

EX-92563-AW IP-65/IP-54 Panel PC QIG

Release Date

Revision

Oct. 2009

V1.0

©2009TOPSCCC Technology, Inc.

All Rights Reserved.

Published in Taiwan

TOPSCCC Technology, Inc.

5F, No.12, Alley 345, Yang-Guang St., Nei-Hu, Taipei, Taiwan R.O.C.

Tel: 886-2-27999080 Fax: 886-2-26585042 E-mail: TOPSCCC@TOPSCCC.com URL:

www.TOPSCCC.com

Warning!

Safety & Warranty

1. Read these safety instructions carefully.
2. Keep this user's manual for later reference.
3. Disconnect this equipment from any outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. All cautions and warnings on the equipment should be noted.
10. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
11. Never pour any liquid into an opening. This could cause fire or electrical shock.
12. **NEVER OPEN THE EQUIPMENT. FOR SAFETY REASONS, ONLY QUALIFIED SERVICE PERSONNEL SHOULD OPEN THE EQUIPMENT.**
13. If any of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the users manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
14. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C OR ABOVE 70° C. IT MAY DAMAGE THE EQUIPMENT.**

This equipment generates uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications.

It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Disclaimer

This information in this document is subject to change without notice. In no event shall TOPSCCC Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

1.1 Features

- Water Proof Solution, Optional totally IP-65 or IP54 rating
- Intel® Atom N270 1.6G processor 512KB L2 cache with 533MHz FSB on board
- 15." High Brightness (350 cd/m²) TFT LCD with resolution of 1024x768
- Sealed resistive touch screen
- Space for 1 x 2.5" SATA HDD
- Support 1 x PCI slot (Internal)
- Support VESA 75 mount
- 11~28V/DC power Input

1.2 Specifications

System

CPU: Intel® Atom N270 1.6G processor 512KB L2 cache with 533MHz FSB on board

BIOS: Award BIOS

Chipset: Intel® 945GSE

Super I/O: Fintek® F71882FG

Memory: 1 * DDR2 SO-DIMM slots supports up to 2GB of memory

Watchdog Timer: 1 ~ 255 second timer

Touch Screen (optional) : Resistive

HDD Drive: 1 x 2.5" SATA HDD type

Compact Flash: 1 x compact flash (Optional)

IP 54 Standard I/O : 2 x USB v2.0 ports, 1 x keyboard & mouse port, 1 x RJ45 GbE port, 2x COM, 1x VAG, 1 x DC power input.

IP-65 Standard I/O : 2 x USB v2.0 ports, 1 x keyboard & mouse port, 1 x RJ45 GbE port, 1 x DC power input. (optional 2 x COM)

Display

LCD: 15." High Brightness (300 cd/m²) TFT LCD with resolution of 1024x768

Resolution: 1024x768

Luminance: 350 cd/m²

Mechanical

Construction: Sealed Stainless steel chassis

Mounting: VESA 75 x75 and 100x100 mounting holes

Power Input: 11~28V/DC

Operating Temperature: 0 ~ 45°C

Storage Temperature: -20 ~ 70°C

Operative Humidity: 5% ~ 95% (non condensing)

EMC: Meet FCC, CE Class A, IP65 or IP54

Dimension (L x W): 422(W) x 98(D) x 331mm(H)

1.3 Brief Description of the EX-92563-AW

TOPSCCC is pleased to introduce the IP-65 or IP-54 water proof solution EX-92563-AW of Panel PC Series, the chassis is made of stainless steel. EX-92563-AW adopts an intel® Atom N270 1.6G processor with a clock rate of 533MHz. The model comes with a 15-inch high-brightness TFT LCD display, space for one 2.5-inch HDD, a resistive touch screen, a DC 11~28V wide range power input. This industrial panel PC also features 2 x USB ports, 1 x GbE LAN port, 1 x PS/2 keyboard, mouse port and also optional for 2 x COM ports and 1 VGA port. It is ideal for use as a PC-based controller for food and chemical industries, Automotive, Logistic Process, Materials Handling applications.



Figure 1.1: Front View of EX-92563-AW



Figure 1.2: Rear View of EX-92563-AW (IP 65)



Figure 1.3: Rear View I/O of EX-92563-AW (IP 54)

1.4 Chassis Dimensions

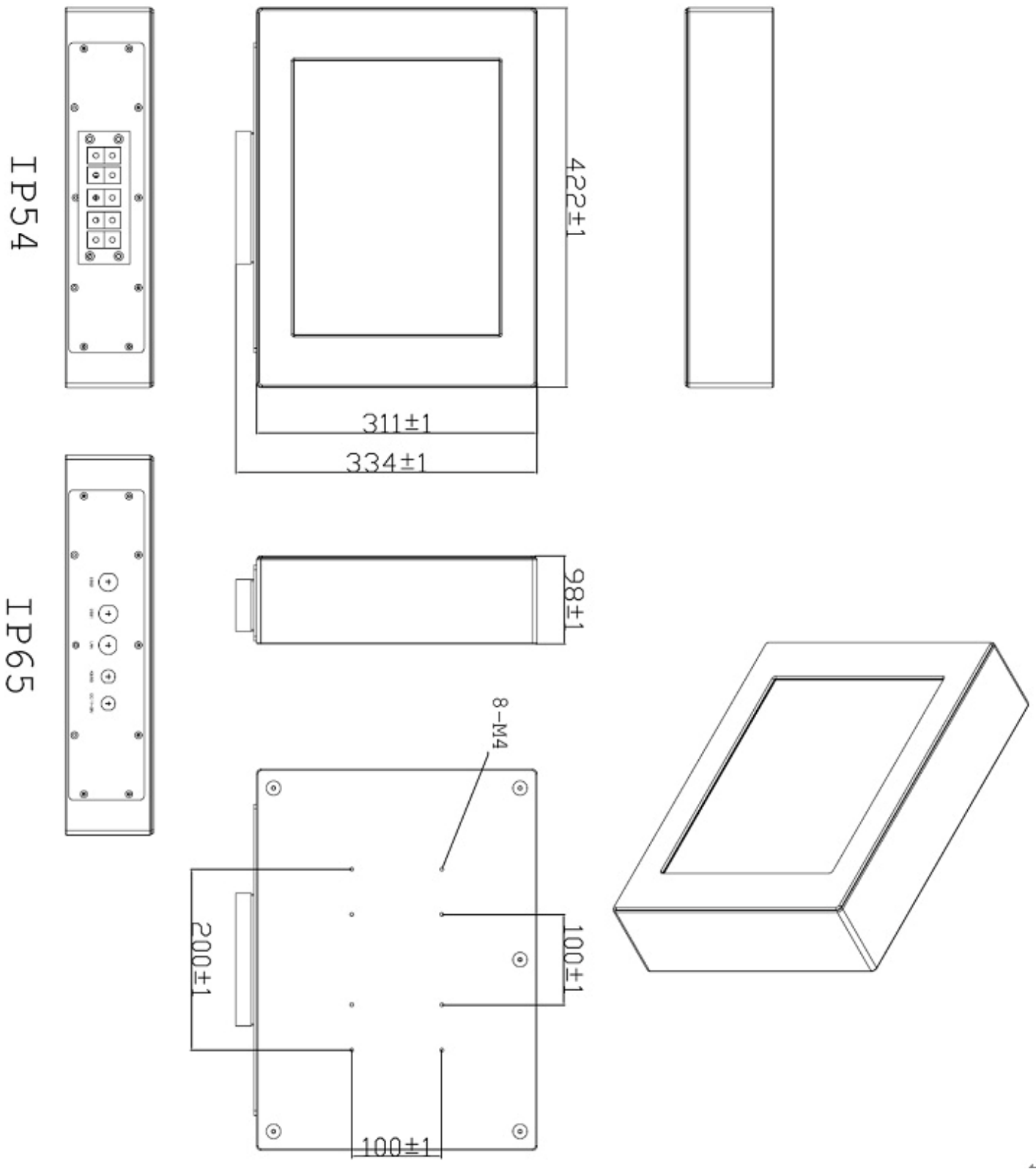
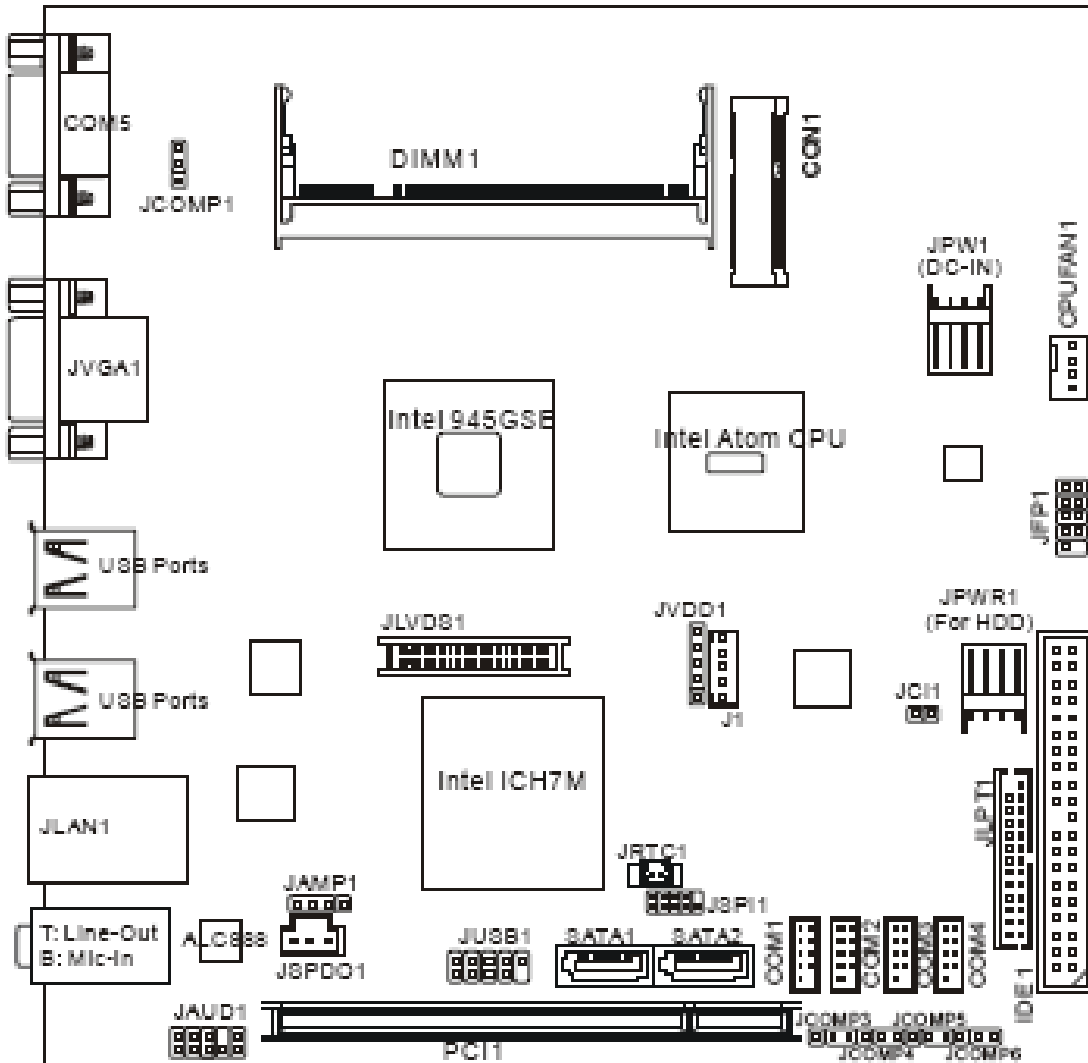


Figure 1.4: Dimensions of the EX-92563-AW

2.1 Mainboard Specifications



Processor

- Intel Atom processor N270 (1.6GHz single core with HT)

FSB

- 533MHz

Chipset

- Northbridge: Intel 945GSE chipset
- Southbridge: Intel ICH7M chipset

Memory

- 1 unbuffered non-ECC DDR2 533/667/800 SO-DIMM slot
- Up to 1GB memory capacity

LAN

- Supports Gigabit Ethernet by Intel 82574L Controller

Audio

- HDA Codec by Realtek ALC888 7.1 channel (compliant with Azalia 1.0 specs)
- TPA3005D2 amplifier (for Option C, E)

IDE

- 1 IDE port by Intel ICH7M
- Supports Ultra DMA 66/100 mode
- Supports PIO, Bus Master operation mode

SATA

- 2 SATA ports by Intel ICH7M
- Supports 2 SATA devices
- Supports up to 1.5Gb/s data transfer rate

Graphics

- Onboard graphics integrated in Intel 945GSE

► Option D Back Panel

- 1 DB-9 connector
- 1 stack up VGA and DVI-D connector
- 2 double stack USB connectors
- 1 Gigabit LAN jack
- 2 audio jacks

► Onboard Connectors

- 1 front audio pinheader
- 1 USB 2.0 pinheader (2 ports)
- 1 parallel port connector
- 4 serial port connectors (for option A, B, C, E only)
- 1 SPI Flash ROM pinheader (for debugging)
- 1 chassis intrusion switch pinheader
- 1 S/PDIF-Out pinheader
- 1 amplifier pinheader (for option C, E only)
- 1 LVDS connector (for option C, E only)
- 1 20-pin ATX power connector (for option A only)
- 1 4-pin DC 12V power connector (for option B, C, D, E only)
- 1 4-pin DC 5V/12V power connector (for option B, C, D, E only)

Slots

- 1 Mini PCI-E slot
- 1 32-bit/33MHz PCI slot

Form Factor

- Mini ITX: 170mm x 170mm

Mounting

- 4 mounting holes

Environmental

► Storage Environment

- Temperature: -20°C ~ 80°C
- Humidity: 5% ~ 90% non condensing

► Operation Environment

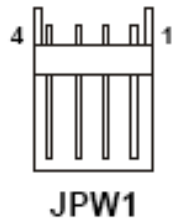
- Temperature: 0°C ~ 60°C
- Humidity: 5% ~ 90% non condensing

2.2 Internal / External Connectors & Jumper

► Power Supply

12V System Power Connector: JPW1 (for option B, C, D, E)

This 12V power connector is used to provide power to the system & CPU.

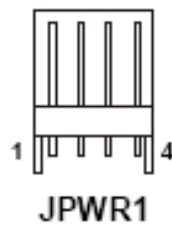


Pin Definition

PIN	SIGNAL
1	12V
2	12V
3	GND
4	GND

5V/12V HDD Power Connector: JPWR1 (for option B, C, D, E)

This connector provides power to the hard disk drives.



Pin Definition

PIN	SIGNAL
1	5V
2	GND
3	GND
4	12V

► LAN

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



		Left LED	Right LED
		Active LED	100M/1000M Speed LED
LED Color		Yellow	Green/Orange
10M Cable Plug-in	No Transmission	Slow Blinking	OFF
	Transition	Swiftly Blinking	OFF
100M Cable Plug-in	No Transmission	Slow Blinking	Green(Lighting)
	Transition	Swiftly Blinking	Green(Lighting)
1000M Cable Plug-in	No Transmission	Slow Blinking	Orange(Lighting)
	Transition	Swiftly Blinking	Orange(Lighting)
In S3/S4/S5 Standby State		Green (Lighting)	OFF

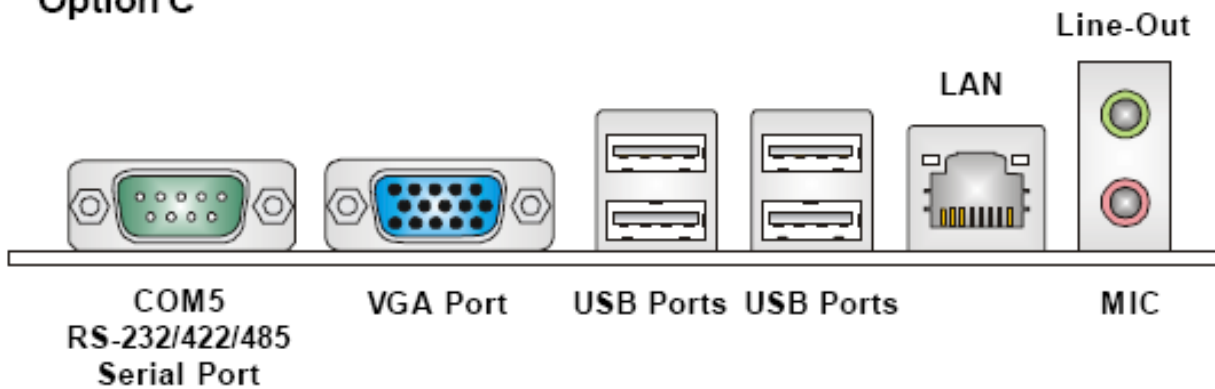
► Audio Ports

These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-In (Blue)** - Line In, is used for external CD player, tapeplayer or other audio devices.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic (Pink)** - Mic, is a connector for microphones.

► Back Panel I/O

Option C



► Serial Port

The serial port is a 16550A high speed communications port that sends/ receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

► VGA Port

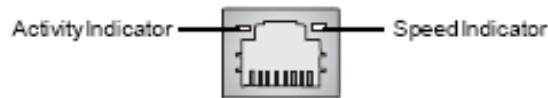
The DB15-pin female connector is provided for monitor.

► USB Port

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

► LAN

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



		Left LED	Right LED
		Active LED	100M/1000M Speed LED
LED Color		Yellow	Green/Orange
10M Cable Plug-in	No Transmission	Slow Blinking	OFF
	Transition	Swiftly Blinking	OFF
100M Cable Plug-in	No Transmission	Slow Blinking	Green(Lighting)
	Transition	Swiftly Blinking	Green(Lighting)
1000M Cable Plug-in	No Transmission	Slow Blinking	Orange(Lighting)
	Transition	Swiftly Blinking	Orange(Lighting)
In S3/S4/S5 Standby State		Green (Lighting)	OFF

► Audio Ports

These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic (Pink)** - Mic, is a connector for microphones.

► LAN

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



		Left LED	Right LED
		Active LED	100M/1000M Speed LED
LED Color		Yellow	Green/Orange
10M Cable Plug-in	No Transmission	Slow Blinking	OFF
	Transition	Swiftly Blinking	OFF
100M Cable Plug-in	No Transmission	Slow Blinking	Green(Lighting)
	Transition	Swiftly Blinking	Green(Lighting)
1000M Cable Plug-in	No Transmission	Slow Blinking	Orange(Lighting)
	Transition	Swiftly Blinking	Orange(Lighting)
In S3/S4/S5 Standby State		Green (Lighting)	OFF

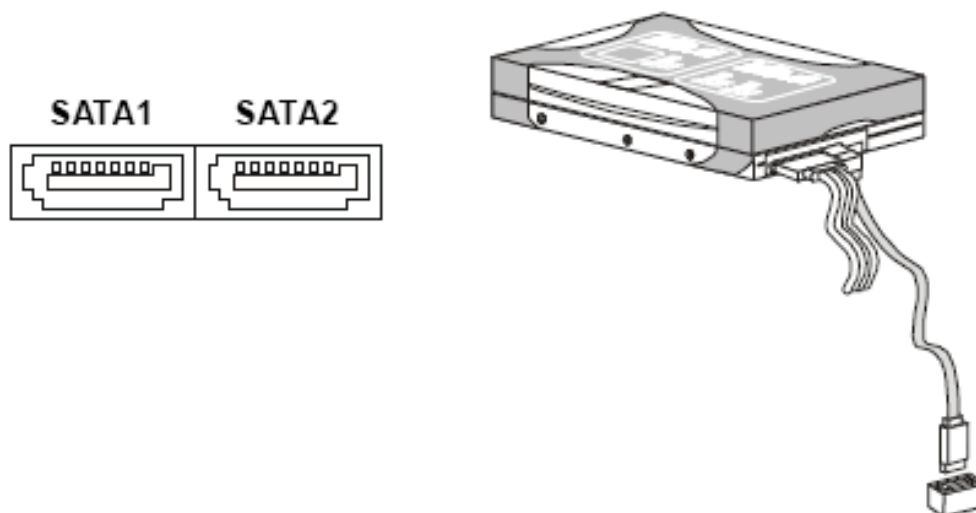
► Audio Ports

These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-In (Blue)** - Line In, is used for external CD player, tapeplayer or other audio devices.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic (Pink)** - Mic, is a connector for microphones.

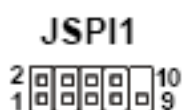
Serial ATA Connector: SATA1, SATA2

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.



SPI Flash ROM Pinheader: JSPI1

This pinheader is used to flash SPI flash ROM.



Pin Definition

Pin	Description	Pin	Description
1	VCC3_SB	2	VCC3_SB
3	SPI_MISO_F	4	SPI_MOSI_F
5	SPI_CS0_F#	6	SPI_CLK_F
7	GND	8	GND
9	SPI_HOLD#	10	NC

Fan Power Connector: CPUFAN1

The fan power connector supports system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset onboard, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



CPUFAN1

Backlight Connector: J1 (for option C, E)

This connector is provided for LCD backlight options.

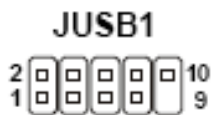


Pin Definition

PIN	SIGNAL
1	12V
2	GND
3	Inverter On
4	Backlight Control
5	5V

Front USB Pinheader: JUSB1

This pinheader, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as **USB HDD, digital cameras, MP3 players, printers, modems and the like.**



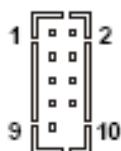
Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	USBOC

Serial Port Connector: COM1 ~ COM4 (for option A, B, C, E)

This connector is a 16550A high speed communications port that sends/receives 16 bytes FIFOs. You can attach a serial device to it through the optional serial port bracket.

COM1~4



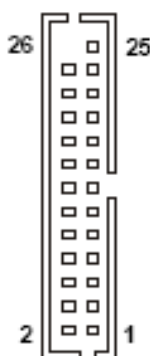
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	VCC_COM	Power Source

Parallel Port Header: JLPT1

The mainboard provides a 26-pin header for connection to an optional parallel port bracket. The parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

JLPT1



PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	RSTB#	2	AFD#	15	PRND8	16	GND
3	PRND0	4	ERR#	17	PRND7	18	GND
5	PRND1	6	PINIT#	19	ACK#	20	GND
7	PRND2	8	LPT_SLIN#	21	BUSY	22	GND
9	PRND3	10	GND	23	PE	24	GND
11	PRND4	12	GND	25	SLCT	26	KEY
13	PRND5	14	GND				

Audio Amplifier Connector: JAMP1 (for option C, E)

The JAMP1 is used to connect audio amplifiers to enhance audio performance.

JAMP1

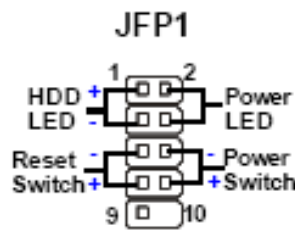


Pin Definition

PIN	SIGNAL
1	AMP_L-
2	AMP_L+
3	AMP_R-
4	AMP_R+

Front Panel Connector: JFP1

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

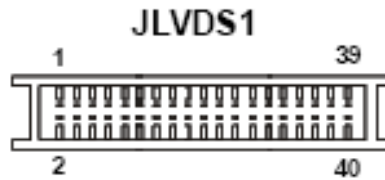


Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED +	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW -	Reset Switch low reference pull-down to GND
6	PWR_SW-	Power Switch low reference pull-down to GND
7	RST_SW +	Reset Switch high reference pull-up
8	PWR_SW+	Power Switch high reference pull-up
9	RSVD_DNU	Reserved. Do not use.

LVDS Flat Panel Connector: JLVDS1 (for option C, E)

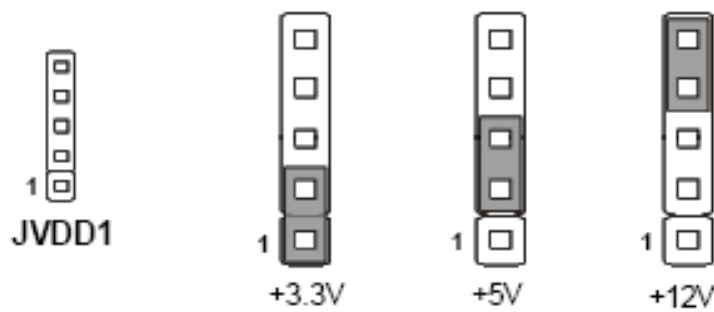
The LVDS (Low Voltage Differential Signal) connector provides a digital interface typically used with flat panels. After connecting an LVDS interfaced flat panel to the JLVDS1, be sure to check the panel datasheet and set the JVDD1 LVDS Power Selection Jumper (p. 2-17) to a proper voltage.



SIGNAL	PIN		SIGNAL
+12V	2	1	+12V
+12V	4	3	+12V
GND	6	5	+12V
GND	8	7	VCC3/VCC5
LCD_VDD	10	9	LCD_VDD
LDDC_DATA	12	11	LDDC_CLK
LVDS_VDDEN	14	13	L_BKLTCTL
GND	16	15	L_BKLTEN
LA_DATA0	18	17	LA_DATA0#
LA_DATA1	20	19	LA_DATA1#
LA_DATA2	22	21	LA_DATA2#
LA_CLK	24	23	LA_CLK#
LA_DATA3	26	25	LA_DATA3#
GND	28	27	GND
LB_DATA0	30	29	LB_DATA0#
LB_DATA1	32	31	LB_DATA1#
LB_DATA2	34	33	LB_DATA2#
LB_CLK	36	35	LB_CLK#
LB_DATA3	38	37	LB_DATA3#
GND	40	39	GND

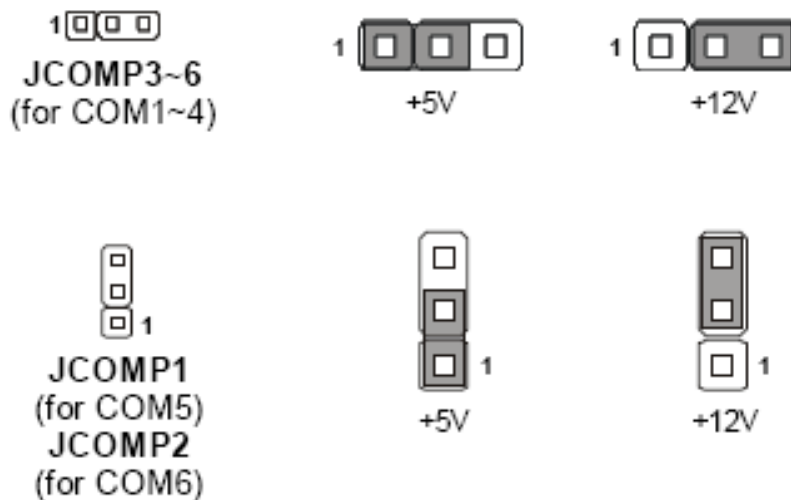
LVDS Power Selection Jumper: JVDD1 (for option C, E)

Use this jumper to specify the operation voltage of the LVDS interfaced flat panel.



COM Port Power Jumper: JCOMP2 (for option A), JCOMP1, JCOMP3~6 (for option A, B, C, E)

These jumpers specify the operation voltage of the onboard serial ports.



PCI (Peripheral Component Interconnect) Express Slot

The CON1 is Mini PCI-E connector for wireless LAN, TV tuner, and Robson NAND Flash.



Mini PCI-E Slot

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.



32-bit PCI Slot

3.1 Introduction

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+ /PU>	Increase the numeric value or make changes
<- /PD>	Decrease the numeric value or make changes
<F6>	Load Optimized Defaults
<F7>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

▶ Primary IDE Master
▶ Primary IDE Slave

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

3.2 Main Menu

The Menu Bar



► Main

Use this menu for basic system configurations, such as time, date etc.

► Advanced

Use this menu to set up the items of special enhanced features.

► Boot

Use this menu to specify the priority of boot devices.

► Security

Use this menu to set supervisor and user passwords.

► Chipset

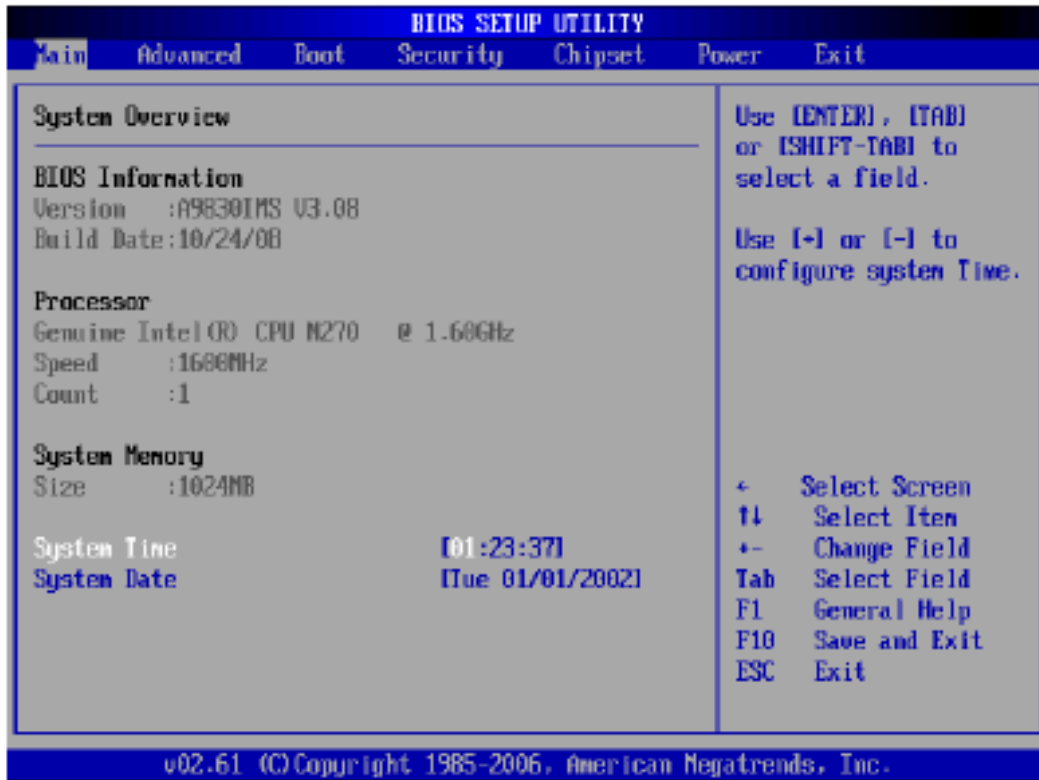
This menu controls the advanced features of the onboard Northbridge and Southbridge.

► Power

Use this menu to specify your settings for power management.

► Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.



► BIOS Information, Processor, System Memory

These items show the firmware and hardware specifications of your system. Read only.

► System Time

The time format is <Hour> <Minute> <Second>.

► System Date

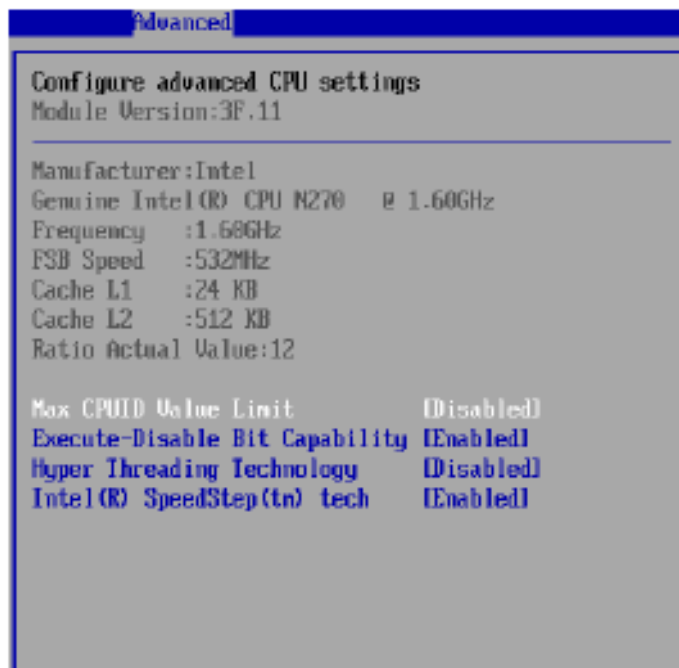
The date format is <Day>, <Month> <Date> <Year>.

Advanced



► CPU Configuration

These items show the advanced specifications of your CPU. Read only.



► **Max CPUID Value Limit**

The Max CPUID Value Limit BIOS feature allows you to circumvent problems with older operating systems that do not support the Intel Pentium 4 processor with Hyper-Threading Technology. When enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value. When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

► **Execute Disable Bit Capability**

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

► **Hyper Threading Technology**

The processor uses Hyper Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. *Please disable this item if your operating system doesn't support HT Function, or unreliability and instability may occur.*

► **Intel(R) SpeedStep(tm) Tech**

EIST (Enhanced Intel SpeedStep Technology) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.

► IDE Configuration



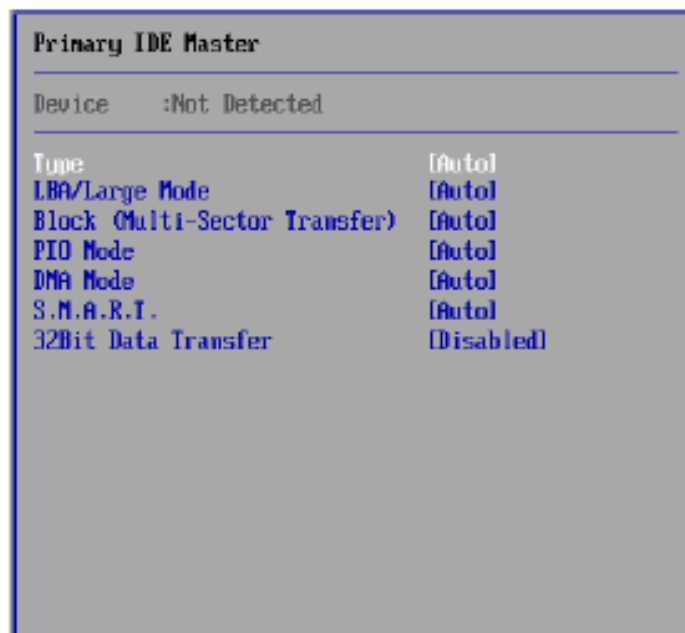
► ATA/IDE Configuration

This setting specifies the operation mode of the onboard ATA/IDE controller.

► Legacy IDE Channels

This setting specifies the IDE channels.

► Primary/Secondary IDE Master/Slave



[Type]	Press PgUp/<+> or PgDn/<-> to select [Manual], [None] or [Auto] 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 your hard disk drive type is not matched or listed, you can use [Manual] to define your own drive type manually.
[LBA/Large Mode]	Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors
[Block(Multi-Sector Transfer)]	Any selection except Disabled determines the number of sectors transferred per block
[PIO Mode]	Indicates the type of PIO (Programmed Input/Output)
[DMA Mode]	Indicates the type of Ultra DMA
[S.M.A.R.T.]	This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.
[32 Bit Data Transfer]	Enables 32-bit communication between CPU and IDE device

► **Hard Disk Write Protect**

This option allows users to write protect boot sector on hard disk to protect against viruses.

► **IDE Detect Time Out (Sec)**

This setting allows you to set the time out value for the BIOS to delay the initialization of IDE devices.

► **ATA(PI) 80Pin Cable Detection**

This BIOS feature allows you to control whether both IDE controller and IDE device should be allowed to detect the type of IDE cable used.

► Super IO Configuration

Option A

Advanced	
Configure F71882F Super IO Chipset	
Serial Port5 Address	[3F8/IRQ4]
Serial Port5 Mode	[RS232]
Serial Port6 Address	[Disabled]
Parallel Port Address	[Disabled]
Watch Dog	[Disabled]
Serial Port1 Address	[3E0]
Serial Port1 IRQ	[11]
Serial Port2 Address	[2E0]
Serial Port2 IRQ	[10]
Serial Port3 Address	[2F0]
Serial Port3 IRQ	[11]
Serial Port4 Address	[2E0]
Serial Port4 IRQ	[10]

Option B

Advanced	
Configure F71882F Super IO Chipset	
Serial Port5 Address	[3F8/IRQ4]
Serial Port5 Mode	[RS232]
Parallel Port Address	[Disabled]
Watch Dog	[Disabled]
Serial Port1 Address	[3F8]
Serial Port1 IRQ	[4]
Serial Port2 Address	[2E0]
Serial Port2 IRQ	[9]
Serial Port3 Address	[Disabled]
Serial Port4 Address	[2E0]
Serial Port4 IRQ	[10]

Option C, E

Advanced	
Configure F71882F Super IO Chipset	
Serial Port5 Address	[3F8/IRQ4]
Serial Port5 Mode	[RS232]
Parallel Port Address	[Disabled]
Watch Dog	[Disabled]
Serial Port1 Address	[3F8]
Serial Port1 IRQ	[4]
Serial Port2 Address	[2E8]
Serial Port2 IRQ	[9]
Serial Port3 Address	[Disabled]
Serial Port4 Address	[2E0]
Serial Port4 IRQ	[10]

Option D

Advanced	
Configure F71882F Super IO Chipset	
Serial Port5 Address	[3F8/IRQ4]
Serial Port5 Mode	[RS232]
Parallel Port Address	[Disabled]
Watch Dog	[Disabled]

► **Serial Port 1/2/3/4/5/6 Address, Serial Port 1/2/3/4 IRQ**
Select an address and a corresponding interrupt for the serial port.

► **Serial Port5 Mode**
This setting specifies the serial port5 mode.

► Parallel Port Address

Select an address for the parallel port.

► Watch Dog

You can enable the system watch-dog timer, a hardware timer that generates either an NMI or a reset when the software that it monitors does not respond as expected each time the watch dog polls it.

► Hardware Health Configuration



Hardware Health Configuration	
Chassis Intrusion	[Disabled]
CPU Temperature	:62°C/143°F
System Temperature	:36°C/96°F
System Speed	:N/A
VCORE	:1.160 U
5VSB	:5.803 U
VCC5	:5.045 U
12V	:12.056 U
VBAT	:3.280 U
System FAN PIN Select	[3 PINS]
System FAN Mode Setting	[Auto Fan by DutyCy]
Temperature Limit of Highest	[050]
Temperature Limit of Second	[040]

► Chassis Intrusion

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later.

► CPU Temperature, System Temperature, System Speed, VCORE, 5VSB, VCC5, 12V, VBAT

These items display the current status of all of the monitored hardware devices/components such as CPU voltage, temperatures and all fans' speeds.

► System Fan Pin Select

This setting specifies the pin numbers of the system fan power connector.

► System Fan Mode Setting

This setting controls the Smart Fan feature. Smart Fan is an excellent feature which will adjust the CPU/system fan speed automatically depending on the current CPU temperature to prevent your CPU from overheating.

- ▶ **Temperature Limit of Highest, Temperature Limit of Second**
You can select a temperature tolerance value here for the specific range of the Smart Fan function.

- ▶ **ACPI Settings**



- ▶ **General ACPI Configuration**



- ▶ **Suspend Mode**

This item specifies the power saving modes for ACPI function. If your oper-

ating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field.

► **USB Device Wakeup From S3**

The item allows the activity of the USB device to wake up the system from S3 (Suspend to RAM) sleep state.

► **Advanced ACPI Configuration**



► **ACPI Version Features**

This setting allows you to select the ACPI version.

► **ACPI APIC Support**

This BIOS feature is used to enable or disable the motherboard's APIC (Advanced Programmable Interrupt Controller). The APIC provides multiprocessor support, more IRQs and faster interrupt handling.

► USB Configuration



► Legacy USB Support

Set to [Enabled] if you need to use any USB device in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix. Set to [Disabled] only if you want to use any USB device other than the USB mouse.

► BIOS EHCI Hand-Off

This setting allows you to enable or disable a workaround for operating systems without EHCI (Enhanced Host Controller Interface) hand-off support. The Enhanced Host Controller Interface (EHCI) specification describes the register-level interface for a Host Controller for the Universal Serial Bus (USB) Revision 2.0.

► USB Mass Storage Device Configuration



► USB Mass Storage Reset Delay

This setting controls the number of seconds the POST waits for the USB mass storage device after the start unit command is sent.

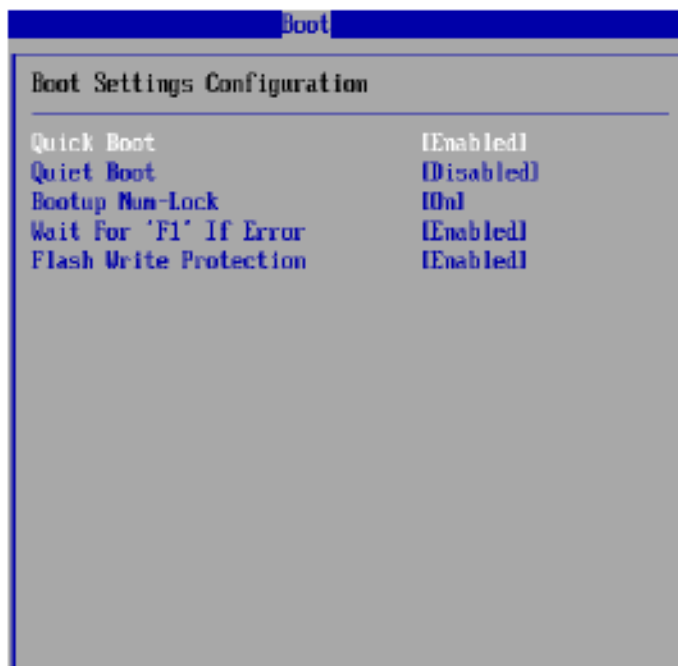
► Emulation Type

This setting enables you to set the type of device you want the USB mass storage device to emulate.

Boot



► Boot Settings Configuration



► **Quick Boot**

Enabling this setting will cause the BIOS power-on self test routine to skip some of its tests during bootup for faster system boot.

► **Quiet Boot**

This BIOS feature determines if the BIOS should hide the normal POST messages with the motherboard or system manufacturer's full-screen logo.

When it is enabled, the BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages.

When it is disabled, the BIOS will display the normal POST messages, instead of the full-screen logo.

Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

► **Bootup Num-Lock**

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

► **Wait For 'F1' If Error**

When this setting is set to [Enabled] and the boot sequence encounters an error, it asks you to press F1. If disabled, the system continues to boot without waiting for you to press any keys.

► **Flash Write Protection**

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses.

► **Boot Device Priority, Removable Drives**

The items allow you to set the sequence of boot devices/removable drives. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

Security



► Supervisor Password / Change Supervisor Password

Supervisor Password controls access to the BIOS Setup utility. These settings allow you to set or change the supervisor password.

► User Password / Change User Password

User Password controls access to the system at boot. These settings allow you to set or change the user password.

► Boot Sector Virus Protection

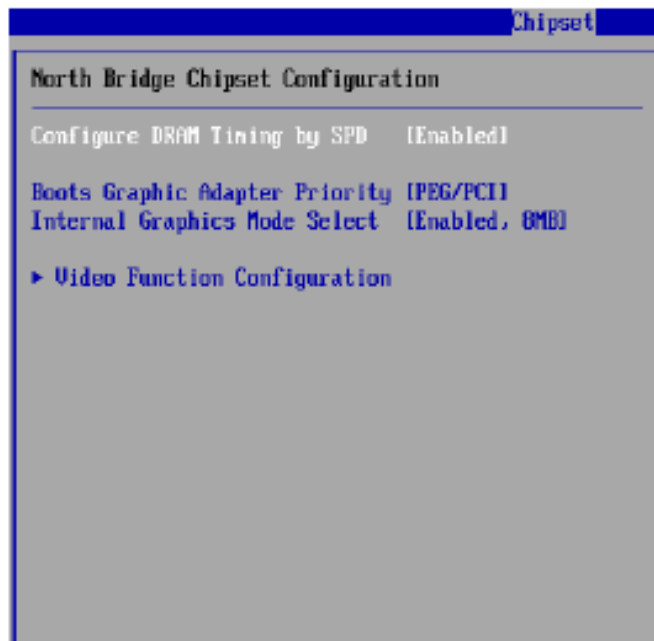
This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you'll need to disable this Flash BIOS Protection function.

You should enable this function at all times. The only time when you need to disable it is when you want to update the BIOS. After updating the BIOS, you should immediately re-enable it to protect it against viruses.

Chipset



▶ North Bridge Configuration



► **Configure DRAM Timing by SPD**

Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto By SPD] enables DRAM timings and the following related items to be determined by BIOS based on the configurations on the SPD. Selecting [Manual] allows users to configure the DRAM timings and the following related items manually.

► **Boot Graphics Adapter Priority**

This item specifies which VGA card is your primary graphics adapter.

► **Internal Graphics Mode Select**

The field specifies the size of system memory allocated for video memory.

► Video Function Configuration

Option A, D

Video Function Configuration	
DUMT Mode Select	[DUMT Mode]
Boot Display Device	[CRT]

Option B

Video Function Configuration	
DUMT Mode Select	[DUMT Mode]

Option C, E

Video Function Configuration	
DVMT Mode Select	[DVMT Mode]
Boot Display Device	ICRT 1
Flat Panel Type	[1024 * 768 18bit]

► DVMT Mode Select

Intel's Dynamic Video Memory Technology (DVMT) allows the system to dynamically allocate memory resources according to the demands of the system at any point in time. The key idea in DVMT is to improve the efficiency of the memory allocated to either system or graphics processor.

It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

► Boot Display Device

Use the field to select the type of device you want to use as the display(s) of the system.

► Flat Panel Type

Use the field to select the resolution of the flat panel display.

► South Bridge Configuration



The screenshot shows a BIOS configuration window titled "Chipset" with a sub-section "South Bridge Chipset Configuration". The configuration is as follows:

Setting	Value
USB Functions	[8 USB Ports]
USB 2.0 Controller	[Disabled]
Audio Controller	[Auto]
PRO-NIC Controller	[Enabled]
SMBUS Controller	[Enabled]

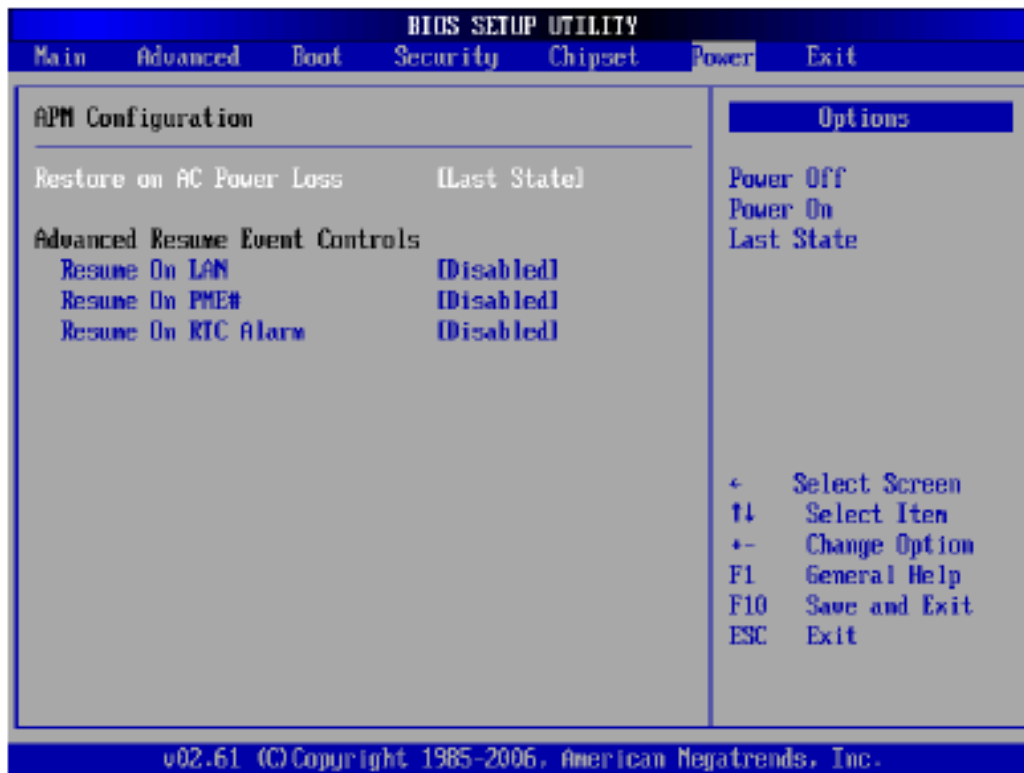
► USB Functions

This setting specifies the function of the onboard USB controller.

► USB 2.0 Controller, Audio Controller, PRO-NIC Controller, SMBUS Controller

These settings enable/disable the specified onboard controllers.

Power



► Restore on AC Power Loss

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

- [Power Off] Leaves the computer in the power off state.
- [Power On] Leaves the computer in the power on state.
- [Last State] Restores the system to the previous status before power failure or interrupt occurred.

► Resume On LAN

This field specifies whether the system will be awakened from power saving modes when activity or input signal of onboard LAN is detected.

► Resume On PME#

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

► Resume On RTC Alarm

When [Enabled], you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

Exit



► Save Changes and Exit

Save changes to CMOS and exit the Setup Utility.

► Discard Changes and Exit

Abandon all changes and exit the Setup Utility.

► Discard Changes

Abandon all changes and continue with the Setup Utility.

► Load Optimal Defaults

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

► Load Failsafe Defaults

Use this menu to load the default values set by the BIOS vendor for stable system performance.

Watch Dog Timer Setting

Software Code

SIO_IDX equ 4EH

SIO_DTA equ 4FH

Timer equ 10; reset after 10 seconds

1. Enter configuration mode

```
Mov      dx, SIO_IDX
mov      al, 87h
out      dx, al
out      dx, al
```

2. Set to LDN 07

```
Mov      dx, SIO_IDX
mov      al, 07h
out      dx, al
mov      dx, SIO_DTA
mov      al, 07h
out      dx, al
```

3. Set WatchDog Timer

```
Mov      dx, SIO_IDX
mov      al, 0f6h
out      dx, al
mov      dx, SIO_DTA
mov      al, Timer
out      dx, al
```

4. Exit configuration mode

```
Mov      dx, SIO_IDX
mov      al, 0AAh
out      dx, al
```

AMI POST Code

Bootblock Recovery Code Checkpoints

The Bootblock recovery code gets control when the BIOS determines that a BIOS recovery needs to occur because the user has forced the update or the BIOS checksum is corrupt. The following table describes the type of checkpoints that may occur during the Bootblock recovery portion of the BIOS:

Checkpoint	Description
E0	Initialize the floppy controller in the super I/O. Some interrupt vectors are initialized. DMA controller is initialized. 8259 interrupt controller is initialized. L1 cache is enabled.
E9	Set up floppy controller and data. Attempt to read from floppy.
EA	Enable ATAPI hardware. Attempt to read from ARMD and ATAPI CDROM.
EB	Disable ATAPI hardware. Jump back to checkpoint E9.
EF	Read error occurred on media. Jump back to checkpoint EB.
E9 or EA	Determine information about root directory of recovery media.
F0	Search for pre-defined recovery file name in root directory.
F1	Recovery file not found.
F2	Start reading FAT table and analyze FAT to find the clusters occupied by the recovery file.
F3	Start reading the recovery file cluster by cluster.
F5	Disable L1 cache.
FA	Check the validity of the recovery file configuration to the current configuration of the flash part.
FB	Make flash write enabled through chipset and OEM specific method. Detect proper flash part. Verify that the found flash part size equals the recovery file size.
F4	The recovery file size does not equal the found flash part size.
FC	Erase the flash part.
FD	Program the flash part.
FF	The flash has been updated successfully. Make flash write disabled. Disable ATAPI hardware. Restore CPUID value back into register. Give control to F000 ROM at F000:FFF0h.

POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialize CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initialize data variables that are based on CMOS setup questions. Initialize both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.

Checkpoint	Description
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See <i>DIM Code Checkpoints</i> section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See <i>DIM Code Checkpoints</i> section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, ... etc.) successfully installed in the system and update the BDA, EBDA...etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh.

	Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).