



- The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to update 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- Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.



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

**Miss en garde:** Ne faire jamais tourner le processeur sans que le dissipateur de chaleur soit correctement installé et fermement fixé. **UN DUR MATHS PERMANENT EN RESULTERA!**

**Achtung:** Das Prozessor darf nicht ohne den geeigneten Lüfter, sowie die Wärmelöcher richtig angebracht und fest angebracht sein. **DIES HAT KEINE PERMANENTE SCHÄDEN ZUR FOLGE!**

**Atención:** Nunca haga funcionar el procesador sin el disipador de calor instalado correctamente y firmemente. **EL PERMANENTE DAÑO SE LE GARANTARÁ!**

**Atiso:** Nunca execute o procesador sem o dissipador de calor estar adequadamente e firmemente conectado. **ISCA PERMANENTE DE DANO GARANTADO!**

**警告:** 处理器不可在没有散热器安装的情况下运行。否则会导致永久性的损坏。

**警告:** 处理器必须在散热器正确安装且牢固安装的情况下运行。否则会导致永久性的损坏。

**경고:** 프로세서를 작동할 때 적절한 냉각기의 향이 올바르게 부착된 상태에서 작동하지 않습니다.

**警告:** 处理器必须在散热器正确安装且牢固安装的情况下运行。否则会导致永久性的损坏。

## **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-8IEXRR**

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 interference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Sep. 12, 2002

## Declaration of Conformity

We, Manufacturer/Importer  
(full address)

**G.B.T. Technology Trading GmbH**  
Ausschlagweg 41, 1F, 20537 Hamburg, Germany


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

**Mother Board**  
GA-81EXRR

is in conformity with

(reference to the specification under which conformity is declared)

in accordance with 89/336 EEC-EMC Directive

<input type="checkbox"/> EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	<input type="checkbox"/> EN 61000-3-2* <input checked="" type="checkbox"/> EN 60555-2	Disturbances in supply systems cause by household appliances and similar electrical equipment "Harmonics"
<input type="checkbox"/> EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	<input type="checkbox"/> EN 61000-3-3* <input checked="" type="checkbox"/> EN 60555-3	Disturbances in supply systems cause by household appliances and similar electrical equipment "Voltage fluctuations"
<input type="checkbox"/> EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	<input checked="" type="checkbox"/> EN 50081-1 <input checked="" type="checkbox"/> EN 50082-1	Generic emission standard Part 1: Residual commercial and light industry Generic immunity standard Part 1: Residual commercial and light industry
<input type="checkbox"/> EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	<input type="checkbox"/> EN 50081-2	Generic emission standard Part 2: Industrial environment
<input type="checkbox"/> EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	<input type="checkbox"/> EN 50082-2	Generic emission standard Part 2: Industrial environment
<input checked="" type="checkbox"/> EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	<input type="checkbox"/> ENV 55104	Immunity requirements for household appliances, tools and similar apparatus
<input type="checkbox"/> DIN VDE 0855 <input type="checkbox"/> part 10 <input type="checkbox"/> part 12	Cabled distribution systems: Equipment for receiving and/or distribution from sound and television signals	<input type="checkbox"/> EN 50091-2	EMC requirements for uninterruptible power systems (UPS)
<input checked="" type="checkbox"/> CE marking		 (EC conformity marking)	
<b>The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23/EEC</b>			
<input type="checkbox"/> EN 60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	<input type="checkbox"/> EN 60950	
<input type="checkbox"/> EN 60335	Safety of household and similar electrical appliances	<input type="checkbox"/> EN 50091-1	

Manufacturer/Importer

(S to mp)

Date : Sep. 12, 2002

Signature: Timmy Huang  
Name: Timmy Huang

GA-8IEXRR  
Pentium® 4 Processor Motherboard

# USER'S MANUAL

Pentium® 4 Processor Motherboard  
Rev. 1001  
12ME-8IEXRR-1001

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## Item Checklist

- The GA-8IEXRR Series motherboard
- IDE cable x 1/ Floppy cable x 1
- Driver CD for motherboard driver & utility
- GA-8IEXRR Series user's manual
- Promise 20276 Floppy Driver



### 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	<ul style="list-style-type: none"> <li>• 26.6cm x 30.5cm ATX size form factor, 4 layers PCB.</li> </ul>
Motherboard	<ul style="list-style-type: none"> <li>• GA-81EXRR Series include:</li> <li>• GA-81EXRR-C &amp; GA-81EXRR-D</li> </ul>
CPU	<ul style="list-style-type: none"> <li>• Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor</li> <li>• Intel Pentium®4 533MHz FSB</li> <li>• Support Intel® Pentium® 4 (Northwood, 0.13µm) processor</li> <li>• 2nd cache depend on CPU</li> </ul>
Chipset	<ul style="list-style-type: none"> <li>• Chipset 845E HOST/AGP/Controller</li> <li>• 82801BA(ICH2) I/O Controller Hub</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 2 184-pin DDR DIMM sockets</li> <li>• Supports PC-200/PC-266 DDR (Auto)</li> <li>• Supports only 2.5V DDR DIMM</li> <li>• Unbuffered DIMM support, support ECC function</li> <li>• Supports up to 2GB DDR (Max)</li> </ul>
I/O Control	<ul style="list-style-type: none"> <li>• W83627HF</li> </ul>
Slots	<ul style="list-style-type: none"> <li>• 4 PCI slots supports 33MHz &amp; PCI 2.2 compliant</li> </ul>
On-Board IDE	<ul style="list-style-type: none"> <li>• 2 IDE controllers on the Intel 82801BA PCI chipset provides IDE HDD/CD-ROM (IDE1, IDE2) with PIO, Bus Master (Ultra DMA33/ATA66/ATA100) operation modes.</li> <li>• IDE3 and IDE4 Compatible with RAID, Ultra ATA133/100.</li> </ul>
On-Board Peripherals	<ul style="list-style-type: none"> <li>• 1 Floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes.</li> <li>• 1 Parallel port supports Normal/EPP/ECP mode</li> <li>• 2 Serial ports (COM1&amp;COM2)</li> <li>• 2 LAN ports (LAN1 &amp; LAN2)</li> <li>• 4 USB ports (Rear USB x 2, Front USB x 2)</li> <li>• 1 IrDA connector for IR/CIR</li> </ul>

to be continued.....



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#### GA-8IEXRR Motherboard

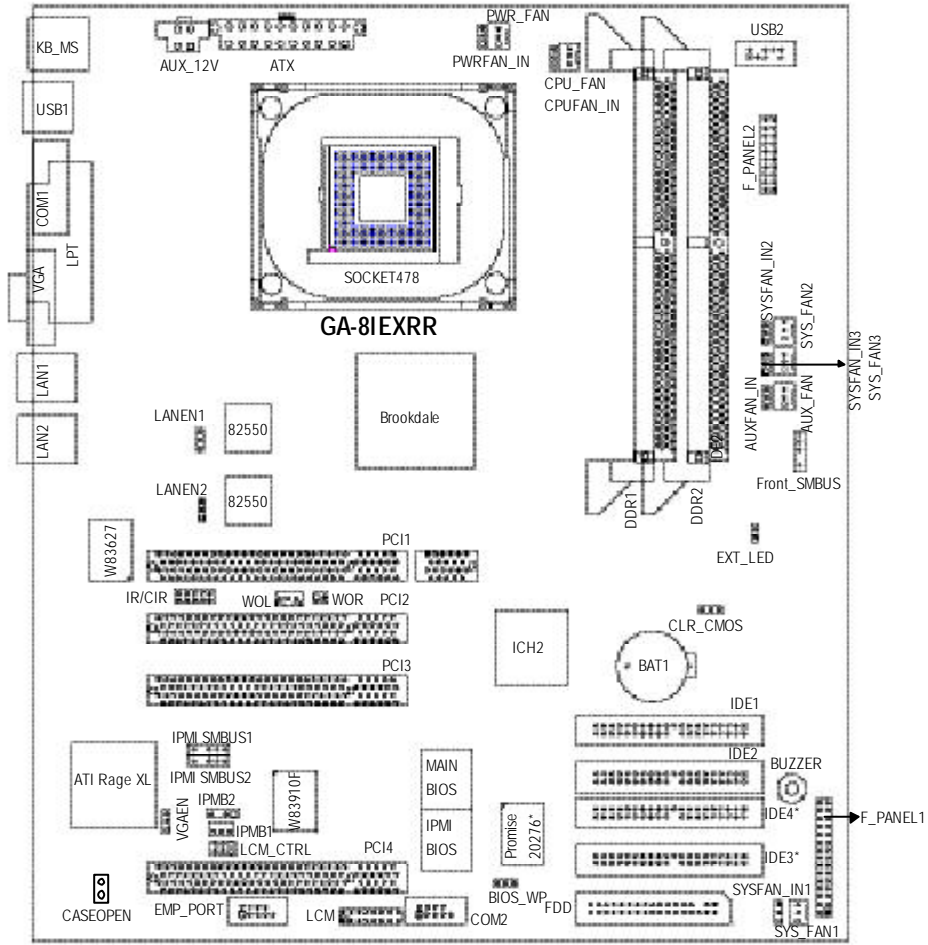
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Hardware Monitor	<ul style="list-style-type: none"><li>• CPU/Power/System Fan Revolution detect</li><li>• CPU/Power/System Fan Control</li><li>• CPU Overheat Warning</li><li>• System Voltage Detect</li></ul>
On-Board LAN	<ul style="list-style-type: none"><li>• Build in Intel 8255X Series Chipset</li></ul>
On-Board VGA	<ul style="list-style-type: none"><li>• Build in ATI Rage XL VGA PCI Chipset with 8MB SDRAM.</li></ul>
PS/2 Connector	<ul style="list-style-type: none"><li>• PS/2 Keyboard interface and PS/2 Mouse interace</li></ul>
BIOS	<ul style="list-style-type: none"><li>• Licensed AWARD BIOS, 4M bit FWH</li></ul>
On-Board RAID *	<ul style="list-style-type: none"><li>• Onbard Promise PDC20276</li><li>• Supports data striping (RAID 0) or mirroring (RAID 1)</li><li>• Supports concurrent dual IDE controller operation</li><li>• Supports IDE bus master operation</li><li>• Displays status and error checking messages during boot-up</li><li>• Mirroring supports automatic background rebuilds</li><li>• Features LBA and Extended Interrupt 13 drive translation in controller onboard BIOS</li></ul>
Additional Features	<ul style="list-style-type: none"><li>• PS/2 Keyboard power on by password</li><li>• PS/2 Mouse power on</li><li>• Wake on LAN</li><li>• AC Recovery</li></ul>

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- <sup>※</sup> 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.

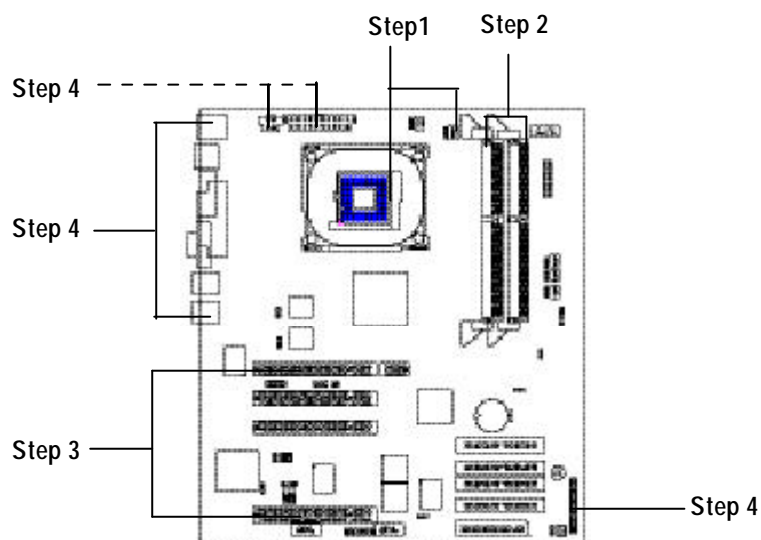
## GA-8IEXRR Motherboard Layout



## Chapter 2 Hardware Installation Process

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

- 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

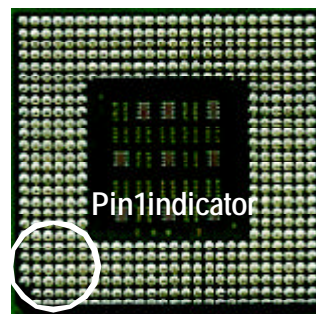


## Step 1: Install the Central Processing Unit (CPU)

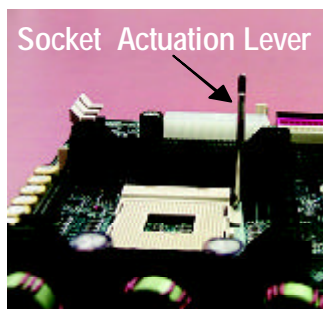
### Step 1-1: CPU Installation



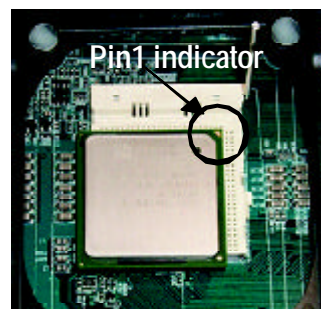
CPU Top View



CPU Bottom View



1. Pull up the CPU socket lever and up to 90-degree angle.
3. Press down the CPU socket lever and finish CPU installation.



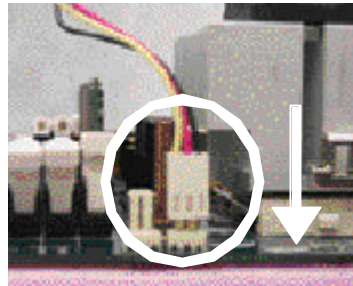
2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

- ⚠ Please make sure the CPU type is supported by the motherboard.
- ⚠ 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.

## Step 1-2: CPU Heat Sink Installation



1. Hook one end of the cooler bracket to the CPU socket first. Hook the other end of the cooler bracket to the CPU socket.



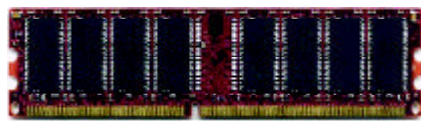
2. Make sure the CPU fan is plugged to the CPU fan connector. Install complete.

- Please use Intel approved cooling fan.
- We recommend you to apply the thermal paste to provide better heat conduction between your CPU and heatsink.
- Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.
- Please refer to CPU heat sink user's manual for more detail installation procedure.

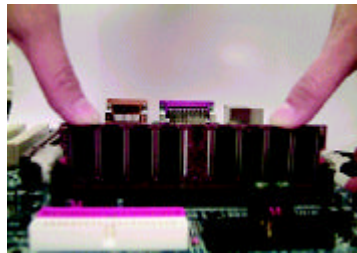
## Step 2: Install memory modules

The motherboard has 2 dual inline memory module (DIMM) sockets. The BIOS will automatically detect memory type and size. To install the memory module, just push it vertically into the DIMM Slot.

The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.



DDR



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 the DIMM slots to lock the DIMM module.
- ☛ Reverse the installation steps when you wish to remove the DIMM module.

### DDR Introduction

Established on the existing SDRAM industry infrastructure, DDR (Double Data Rate) memory is a high performance and cost-effective solution that allows easy adoption for memory vendors, OEMs and system integrators.

DDR memory is a sensible evolutionary solution for the PC industry that builds on the existing SDRAM infrastructure, yet makes awesome advances in solving the system performance bottleneck by doubling the memory bandwidth. DDR SDRAM will offer a superior solution and migration path from existing SDRAM designs due to its availability, pricing and overall market support. PC2100 DDR memory (DDR266) doubles the data rate through reading and writing at both the rising and falling edge of the clock, achieving data bandwidth 2X greater than PC133 when running with the same DRAM clock frequency. With peak bandwidth of 2.1GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PC's and value desktop SMA systems. With a core voltage of only 2.5 Volts compared to conventional SDRAM's 3.3 volts, DDR memory is a compelling solution for small form factor desktops and notebook applications.

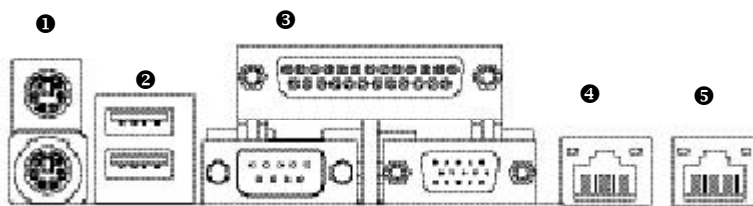
### Step 3: Install expansion cards

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

### Step 4-1: I/O Back Panel Introduction



#### ❶ PS/2 Keyboard and PS/2 Mouse Connector

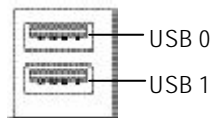


PS/2 Mouse Connector  
(6 pin Female)

PS/2 Keyboard Connector  
(6 pin Female)

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

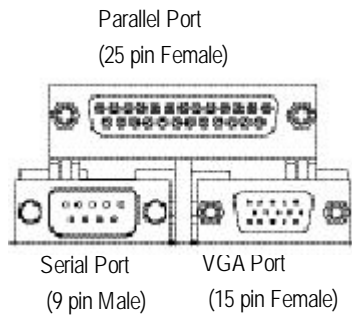
#### ❷ USB Connector



➤ 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.



**③ Parallel Port / Serial Port / VGA Port (LPT/COM1/VGA)**

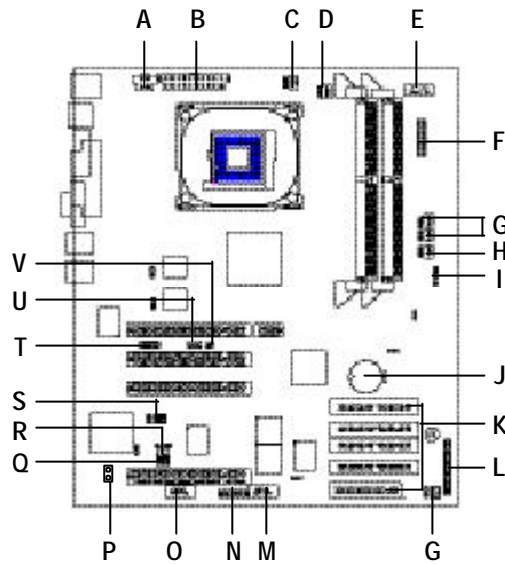


➤ This connector supports 1 standard COM port , 1 Parallel port and 1 VGA port. Device like printer can be connected to Parallel port ; mouse and modem etc. can be connected to Serial ports.

**④/⑤ LAN1 / LAN2 Port**

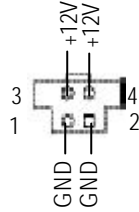


Step 4-2: Connectors Introduction



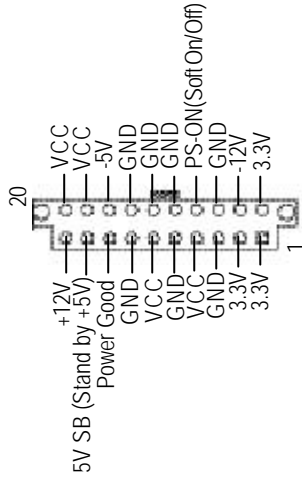
A) AUX_12V	M) COM2
B) ATX	N) LCM
C) PWR_FAN & PWRFAN_IN	O) EMP_Port
D) CPU_FAN & CPUFAN_IN	P) CASEOPE
E) USB2	Q) LCM_CTRL
F) F_PANEL2	R) IPMB1 / IPMB2
G) SYS_FAN1/2/3 & SYSFAN_IN1/2/3	S) IPMI SMBUS1 / IPMI SMBUS2
H) AUX_FAN & AUX_FANIN	T) IR/CIR
I) Front_SMBUS	U) WOL
J) BAT1	V) WOR
K) IDE1-IDE4 / FDD	
L) F_PANEL1	

**A) AUX\_12V (+12V Power Connector)**



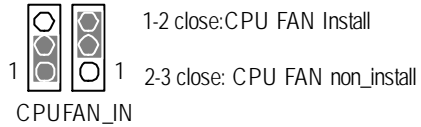
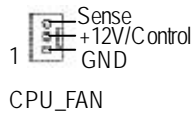
➤ This connector (ATX +12V) supplies the CPU operation voltage (V<sub>core</sub>).  
If this "ATX+ 12V connector" is not connected, system cannot boot.

**B) ATX (ATX Power)**



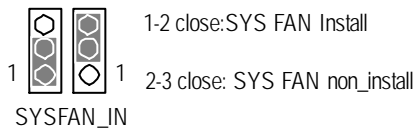
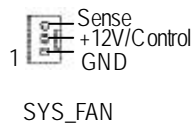
➤ AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

**C) CPU\_FAN & CPUFAN\_IN (CPU FAN Connector & CPUFAN\_IN Jumper)**

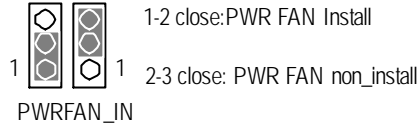
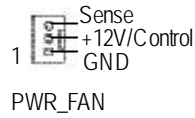


**G) SYS\_FAN1/2/3 & SYSFAN\_IN1/2/3**

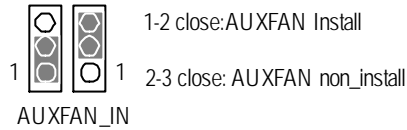
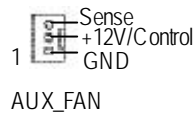
**(SYS FAN1~3 Connector & SYSFAN\_IN1~3 Jumper)**



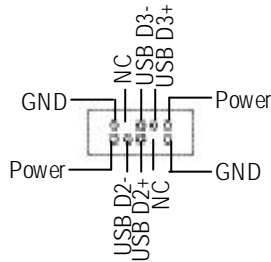
**C ) PWR\_FAN & PWRFAN\_IN (PWR FAN Connector & PWRFAN\_IN Jumper)**



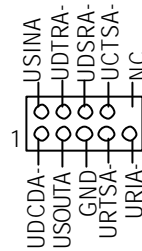
**H ) AUX\_FAN & AUXFAN\_IN (AUXFAN Connector & AUXFAN\_IN Jumper)**



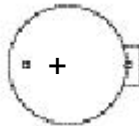
**E ) USB2 (USB Connector)**



**M ) COM 2 Connector**



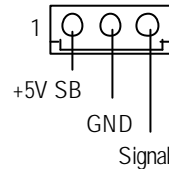
**J ) BAT1 (Battery)**



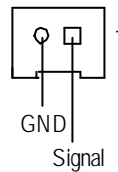
**CAUTION**

- ❖ 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.

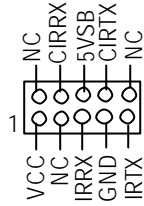
**U ) WOL (Wake On LAN Connector)**



**V ) WOR (Wake On RING Connector)**



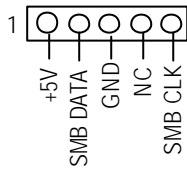
**T) IR / CIR Connector**



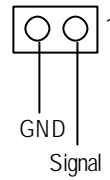
- Make sure the pin 1 on the IR device is aligning with pin one the connector. To enable the IR/CIR function on the board, you are required to purchase an option IR/CIR module. For detail information please contact your authorized Giga-Byte distributor.

To use IR function only, please connect IR module to Pin1 to Pin5.

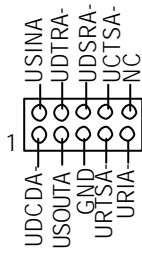
**I) FRONT\_SMBUS**



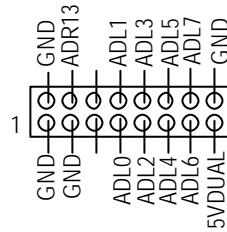
**P) CASE OPEN**



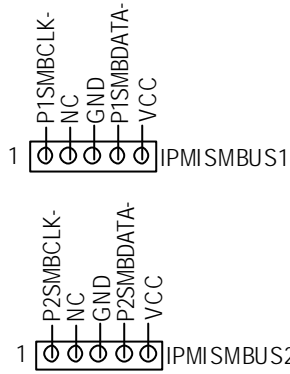
**O) EMP\_Port  
(Emergency Management Port)**



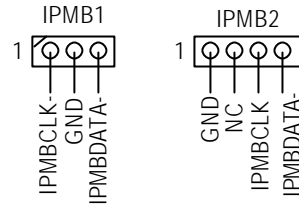
**N) LCM  
(LCD Panel Connector for IPMI)**



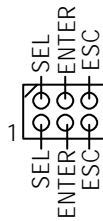
S ) IPMI SMBUS1 / IPMI SMBUS2



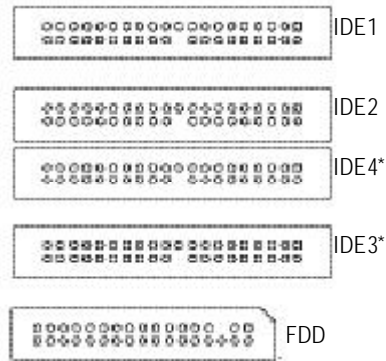
R) IPMB1 / IPMB2



Q) LCM\_CTRL  
(LCD Module Control Button)



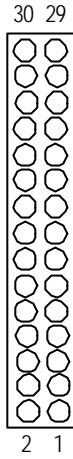
K) IDE1/ IDE2 / IDE3\* / IDE4\* / FDD  
( IDE3 & IDE4 are supports RAID/  
ATA133)



- Important Notice:  
Please connect first harddisk to IDE1  
and connect CDROM to IDE2.

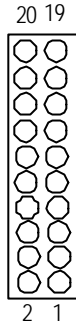
\*\*\* Only support for GA-8IEXRR-D

**L ) F\_PANEL1 (2x15 Pins Front Panel connector)**



1	HD+ (HDD LED)	2	HD-
3	PD- (Power LED)	4	SK- (Speaker)
5	PD- (Power LED)	6	NC (Speaker)
7	PD+ (Power LED)	8	NC (Speaker)
9	PW- (Power Button)	10	SK+ (Speaker)
11	PW+ (Power Button)	12	RS+ (Reset Button)
13	KEY	14	RS- (Reset Button)
15	GD+ (Green LED)	16	GD-(Green LED)
17	GN+ (Green Button)	18	GN-(Green Button)
19	BS+ (Buzzer Stop Button)	20	BS- (Buzzer Stop Button)
21	AE+ (All Error LED)	22	AE- (All Error LED)
23	HE+ (HDD Error LED)	24	HE- (HDD Error LED)
25	FE+ (Fan Error LED)	26	FE- (Fan Error LED)
27	PE+ (Power Supply Error LED)	28	PE- (Power Supply Error LED)
29	IR+ (IPMI_Reset)	30	IR- (IPMI_Reset)

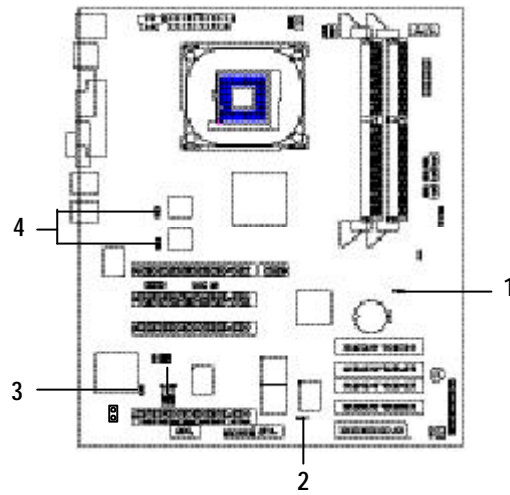
F ) F\_PANEL2 (2x10 Pins Front Panel connector)



1	CPUFN_LED	2	GND
3	PWRFN_LED	4	GND
5	SYSFN_LED	6	GND
7	ERROR_LED+	8	ERROR_LED-
9	ACT_C1	10	LINK_C1
11	GPO18	12	NC
13	ACT_C2	14	LINK_C2
15	BPSMBDATA	16	BPSMBCLK
17	PLED+	18	GND
19	PWB+	20	PWB-



### Step 4-3: Jumper Setting Introduction





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1) CLR_CMOS	3) VGAEN
2) BIOS_WP	4) LANEN1 & LAN2

---



**1) CLR\_CMOS: Clear CMOS**

- 1  1-2 close: Clear CMOS
- 1  2-3 close: Normal (Default)

**3) VGAEN: VGA Enabled**





-   1-2 close: VGA Enabled (Default)
-   2-3 close: VGA Disabled

**2) BIOS\_WP: BIOS Write Protect**

- 1  1-2 close: Write Protect
- 1  2-3 close: Disabled (Default)

**4) LANEN1 / LANEN 2 :**

**LAN1 / LAN2 Enabled**

-   1-2 close: LAN1/2 Enabled (Default)
-   2-3 close: LAN1/2 Disabled

## 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.

### ENTERING SETUP

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

### CONTROL KEYS

---

<↑>	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

---

**GETTING HELP****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 AWARD special enhanced features.  
(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)
- **Boot**  
This setup page includes all the items of first boot function features.
- **Server**  
This setup page is auto detect fan and temperature status.
- **Security**  
Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.
- **Defaults**  
Load Optimized Defaults option loads preset system parameter values to set the system in its highest performance configurations.
- **Exit**  
Save CMOS value settings to CMOS and exit setup or abandon all CMOS value changes and exit setup.

## Main (For example: BIOS Ver. :F1)

Once you enter Award BIOS CMOS 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.

CMOS Setup Utility - Copyright (C) 1984-2002 Award Software						
Main	Advanced	Boot	Server	Security	Defaults	Exit
Date (mm:dd:yy)				Mon. <b>Mo</b> v 5 2001		Item Help
Time (hh:mm:ss)				10 : 40 : 24		Menu Level▶
▶IDE Primary Master				[None]		Change the day, month, year
▶IDE Primary Slave				[None]		<Week>
▶IDE Secondary Master				[None]		Sun. to Sat.
▶IDE Secondary Slave				[None]		<Month>
						Jan. to Dec.
Drive A				[1.44M, 3.5"]		<Day>
Drive B				[None]		1 to 31 (or maximum allowed in the month)
▶System Information				[Press Enter]		<Year>
						1999 to 2098
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F7: Optimized Defaults						

Figure 1: Main

### ☞ Date

The date format is <week>, <month>, <day>, <year>.

- ▶▶Week    The week, from Sun to Sat, determined by the BIOS and is display only
- ▶▶Month    The month, Jan. Through Dec.
- ▶▶Day    The day, from 1 to 31 (or the maximum allowed in the month)
- ▶▶Year    The year, from 1999 through 2098

### ☞ Time

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

### ☞ 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.

#### ▶ Access Mode

This option allows user to set hard drive parameters.

Option: CHS, LBA, Large, Auto (Default Value)

▶▶ Capacity	Displays the capacity of HDD
▶▶ CYLS.	Number of cylinders
▶▶ HEADS	Number of heads
▶▶ PRECOMP	Write precomp
▶▶ LANDZONE	Landing zone
▶▶ SECTORS	Number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

### ☞ Drive A / Drive B

The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

▶▶ None	No floppy drive installed
▶▶ 360K, 5.25 in.	5.25 inch PC-type standard drive; 360K byte capacity.
▶▶ 1.2M, 5.25 in.	5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
▶▶ 720K, 3.5 in.	3.5 inch double-sided drive; 720K byte capacity
▶▶ 1.44M, 3.5 in.	3.5 inch double-sided drive; 1.44M byte capacity.
▶▶ 2.88M, 3.5 in.	3.5 inch double-sided drive; 2.88M byte capacity.

 **System Information**

▶▶ Please press enter to view the system configuration.

## Advanced

CMOS Setup Utility-Copyright (C) 1984-2002 Award Software	
Main <b>Advanced</b> Boot    Server    Security    Defaults    Exit	
<p>▶ <b>Advanced BIOS Feature</b></p> <p>▶ Integrated Peripherals</p> <p>▶ Power Management Setup</p>	<p>Item Help</p> <p>Menu Level▶</p> <p>Miscellaneous BIOS</p> <p>Feature...</p>
<p>↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help</p> <p>F5: Previous Values    F7: Optimized Defaults</p>	

Figure 2: Advanced

## Advanced BIOS Features

CMOS Setup Utility-Copyright (C) 1984-2002 Award Software	
Advanced	
Advanced BIOS Features	Item Help
Quick Power On Self Test <b>[Enabled]</b>	<p>Menu Level▶▶</p> <p>Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system</p>
Boot Up Floppy Seek    [Enabled]	
Interrupt Mode    [APIC]	
Memory Parity/ECC Check    Disabled	
MPS Version for OS    [1.4]	
<p>↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help</p> <p>F5: Previous Values    F7: Optimized Defaults</p>	

Figure 2-1: Advanced BIOS Features



### ☞ **Quick Power On Self Test**

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

- ▶▶ Enabled      Enable quick POST. (Default Value)
- ▶▶ Disabled      Normal POST.

### ☞ **Boot Up Floppy Seek**

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360 K type is 40 tracks 720 K, 1.2 M and 1.44 M are all 80 tracks.

- ▶▶ Enabled      BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720 K, 1.2 M or 1.44 M drive type as they are all 80 tracks. (Default value)
- ▶▶ Disabled      BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360 K.

### ☞ **Interrupt Mode**

- ▶▶ APIC          Through IOAPIC generate more IRQ for system use. (Default value)
- ▶▶ PIC          Use AT standard IRQ controller to generate IRQ.

When you already have IOAPIC enable system and want to upgrade the system please note, since running an IOAPIC enabled OS (like Windows NT, Windows 2000, Windows XP...) system with none IOAPIC HW support will cause the system to hang. Following are some situations users might run into:  
1. An IOAPIC enabled OS and change the BIOS setting from IOAPIC to PIC, this will cause your system to hang.

### ☞ **Memory Parity/ECC Check**

This item will be available when you use ECC memory.

🔗 **MPS Version Control For OS**

This option allows user to set OS Multi Processors version. (Support Multi Processor Specification revision 1.4)

**Note:** Some old MPS OS support 1.1 version only.

- ▶▶ 1.4            Support MPS Version 1.4 . (Default Value)
- ▶▶ 1.1            Support MPS Version 1.1.

## Integrated Peripherals

CMOS Setup Utility - Copyright (C) 1984-2002 Award Software

Advanced

Integrated Peripherals		Item Help
On-Chip Primary PCI IDE	[Enabled]	Menu Level▶▶
On-Chip Secondary PCI IDE	[Enabled]	If a hard disk
IDE Primary Master PIO	[Auto]	controller card is
IDE Primary Slave PIO	[Auto]	used, set at Disabled
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	[Enabled]
IDE Primary Master UDMA	[Auto]	Enable onboard IDE
IDE Primary Slave UDMA	[Auto]	PORT
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	[Disabled]
USB Controller	[Enabled]	Disable onboard IDE
USB Keyboard Support	[Disabled]	PORT
USB Mouse Support	[Disabled]	
Onboard ATA/RAID Device	[Enabled]	
RAID Controller Function	[RAID]	
Mouse Power ON	[Disabled]	
Keyboard Power On	[Disabled]	
x KB Power On Password	Enter	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[Auto]	
Onboard Serial Port 2	[Auto]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP+EPP]	
EPP Mode Select	[EPP 1.7]	
ECP Mode Use DMA	[3]	

---

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

Figure 2-2: Integrated Peripherals

#### ☞ **On-Chip Primary PCI IDE**

- ▶▶ Enabled      Enable onboard 1st channel IDE port. (Default value)
- ▶▶ Disabled      Disable onboard 1st channel IDE port.

#### ☞ **On-Chip Secondary PCI IDE**

- ▶▶ Enabled      Enable onboard 2nd channel IDE port. (Default value)
- ▶▶ Disabled      Disable onboard 2nd channel IDE port.

#### ☞ **IDE Primary Master PIO**

- ▶▶ Auto          BIOS will automatically detect the IDE HDD Accessing mode.  
(Default value)
- ▶▶ Mode0-4      Manually set the IDE Accessing mode.

#### ☞ **IDE Primary Slave PIO**

- ▶▶ Auto          BIOS will automatically detect the IDE HDD Accessing mode.  
(Default value)
- ▶▶ Mode0-4      Manually set the IDE Accessing mode.

#### ☞ **IDE Secondary Master PIO**

- ▶▶ Auto          BIOS will automatically detect the IDE HDD Accessing mode.  
(Default value)
- ▶▶ Mode0-4      Manually set the IDE Accessing mode.

#### ☞ **IDE Primary Master UDMA**

- ▶▶ Auto          BIOS will automatically detect the IDE HDD Accessing mode.  
(Default value)
- ▶▶ Disabled      Disable UDMA function.

☞ **IDE Primary Slave UDMA**

- ▶▶ Auto BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- ▶▶ Disabled Disable UDMA function.

☞ **IDE Secondary Master UDMA**

- ▶▶ Auto BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- ▶▶ Disabled Disable UDMA function.

☞ **IDE Secondary Slave UDMA**

- ▶▶ Auto BIOS will automatically detect the IDE HDD Accessing mode. (Default value)
- ▶▶ Disabled Disable UDMA function.

☞ **USB Controller**

- ▶▶ Enabled Enable USB Controller. (Default value)
- ▶▶ Disabled Disable USB Controller.

☞ **Onboard ATA/RAID Device\***

- ▶▶ Enabled Enable Onboard ATA/RAID Device. (Default value)
- ▶▶ Disabled Disable Onboard ATA/RAID Device.

☞ **RAID Controller Function**

- ▶▶ RAID Set RAID Controller Function to RAID. (Default value)
- ▶▶ ATA Set RAID Controller Function to ATA.

☞ **USB Keyboard Support**

- ▶▶ Enabled Enable USB Keyboard Support.
- ▶▶ Disabled Disable USB Keyboard Support. (Default value)

---

**☞ USB Mouse Support**

- ▶▶ Enabled      Enable USB Mouse Support.
- ▶▶ Disabled      Disable USB Mouse Support. (Default value)

**☞ Mouse Power On**

- ▶▶ Double Left    Click twice on PS/2 mouse left button to Power on system.
- ▶▶ Double Right   Click twice on PS/2 mouse right button to Power on system.
- ▶▶ Disabled      Disable Mouse Power On. (Default value)

**☞ Keyboard Power On**

- ▶▶ Keyboard 98    If your keyboard have "Keyboard 98" button, you can press the key to power on your system.
- ▶▶ Password      Enter from 1 to 5 characters to set the Keyboard Power On Password.
- ▶▶ ANY KEY      Enter any key combination to Power on system.
- ▶▶ Disabled      Disable Keyboard Power On. (Default value)

**☞ Onboard FDC Controller**

- ▶▶ Enabled      Enable onboard FDC port. (Default value)
- ▶▶ Disabled      Disable onboard FDC port.

**☞ Onboard Serial Port 1**

- ▶▶ Auto            BIOS will automatically setup the port 1 address. (Default value)
- ▶▶ 3F8/IRQ4      Enable onboard Serial port 1 and address is 3F8.
- ▶▶ 2F8/IRQ3      Enable onboard Serial port 1 and address is 2F8.
- ▶▶ 3E8/IRQ4      Enable onboard Serial port 1 and address is 3E8.
- ▶▶ 2E8/IRQ3      Enable onboard Serial port 1 and address is 2E8.
- ▶▶ Disabled      Disable onboard Serial port 1.

☞ **Onboard Serial Port 2**

- ▶▶ Auto BIOS will automatically setup the port 2 address. (Default value)
- ▶▶ 3F8/IRQ4 Enable onboard Serial port 2 and address is 3F8.
- ▶▶ 2F8/IRQ3 Enable onboard Serial port 2 and address is 2F8.
- ▶▶ 3E8/IRQ4 Enable onboard Serial port 2 and address is 3E8.
- ▶▶ 2E8/IRQ3 Enable onboard Serial port 2 and address is 2E8.
- ▶▶ Disabled Disable onboard Serial port 2.

☞ **Onboard Parallel port**

- ▶▶ 378/IRQ7 Enable onboard LPT port and address is 378/IRQ7. (Default Value)
- ▶▶ 278/IRQ5 Enable onboard LPT port and address is 278/IRQ5.
- ▶▶ Disabled Disable onboard LPT port.
- ▶▶ 3BC/IRQ7 Enable onboard LPT port and address is 3BC/IRQ7.

☞ **Parallel Port Mode**

- ▶▶ SPP Using Parallel port as Standard Parallel Port.
- ▶▶ EPP Using Parallel port as Enhanced Parallel Port.
- ▶▶ ECP Using Parallel port as Extended Capabilities Port.
- ▶▶ ECP+EPP Using Parallel port as ECP & EPP mode. (Default Value)
- ▶▶ Normal Using Parallel port as Normal.

☞ **EPP Mode Select**

- ▶▶ EPP 1.9 Compliant with EPP 1.9 version.
- ▶▶ EPP 1.7 Compliant with EPP 1.7 version. (Default Value)

☞ **ECP Mode Use DMA**

- ▶▶ 3 Set ECP Mode Use DMA to 3. (Default Value)
- ▶▶ 1 Set ECP Mode Use DMA to 1.

## Power Management Setup

CMOS Setup Utility - Copyright (C) 1984-2002 Award Software		
Advanced		
Power Management Setup		Item Help
Power Management	[User Define]	Menu Level▶▶
Suspend Type	[Stop Grant]	[User Define]
Suspend Mode	[Disabled]	Configure our own
HDD Power Down	[Disabled]	power management
Soft-Off by PWR-BTTN	[Instant-Off]	feature
State After Power Failure	[Auto]	[Min Saving]
PME Event Wake Up	[Enabled]	Minimum power
Wake Up On Ring	[Disabled]	savings in suspend
Resume by Alarm	[Disabled]	mode
X Date (of Month)	Every day	[Max Saving]
X Time (hh:mm:ss)	0 : 0 : 0	Maximum power
		savings in suspend
		mode

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

Figure 2-3: Power Management Setup



☞ **Power Management**

- ▶▶ User Define For configuring our own power management features. (Default Value)
- ▶▶ Min Saving Disable Green & software APM function.
- ▶▶ Max Saving Enable Green & software APM function.

☞ **Suspend Type**

- ▶▶ Stop Grant Set Suspend Type to stop grant. (Default value)
- ▶▶ PwrOn Suspend Set Suspend Type to Power on Suspend.

☞ **Suspend Mode**

- ▶▶ Disabled Disable Suspend Mode. (Default value)
- ▶▶ 1 min - 1 Hour Setup the timer to enter Suspend Mode.

☞ **HDD Power Down**

- ▶▶ Disabled Disable HDD Power Down mode function. (Default value)
- ▶▶ 1-15 mins. Enable HDD Power Down mode between 1 to 15 mins.

☞ **Soft-off by PWR-BTTN**

- ▶▶ Instant-off Press power button then Power off instantly. (Default value)
- ▶▶ Delay 4 Sec. Press power button 4 sec to Power off. Enter suspend if button is pressed less than 4 sec.

☞ **State After Power Failure**

- ▶▶ Auto When AC-power back to the system, the system will return to the Last state before AC-power off. (Default value)
- ▶▶ Off When AC-power back to the system, the system will be in "Off" state.
- ▶▶ On When AC-power back to the system, the system will be in "On" state.

☞ **PME Event Wake UP**

- ▶▶ Disabled Disable this function.
- ▶▶ Enabled Enable PME Event Wake up. (Default Value)

**☞ Wake Up On Ring**

- ▶▶ Disabled      Disable Wake Up On Ring function. (Default Value)
- ▶▶ Enabled        Enable Wake Up On Ring function.

**☞ Resume by Alarm**

You can set "Resume by Alarm" item to enabled and key in Date/time to power on system.

- ▶▶ Disabled      Disable this function. (Default Value)
- ▶▶ Enabled        Enable alarm function to POWER ON system.

If RTC Alarm Lead To Power On is Enabled.

Date ( of Month) Alarm :            Every day , 1-31

Time ( hh: mm: ss) Alarm :        (0-23) : (0-59) : (0-59)



---

**☞ BootUpNum-Lock**

- ▶▶ On                    Keypad is number keys. (Default value)
- ▶▶ Off                   Keypad is arrow keys.

**☞ Boot to OS2 or DR-DOS**

- ▶▶ No                    Disable this function. (Default Value)
- ▶▶ Yes                   Select Yes, if you are running os/2 or DR-DOS with greater than 64MB of RAM on the system.

**☞ Console Redirection**

- ▶▶ Disabled            Attempt to redirect console when key board absent.
- ▶▶ Enabled             Attempt to redirect console via COM port. (Default Value)

**☞ Agent Connect via**

- ▶▶ The setting of communication port between two computers.

**☞ Agent after boot**

- ▶▶ Disabled            Disable this function. (Default Value)
- ▶▶ Enabled             Keep Agent running after OS boot.

**☞ Onboard LAN1 Boot ROM**

- ▶▶ Disabled            Disable this function. (Default Value)
- ▶▶ Enabled             Select your boot device priority by LAN1.

**☞ Onboard LAN2 Boot ROM**

- ▶▶ Disabled            Disable this function. (Default Value)
- ▶▶ Enabled             Select your boot device priority by LAN2.

**☞ CPU Clock Ratio**

- Key in a DEC Number. Min=10, Max=24.
- Option: DEC Number: 10-24; 20(Default Value)

## Server

CMOS Setup Utility - Copyright (C) 1984-2002 Award Software						
Main	Advanced	Boot	Server	Security	Defaults	Exit
Clear All IPMI Event Logs			[No]			Item Help
View IPMI Event Logs				Press Enter		Menu Level▶
Event Log Capacity Status				Space Available		Description:
BMC Firmware Updatable				[No]		When this item is
Clear Mem. ECC Error Info.				[No]		selected to [Yes], all
▶Sensor Information						the IPMI event logs
						will be cleared at
						next POST stage, and
Halt On				[All, But Disk/Key]		then set this item to
						[No] automatically
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F7: Optimized Defaults						

Figure 4: Server

CMOS Setup Utility-Copyright (C) 1984-2002 Award Software		
Server		
Sensor Information		Item Help
Current CPU Temperature	60°C/140°F	Menu Level▶▶
Current CPU FAN Speed	4687 RPM	
Current POWER FAN Speed	0 RPM	
Current System Temp.1	32°C/89°F	
Current System Temp. 2	40°C/104°F	
CPU Core	1.74V	
+3.3V	3.37V	
+5V	5.10V	
+12V	11.96V	
-12V	-12.06V	
5VSB	5.08V	
Reset Case Open Status	[Disabled]	
Case Opened	[Yes]	

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

Figure 4-1: View FAN/Temp/Vol

☞ **Clear All IPMI Event Logs**

When the item is selected to [Yes], all the IPMI event logs will be cleared at next POST stage, and then set this item to [No] automatically.

- ▶▶ Yes DMI event log will be clear at next POST stage.
- ▶▶ No Clear All IPMI Event Logs automatic. (Default Value)

☞ **View IPMI Event Logs**

- ▶▶ Press [Enter] to show all IPMI Event Logs.

☞ **Event Log Capacity Status**

- ▶▶ Space Available The space in event log is Full or available.

☞ Clear Mem. ECC Error Info.

- ▶▶ Yes Enable clear Mem. ECC error information.
- ▶▶ No Disable clear Mem. ECC error information. (Default Value)

#### ☞ **BMC Firmware Updatable**

- ▶▶ Yes Enable BMC Firmware Updatable.
- ▶▶ No Disable BMC Firmware Updatable. (Default Value)

#### ☞ **Sensor Information**

##### ☞ **Current CPU Temperature/System Temp.1/ System Temp.2**

- ▶▶ Detect Temp. automatically.

##### ☞ **Current CPU FAN/Power FAN/ System FAN Speed (RPM)**

- ▶▶ Detect Fan speed status automatically.

##### ☞ **Current CPU Core / +3.3V / +5V / +12V / 5VSB**

- ▶▶ Detect system's voltage status automatically.

#### ☞ **Halt On**

The category determines whether the computer will stop if an error is detected during power up.

- ▶▶ NO Errors The system boot will not stop for any error that may be detected and you will be prompted.
- ▶▶ All Errors Whenever the BIOS detects a non-fatal error the system will be stopped.
- ▶▶ All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
- ▶▶ All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.
- ▶▶ All, But Disk/Key The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

☞ **Reset Case Open Status**

☞ **Case Opened**

If the case is closed, "Case Opened" will show "No".

If the case have been opened, "Case Opened" will show "Yes".

If you want to reset "Case Opened" value, set "Reset Case Open Status" to "Enabled" and save CMOS, your computer will restart.



## Security

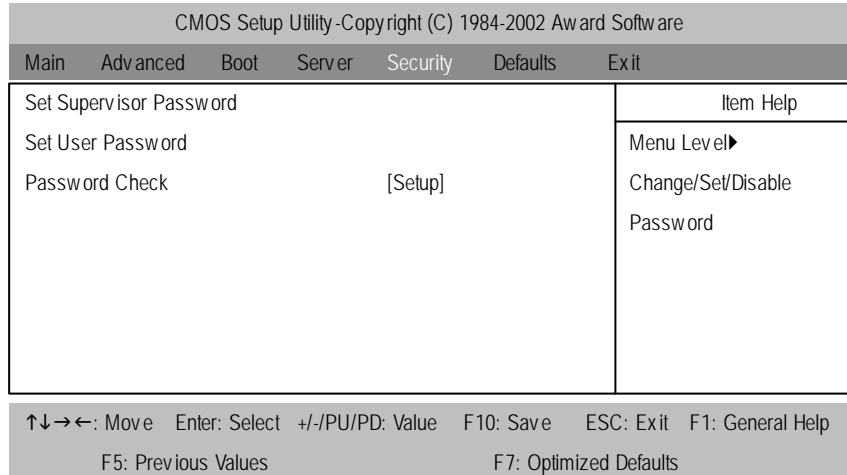


Figure 5: Security

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 eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

🔑 **Password Check**

- ▶▶ System      The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt.
- ▶▶ Setup        The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. (Default value)

## Defaults

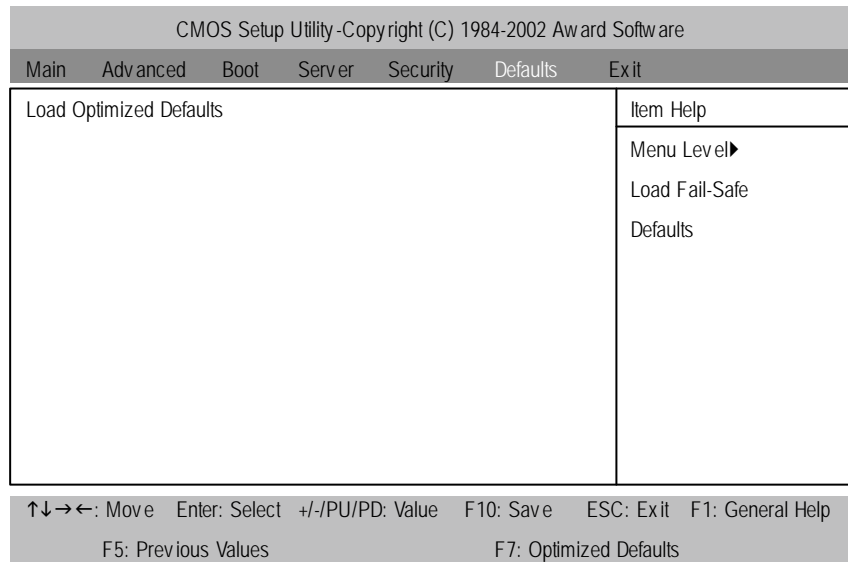


Figure 6: Defaults

### **Load Optimized Defaults**

Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

## Exit

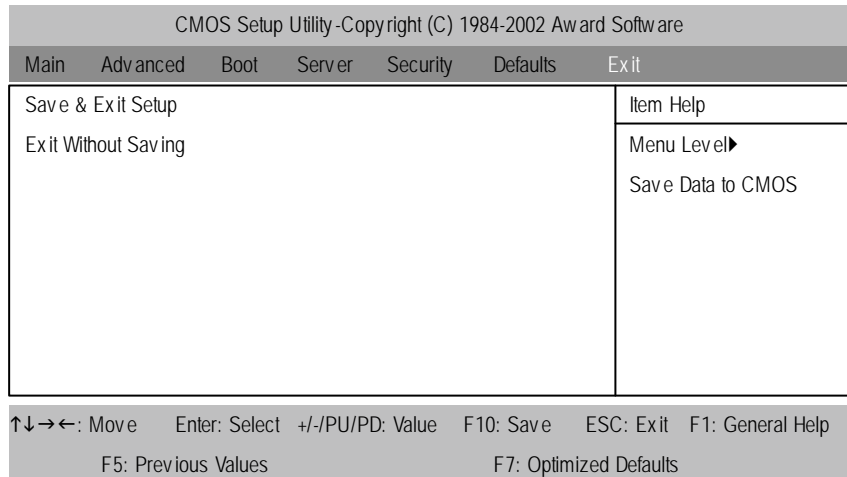


Figure 7: Exit

### ☞ Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

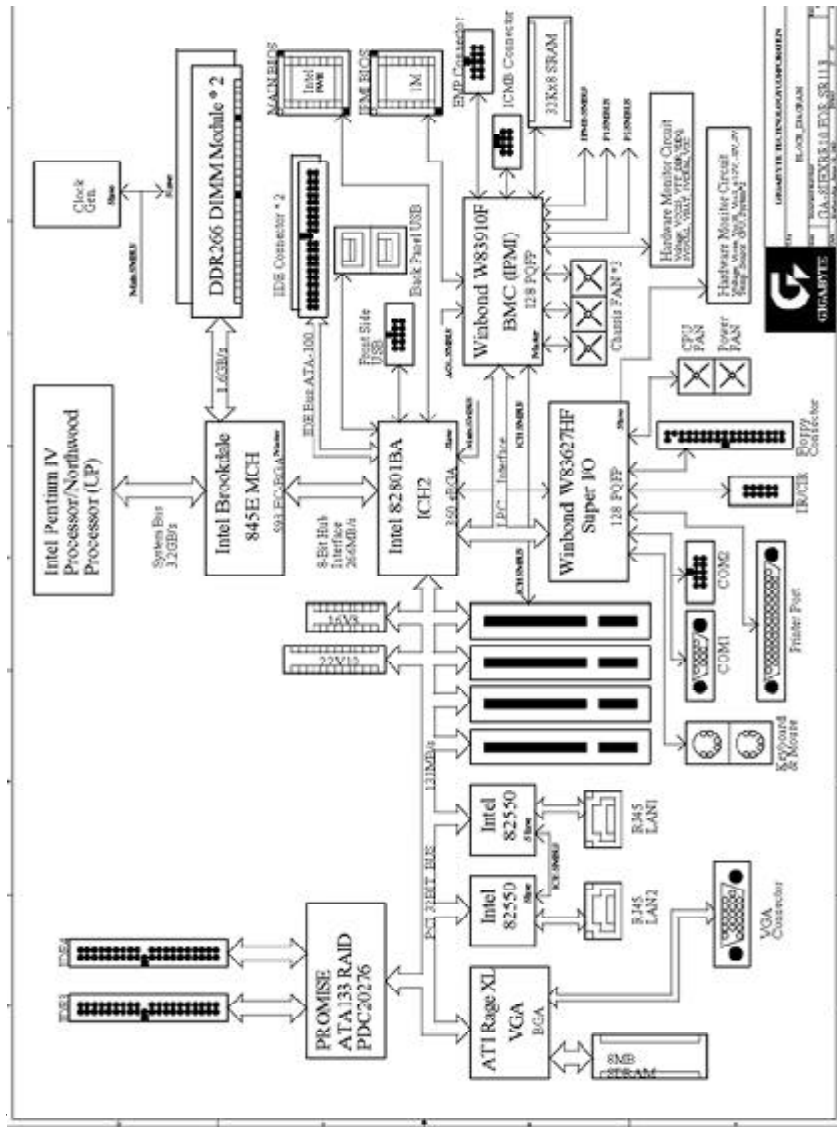
### ☞ Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

# Chapter 4 Technical Reference

## Block Diagram

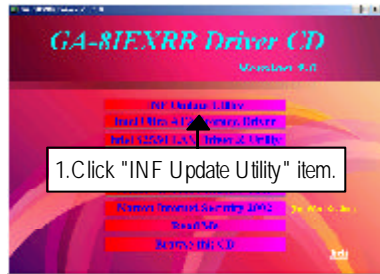


## Chapter 5 Appendix

(For example: Driver CD Ver. : 1.0)

### Appendix A: INF Update Utility Installation

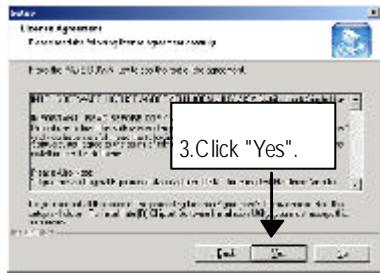
Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.



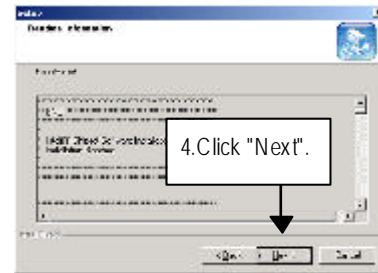
(1)



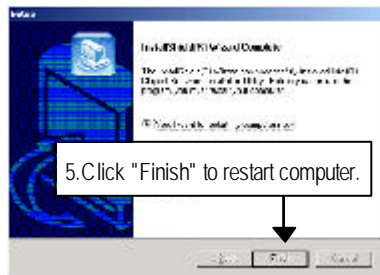
(2)



(3)



(4)



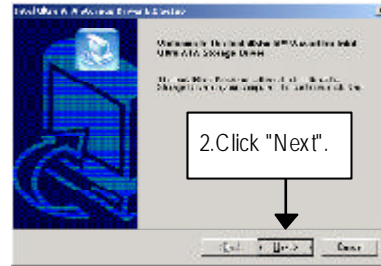
(5)

### Appendix B: Intel Ultra ATA Storage Driver:

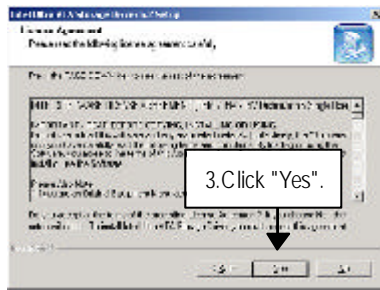
Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.



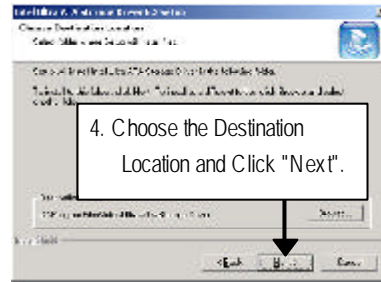
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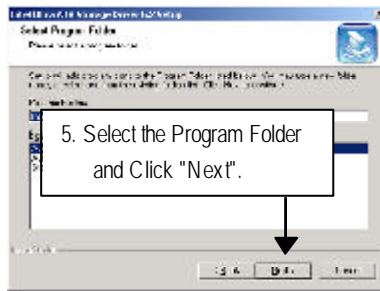
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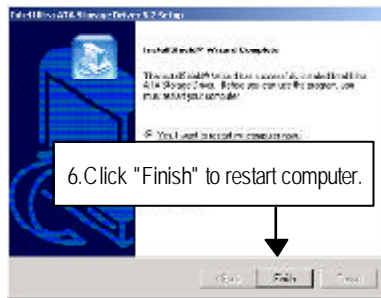
(3)



(4)



(5)



(6)

### Appendix C: Intel 82550 LAN Driver & Utility

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)



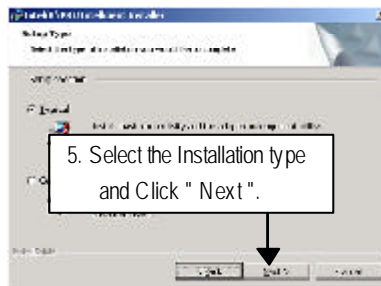
(2)



(3)



(4)

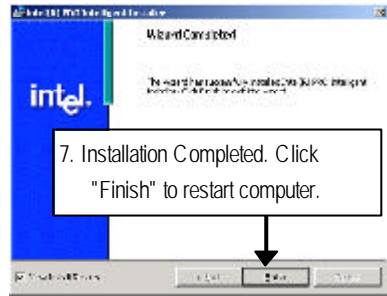


(5)

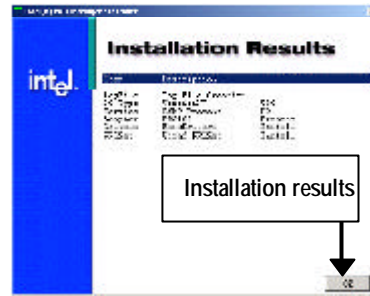


(6)





(7)



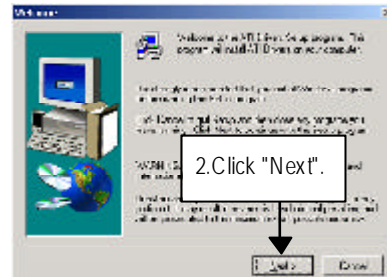
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## Appendix D: ATI -Range XL VGA Driver

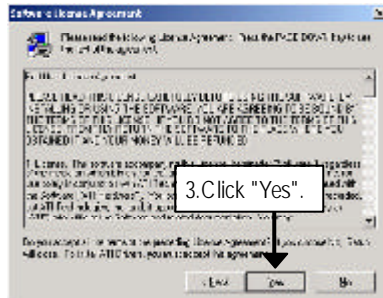
Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.



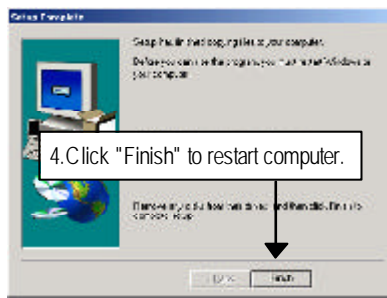
(1)



(2)



(3)



(4)

### Appendix E: 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
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture

to be continued.....

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Acronyms	Meaning
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

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**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:

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