



integration with integrity

3308060 User's Manual

5.25 Embedded Controller

Version 1.0

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Table of Contents

How to Use This Manual

Chapter 1 System Overview	1-1
1.1 Introduction.....	1-1
1.2 Check List	1-2
1.3 Product Specification	1-2
1.3.1 Mechanical Drawing.....	1-4
1.4 System Architecture	1-4
Chapter 2 Hardware Configuration	2-1
2.1 Jumper Setting	2-1
2.2 Connector Allocation	2-3
Chapter 3 System Installation.....	3-1
3.1 Intel® Pentium® M or Celeron® M processor.....	3-1
3.2 Main Memory	3-2
3.3 Installing the Single Board Computer	3-3
3.3.1 Chipset Component Driver.....	3-3
3.3.2 Intel Integrated Graphics GMCH Chip	3-4
3.3.3 On-board Fast Ethernet Controller	3-4
3.3.4 Realtek AC'97 Codec Controller	3-5
3.4 Clear CMOS Operation.....	3-5
3.5 WDT Function.....	3-5
3.6 GPIO.....	3-7
3.7 On-Board USB 2.0 Controller.....	3-8
Chapter 4 BIOS Setup Information.....	4-1
4.1 Entering Setup.....	4-1
4.2 Main Menu	4-2
4.3 Standard CMOS Setup Menu	4-3
4.4 IDE Adaptors Setup Menu.....	4-4
4.5 Advanced BIOS Features.....	4-7
4.6 Advanced Chipset Features	4-12
4.7 Integrated Peripherals	4-16
4.8 Power Management Setup	4-22
4.9 PnP/PCI Configurations	4-26
4.10 PC Health Status.....	4-28
4.11 Frequency/Voltage Control.....	4-29
4.12 Default Menu	4-29
4.13 Supervisor/User Password Setting	4-30
4.14 Exiting Selection	4-31
Chapter 5 Troubleshooting	5-1
5.1 Hardware Quick Installation	5-1
5.2 BIOS Setting.....	5-2
5.3 FAQ	5-3
Appendix A	
Appendix B	

How to Use This Manual

The manual describes how to configure your 3308060 system to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of Single Board Computer.

Chapter 1 : System Overview. Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this model of single board computer.

Chapter 2 : Hardware Configuration. Shows the definitions and locations of Jumpers and Connectors that you can easily configure your system.

Chapter 3 : System Installation. Describes how to properly mount the CPU, main memory and M-systems flash disk to get a safe installation and provides a programming guide of Watch Dog Timer function.

Chapter 4 : BIOS Setup Information. Specifies the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

Chapter 5 : Troubleshooting. Provides you a few useful tips to quickly get your 3308060 running with no failure. As basic hardware installation has been addressed in Chapter 3, this chapter will basically focus on system integration issues, in terms of backplane/riser card setup, BIOS setting, and OS diagnostics.

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Chapter 1

System Overview

1.1 Introduction

The 3308060 all-in-one full size single board computer is designed to fit high performance and scalable Intel Pentium-M Dothan processors and compatible for high-end industrial computer system with PCI architecture. It is made to meet today's demanding reliability & stability for critical computing environments, and keep complete compatibility & functionality for wide range of applications. It's beneficial to built up a high performance and reliable system for VARs, or system integrators. The on-board 3D graphics with panel display interface, two MARVELL GIGA Ethernet interface and AC-97 audio CODEC will bring full functionality and high performance to all segments of the industrial PC market.

This single board computer runs with Intel® Pentium®-M Dothan (mPGA479) processor, and supports one DIMM up to 1GB DDR 333 SDRAM maximum. The enhanced on-board PCI IDE & SATA interface can support 4 drives up to PIO mode 4 timing and Ultra DMA/33/66/100 synchronous mode feature. The on-board Super I/O Chipset integrates 2 serial ports, one keyboard controller, hardware monitoring, one IrDA port and one parallel port. Besides, eight USB (Universal Serial Bus) ports provide high-speed data communication between peripherals and PC.

The Watch-Dog Timer function can be used to restart you system whenever system goes abnormal.. The on-board Flash ROM is used to make the BIOS update easier, ROM chip can be replaced quickly. The 3308060 also provide up to 4bit GPIO and high-resolution watchdog timer. All of these features make 3308060 excellent in many applications and one of the best performing single board computer in the market.

Notice for users of 3308060:

You can find 3308060 manual and CD-Title in this package, please just ignore multimedia related driver/utility/setting instruction. Other jumper settings and connectors should be referred as for 3308060.

1.2 Check List

The 3308060 package should cover the following basic items

- ✓ One 3308060 single board computer
- ✓ One Installation Resources CD-Title
- ✓ CPU holder
- ✓ One booklet of 3308060 manual

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

1.3 Product Specification

- **Main processor**
 - Intel® Pentium®-M Dothan Processor
 - FSB: 533/400MHz
- **BIOS**

Phoenix (Award) system BIOS with 512KB Flash ROM with easy upgrade function ACPI, DMI, Green function and Plug and Play Compatible
- **Main Memory**

One DIMM sockets support non-buffered 333 DDR-SDRAM up to 1GB. 3308060 supports without buffer or register.
- **L2 Cache Memory**

2MB/512/256KB in Intel® Pentium®-M Dothan Processor
- **Chipset**

Intel 915GM GMCH and ICH6-M chipset
- **PCI IDE Interface**

Support one enhanced IDE ports and 2 SATA port up to 4 HDD devices with PIO mode 4 and Ultra DMA/33/66/100 mode transfer and Bus Master feature.
One 2.54mm pitch 20pin x2 IDE connector for primary IDE channel share with Compact Flash Socket.
2 SATA port supports 2 SATA interface device.
- **Serial Ports**

Support 2 high-speed 16C550 compatible UARTs with 16-byte T/R FIFOs
- **IR Interface**

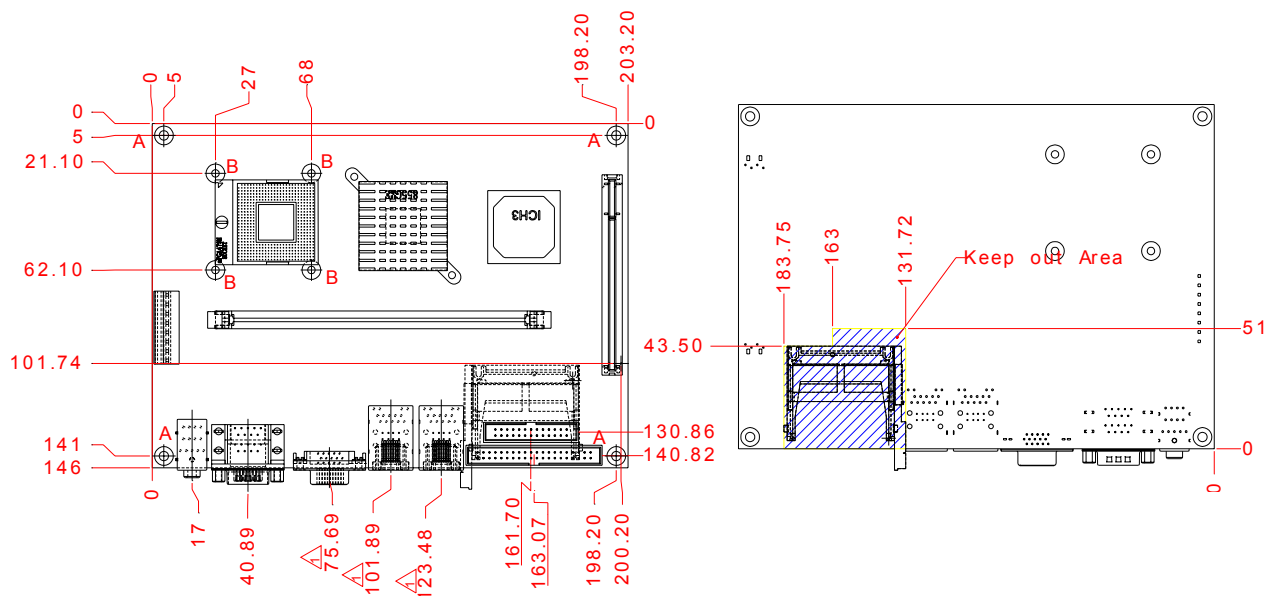
Support one 6-pin header for serial Standard Infrared wireless communication
- **Parallel Port**

Support one parallel port with SPP, EPP and ECP modes

- **USB Interface**
Support eight USB ports for high-speed I/O peripheral devices
- **PS/2 Mouse and Keyboard Interface**
Support one PS/2 mouse/keyboard connection through IO Cable separation and ATX Power Control Interface
- **Auxiliary I/O Interfaces**
System reset switch, Keyboard lock and HDD active LED, etc.
- **Real Time Clock/Calendar (RTC)**
Support Y2K Real Time Clock/Calendar with battery backup for 7-year data retention
- **Watchdog Timer**
 - Support WDT function through software programming for enable/disable and interval setting
 - Generate system reset or non-maskable interrupt (NMI)
- **On-board VGA**
 - Support Dual channel LVDS interface
- **On-board Ethernet LAN**
Two MARVELL 99E8053 GIGA Ether Net controller to support RJ-45 connector.
- **High driving GPIO**
Support 4 high driving capability for GPIO (4 GPI or 4 GPO)
- **Cooling Fans**
Support two 3-pin headers for CPU, System and Power fans
- **System Monitoring Feature**
Monitor CPU temperature, system temperature and major power sources, etc.
- **Outline Dimension (L X W):**
203.2mm (8.0") X 147.32mm (5.8")
- **Power Requirements:**
 - +12V (System) @ 1.66A
 - +5V @ 3.86A
 - Test configuration:
 - CPU: Intel Pentium-M Dothan 2.0G/533MHz FSB/2MB L2 Cache
 - Memory: DDR SDRAM 512MBx1
 - Serial ATA HDD: Seagate-ST380013AS
 - OS: Microsoft Windows 2000 professional + SP4
 - Test Programs: Burning Test V4.0 for loading CPU
 - Connected Fans: Only CPU fan connected
 - Run Time: 30 minutes

- **Operating Temperature:**
-5°C ~ 60°C (23°F ~ 140°F)
- **Storage Temperature:**
-20°C ~ 80°C
- **Relative Humidity:**
0% ~ 95%, non-condensing

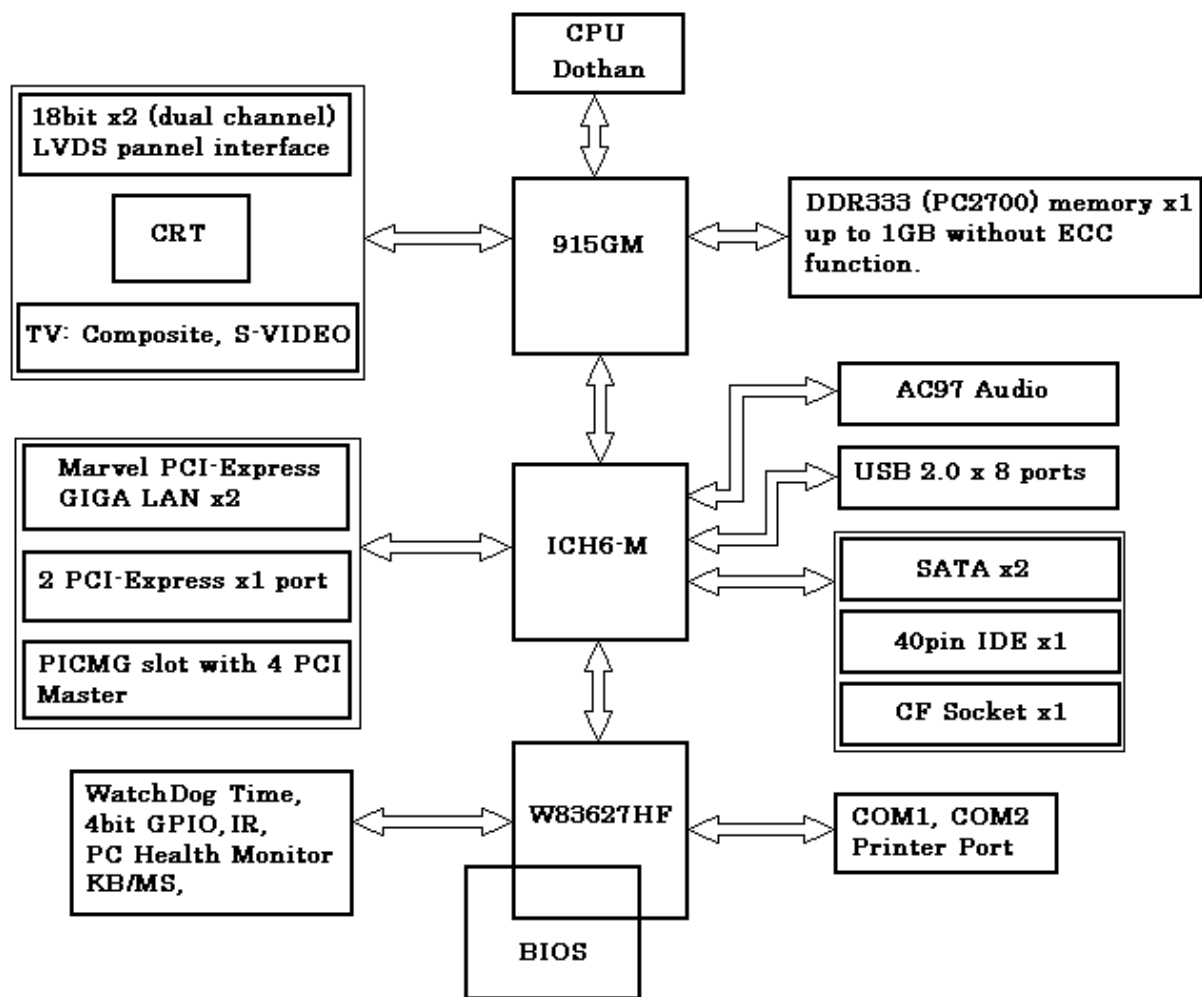
1.3.1 Mechanical Drawing



1.4 System Architecture

The most up-to-date system architecture of 3308060 includes two main Intel chips, Intel 915GM chipset supports Pentium-M Dothan processor, DDR-SDRAM, 2D/3D graphic display, and its ICH6-M supports PCI & PCI-express bus interface, APM, ACPI compliant power management, USB port, SMBus communication, Ultra DMA/33/66/100 IDE Master and SATA. W83627HF (I/O Controller) is responsible for PS/2 Keyboard/Mouse, UARTs with RS-422/485, Hardware Monitor, Parallel, Watch Dog Timer, GPIO and Infrared interface.

The special pin configuration of the CPU socket adopts the 479 pins in total. This new generation CPU provides better performance to many applications.



3308060 System Block Diagram

Chapter 2 Hardware Configuration

This chapter indicates jumpers', headers' and connectors' locations. Users may find useful information related to hardware settings in this chapter. The default settings are indicated with a star sign (★).

2.1 Jumper Setting

For users to customize 3308060 features. In the following sections, **Short** means covering a jumper cap over jumper pins; **Open** or **N/C** (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 2-1 for the Jumper locations.

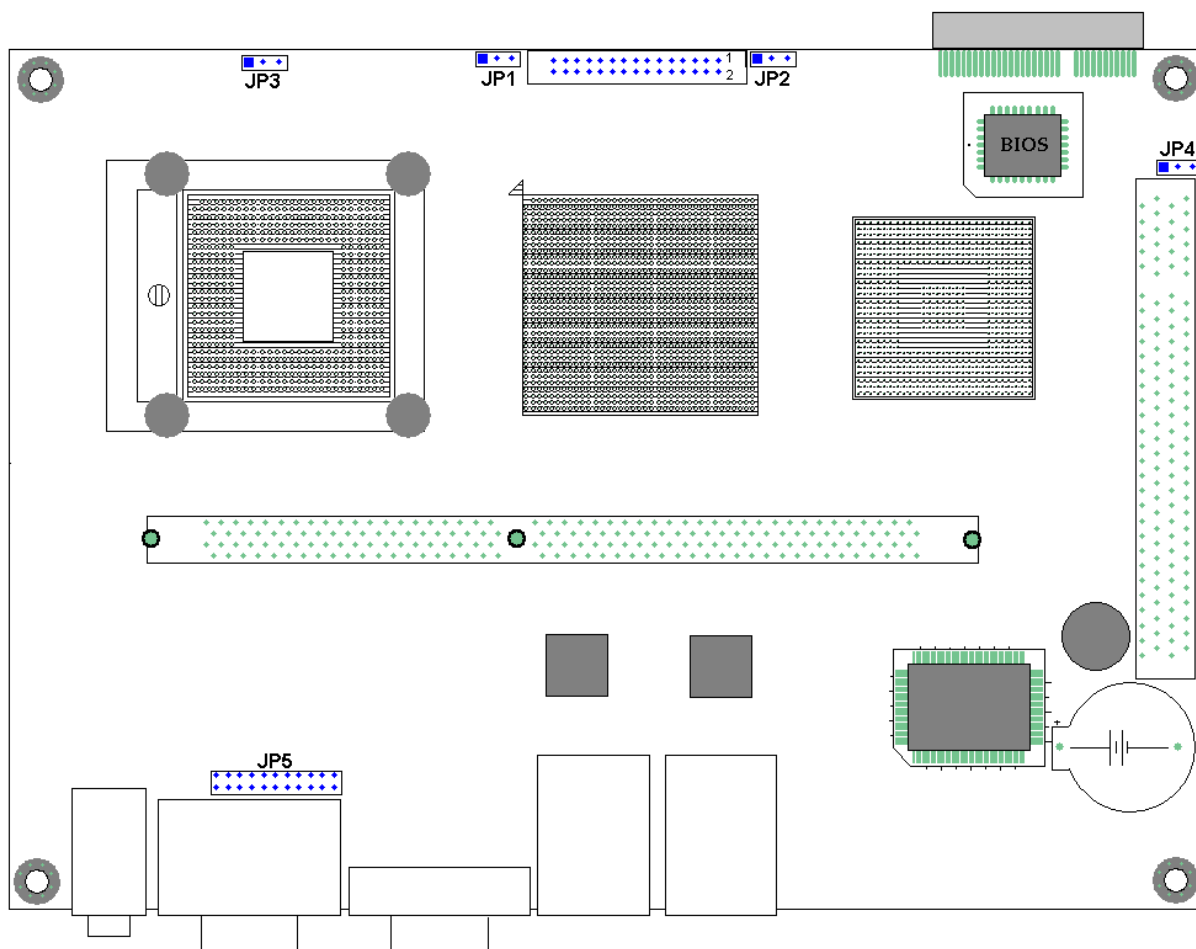


Figure 2-1 3308060 Jumper Location

JP1: CPU Type Selection

JP1	Function
1-2 short	Reserved
2-3 short	CPU type set to Dothan ★

JP2: LVDS Panel VDD Power Input Selection

JP2	Function
1-2 short	LVDS panel VDD set to 3.3V ★
2-3 short	LVDS panel VDD set to 5V.

Note:

Wrong voltage selection may damage the LVDS panel. Please survey LVDS panel's VDD before setup this jumper setting.

JP3: LVDS Panel Back Light Enable Signal Level Selection

JP3	Function
1-2 short	VDD=+3.3V ★
2-3 short	VDD=+5V

Note:

Wrong voltage selection may damage the LVDS panel's back light inverter. Please survey inverter's maximum allow input level before setup this jumper setting.

JP4: RTC CMOS Charge/Discharge

JP4	Function CPU/DDR
1-2 short	Clear CMOS
2-3 short	Charge ★

JP5: COM2 Communication Protocol selection

JP5	Function
5-6,9-11,10-12,15-17,16-18 short	RS-232 ★
3-4,7-9,8-10,13-15,14-16,21-22 short	RS-422
1-2,7-9,8-10,19-20	RS-485

2.2 Connector Allocation

I/O peripheral devices are connected to the interface connectors (Figure 2-2)

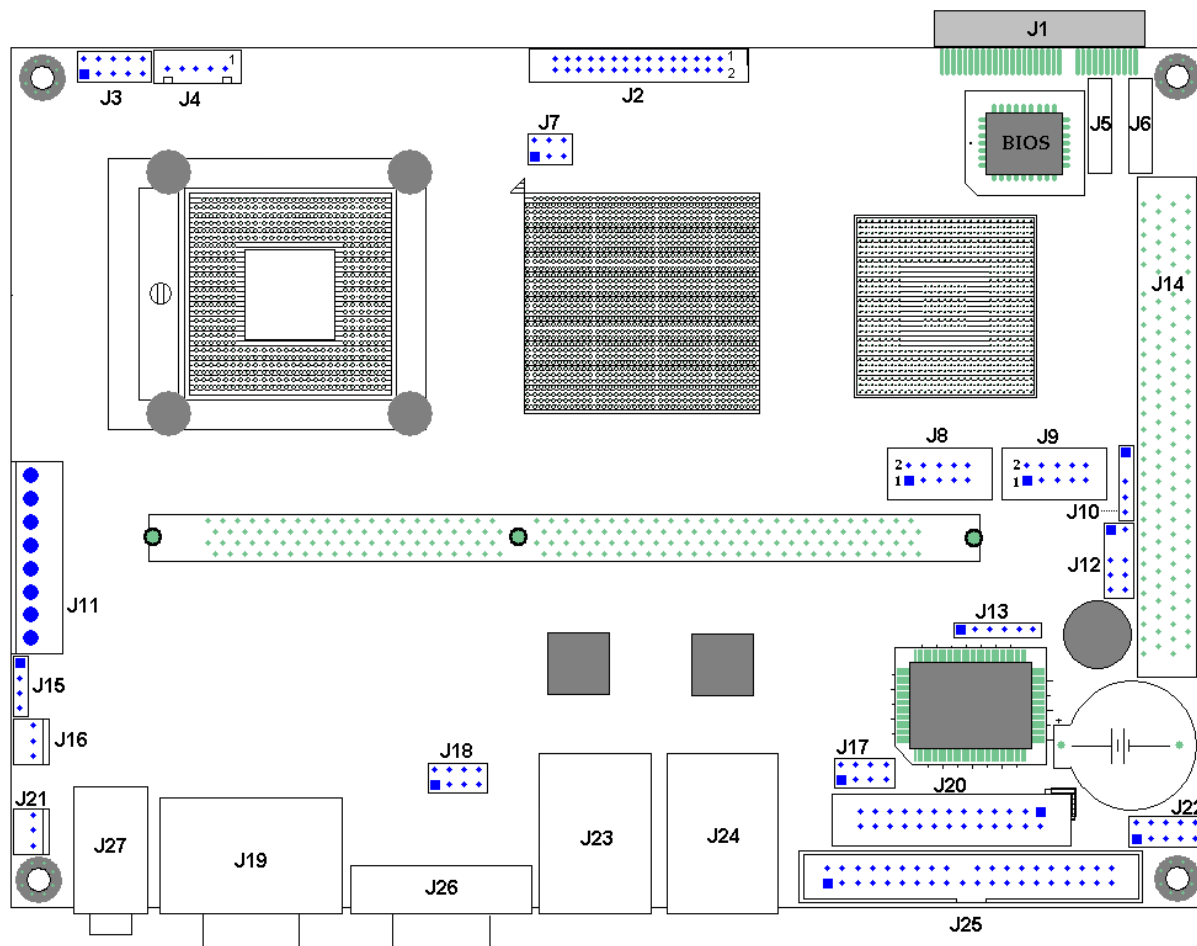


Figure 2-2 3308060 Connector Location

Connector Function List

Connector	Function	Remark
J1	PCI express port (2EA x1 port inside)	optional
J2	LVDS panel interface connector	
J3	Front panel connector	
J4	LVDS panel inverter's power connector	
J5	SATA port 1 connector	
J6	SATA port 2 connector	
J7	TV out connector	
J8	USB port6 & port7 connector	
J9	USB port4 & port5 connector	
J10	I2C connector	
J11	Power connector	
J12	PS/2 keyboard & mouse connector	
J13	IR Connector	
J14	PICMG riser card connector	
J15	CD-IN connector	
J16	+12V DC fan, FAN2 connector	
J17	LAN2 status indicator connector	
J18	LAN1 status indicator connector	
J19	COM1 & COM2	
J20	Printer port	
J21	+12V DC fan, FAN1 connector	
J22	GPIO connector	
J23	LAN1 + USB port 0 & 1 connector	
J24	LAN2 + USB port 2 & 3 connector	
J25	40pin IDE connector	
J26	CRT connector	
J27	Audio jack	
J28	Compact flash socket	

Pin Assignments of Connectors

J1: PCI-Express connector

PIN No.	Signal Description	PIN No.	Signal Description
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	NC
A4	GND	B4	GND
A5	CLK1+	B5	SMBUS CLK
A6	CLK1-	B6	SMBUS DATA
A7	NC	B7	GND
A8	3.3V	B8	3.3V
A9	3.3V	B9	GND
A10	3.3V	B10	3.3V standby
A11	RESET#	B11	WAKE UP#
A12	GND	B12	NC
A13	CLK0+	B13	GND
A14	CLK0-	B14	PCIE-TX0+
A15	GND	B15	PCIE-TX0-
A16	PCIE-RX0+	B16	GND
A17	PCIE-RX0-	B17	NC
A18	GND	B18	GND
A19	NC	B19	PCIE-TX1+
A20	GND	B20	PCIE-TX1-
A21	PCIE-RX1+	B21	GND
A22	PCIE-RX1-	B22	GND
A23	GND	B23	NC
A24	GND	B24	NC
A25	NC	B25	GND
A26	NC	B26	GND
A27	GND	B27	NC
A28	GND	B28	NC
A29	NC	B29	GND
A30	NC	B30	NC
A31	GND	B31	NC
A32	3.3V	B32	GND

Note:

A1~A32 are on top side; B1~B32 are on bottom side.

J2: LVDS Panel Interface Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	Panel VDD	2	Panel VDD
3	CHA DATA0+	4	CHA DATA0-
5	CHA DATA1+	6	CHA DATA1-
7	CHA DATA2+	8	CHA DATA2-
9	NC	10	NC
11	CHA CLOCK+	12	CHA CLOCK-
13	NC	14	NC
15	GND	16	GND
17	CHB DATA0+	18	CHB DATA0-
19	CHB DATA1+	20	CHB DATA1-
21	CHB DATA2+	22	CHB DATA2-
23	NC	24	NC
25	CHB CLOCK+	26	CHB CLOCK-
27	NC	28	NC
29	GND	30	GND

Notes:

- 1) The signals of LVDS upper channel will be only used in dual-channel LVDS mode.
- 2) This panel connector (J2) should be accompanied with LVDS Panel Voltage jumper setting (JP2)
- 3) In general, lower channel equals odd channel and upper channel equals even channel for different panel description.

J3: Front Panel Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	5Vsb pull up(power LED+)	2	Power LED-
3	3V pull up(HDD LED+)	4	HDD LED-
5	5Vsb pull up (power switch pin1)	6	Power switch pin2
7	System reset switch pin1	8	GND. System reset switch pin2
9	Keyboard lock switch pin1	10	GND. Keyboard lock switch pin2

J4: LVDS Panel Back Light Inverter Power Connector

PIN No.	Signal Description
1	+5V
2	GND
3	+12V
4	GND
5	Back Light Enable signal. Active high.

J5, J6: SATA Connector

PIN No.	Signal Description
1	GND
2	SATA TX+
3	SATA TX-
4	GND
5	SATA RX-
6	SATA RX+
7	GND

J7: TV Out Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	GND	2	TVDAC A
3	TVDAC B	4	TVDAC C
5	GND	6	NC

Note:

TVDAC_A: COMPOSITE VIDEO

TVDAC_B: S-VIDEO LUMINANCE

TVDAC_C: S-VIDEO CHROMINANCE

J8, J9: USB Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	NC	2	USB power (5V)
3	USB GND	4	USB DATA A-
5	USB DATA B+	6	USB DATA A+
7	USB DATA B-	8	USB GND
9	USB power (5V)	10	Chassis ground

J10: I2C Connector

PIN No.	Signal Description
1	I2C clock
2	NC
3	GND
4	I2C data
5	5V

J11: Power Connector

PIN No.	Signal Description
1	5V
2	5V
3	5Vsb
4	+12V
5	PS ON#
6	GND
7	GND
8	GND

J12: PS/2 Keyboard & Mouse Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	Mouse data	2	Keyboard data
3	Key pin	4	Key pin
5	GND	6	GND
7	5V	8	5V
9	Mouse clock	10	Mouse clock

J13: IR Connector

PIN No.	Signal Description
1	5V
2	Spare 5Vsb
3	IRRX
4	GND
5	IRTX
6	NC

J14: PICMG Connector

PIN No.	Signal Description	PIN No.	Signal Description
B1	NC	A1	Pull down
B2	Pull down	A2	+12V
B3	GND	A3	Pull up
B4	NC	A4	Pull up
B5	5V	A5	5V
B6	5V	A6	INTA#
B7	INTB#	A7	INTC#
B8	INTD#	A8	5V
B9	REQ3#	A9	CLOCK2
B10	REQ1#	A10	5V
B11	GNT3#	A11	CLOCK3
B12	GND	A12	GND
B13	GND	A13	GND
B14	CLOCK0	A14	GNT1#
B15	GND	A15	RESET#
B16	CLOCK1	A16	5V
B17	GND	A17	GNT0#
B18	REQ0#	A18	GND
B19	5V	A19	REQ2#
B20	AD31	A20	AD30
B21	AD29	A21	3.3V
B22	GND	A22	AD28
B23	AD27	A23	AD26
B24	AD25	A24	GND
B25	3.3V	A25	AD24
B26	C/BE3#	A26	GNT2#
B27	AD23	A27	3.3V
B28	GND	A28	AD22
B29	AD21	A29	AD20
B30	AD19	A30	GND
B31	3.3V	A31	AD18
B32	AD19	A32	AD16
B33	C/BE2#	A33	3.3V
B34	GND	A34	FRAME#
B35	IRDY#	A35	GND
B36	3.3V	A36	TRDY#
B37	DEVSEL#	A37	GND
B38	GND	A38	STOP#
B39	PLOCK#	A39	3.3V
B40	PERR#	A40	SMLINK0
B41	3.3V	A41	SMLINK1

B42	SERR#	A42	GND
B43	3.3V	A43	PAR
B44	C/BE1#	A44	AD15
B45	AD14	A45	3.3V
B46	GND	A46	AD13
B47	AD12	A47	AD11
B48	AD10	A48	GND
B49	GND	A49	AD9
B52	AD8	A52	C/BE0#
B53	AD7	A53	3.3V
B54	3.3V	A54	AD6
B55	AD5	A55	AD4
B56	AD3	A56	GND
B57	GND	A57	AD2
B58	AD1	A58	AD0
B59	5V	A59	5V
B60	Pull up	A60	Pull up
B61	5V	A61	5V
B62	5V	A62	5V

J15: CD-IN Connector

PIN No.	Signal Description
1	CD-IN Left
2	CD-Ground
3	CD-Ground
4	CD-IN Right

J16, J21: 12V DC Fan Connector

PIN No.	Signal Description
1	GND
2	Power pin
3	Speed pulse output

J17, J18: Extra Ethernet Status LED Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	LINK LED-	2	LINK LED+
3	ACTIVE LED-	4	ACTIVE LED+
5	10/100LED-	6	10/100LED+
7	1000LED-	8	1000LED+

J19: COM1 & COM2 Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

Note:

COM1 under COM2.

J20: Printer Port Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	STROBE#	2	AFD#
3	DATA0	4	ERR#
5	DATA1	6	INIT#
7	DATA2	8	SLIN#
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

J22: General Purpose I/O Connector

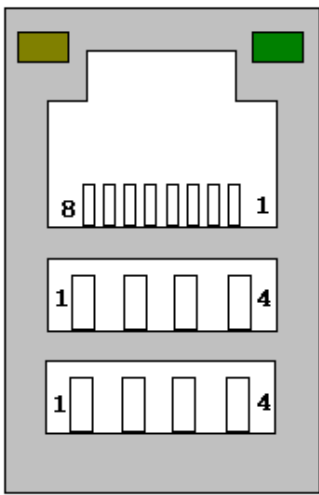
PIN No.	Signal Description	PIN No.	Signal Description
1	Input bit 0	2	Output bit 0
3	Input bit 1	4	Output bit 1
5	Input bit 2	6	Output bit 2
7	Input bit 3	8	Output bit 3
9	GND	10	5V

Notes:

- 1) Output bit [0..3] had been invert, but input bit [0..3].
- 2) Output bit [0..3] must tie to the +5V voltage level for high driving capability. It is an open drain output.
- 3) All General Purpose I/O ports can only adapt standard TTL $\pm 5\%$ signal level (0V/5V).

J23, J24: RJ-45 + USB Connector

USB PIN No.	Signal Description
1	USB Power(5V)
2	USB DATA-
3	USB DATA+
4	USB GND
RJ-45 PIN No.	Signal Description
1	MDIA+
2	MDIA-
3	MDIB+
4	MDIC+
5	MDIC-
6	MDIB-
7	MDID+
8	MDIB-


J25: IDE Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	RESET#	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	Key pin
21	DREQ	22	GND
23	DIOW#	24	GND
25	DIOR#	26	GND
27	DIORDY	28	Pull down
29	DACK#	30	GND
31	IRQ14	32	NC
33	DA1	34	DETECT
35	DA0	36	DA2
37	DCS1#	38	DCS#3
39	IDE ACTIVE#	40	GND

J26: VGA Connector

PIN No.	Signal Description	PIN No.	Signal Description	PIN No.	Signal Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BLUE	8	GND	13	HSYNC
4	NC	9	NC	14	VSYNC
5	GND	10	GND	15	DDC CLOCK

J27: Audio Connector

PIN No.	Signal Description
Up jack	Line in
Middle jack	Speaker
Down jack	MIC

Note:

The Reference Voltage on MIC signal offers 2.25V~2.75V with 5mA drive.

J28: Compact Flash Socket

PIN No.	Signal Description	PIN No.	Signal Description
1	Ground	26	NC
2	Data 3	27	Data 11
3	Data 4	28	Data 12
4	Data 5	29	Data 13
5	Data 6	30	Data 14
6	Data 7	31	Data 15
7	Select 0	32	Select 1
8	Ground	33	NC
9	Ground	34	IO Read
10	Ground	35	IO Write
11	Ground	36	Pull Up to +5V
12	Ground	37	IRQ 14
13	+5V	38	+5V
14	Ground	39	Pull down
15	Ground	40	NC
16	Ground	41	Reset
17	Ground	42	IORDY
18	SA2	43	NC
19	SA1	44	Pull Up to +5V
20	SA0	45	IDE Active

21	Data 0	46	Pull Up to +5V
22	Data 1	47	Data 8
23	Data 2	48	Data 9
24	NC	49	Data 10
25	NC	50	Ground

Chapter 3

System Installation

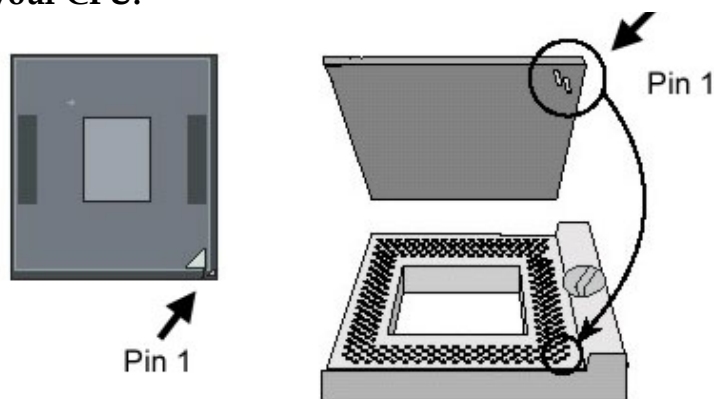
This chapter provides you with instructions to set up your system. The additional information is enclosed to help you set up onboard PCI device and handle WDT operation in software programming.

3.1 Intel® Pentium® M or Celeron® M processor

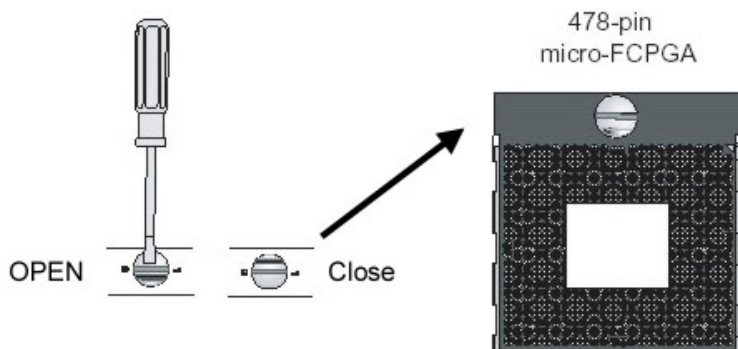
Configuring System Bus

3308060 uses Intel® Pentium® M or Celeron® M processor series. Introducing Intel® Pentium® M processor, a new microprocessor designed from the ground up for mobility, with a mobile-optimized chipset. Intel® mobile processor innovative design techniques allow faster execution of instructions at lower power.

Install or remove your CPU:



Place the new processor into the socket. Align the processor's Pin 1 with the arrow on the micro-FCPGA socket. The Pin 1 of the processor is identified with an embroidered corner and the Pin 1 of the socket is identified with a small arrow. If the processor does not drop completely into the socket, turn the actuator until the processor drops completely in.



To un-install the current processor, use a screwdriver to disengage (open) the socket actuator, as shown in Figure 1 below. The socket actuator should open after only a half turn or so, and you should then be able to remove the processor with your fingers.

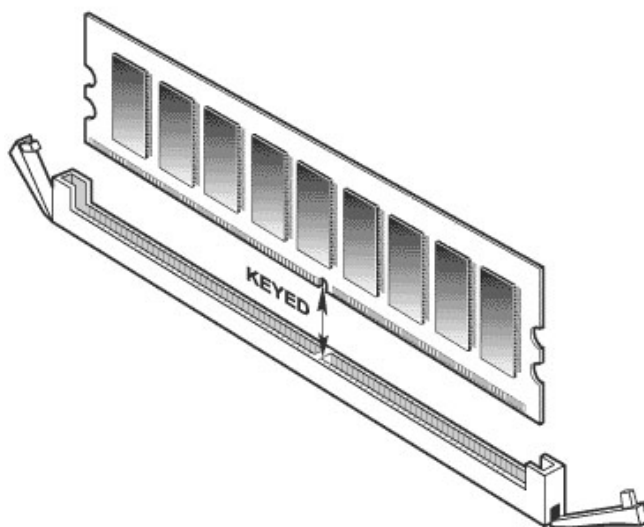
3.2 Main Memory

One DIMM sockets support 333 DDR-SDRAM up to 1GB System Memory. 3308060 will automatically detect memory clock, based on the processor and DDR-SDRAM used.

For system compatibility and stability, don't use memory module without brand. You can also use single-sided or double-sided DDR without ECC feature.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedure to install your DDR module into memory socket. Before locking, make sure that the module has been fully inserted into the card slot.

Install your DDR DIMM module:



1. Handle your DDR module carefully; do not flex or bend the module. Always grasp the module by its edges.
2. Note how the module is keyed to the socket. This ensures the module can be plugged into the socket one way only. Firmly press the module into position, making certain the module is completely seated in the socket. The ejector tabs at each end of the socket will automatically snap into the locked position.
3. The module or modules have been installed.

Notes:

- (1) To maintain system stability, do not change any of DRAM parameters in BIOS setup to upgrade system performance without acquiring technical information.
- (2) Due to Intel 915GM chipset limitation, the type of DDR-SDRAM with ECC function is not supported. In the event of ECC DDR-SDRAM being adopted, ECC function is NOT supported while ECC DDR-SDRAM can act only as a normal DDR-SDRAM without causing any error.
- (3) Due to Intel 915GM chipset limitation, Buffered (Registered) DDR-SDRAM is not supported. Buffered DDR-SDRAM will simply freeze up the system.

3.3 Installing the Single Board Computer

To install your 3308060 into proprietary environment, you need to perform the following:

- Step 1: Check all jumpers setting on proper position
- Step 2: Install and configure CPU and memory module on right position
- Step 3: Place 3308060 into the dedicated position in your system
- Step 4: Attach cables to existing peripheral devices and secure it

WARNING

Please ensure that your SBC is properly inserted and fixed by mechanism. Otherwise, the system might be unstable or do not work due to bad contact of golden finger and PCI-bus slot.

Note:

Please refer to section 3-3-1 to 3-3-3 to install INF/VGA/LAN drivers.

3.3.1 Chipset Component Driver

The chipset on 3308060 is a new chipset that a few old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows-95/98/98SE/2000, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in 3308060 CD-title.

3.3.2 Intel Integrated Graphics GMCH Chip

Using GMCH High performance graphic integrated chipset is aimed to gain an outstanding graphic performance. It is accompanied by shared 8 to 64MB system DDR-SDRAM with Intel DVMT. This combination makes 3308060 an excellent piece of multimedia hardware.

With no additional video adaptor, this onboard video will usually be the system display output. By adjusting the BIOS setting to disable on-board VGA, an add-on PCI or ISA VGA card can take over the system display.

Drivers Support

Please find Intel GMCH driver in the 3308060 CD-title. Drivers support Windows-98/98SE/ME, Windows-NT 3.51/4.0, Windows-2000, OS2, and Linux.

- (1) Windows-2000: Please bring up the Device Manager and update graphics drivers.
- (2) Linux: Please refer to the related documentation in for graphic drivers installation.

3.3.3 On-board Fast Ethernet Controller

Drivers Support

Please find Marvell Ethernet driver in /Ethernet directory of 3308060 CD-title. The drivers support Windows-2000, Windows-XP, and Linux.

LED Indicator (for LAN status)

3308060 provides three LED indicators to report Ethernet interfaces status. Please refer to the table below as a quick reference guide.



I82562	Name of LED	Operation of Ethernet Port	
		On	Off
Green	Link/ Active LED	Linked	Active (Blinking)
Green	Speed LED	100 Mbps	10 Mbps

3.3.4 Realtek AC'97 Codec Controller

Realtek ALC202A Audio Controller supports this on-board Audio function.

Drivers Support

Please find Sound driver in \Audio\AC97\Realtek directory of 3308060 CD-title. The drivers support Windows-NT 4.0, Windows-95/98/98SE/2000/XP and Linux.

3.4 Clear CMOS Operation

The following table indicates how to enable/disable CMOS Clear Function hardware circuit by putting jumpers at proper position.

JP4	Function
3-4 short	Normal Operation/Charge ★
1-2 Short	Clear CMOS contents

To correctly operate CMOS Clear function, users must turn off the system, move JP4 jumper to short pin 1 and 2. To clear CMOS contents, please turn the power back on and turn it off again for AT system, or press the toggle switch a few times for ATX system. Move the JP4 back to 3-4 (Normal Operation) and start the system. System will then produce a "CMOS Check Sum Error" message and hold up. Users may then follow the displayed message to load BIOS default setting.

3.5 WDT Function

The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval settings by software or hardware varies from boards to boards.

3308060 allows users control WDT through dynamic software programming. The WDT starts counting when it is activated. It sends out a signal to system reset or to non-maskable interrupt (NMI), when time-out interval ends. To prevent the time-out interval from running out, a re-trigger signal will need to be sent before the counting reaches its end. This action will restart the counting process. A well-written WDT program should keep the counting process running under normal condition. WDT should never generate a system reset or NMI signal unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after the Time-out Value to be counted down to zero. Or user can directly fill a zero value into Time-out Value Register to disable WDT immediately. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

Additionally, there are maximum 2 seconds of counting tolerance that should be considered into user' application program. For more information about WDT, please refer to Winbond W83627HF data sheet.

There are two PNP I/O port addresses that can be used to configure WDT,
 1) 0x2E:EFIR (Extended Function Index Register, for identifying CR index number)
 2) 0x2F:EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of WDT.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);
// Assign Pin 89 to be a WDTO
outp(0x002E, 0x2B);
outp(0x002F, inp(0x002F) & 0xEF);
// Select Logic Device 8
outp(0x002E, 0x07);
outp(0x002F, 0x08);
// Active Logic Device 8
outp(0x002E, 0x30);
outp(0x002F, 0x01);
// Select Count Mode
outp(0x002E, 0xF5);
outp(0x002F, (inp(0x002F) & 0xF7) | (Count-mode Register & 0x08));
// Specify Time-out Value
outp(0x002E, 0xF6);
outp(0x002F, (Time-out Value Register));
// Disable WDT reset by keyboard/mouse interrupts
outp(0x002E, 0xF7);
outp(0x002F, 0x00);
// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

- Value of **Count-mode Register**:
- 1) 0x00 -- Count down in seconds (Bit3=0)
 - 2) 0x08 -- Count down in minutes (Bit3=1)
- Value of **Time-out Value Register**:
- 1) 0x00 -- Time-out Disable
 - 2) 0x01~0xFF -- Value for counting down

3.6 GPIO

The 3308060 support 8 programmable high driving GPIO that can be individually configured to perform a simple basic I/O function. Users can configure each individual port to become an input or output port by programming register bit of I/O Selection. To invert port value, the setting of Inversion Register has to be made. Port values can be set to read or write through Data Register.

```
#include <stdio.h>
#include <dos.h>

int main(void)
{
    int x,outdata,indata;
    printf("Now output data to GPIO Port ...");
    // Enter the extended function mode
    outport(0x2e,0x87);
    outport(0x2e,0x87);
    // GPIO multiplexed pin selection
    outport(0x2e,0x2a);
    outport(0x2f,0xff); //GP10 - GP14 enable

    // Enable GPIO port1
    outport(0x2e,0x30);
    outport(0x2f,0xff); //Enable GPIO function

    // Select the logical device
    outport(0x2e,0x07);
    outport(0x2f,0x07); // Device 7
```

```
// GP10 - GP17 I/O select
printf("\nSet Port10 To Port17 input or output :");
scanf("%x",&x);
outport(0x2e,0xf0);
printf("\n x= %x",x);
outport(0x2f,x); //GP10 - GP17 output

printf("\n Set output data :");
scanf("%x",&x);
// set GP10-GP13 Output data
outport(0x2e,0xf1);
outport(0x2f,x);

indata=inport(0x2f);
printf("\n Get the Port input data =%x \n",indata);

printf("Enter to test Port LED ....\n");
getch();
printf("LED test Now...");
outdata=0x01;
for (x=0;x<20;x++)
{
printf(".");
outport(0x2e,0xf1);
outport(0x2f,outdata);
delay(300);
outport(0x2e,0xf1);
outdata=outdata<<1;
if (outdata==0x10) outdata=0x01;
}

//Exit the extended function mode
outport(0x2e,0xaa);

return 0;
}
```

3.7 On-Board USB 2.0 Controller

Drivers Support

Please find Intel ICH6 USB driver in /USB20 directory of 3308060 CD-title. The drivers support Windows-2000 and Windows-XP.

Chapter 4

BIOS Setup Information

3308060 is equipped with the AWARD BIOS stored in Flash ROM. The BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it retained during power-off periods. When system is turned on, 3308060 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start-up.

4.1 Entering Setup

Turn on or reboot the computer. When the message "Hit if you want to run SETUP" appears, press key immediately to enter BIOS setup program.

If the message disappears before you respond, but you still wish to enter Setup, please restart the system to try "COLD START" again by turning it OFF and then ON, or touch the "RESET" button. You may also restart from "WARM START" by pressing <Ctrl>, <Alt>, and <Delete> keys simultaneously. If you do not press the keys at the right time and the system will not boot, an error message will be displayed and you will again be asked to,

Press <F1> to Run SETUP or Resume

In HIFLEX BIOS setup, you can use the keyboard to choose among options or modify the system parameters to match the options with your system. The table below will show you all of keystroke functions in BIOS setup.

General Help	
↑ ↓ → ←	: Move
Enter	: Select
+ / - /PU /PD	: Value
ESC	: Exit
F1	: General Help
F2	: Item Help
F5	: Previous Values
F6	: Fail-Safe Defaults
F7	: Optimized Defaults
F9	: Menu in BIOS
F10	: Save

4.3 Standard CMOS Setup Menu

This setup page includes all the items in a standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> key to certify it.

Follow command keys in CMOS Setup table to change **Date**, **Time**, **Drive type**, and **Boot Sector Virus Protection Status**.

Phoenix- AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Tue, Mar 22 2005	Item Help
Time (hh:mm:ss)	10 : 29 : 50	
▶ IDE Channel 0 Master	[HDS722525VLSA80]	Menu Level ▶
▶ IDE Channel 0 Slave	[None]	
▶ IDE Channel 1 Master	[ST310212A]	Change the day, month, year and century
▶ IDE Channel 1 Slave	[None]	
Video	[EGA/VGA]	
Base Memory	640K	
Extended Memory	251904K	
Total Memory	252928K	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Note:
Setting On-Chip Serial ATA is Auto Mode.

■ **Menu Selections**

Item	Options	Description
Date	mm:dd:yy	Change the day, month, year and century
Time	hh:mm:ss	Change the internal clock
IDE Channel 0 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 0 Slave	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
IDE Channel 1 Master	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
IDE Channel 1 Slave	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings

Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Base Memory	640K	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

4.4 IDE Adaptors Setup Menu

The IDE adaptors control the IDE devices, such as hard disk drive or CDROM drive. It uses a separate sub menu to configure each hard disk drive.

Phoenix- AwardBIOS CMOS Setup Utility
IDE Channel 0 Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Channel 0 Master	[Auto]	Menu Level ► To atuo-detect the HDD's size, head ... on this channel
Access Mode	[Auto]	
Capacity	250GB	
Cylinder	65535	
Head	16	
Precomp	0	
Landing Zone	65534	
Sector	255	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

■ Menu Selections

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0 Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE!
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Phoenix- AwardBIOS CMOS Setup Utility
IDE Channel 1 Master

IDE HDD Auto-Detection	Press Enter	Item Help Menu Level ▶ To auto-detect the HDD's size, head ... on this channel
IDE Channel 1 Master	[Auto]	
Access Mode	[Auto]	
Capacity	10243MB	
Cylinder	19846	
Head	16	
Precomp	0	
Landing Zone	19845	
Sector	63	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

■ Menu Selections

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 1 Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE!
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.
The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

4.5 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system’s default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix- AwardBIOS CMOS Setup Utility
Advanced BIOS Features

		Item Help
▶ CPU Feature	[Press Enter]	
▶ Hard Disk Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	Menu Level ▶
CPU L1 & L2 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Hard Disk]	
Second Boot Device	[CDROM]	
Third Boot Device	[ZIP100]	
Boot Other Device	[Enabled]	
Boot up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/sec)	6	
X Typematic delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM > 64MB	[Non-OS2]	
Console Redirection	[Enabled]	
Baud Rate	[19200]	
Agent Connect via	[NULL]	
Agent wait time (min)	[1]	
Agent after boot	[Disabled]	
Small Logo(EPA) Show	[Disabled]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Phoenix- AwardBIOS CMOS Setup Utility
CPU Feature

Delay Prior to Thermal	[16Min]	Item Help
Thermal Management	[Thermal Monitor1]	Menu Level ►
X TM2 Bus Ratio	15X	
X TM2 Bus VID	0.860V	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Delay Prior to Thermal

The choice: 4Min, 8Min, 16Min, and 32Min.

Thermal Management

Thermal Monitor1	Thermal Monitor1 (On die throttling)
Thermal Monitor2	Thermal Monitor2 (Ratio & VID transition)

Phoenix- AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority

1. ch0 M. : HDS722525VLSA80 2. ch1 M. : ST310212A 3. Bootable add-in Cards	Item Help
	Menu Level ► Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Hard Disk Boot Priority

Select Hard Disk Boot Device Priority. Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

Bootable Add-in Cards	Select SCSI Boot
Ch x M (S).	Select IDE Channel 0,1 Master or Salve Boot
Ch x M.	Select IDE Channel 2 or 3 Master Boot

Virus Warning

It allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU L1 & L2 Cache

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable cache
Disabled	Disable cache

Quick Power On Self Test

Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third Boot Device

Select your Boot Device Priority.

The choice: LS120, Hard Disk, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN and Disabled.

Boot Other Device

Select Your Boot Device Priority.

The choice: Enabled, Disabled.

Boot Up NumLock Status

Select power on state for NumLock.

The choice: Off, On.

Gate A20 Option

Fast-lets chipsets control Gate A20 and Normal - a pin in the keyboard controller controls Gate A20. Default is Fast.

The choice: Normal, Fast.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller - When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled, Disabled.

Typematic Rate (Chars/sec)

The rate at which character repeats when you hold down a key.

The choice: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic delay (Msec)

The delay before keystrokes begin to repeat.

The choice: 250, 500, 750, and 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System	The system will not boot and access to Setup 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.

APIC Mode

The choice: Enabled, Disabled.

MPS Version Control For OS

The choice: 1.1 / 1.4.

OS Select For DRAM > 64MB

Select OS/2 only if you are running SO/2 operating system with greater than 64MB of RAM on the system.

The choice: Non-OS2, OS2.

Console Redirection

Enable – Attempt to redirect console via COM port.

Disable – Attempt to redirect console when keyboard absent.

Baud Rate

Specify Baud Rate of console redirection.

The choice: 9600, 19200, 38400, 57600, and 115200.

Agent Connect via

Connection modes: NULL – Direct connection Agent wait time (min).

Agent wait time (min)

Timeout for connection.

The choice: 1, 2, 4, and 8.

Agent after boot

Keep Agent running after OS boot.

The choice: Enabled, Disabled.

Small Logo (EPA) Show

The choice: Enabled, Disabled.

4.6 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the Intel 82915GM Chipset. This Chipset manages bus speeds and access to system memory resources, such as DRAM (DDR SDRAM) and the external cache. It also coordinates communications between the conventional PCI Express bus and PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Phoenix- AwardBIOS CMOS Setup Utility
Advanced Chipset Features

	Item Help
DRAM Timing Selectable [By SPD]	
X CAS Latency Time 2.5	
X DRAM RAS# to CAS# Delay 3	
X DRAM RAS# Precharge 3	
X Precharge delay (tRAS) 7	
X System Memory Frequency 333MHZ	
SLP_S4# Assertion Width [4 to 5 Sec.]	
System BIOS Cacheable [Enabled]	
Video BIOS Cacheable [Enabled]	
Memory Hole At 15M-16M [Disabled]	
▶ PCI Express Root Port Func [Press Enter]	
** VGA Setting **	
PEG/Onchip VGA Control [Auto]	
On-Chip Frame Buffer Size [8 MB]	
FIXED Memory Size [64MB]	
DVMT Memory Size [64MB]	
Boot Display [CRT]	
Panel Type [640X480 LVDS]	
TV Standard [Off]	
Video Connector [Automatic]	
TV Format [Auto]	
FWH Write Protection [Enabled]	
X BootBlock Protection Enabled	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

This chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

DRAM Timing Selectable

This option provides DIMM plug-and-play support by serial presence detect (SPD) mechanism via the system management bus (SMBUS) interface.

The choice: Manual, By SPD.

CAS Latency Time

This option controls the number of SCLKs between the time a read command is sampled by the SDRAMs and the time the GMCH samples correspondent data from the SDRAMs.

The choice: 2, 2.5, 3, Auto.

DRAM RAS# to CAS# Delay

This option controls the number of SCLKs (SDRAM Clock) from a row activate command to a read or write command. If your system installs good quality of SDRAM, you can set this option to "3 SCLKs" to obtain better memory performance. Normally, the option will be set to Auto.

The choice: 2, 3, 4, 5, Auto.

DRAM RAS# Precharge

This option controls the number of SCLKs for RAS# precharge. If your system installs good quality of SDRAM, you can set this option to "3 SCLKs" to obtain better memory performance. It is set to auto normally.

The choice: 2, 3, 4, and 5, Auto.

Precharge delay (tRAS)

The choice: Auto, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15.

System Memory Frequency

Users are recommended to use Auto for memory frequency selection.

The choice: Auto, 333MHz, 400MHz, and 533MHz.

SLP_S4# Assertion Width

The choice: 4 to 5 Sec., 3to 4 Sec, 2 to 3 Sec., 1 to 2 Sec.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Video BIOS Cacheable

Select "Enabled" to enable caching VGA BIOS into L2 cache to get higher display performance. "Disabled" to ignore this BIOS caching function.

The choice: Enabled, Disabled.

Memory Hole At 15-16M

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

The choice: Enabled, Disabled.

Phoenix- AwardBIOS CMOS Setup Utility
PCI Express Root Port Func

PCI Express Port 1	[Auto]	Item Help
PCI Express Port 2	[Auto]	Menu Level ►
PCI Express Port 3	[Auto]	
PCI Express Port 4	[Auto]	
PCI-E Compliancy Mode	[V1.0a]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

PCI Express Port 1 / Port 2 / Port 3 / Port 4

The choice: Auto, Enabled, Disabled.

PCI-E Compliancy Mode

The choice: V1.0 / V1.0a.

PEG/Onchip VGA Control

The choice: Onchip VGA, PEG Port, and Auto.

On-Chip Frame Buffer Size

Users can set the display memory size that shared from main memory.

The choice: 1MB, 8MB.

FIXED Memory Size

The choice: 64MB, 128MB.

DVMT Memory Size

The choice: 64MB, 128MB.

Boot Display

The choice: CRT, LVDS, CRT+LVDS, TV, and CRT+TV.

Panel Type

The choice: 640X480 LVDS, 800X600 LVDS, 1024X768 LVDS, 1280X1024 LVDS, 1400X1050 LVDS, and 1600X1200 LVDS.

TV Standard

The choice: Off, NTSC, PAL, and SECAM.

Video Connector

The choice: Automatic, Composite, and Component, Both.

TV Format

The choice: Auto, NTSC_M, NTSC_M_J, NTSC_433, NTSC_N, PAL_B, PAL_G, PAL_D, PAL_H, PAL_I, PAL_N, PAL_60, SECAM_L, SECAM_L1, SECAM_B, SECAM_D, SECAM_G, SECAM_H, SECAM_K, SECAM_K1.

FWH Write Protection

The choice: Enabled, Disabled.

BootBlock Protection

The choice: Enabled, Disabled.

4.7 Integrated Peripherals

Phoenix- AwardBIOS CMOS Setup Utility Integrated Peripherals

<ul style="list-style-type: none"> ▶ OnChip IDE Device [Press Enter] ▶ Onboard Device [Press Enter] ▶ Super IO Device [Press Enter] 	Item Help
	Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Phoenix- AwardBIOS CMOS Setup Utility OnChip IDE Device

IDE HDD Block Mode [Enabled] IDE DMA transfer access [Enabled] On-Chip Primary PCI IDE [Enabled] IDE Primary Master PIO [Auto] IDE Primary Slave PIO [Auto] IDE Primary Master UDMA [Auto] IDE Primary Slave UDMA [Auto] On-Chip Secondary PCI IDE [Enabled] IDE Secondary Master PIO [Auto] IDE Secondary Slave PIO [Auto] IDE Secondary Master UDMA [Auto] IDE Secondary Slave UDMA [Auto]	Item Help
	Menu Level ▶
If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.	
*** On-Chip Serial ATA Setting *** On-Chip Serial ATA [Disabled] X PATA IDE Mode Primary SATA Port P1, P3 is Secondary	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

IDE HDD Block Mode

If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

The choice: Enabled, Disabled.

IDE DMA transfer access

The choice: Enabled, Disabled.

On-Chip Primary/Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface.

The choice: Enabled, Disabled.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33/66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33/66/100, select Auto to enable BIOS support.

The choice: Auto, Disabled.

On-Chip Serial ATA

Disabled	Disabled SATA Controller
Auto	Auto arrange by BIOS
Combined Mode	PATA and SATA are combined. Max. Of 2 IDE drives in each channel
Enhanced Mode	Enable both SATA and PATA. Max. Of 6 IDE drives are Supported
SATA Only	SATA is operating in legacy mode

Phoenix- AwardBIOS CMOS Setup Utility
Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	Menu Level ►
USB Keyboard Support	[Enabled]	
USB Mouse Support	[Disabled]	
Azalia AC97 Audio Select	[Auto]	
Init Display First	[PCI Slot]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

USB Controller

This item allows you to enable/disable USB (Universal Serial Bus) function.

The choice: Enabled, Disabled.

USB 2.0 Controller

This entry is for disable/enable EHCI controller only. This BIOS itself may/may not have high speed USB support built in, the support will be automatically turn on when high speed device were attached.

The choice: Enabled, Disabled.

USB Keyboard Support

This item allows you to enable USB keyboard function under POST, BIOS setup menu, DOS, or Windows-NT with no USB driver loaded.

The choice: Enabled, Disabled.

USB Mouse Support

This item allows you to enabled USB Mouse function under POST, BIOS Setup menu, DOS, or Window-NT with no USB driver loaded.

The choice: Enabled, Disabled.

Azalia AC97 Audio Select

Users can enable or disable on board AC97 Audio or Modem function.

The choice: Auto, Azalia, AC97 Audio and Modem, AC97 Audio only, AC97 Modem only, All Disabled.

Init Display First

This item allows you to select the first display port to be initialized.

The choice: PCI Slot, Onboard.

Phoenix- AwardBIOS CMOS Setup Utility
Super IO Device

		Item Help	
POWER ON Function	[BUTTON ONLY]		
X KB Power ON Password	Enter		
X Hot Key Power ON	Ctrl-F1		
Onboard Serial Port 1	[3F8/IRQ4]	Menu Level ▶	
Onboard Serial Port 2	[2F8/IRQ3]		
UART Mode Select	[Normal]		
X Rx/D, Tx/D Active	Hi, Lo		
X IR Transmission Delay	Enabled		
X UR2 Duplex Mode	Half		
X Use IR Pins	IR-Rx2Tx2		
Onboard Parallel Port	[378/IRQ7]		
Parallel Port Mode	[SPP]		
X EPP Mode Select	EPP1.7		
X ECP Mode Use DMA	3		
Watch Dog Timer Select	[Disabled]		
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults			

Power On Function

This item allows you to select different power on scheme using ATX power supply.

Password	Power on using customized password string
Hot Key	Power on using special customized key
Mouse Left	Power on using mouse left click
Mouse Right	Power on using mouse right click
Any Key	Power on using any keyboard key
Button Only	Power on by power Button
Keyboard 98	Power on by keyboard 98 [Only power ON/OFF key]

Keyboard Power On Password

In the event of “Power On Function” being configured as “Password”, this item will be enabled for tuning. Press “Enter” key to enter a customized password, and confirm again when being asked. In the case that the confirmed password does not match the configured one, the message of “Password Disabled – Press any key to continue...” will be prompted.

Hot Key Power On

In the event of "Power On Function" being configured as "Hot Key", this item will be enabled for tuning.

The choice: Ctrl-F1 to Ctrl-F12.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports.

The choice: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

UART Mode Select

This item allows users to select Infrared transmission mode.

Normal	Disable Infrared function
IrDA	Select IrDA mode transmission
ASKIR	Select ASKIR mode transmission

RxD, TxD Active

This item is to configure Infrared transmission rate. Four options are available:

Hi, Hi	High rate for receiving / High rate for transmitting
Hi, Lo	High rate for receiving / Low rate for transmitting
Lo, Hi	Low rate for receiving / High rate for transmitting
Lo, Lo	Low rate for receiving / Low rate for transmitting

IR Transmission Delay

This option will be available when IR is enabled.

The choice: Enabled, Disabled.

UR2 Duplex Mode

The available choices are full duplex mode and half duplex mode

The choice: Full, Half.

Use IR Pins

The available choices are IR-Rx2Tx2/ RxD2, TxD2.

The choice: IR-Rx2Tx2 / RxD2, TxD2.

Onboard Parallel Port

This item allows you to configure I/O address of the onboard parallel port.

The choice: Disabled, 378/IRQ7, 278/IRQ5, and 3BC/IRQ7.

Parallel Port Mode

There are four different modes for the onboard parallel port :

SPP	Switch to SPP mode
EPP	Switch to EPP mode
ECP	Switch to ECP mode
ECP + EPP	Switch to ECP + EPP mode
Normal	Switch to Normal mode

EPP Mode Select

Select different version of EPP mode.

The choice: EPP1.7, EPP1.9.

ECP Mode Use DMA

Select a proper DMA channel for ECP mode.

The choice: 1, 3.

Watch Dog Timer Select

This BIOS testing option is able to reset the system according to the selected table.

The choice: Disabled, 10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, and 4 Min.

4.8 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

Phoenix- AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
ACPI Suspend Type	[S1(POS)]	
X Run VGABIOS if S3 Resume	No	Menu Level ▶
Power Management	[User Define]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
PWRON After PWR-Fail	[Off]	
CPU THRM-Throttling	[50%]	
Wake-up by Onboard LAN	[Enabled]	
Power On by Ring	[Disabled]	
X USB KB Wake-Up From S3	Disabled	
Resume by Alarm	[Disabled]	
X Date(of Month) Alarm	0	
X Time(hh:mm:ss) Alarm	0 : 0 :0	
** Reload Global Timer Events **		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD,COM,LPT Port	[Disabled]	
PCI PIRQ[A-D]#	[Disabled]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

The choice: Enabled, Disabled.

ACPI Suspend Type

To decide which ACPI suspend mode to use.

The choice: S1(POS), S3(STR).

Run VGA BIOS if S3 Resume

The choice: Auto, Yes, No.

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to “HDD Power Down”, “Suspend Mode”.

There are three selections for Power Management, three of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1 Hour, and HDD Power Down = 15 Min.
Max. Power Saving	Maximum power management. Suspend Mode = 1 Min., and HDD Power Down = 1 Min.
User Defined	Allow you to set each mode individually. When not disabled, Suspend Mode ranges from 1 min. to 1 Hour and HDD Power Down ranges from 1 Min. to 15 Min.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off In Suspend

This allows user to enable/disable video off in Suspend Mode.

The choice: Yes, No.

Suspend Type

Two options are available: Stop Grant and PwrOn Suspend.

The choice: Stop Grant, PwrOn Suspend.

MODEM Use IRQ

This determines the IRQ in which the MODEM can Use.

The choice: 3, 4, 5, 7, 9, 10, 11, and NA.

Suspend Mode

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

The choice: Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min, and 1 Hour.

HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

The choice: Disabled, 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15 Min.

Soft-Off by PWR-BTTN

This item allows users to set the time to remove the power after the power button is pressed.

The choice: Instant-Off, Delay 4 Sec.

PWRON After PWR-Fail

This item allows user to configure the power status of using ATX power supply after a serious power loss occurs.

On	System automatically restores power back
Off	System stays at power -off

CPU THRM-Throttling

When the CPU temperature reaches the preset standard. The CPU usage will be reduced to a selected level to avoid overheating.

The choice: 75.0%, 50.0%, and 25.0%.

Wake-up by Onboard LAN

This option can be enabled to support Wake Up by on-board LAN.

The choice: Disabled, Enabled.

Power On by Ring

When select "Enabled", a system that is at soft-off mode will be alert to Wake-On-Modem.

The choice: Enabled, Disabled.

USB KB Wake-up From S3

The choice: Enabled, Disabled.

Resume by Alarm

This item allows users to enable/disable the resume by alarm function. When "Enabled" is selected, system using ATX power supply could be powered on if a customized time and day is approached.

The choice: Enabled, Disabled.

Date (of Month) Alarm

When "Resume by Alarm" is enabled, this item could allow users to configure the date parameter of the timing dateline on which to power on the system.

The choice: 0 ~ 31.

Time (hh:mm:ss) Alarm

When "Resume by Alarm" is enabled, this item could allow users to configure the time parameter of the timing dateline on which to power on the system.

The choice: hh (0~23), mm (0~59), ss (0 ~59).

Primary/Secondary IDE 0/1

This item is to configure IDE devices being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The choice: Enabled, Disabled.

FDD, COM, LPT Port

This item is to configure floppy device, COM ports, and parallel port being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The choice: Enabled, Disabled.

PCI PIQ[A-D]#

This option can be used to detect PCI device activities. If they are activities, the system will go into sleep mode.

The choice: Enabled, Disabled.

4.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed the CPU itself, uses when communicating with its own special components.

This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix- AwardBIOS CMOS Setup Utility PnP/PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled By	[Auto(ESCD)]	Menu Level ► Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.
X IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
** PCI Express relative items **		
Maximum Payload Size	[4096]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Reset Configuration Data

Default is disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

The choice: Enabled, Disabled.

Resource Controlled By

BIOS can automatically configure the entire boot and plug and play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

The choice: Auto (ESCD), Manual.

IRQ Resources

Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug AND play standard whether designed for PCI or ISA bus architecture.

Enter for more options

IRQ-3/IRQ-4/IRQ-5/IRQ-7/IRQ-9/IRQ-10/IRQ-11/IRQ-12/IRQ-14/IRQ-15 assigned to.

The choice: PCI Device, Reserved.

PCI/VGA Palette Snoop

The choice: Enabled, Disabled.

Maximum Payload Size

Set maximum TLP payload size for the PCI Express devices. The unit is byte.

The choice: 128, 256, 512, 1024, 2048, and 4096.

4.10 PC Health Status

Phoenix- AwardBIOS CMOS Setup Utility
PC Health Status

CPU Warning Temperature	[Disabled]	Item Help	
Current System Temp.	31°C / 87°F	Menu Level ▶	
Current CPU1 Temperature	52°C / 125°F		
Current CPUFAN1 Speed	0 RPM		
Current CPUFAN2 Speed	5273 RPM		
CPU Vcore	1.31 V		
+1.5 V	1.48 V		
+3.3 V	3.26 V		
+5 V	4.99 V		
+12 V	11.91 V		
VBAT(V)	3.28 V		
5VSB(V)	4.92 V		
CPU Throttle Temperature	[Disabled]		
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults			

CPU Warning Temperature

This item allows you to set a temperature above which the system will start the beeping warning. Default setting is disabled. This function will only with “ACPI” power management and “S3 (STR)” suspends type.

The choices : Disabled, 50°C / 122°F, 53°C / 127°F, 56°C / 133°F, 60°C / 140°F, 63°C / 145°F, 66°C / 151°F, 70°C / 158°F.

CPU Throttle Temperature

This item allows you to set a temperature above, whom the system will operate, in lower speed immediately. Default setting is disabled. This function will only with “ACPI” power management and “S3 (STR)” suspends type.

The choice: Disabled, 60°C / 140°F, 65°C / 149°F, 70°C / 158°F, 75°C / 167°F.

4.11 Frequency/Voltage Control

Phoenix- AwardBIOS CMOS Setup Utility
 Frequency / Voltage Control

Spread Spectrum	[Disabled]	Item Help
		Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulate.

The choice: Enabled, Disabled.

4.12 Default Menu

Selecting “Defaults” from the main menu shows you two options which are described below,

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N)? **N**

Pressing ‘Y’ loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? **N**

Pressing ‘Y’ loads the default values that are factory settings for optimal performance system operations.

4.13 Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. The differences between are:

Set Supervisor Password : can enter and change the options of the setup menus.

Set User Password : just 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.

ENTER PASSWORD

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

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

PASSWORD DISABLED

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

4.14 Exiting Selection

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? **Y**

Pressing “Y” stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)? **N**

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 5 Troubleshooting

This chapter provides a few useful tips to quickly get 3308060 running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will primarily focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

5.1 Hardware Quick Installation

Power Connection

Unlike most ATX standard connectors, there will have no 10x2 connector but 8 pins connector (J11 +5V and +12V power connector). Therefore, ATX power connector from power supply must connect to 20 to 8 pin cable first (Please see figure 5-1). Besides, 3308060 also needs extract +12V power to supply P4 CPU to operate.

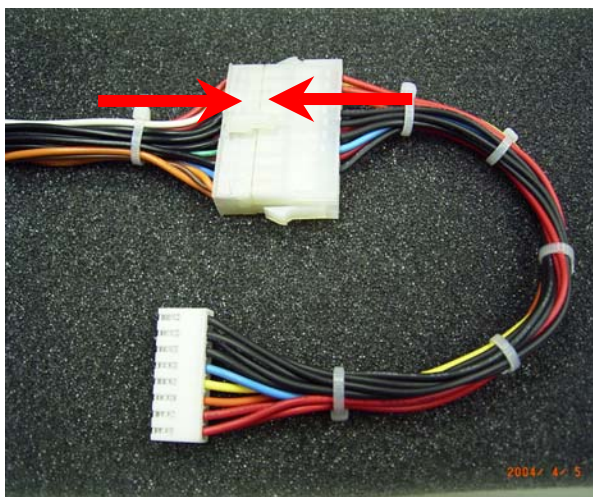


Figure 5-1

CPU Jumper Setting

Although CPU Jumper setting table is on Chapter 2, it is still possible that this setting will be neglected. Therefore, please double-check this setting before powering on system. Otherwise, 3308060 won't be able to boot up properly.

JP1: CPU Type Selection

JP1	Function
1-2 short	Reserved
2-3 short	CPU type set to Dothan ★

5.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the device cables required before turning on power. The CPU, CPU fan, CPU fan power cable, 184-pin DDR SDRAM, keyboard, mouse, floppy drive, IDE hard disk, printer, VGA connector, device power cables, ATX accessories or 12V 4-pin power cable are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

If encounter boot failure, enter the BIOS setup program to load “Fail-Save defaults” and change configuration accordingly.

Loading the Default Optimal Setting

When prompted with the main setup menu, please scroll down to “**Load Optimal Defaults**”, press “Enter” and “Y” to load in default optimal BIOS setup. This will force your BIOS setting back to the initial factory configuration. It is recommended to do this so you can be sure the system is running with the BIOS setting that GAI has highly endorsed. As a matter of fact, users can load the default BIOS setting any time when system appears to be unstable in boot up sequence.

Auto Detect Hard Disks

In the BIOS => Standard CMOS setup menu, pick up any one from Primary/Secondary Master/Slave IDE ports, and press “Enter”. Setup the selected IDE port and its access mode to “Auto”. This will force system to automatically pick up the IDE devices that are being connected each time system boots up.

Improper Disable Operation

There are too many occasions where users disable a certain device/feature in one application through BIOS setting. These variables may not be set back to the original values when needed. These devices/features will certainly fail to be detected.

When the above conditions happen, it is strongly recommended to check the BIOS settings. Make sure certain items are set as they should be. These include the floppy drive, COM1/COM2 ports, parallel port, USB ports, external cache, on-board VGA and Ethernet.

It is also very common that users would like to disable a certain device/port to release IRQ resource. A few good examples are

- Disable COM1 serial port to release IRQ #4
- Disable COM2 serial port to release IRQ #3
- Disable Parallel port to release IRQ #7
- Disable PS/2 mouse to release IRQ #12 ,..., etc.

A quick review of the basic IRQ mapping is given below for your reference.

IRQ#	Description
IRQ #0	System Counter
IRQ #1	Keyboard
IRQ #2	Unused
IRQ #3	COM2
IRQ #4	COM1
IRQ #5	USB Controller 1.0/1.1
IRQ #5	Network Controller
IRQ #6	Floppy Controller
IRQ #7	Parallel Port
IRQ #8	Real Time Clock
IRQ #9	USB Controller 1.0/1.1
IRQ #9	ACPI Controller
IRQ #10	Display Controller
IRQ #10	Network Controller
IRQ #11	USB Controller 1.0/1.1
IRQ #11	Multimedia Controller
IRQ #11	SMB Controller
IRQ #12	PS/2 Mouse
IRQ #13	Unused
IRQ #14	IDE Controller
IRQ #15	Unused

It is then very easy to find out which IRQ resource is ready for additional peripherals. If IRQ resource is not enough, please disable some devices listed above to release further IRQ numbers.

5.3 FAQ

Boot up failure Issues

Symptom: After installing CPU and cable to all power required, but why my **3308060** is still not working?

Solution: Please check the CPU type of Pentium M is Dothan or not. Because **3308060** only supports Dothan processor with 2M cache, and it is easy to check on surface of CPU.

Symptom: **3308060** just keeps beeping, and nothing has been shown on the screen?

Solution: Each beep sound pattern represents different definition of error. Therefore, refer to the table as follows. If it doesn't still boot up normal, and you make sure all of jumper setting, and configuration is as default, please try to move JP4 from 2-3 to 1-2, then back to 2-3 in order to clear CMOS.

Beep sounds	Meaning	Action
One long beep with one short beeps	DRAM error	Change DRAM or reinstall it
One long beep constantly	DRAM error	Change DRAM or reinstall it
One long beep with two short beeps	Monitor or Display Card error	Please check Monitor connector whether it inserts properly
Beep rapidly	Power error warning	Please check Power mode setting

Information & Support

Q: I am using an ATA-66 (or 100) hard drive, how can I know that ATA-66 function is started?

A: You need to use the 80-pin ATA-66 IDE flat cable to have this function ready. During POST, you can see ATA-66 (or 100) message while hard drive is being detected. Besides, after Microsoft series OS installation successfully, you must install ATA-66/100 driver, then the function can be active.

Q: How can I drive Panel with LVDS interface on 3308060 ?

A: First, you need to get the pin assignments of LVDS and Inverter, and then match J2 and J4 pin assignment of 3308060 in order to make a cable, then connect to Panel, Invert and 3308060. Secondly, you need to check what kinds of resolution Panel use, then choose Boot display from LVDS and correct resolution in BIOS setup.

Q: After changing setting of serial port from RS-232 to RS-485, why 485 function still cannot work normally.?

A: Cable must connect to same definition of pins. For example, there are only two pins in RS-485, which are DATA - and DATA +. Its connection must be "DATA - connects to DATA -", and "DATA + connects to DATA +". Otherwise, RS-485 won't be able to transfer its data. Besides, you need to program communication of RS-485 by yourself.

Q: After installing Compact Flash, why the device on Secondary has been missing?

A: The default setting for Compact Flash at secondary IDE channel is a slave device. Therefore, you might want to check if your missing device is set to the same as default setting of Compact Flash. If it is, please either set up Compact flash as master device or your missing device as master device. The jumper to adjust slave or master for compact flash is JP1.

Q: I am building the embedded system, but I cannot find embedded driver on GAI website. Where can I get them?

A: It is available on Intel website; The URL of Intel website: <http://www.intel.com/design/intarch/software/driver/index.htm>. For other devices, please visit manufacture's website to download embedded drivers. We will post those drivers on our website in the future.

System Memory Address Map

Each On-board device in the system is assigned a set of memory addresses, which also can be identical of the device. The following table lists the system memory address used.

Memory Area	Size	Device Description
0000 - 003F	1K	Interrupt Area
0040 - 004F	0.3K	BIOS Data Area
0050 - 006F	0.5K	System Data
0070 - 0E26	54K	DOS
0E27 - 0F5E	4.9K	Program Area
0F5E - 9FBF	577K	[Available]
= Conventional memory ends at 639K =		
9FC0 - 9FFF	1K	Extended BIOS Area
A000 - AFFF	64K	VGA Graphics
B000 - B7FF	32K	Unused
B800 - BFFF	32K	VGA Text
C000 - CE7F	58K	Video ROM
CE80 - CFFF	6K	Unused
D000 - D17F	6K	PXE ROM
D180 - DFFF	58K	Unused
E000 - EFFF	64K	System bios temporary Area
F000 - FFFF	64K	System ROM

Interrupt Request Lines (IRQ)

Peripheral devices can use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

IRQ#	Current Use	Default Use
IRQ 0	SMARTDRV	System Timer
IRQ 1	SMARTDRV	Keyboard Event
IRQ 2	[Unassigned]	Usable IRQ
IRQ 3	System ROM	COM2
IRQ 4	System ROM	COM1
IRQ 5	[Unassigned]	Usable IRQ
IRQ 6	System ROM	Diskette Event
IRQ 7	System ROM	Parallel Port
IRQ 8	System ROM	Real-time Clock
IRQ 9	[Unassigned]	Usable IRQ
IRQ 10	[Unassigned]	Usable IRQ
IRQ 11	[Unassigned]	Usable IRQ
IRQ 12	System ROM	IBM Mouse Event
IRQ 13	System ROM	Coprocessor Error
IRQ 14	System ROM	Hard Disk Event
IRQ 15	[Unassigned]	Usable IRQ

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Address: Global American, Inc.
17 Hampshire Drive
Hudson, NH 03051

Telephone: Toll Free U.S. Only (800) 833-8999
(603) 886-3900

FAX: (603) 886-4545

Website: <http://www.globalamericaninc.com>

Support: Technical Support at Global American
