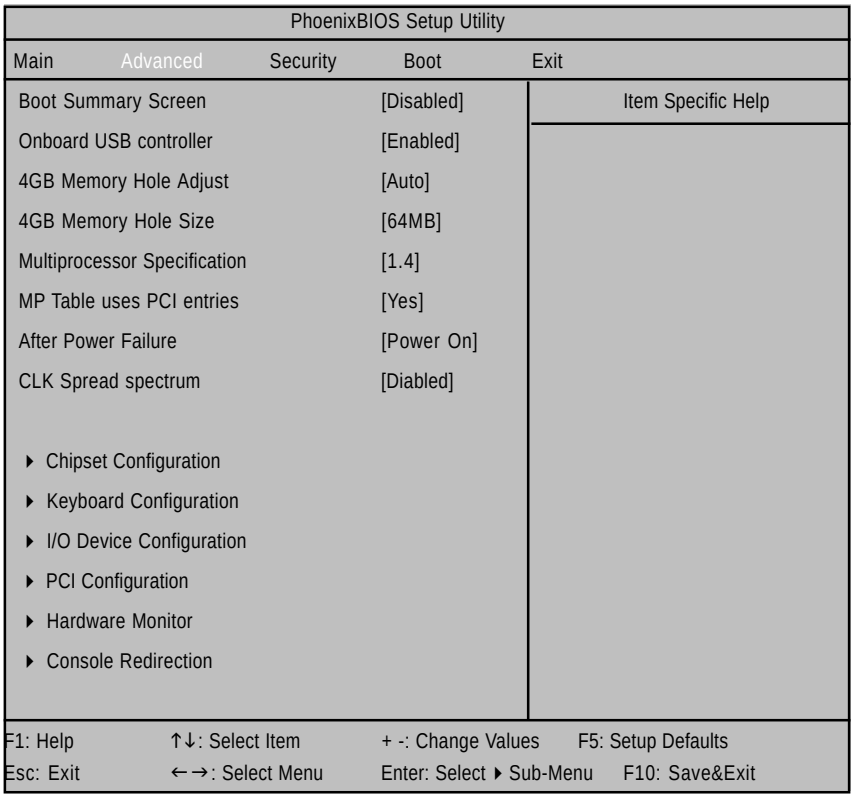


Figure 2: Advanced

About This Section: Advanced

With this section, allowing user to configure your system for basic operation. User can change the system's default boot-up sequence, keyboard operation, chipset configuration, PCI configuration and System Hardware health monitoring.

Boot Summary Screen

This item displays the system configuration on boot.

- Enabled Set this item to enabled to displays the system configuration on boot. (Default)
- Disabled Disable this function.

Onboard USB Controller

This option allows user to enable onboard USB controller. Note that disabled resources will be freed up or other users.

- Enabled Enable onboard USB controller. (Default)
- Disabled Disable this function.

4GB Memory Hole Adjust

- Auto Set this item to 'Auto' to adjust the memory hole size automatically according to the memory space used by PCI devices. (Default)
- Manual Memory hole sizeis determined manually.

4GB Memory Hole Size

When 4GB Memory Hole Adjust option is set to 'Manual', user can select the memory hole size in this option.

Multiprocessor Specification

This option allows user to configure the multiprocessor(MP) specification revision level. Some operating system will require 1.1 for compatibility reasons.

- 1.4 Support MPS Version 1.4 . (Default)
- 1.1 Support M PS Version 1.1.

MP Table uses PCI entries

This option allows user to configure the MP Table with PCI interrupt entries.

- Yes — MP Table uses with PCI interrupt entries. (Default)
- No — Disable this function.

After Power Failure

This option provides user to set the mode of operation if an AC / power loss occurs.

- Power On — System power state when AC cord is re-plugged. (Default)
- Off State — Do not power on system when AC power is back.
- Last State — Set system to the last sate when AC power is removed. Do not power on system when AC power is back.

Chipset Configuration

PhoenixBIOS Setup Utility		
Advanced		
Chipset Configuration		Item Specific Help
Setup Warning Setting items on this menu to incorrect values may cause your system to malfunction.		
DRAM Bank Interleaves	[Disabled]	
Node Memory Interleaves	[Disabled]	
ECC:	[Enabled]	
Dram ECC:	[Enabled]	
ECC Scrub Redirection	[Enabled]	
Chip-Kill	[Enabled]	
DCACHE ECC Scrub CTL:	[Disabled]	
L2 ECC Scrub CTL:	[Disabled]	
Dram ECC Scrub CTL:	[Disabled]	
F1: Help ↑↓: Select Item + -: Change Values F5: Setup Defaults Esc: Exit ←→: Select Menu Enter: Select ▸ Sub-Menu F10: Save&Exit		

Figure 2-1: Chipset Configuration

DRAM Bank Interleaves

Interleaves memory blocks across dram chip selects. BIOS will auto detect capability on each node.

- Auto BIOS auto-detection.
- Disabled Disabling DRAM bank interleaves function. (Default)

Node Memory Interleaves

Interleaves memory blocks across processor nodes. BIOS will auto detect capability of memory system.

- Auto BIOS auto-detection.
- Disabled Disabling Node memory interleaves function. (Default)

ECC

ECC check / correct mode. This is a global enable function for all blocks within CPU core and north bridge. Note that after loading setup defaults, restart and enter setup to access DRAM ECC setup option.

- Enabled Enable ECC function. (Default)
- Disabled Disable this function.

Dram ECC

If all memory in the system supports ECC (x72), enabling this opion will initial scrub dram and enable system request to dram to be checked and/ or corrected.

- Enabled Enable DRAM ECC function. (Default)
- Disabled Disable this function.

ECC Scrub Redirection

Enabling ECC Scrubber to correct errors detected in Dram during normal CPU request (Foreground scrubbing).

- Enabled Enable ECC Scrub Redirection function. (Default)
- Disabled Disable this function.

Chip-Kill

This option provide user to function Chip-Kill ECC on nodes without all x4 ECC capable DIMMs.

- Enabled Enable Chip-Kill ECC function. (Default)
- Disabled Disable this function.

DCACHE ECC Scrub CTL

This option allows user to set the rates of background scrubbing for DCACHE lines.

- Enabled Set the rates of background scrubbing for DCACHE lines.
- Disabled Disable this function. (Default)

L2 ECC Scrub CTL

This option allows user to set the rates of background scrubbing for L2 cache lines.

- Enabled Set the rates of background scrubbing for L2 cache lines.
- Disabled Disable this function. (Default)

Dram ECC Scrub CTL

This option allows user to set the rates of background scrubbing for Dram. (In addition to normal ECC scrubbing for system request)

Note that background agent works independently of CPU requests and bus master, but cannot be enabled without first enabling Dram ECC.

- Enabled Set the rates of background scrubbing for Dram.
- Disabled Disable this function. (Default)

Keyboard Configuration

PhoenixBIOS Setup Utility			
Advanced			
Keyboard Configuration			Item Specific Help
NumLock		[Auto]	
Keyboard auto-repeat rate		[30/sec]	
Keyboard auto delay		[1/2 sec]	
F1: Help	↑↓: Select Item	+ -: Change Values	F5: Setup Defaults
Esc: Exit	←→: Select Menu	Enter: Select ▸ Sub-Menu	F10: Save&Exit

Figure 2-2: Keyboard Configuration

NumLock

This option allows user to select power-on state for NumLock.

- Auto — System auto assign. (Default)
- Enabled — Enable NumLock.
- Disabled — Disable this function.

Keyboard auto-repeat rate

This option allows user to select keyboard repeat rate

- Options — 30/Sec (Default), 26.7/Sec, 21.8/Sec, 18.5/Sec, 13.3/Sec, 10/Sec, 6/Sec, 2/Sec.

Keyboard auto delay

Select delay before keyborad repeat.

- Options — 1/2 Sec (Default), 1/4 Sec,3/4 Sec, 1 Sec.

I/O Device Configuration

PhoenixBIOS Setup Utility			
Advanced			
I/O Device Configuration			Item Specific Help
Serial Port A		[Auto]	
Parallel Port		[Auto]	
PS/2 Mouse		[Enabled]	
F1: Help	↑↓: Select Item	+ -: Change Values	F5: Setup Defaults
Esc: Exit	←→: Select Menu	Enter: Select ▸ Sub-Menu	F10: Save&Exit

Figure 2-3: I/O Device Configuration

☞I/O Device Configuration

☞Serial Port A

This allows users to configure serial prot A by using this option.

- ⏩Disabled Disable the configuration.
- ⏩Enabled Enable the configuration
- ⏩Auto BIOS or O.S will select the configuration automatically. (Default)

☞Parallel Port

This allows users to configure parallel port by using this option.

- ⏩Disabled Disable the configuration.
- ⏩Enabled Enable the configuration.
- ⏩Auto BIOS or O.S will select the configuration automatically. (Default)

☞PS/2 Mouse

Set this option 'Enabled' to allow BIOS support for a PS/2 - type mouse.

- ⏩Enabled 'Enabled' forces the PS/2 mouse port to be enabled regardless if a mouse is present. (Default)
- ⏩Disabled 'Disabled' prevents any installed PS/2 mouse from functioning, but frees up IRQ12.

PCI Configuration

PhoenixBIOS Setup Utility		
Advanced		
PCI Configuration		Item Specific Help
▸ PCI Device, Slot #1		
▸ PCI Device, Slot #2		
▸ PCI Device, Slot #3		
▸ PCI Device, Slot #4		
▸ PCI Device, Slot #5		
▸ PCI Device, Slot #6		
82541 PXE Function	[Disabled]	
82545 PXE Function	[Enabled]	
▸ On Board SCSI Option ROM	[Enabled]	
▸ PCI / PNP IRQ Exclusion		
▸ PCI / PNP UMB Exclusion		
F1: Help ↑↓: Select Item + -: Change Values F5: Setup Defaults		
Esc: Exit ←→: Select Menu Enter: Select ▸ Sub-Menu F10: Save&Exit		

Figure 2-4: PCI Configuration

☞PCI Device Slot #1, 2,3, 4, 5, 6

This option allow user to setup items for configuring the specific PCI device for Slot 1, 2, 3.

▸ Option ROM Scan

Initialize device expansion ROM.

⏩Enabled Enable device expansion ROM. (Default)

⏩Disabled Disable this function.

- Enable Master

Enable selected device as a PCI bus mater.

- Enabled — Enable selected device as a PCI bus mater. (Default)
- Disabled — Disable this function.

- Latency Timer

Minimum guranteed time slice allotted units of PCI bus clocks.

- Option — 0040h (Default), 0020h, 0060h, 00A0h, 00C0h, 00E0h.

82541 PXE Function

This option allows user to set the onboard LAN 82541GI PXE function.

- Enabled — Enable onboard LAN 82541GI PXE function.
- Disabled — Disable this function.(Default)

82545 PXE Function

This option allows user to set the onboard LAN 82545GM PXE function.

- Enabled — Enable onboard LAN 82541GI PXE function. (Default)
- Disabled — Disable this function.

On Board SCSI Option ROM

- Enabled — Enable onboard SCSI Option ROM function. (Default)
- Disabled — Disable this function.

Note: If you want to enable 82541 PXE function, you have to disable this SCSI Option ROM funtion first.

PCI / PNP IRQ Exclusion

Reserve specific IRQs for use by legacy ISA devices.

- IRQ3/ IRQ4/ IRQ5/ IRQ7/ IRQ10/ IRQ11

PCI / PNP UMB Exclusion

Reserve specific upper memory blocks for use by legacy ISA devices.

- C800-CBFF/ CC00-CFFF/ D000-D3FF/ D400 -D7FF/ D800-DBFF/ DC00-DFFF

Hardware Monitor

PhoenixBIOS Setup Utility			
Advanced			
Hardware Monitor			Item Specific Help
System Temperature		28°C /082°F	
CPU0 Temperature		46°C /114°F	
CPU1 Temperature		N/A	
CPU FAN 0		RPM	
CPU FAN 1		N/A	
System Fan 1		RPM	
System Fan 2		RPM	
Power Fan 1		RPM	
Power Fan 2		RPM	
VCORE		1.190V	
VCC3.3V		3.502V	
+12V		12.41V	
+5V		4.958V	
VBAT		3.719V	
5V 5VSB		5.413V	
F1: Help	↑↓: Select Item	+ -: Change Values	F5: Setup Defaults
Esc: Exit	←→: Select Menu	Enter: Select ▸ Sub-Menu	F10: Save&Exit

Figure 2-5: Hardware Monitor

☞ Hardware Monitor Configuration

All items on this menu cannot be modified in user mode. If any items requires changes, please consult your system supervisor.

▸ CPU 0 / 1 Temperature

This field only displlays the current CPU 0/1 temperature.

▶ CPU FAN 0 / 1 Speed

This field indicates the RPM (Ratio Per Minute) of current CPU 0/1 speed.

▶ System FAN 0 / 1 Speed

This field indicates the RPM (Ratio Per Minute) of current System 0/1 speed.

▶ Power FAN 0 / 1 Speed

This field indicates the RPM (Ratio Per Minute) of current Power 0/1 speed.

▶ Voltage: VCORE / VV 3.3V / +5V / +12V / VBAT / 5V 5VSB

⏩ Detect system's voltage status automatically.

Console Redirection

PhoenixBIOS Setup Utility		
Advanced		
Console Redirection		Item Specific Help
Com Port Address	[Disabled]	
Console Connect	[Direct]	
Baud Rate	[19.2K]	
Flow Control	[CTS/RTS]	
Console Type	[ANSI]	
Continue C.R. after POST:	[Off]	
F1: Help ↑↓: Select Item + -: Change Values F5: Setup Defaults		
Esc: Exit ←→: Select Menu Enter: Select ▸ Sub-Menu F10: Save&Exit		

Figure 2-6: Console Redirection

Com Port Address

If this option is set to enabled, it will use a port on the motherboard.

- On-board COMA — Use COMA as he COM port address.
- Disabled — Disable this function. (Default)

Console Connect

This field indicates whether the console is connected directly to the system or a modem is used to connect.

- Direct — Console is connected directly to the system. (Default)
- Disabled — Console is connected via the modem.

Baud Rate

This option allows user to set the specified baud rate.

- Options: 300, 1200, 2400, 9600, 19.2K, 38.4K, 57.6K, 115.2K.

Flow Control

This option provide user to enable the flow control function.

- None: Not supported.
- XON/OFF: Software control.
- CTS/RTS: Hardware control.

Console Type

This option allows user to select the specified console type. This is defined by IEEE.

- Options: vt100, vt100 8bit, ANSI 7bit, ANSI, vt100 plus, UTF8.

Continue C.R. after POST

This option allows user to enable console redirection after O.S has loaded.

- On: Enable console redirection after O.S has loaded.
- Off: Disable this function. (Default)

Security

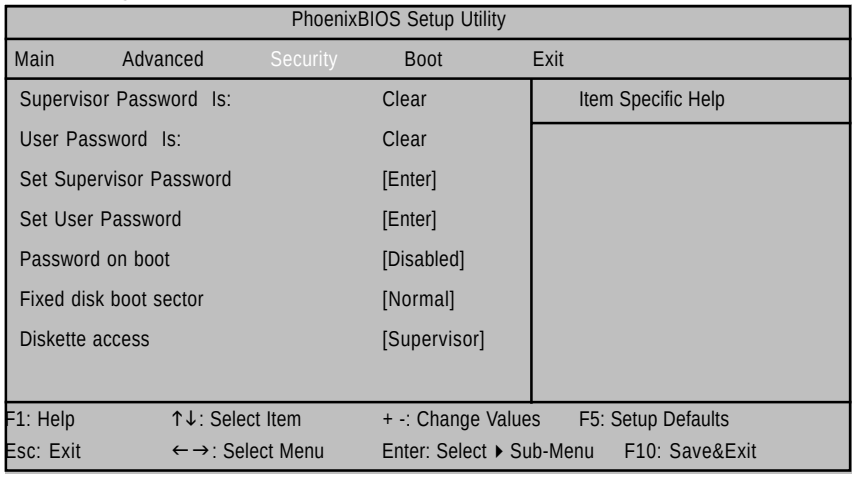


Figure 3: Security

About This Section: Security

In this section, user can set either supervisor or user passwords, or both for different level of password securities. In addition, user also can set the virus protection for boot sector.

Set Supervisor Password

You can install and change this options for the setup menus. Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password or press <Enter> key to disable this option.

Set User Password

You can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password.

Password on boot

Password entering will be required when system on boot.

- Enabled — Requries entering password when system on boot.
- Disabled — Disable this function. (Default)

Fixed disk boot sector

- Write Protect — Write protects boot sector on harddisk to protect against virus.
- Normal — Set the fixed disk boot sector at Normal state. (Default)

Boot

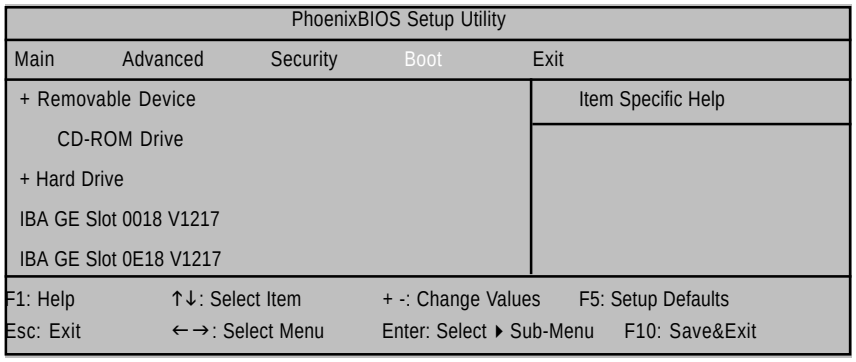


Figure 4: Boot

About This Section: Boot

The "Boot" menu allows user to select among four possible types of boot devices listed using the up and down arrow keys. By applying <+> and <Space> key, you can promote devices and by using the <-> key, you can demote devices. Promotion or demotion of devices alerts the priority that the system uses to search for boot device on system power on.

Boot Device Priority

- Removable Device / Hard Drive / CD-ROM Drive/ IBA GE Slot 0018V1217/ IBA GE Slot 0E18V1217

  These three fields determines which type of device the system attempt to boot from after PhoenixBIOS Post completed. Specifies the boot sequence from the available devices. If the first device is not a bootable device, the system will seek for next available device.

Exit

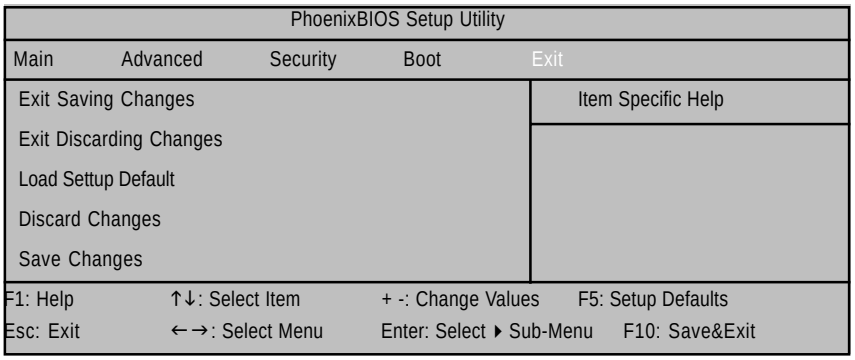


Figure 5: Exit

About This Section: Exit

Once you have changed all of the set values in the BIOS setup, you should save your chnages and exit BIOS setup program. Select "Exit" from the menu bar, to display the following sub-menu.

- Exit Saving Changes
- Exit Discarding Changes
- Load Settup Default
- Discard Change
- Save Changes

Exit Saving Changes

This option allows user to exit system setup with saving the changes.

Press <Enter> on this item to ask for the following confirmation message:

Pressing 'Y' to store all the present setting values tha user made in this time into CMOS.

Therefore, whenyou boot up your computer next time, the BIOS will

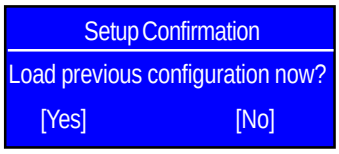
re-configure your system according data in CMOS.

Exit Discarding Changes

This option allows user to exit system setup without changing any
previous settings values in CMOS. The previous selection remain in effect.
This will exit the Setup Utility and restart your compuetr when selecting this option.
Press <Enter> on this item to ask for confirmation message.

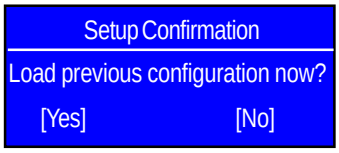
Load Settup Default

This option allows user to load default values for all setup items.
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Discard Changes

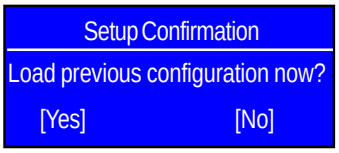
This option allows user to load previos values from CMOS for all setup item.
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Press [Yes] to load the previos values from CMOS for all setup item.

Save Changes

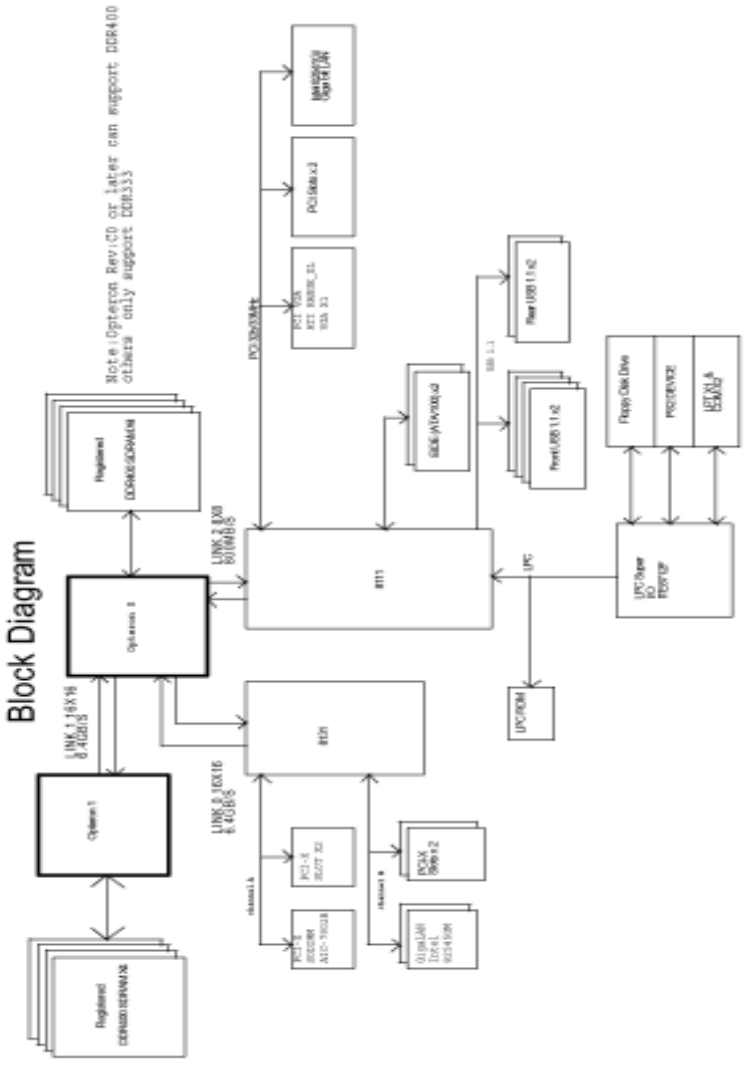
This option allows user to save setup daya to CMOS.
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Press [Yes] to save setup daya to CMOS.

Chapter 4 Technical Reference

Block Diagram



Chapter 5 Application Driver Installation

A. AMD Driver Pack Installation

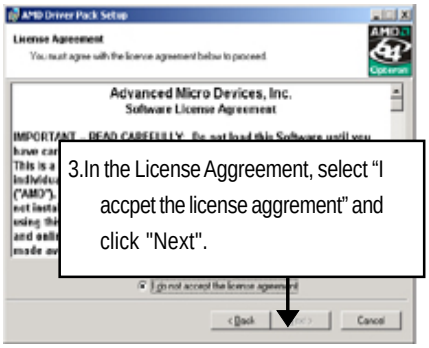
Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Installation Procedures:

1. The CD auto run program starts, **Double click** on “AMD Driver Pack” to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click “Finish” to restart your computer.

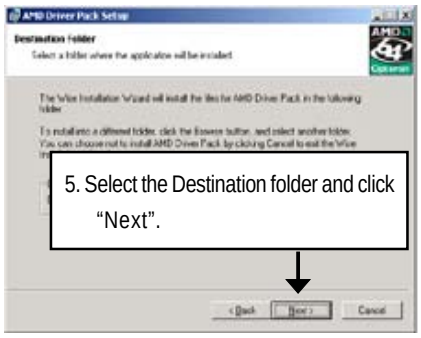
(1)

(2)

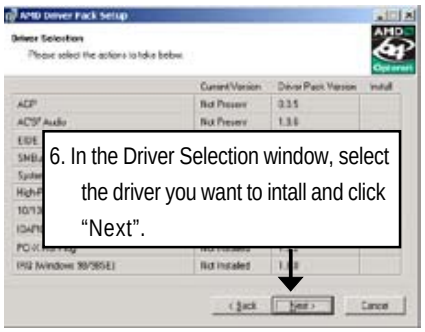


(3)

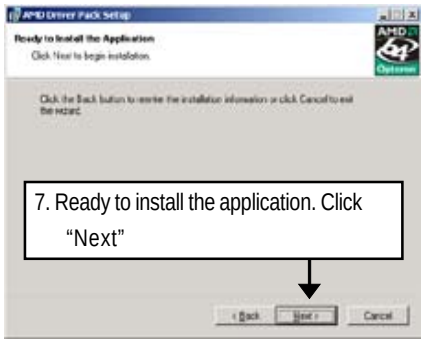
(4)


AMD Driver Pack Setup
Destination Folder
5. Select the Destination folder and click "Next".
< Back
Next >
Cancel

(5)


AMD Driver Pack Setup
Driver Selection
6. In the Driver Selection window, select the driver you want to intall and click "Next".
Current Version
Driver Pack Version
Install
< Back
Next >
Cancel

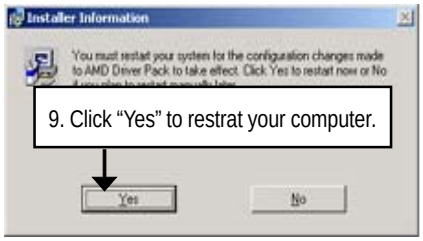
(6)


AMD Driver Pack Setup
Ready to Install the Application
Click Next to begin installation.
7. Ready to install the application. Click "Next"
< Back
Next >
Cancel

(7)


AMD Driver Pack Setup
AMD Driver Pack has been successfully installed.
Click the Finish button to exit this installation.
8. Installation completed. Click "Finish"
AMD
64
Opteron
< Back
Finish
Cancel

(8)


Installer Information
You must restart your system for the configuration changes made to AMD Driver Pack to take effect. Click Yes to restart now or No
9. Click "Yes" to restrat your computer.
Yes
No

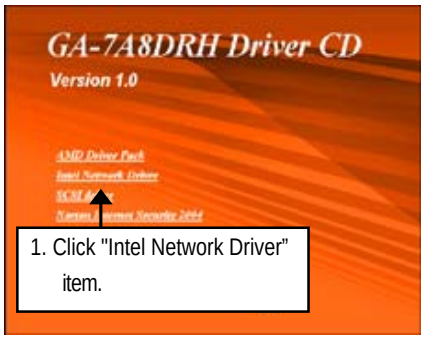
(9)

B. Intel Network Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Installation Procedures:

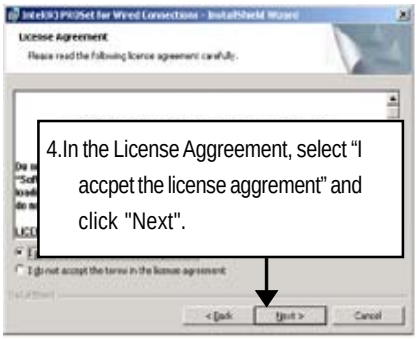
1. The CD auto run program starts, Double click on “Intel Network Driver” to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3.Setup completed, click “Finish” to restart your computer.



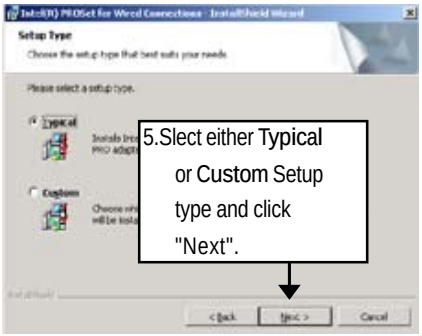
(1)

(2)

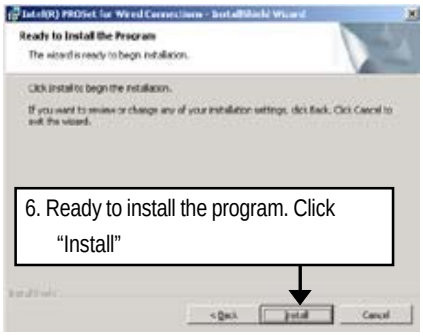
(3)



(4)

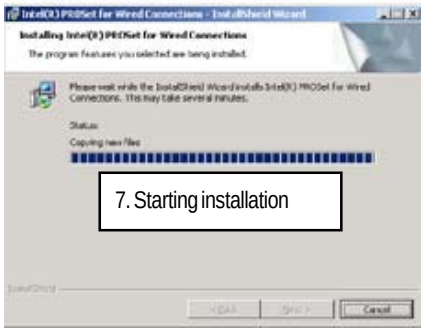


(5)



(6)

Step 5. Note that user can select either Typical or Custom Setup Types. Typical setup type allows users to install basic connectivity and the adapter management utility. Custom setup type embraces installing features and subfeatures user selects, including modern utilities, manage ment components and drivers. Recommended for advanced users.



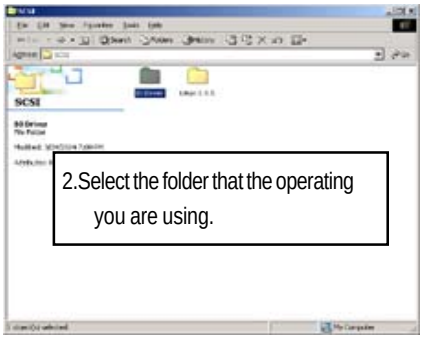
(7)

(8)

C. SCSI Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

(1)



(2)

Chapter 6 Appendix

Appendix : Acronyms

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BBS	BIOS Boot Specification
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request

to be continued.....

Acronyms	Meaning
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory
SMP	Symmetric Multi-Processing
SMI	System Management Interrupt
USB	Universal Serial Bus
VID	Voltage ID

Technical Support/RMA Sheet

Customer/Country:	Company:	Phone No.:
Contact Person:	E-mail Add. :	

Model name/Lot Number:	PCB revision:
BIOS version:	O.S./A.S.:

Hardware Configuration	Mfs.	Model name	Size:	Driver/Utility:
CPU				
Memory Brand				
Video Card				
Audio Card				
HDD				
CD-ROM / DVD-ROM				
Modem				
Network				
AMR / CNR				
Keyboard				
Mouse				
Power supply				
Other Device				

Problem Description: