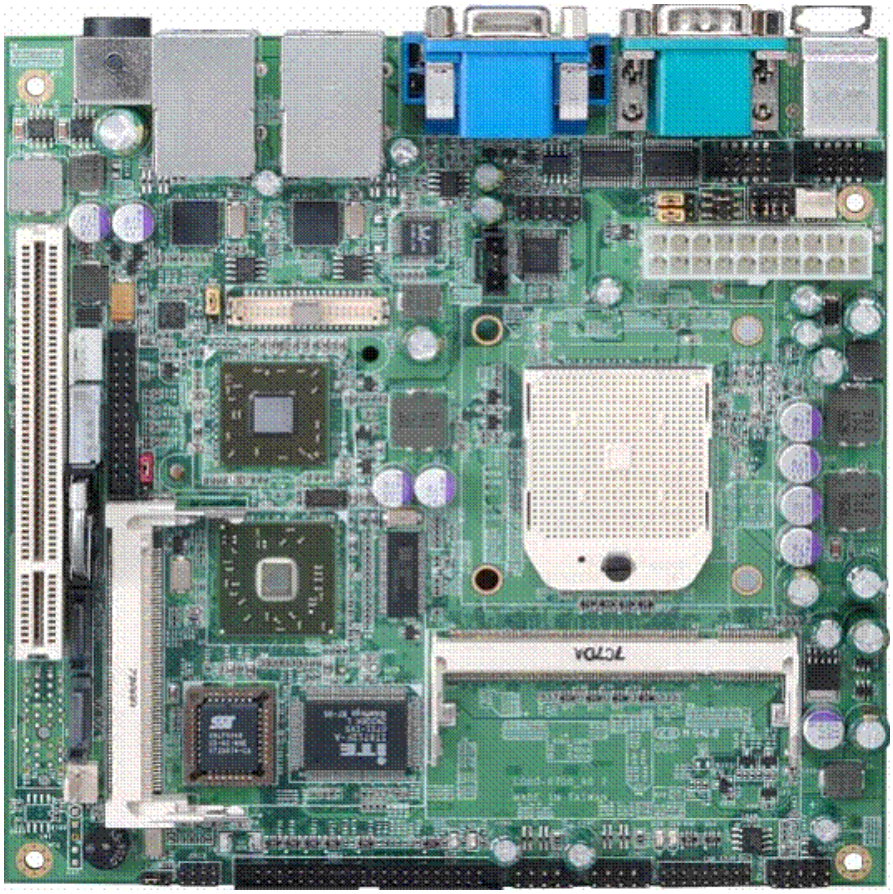
LV-682

Mini-ITX motherboard

User's Manual

Edition: 1.00
2008/02/01



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Disclaimer

Notice

Manual Classification

In order to assist in the use of this product, Taiwan Commate has categorized the user manual. For detailed product information and specifications, please carefully read the “ Product User Manual ”.

Trademark

Any questions please visit our website at http://www.commell.com.tw.

Packing List

Please check package component before you use our products.

- ☆ LV – 682 board
- ☆ Quick Installation Guide
- ☆ CD for manual and drivers
- ☆ Cable Kit (CPU cooler, IDE cable, Serial ATA cable, Serial Port cable, I/O Shield, Power cable)

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Hardware Installation

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General Information

Introduction

The LV-682 Mini – ITX board incorporates the ATI RS690E + ATI RS600chipset, supports the AMD Turion 64 / Sampron uPGA 638 Pin processors with 800 MHz Front Side Bus (FSB), The RS690E integrates an ATI RADEON X-1250-based 2D/3D graphics engine, dual display, The SB600 is a south bridge that integrates key I/O, communications, and audio features. The board supports DDRII 667MHz system memory, PCI interface, PCI-E Gigabit LAN, Audio, LVDS, DVI Compact Flash, Mini – PCI, Serial ATA, USB 2.0, COM, IEEE 1394.

Multimedia Applications

For multimedia application solution, ATI RS690E chipset provides on board high performance graphics, 24 – bit LVDS interface, DVI and Audio function. This feature will be good of use in very requirement of the multimedia application.

Widely Expanded Interface

The board provides PCI slot, you can add a third LAN port, and also provides Mini – PCI slot and Compact Flash Type II slot.

Specification

Board	LV-682 Mini - ITX
CPU	AMD Mobile Turion 64x2 638-pin Processor Sempron 638-pin Processor
Chipset	AMD RS690E + SB600
Memory	2 DDR II SoDIMM slot support DDR II 533 / 667 MHz SDRAM Up to 4GB
VGA	Built in AMD RS690E chipset
I / O Control	AMD SB600 + ITE 8712 + Fintek F81216D
LAN	2 Realtek RTL8111B 10 / 100 / 1000Mbit PCI-Express Giga LAN
Audio	AMD SB600 with Realtek ALC655 Codec
IDE	1 44Pin UDMA 33 connection
SATA	2 Serial ATA II 3.0 Gbit/sec ports
Slot	1 Mini – PCI slot 1 CompactFlash slot 1 PCI slot
BIOS	AMI 4Mb PnP Flash
GPIO	16 – bit digital I / O
Green Function	ACPI 1.0 and APM 1.2 compliant
Watchdog Timer	System reset programmable watchdog timer with 1 ~ 255 sec. of time - out
H / W Monitoring	ITE 8712 support power supply voltage and temperature monitoring functions
Real Time Clock	AMD SB600 built – in RTC with Lithium battery
Form Factor	Mini – ITX 6.69 "(L) x 6.69" (W) / 17 x 17 mm

VGA Display

Chipset	AMD RS690E chipset
Memory	Shared system memory up to 256M
Display	CRT / LCD monitor with analog for 24 – bit LVDS interface
DVI	Support DVI display

Internal I/O Ports

GPIO	1 GPIO Port Connector
USB	2 USB Connector Supports 4 USB ports
Serial Port	2 RS-232 Connector, COM3 with 5V power COM4 with 12V power
CDIN	1 CDIN Connector
Audio	1 Audio Connector
IEEE1394	1 IEEE 1394 Connector
IDE	1 44-Pin IDE Connector
LVDS	1 24-Bit LVDS Connector
Inverter	1 LCD Inverter Connector
DVI	1 DVI
FAN	2 FAN Connector

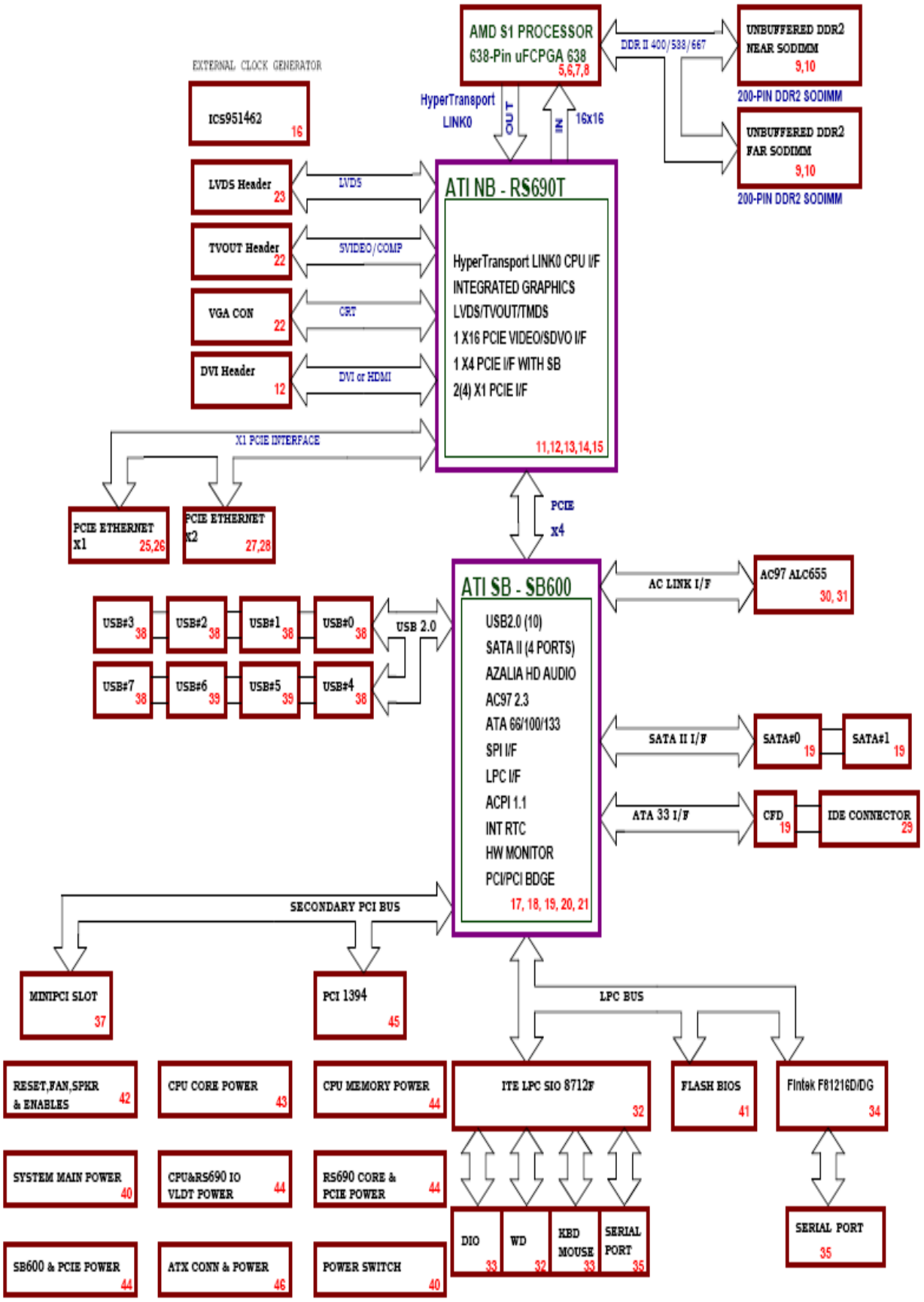
External I/O Ports

Keyboard/ Mouse	1 PS / 2 ports
Serial Ports	1 external RS–232 port (COM 1) with 5V power 1 external RS–232 / 422 / 485 port (COM 2) with 12V power
VGA	1 VGA port
Audio	1 external jack for MIC – In / Line – In / Line – Out
LAN	2 external RJ – 45 ports with LED
USB	4 external USB 2.0 ports

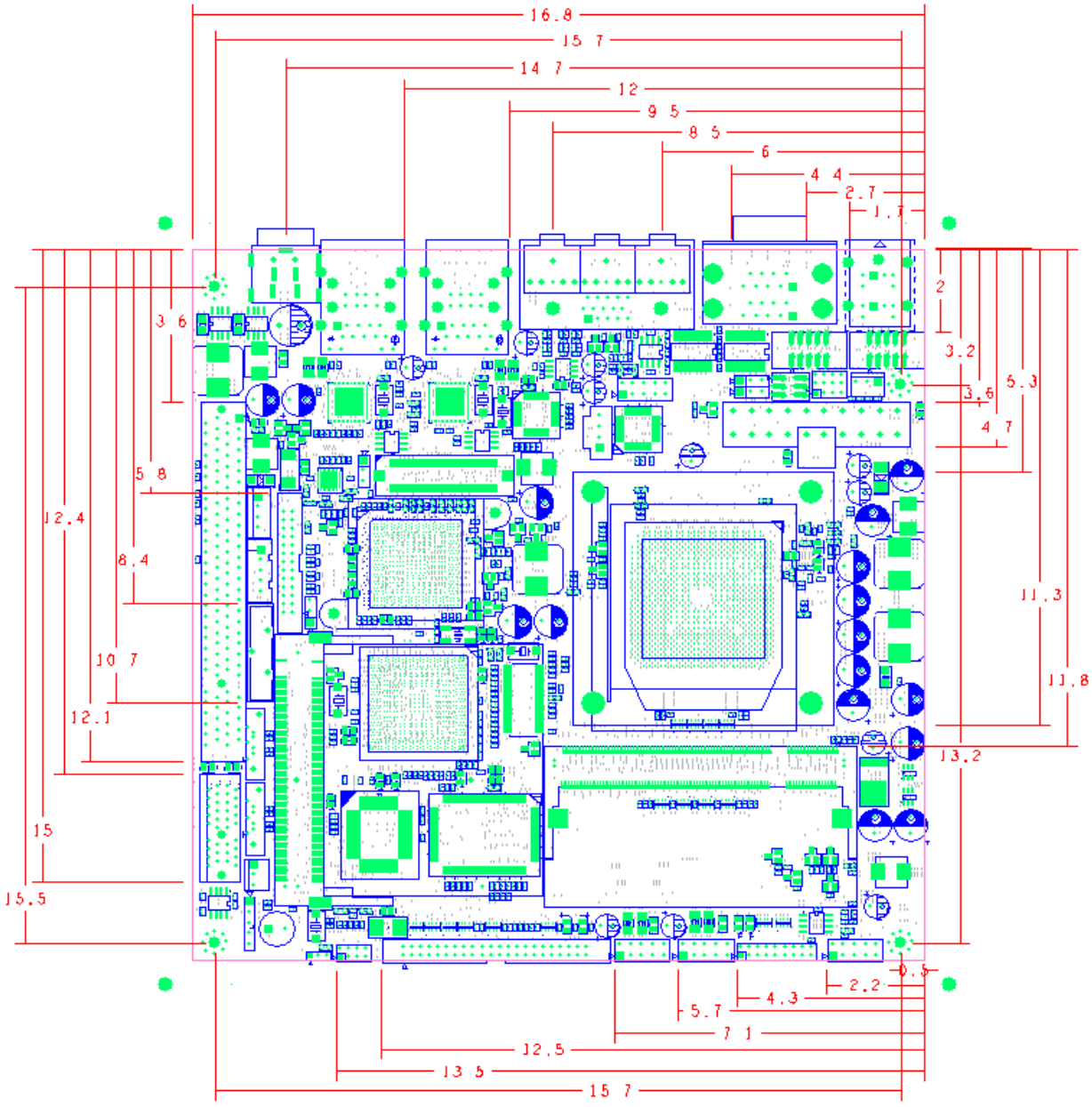
Power And Environment

POWER	ATX 20-Pin power connector OR 8~21V full range 4 –Pins DC adapter
TEMPERATURE	Operating temperature with 0°C~60°C (32°F~140°F) Storage temperature with 20°C~80°C (-68°F~176°F)

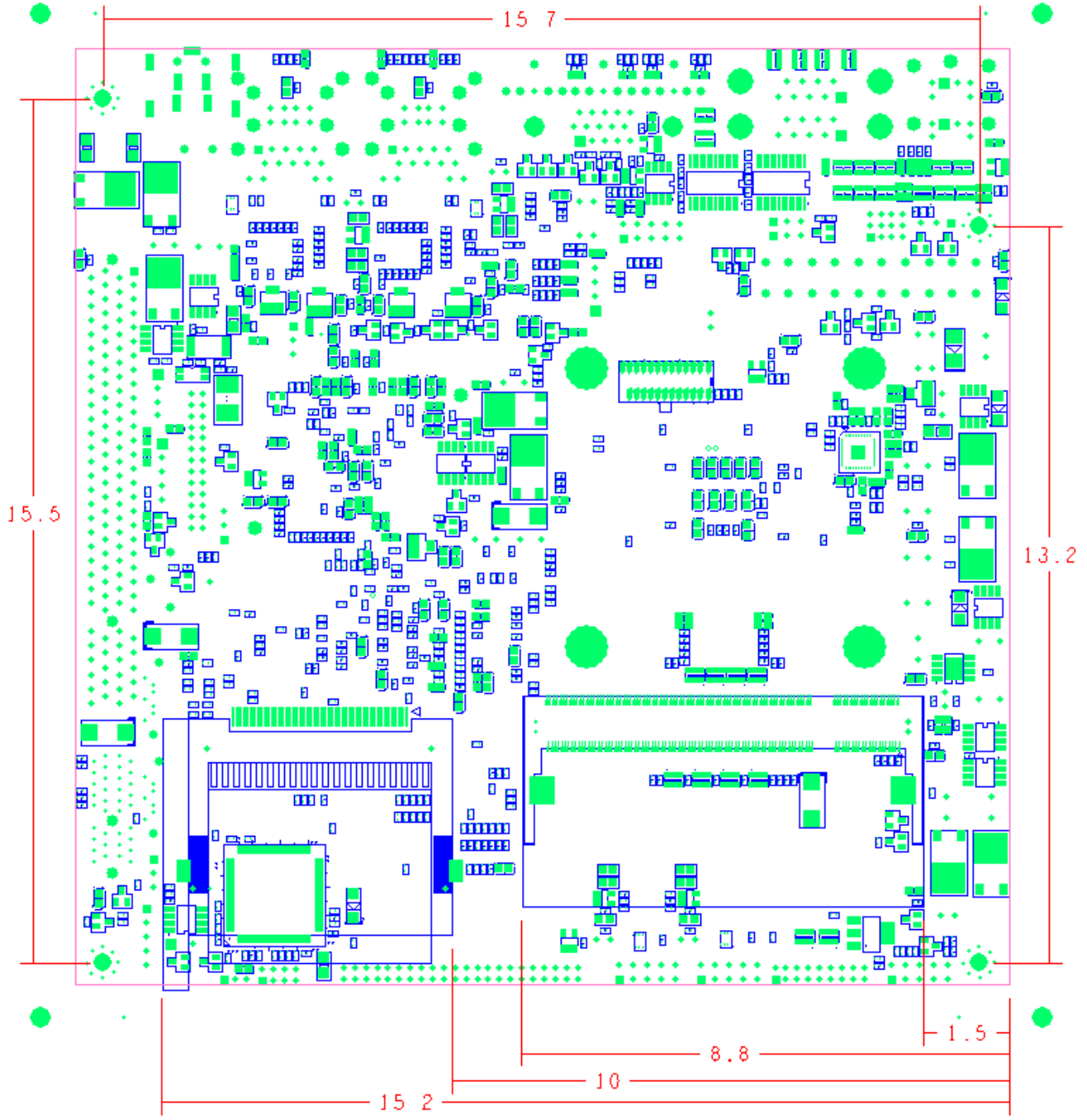
1.3 <Block Diagram>



1.4 <Mechanical Drawing >



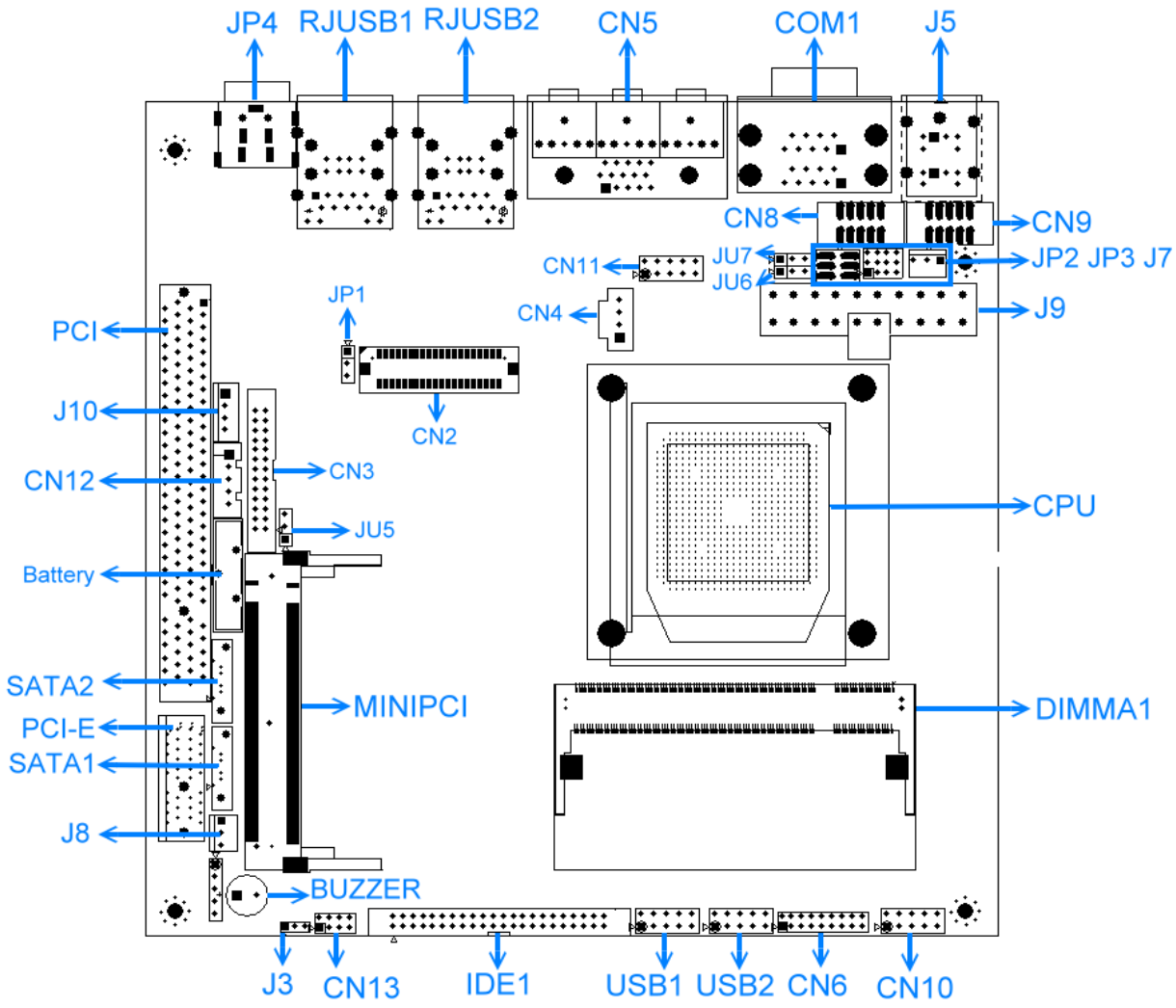
Solder Side



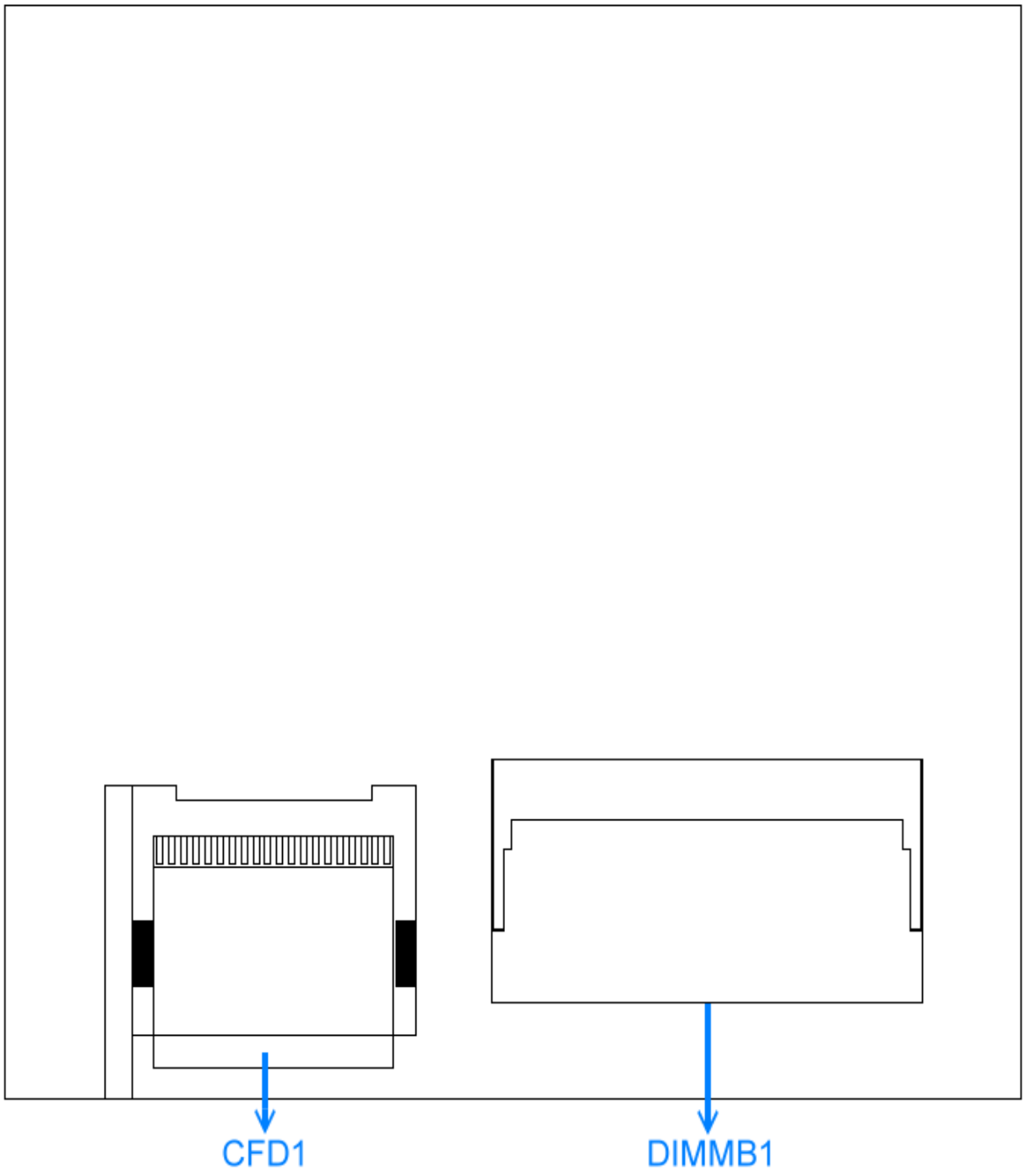
Hardware Installation

Connectors Location

Component Side



Solder Side



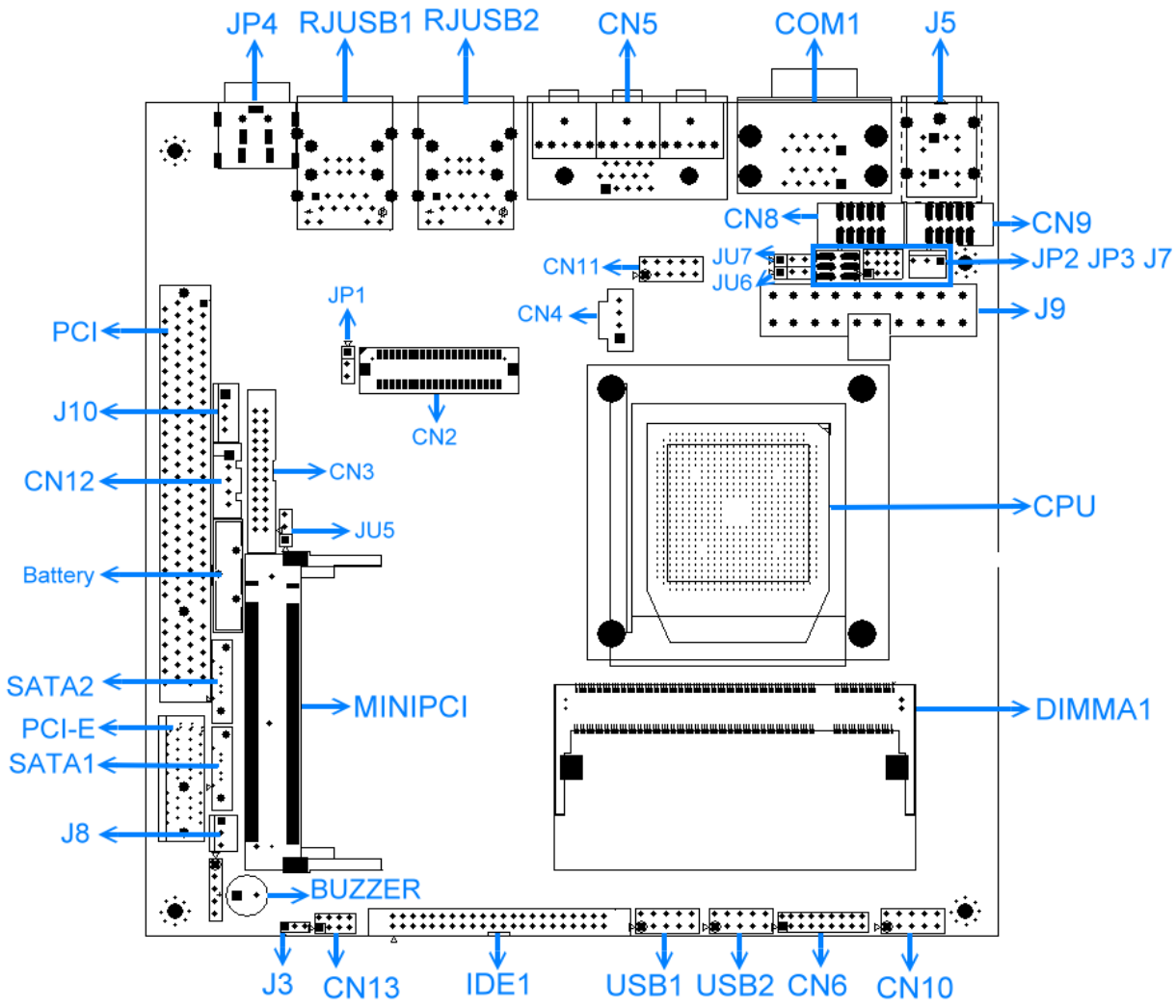
I / O Panel

Connectors

Connector	Function
CN2	LVDS Connector
CN3	DVI
CN4	CD-IN Connector
CN5	VGA & AUDIO Connector
CN6	GPIO Connector
CN8	COM3 RS-232 Connector
CN9	COM4 RS-232 Connector
CN10	Front Panel Connector
CN11	Front audio Connector
CN12	LVDS Inverter Power Connector
CN13	1394 Connector
J1	SATA1 Connector
J2	SATA2 Connector
J5	PS2 Keyboard / Mouse Connector
J7	CPU Fan Connector
J8	System Fan Connector
J9	ATX Power Connector

J10	4 Pin Power Connector 12V limited 0.8A Output 5V limited 1A Output
J11	PCI Slot
JP4	DC Power Jack Connector
CFD1	CompactFlash Socket
COM1 Down	COM1 RS-232 Connector
COM1 Up	COM2 RS-232 / RS-422 / RS-485 Connector
DIMMA1	SoDIMM Slot
DIMMB1	SoDIMM Slot
IDE1	44pin IDE Connector
MPCI1	Mini - PCI Slot
RJUSB1 A / B	PCI-E Gigabit LAN / USB Connector
RJUSB2 A / B	PCI-E Gigabit LAN / USB Connector
USB1	USB1 Connector
USB2	USB2 Connector

Jumpers Locations



List of Jumpers

J3	CF card Master / Slave
JP1	LVDS Panel Voltage Selection (+5V / + 3.3V)
JP2	COM2 RS232/422/485 Select
JP3	COM2 RS232/422/485 Select
JU5	Clear CMOS Selection
JU6	COM2 12V Voltage Select
JU7	COM1 5V Voltage Select

Jumpers Setting

OPEN 1 - 2 - 3	SHORT 1 - 2	SHORT 2 - 3
		
1 2 3	1 2 3	1 2 3

LVDS Panel Voltage Selection (JP1)

5V	3.3V
	

Clear CMOS Selection (JU5)

Protected	Clear CMOS
	

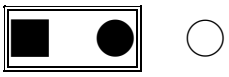
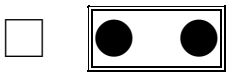
COM2 Pin 9 Selection (JU6)

Ring	12V
	
1 2	2 3

COM1 Pin 9 Selection (JU7)

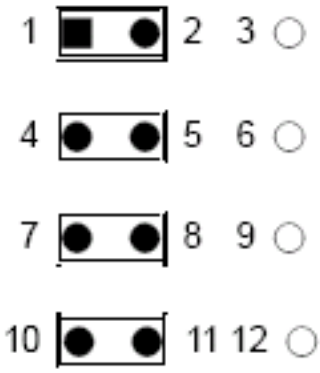
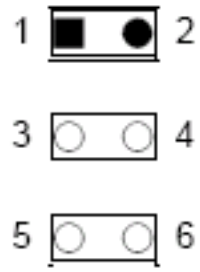
Ring	5V
	
1 2	2 3

CF Card Master/Slave Selection (J3)

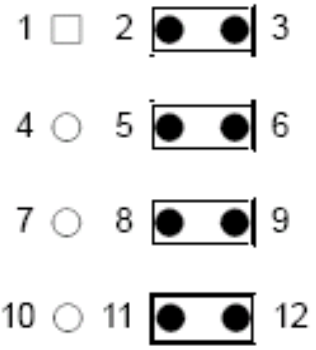
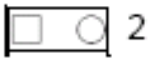
Master	Slave
	
1 2 3	1 2 3

COM2 RS232/422/485 Selection (JP3,JP2)

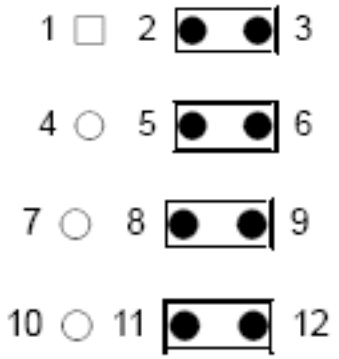
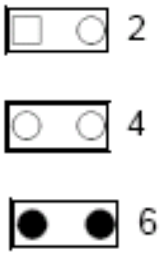
COM2 SETTING RS232

JP3	JP2
	

COM2 SETTING RS422

JP3	JP2
	

COM2 SETTING RS485

JP3	JP2
	

DC Power Jack Connector (JP4)

Pin	Assignment	Pin	Assignment
1	+12V	2	GND
3	GND	4	N/C
5	ENABLK		

LVDS Connector (CN2)

Pin	Assignment	Pin	Assignment
1	VCC	2	VCC
3	GND	4	GND
5	TXU0N	6	TXLON
7	TXU0P	8	TXL0P
9	GND	10	GND
11	TXU1N	12	TXL1N
13	TXU1P	14	TXL1P
15	GND	16	GND
17	TXU2N	18	TXL2N
19	TXU2P	20	TXL2P
21	GND	22	GND
23	TXU3N	24	TXLCKN
25	TXU3P	26	TXLCKP
27	GND	28	GND
29	TXUCKN	30	TXL3N
31	TXUCKP	32	TXL3P
33	GND	34	GND
35	N/C	36	I2C_CLK
37	N/C	38	I2C_DATA

39	N/C	40	N/C

DVI Connector (CN3)

Pin	Assignment	Pin	Assignment
1	TX1P	2	TX1N
3	GND	4	GND
5	TXCP	6	TXCN
7	GND	8	PVDD
9	N/C	10	N/C
11	TX2P	12	TX2N
13	GND	14	GND
15	TX0P	16	TX0N
17	N/C	18	HPD
19	SDA	20	SCL
21	GND	22	N/C
23	N/C	24	N/C
25	N/C	26	N/C

VGA Display Connector (CN5)

Pin	Assignment	Pin	Assignment
1	RED	2	GREEN
3	BLUE	4	N / C
5	GND	6	GND
7	GND	8	GND
9	VGA_VCC	10	GND
11	N / C	12	CRT_DDCDATA
13	HSYNC	14	VSYNC
15	CRT_DDCCLK		

GPIO Connector (CN6)

Pin	Assignment	Pin	Assignment
1	GPIO1-2	2	GPIO1-1
3	GPIO1-4	4	GPIO1-3
5	GPIO1-6	6	GPIO1-5
7	GPIO1-8	8	GPIO1-7
9	GPIO1-10	10	GPIO1-9
11	GPIO1-12	12	GPIO1-11
13	GPIO1-14	14	GPIO1-13
15	GPIO1-16	16	GPIO1-15
17	GND	18	+5V

COM 3 RS-232 Connector (CN8)

Pin	Assignment	Pin	Assignment
1	DCD3#	2	RXD3
3	TXD3	4	DTR3#
5	GND	6	DSR3#
7	RTS3#	8	CTS3#
9	RI3#	10	N / C

COM4 RS-232 Connector (CN9)

Pin	Assignment	Pin	Assignment
1	DCD4#	2	RXD4
3	TXD4	4	DTR4#
5	GND	6	DSR4#
7	RTS4	8	CTS4#
9	RI4#	10	N / C

Front Panel Connector (CN10)

Pin	Assignment	Pin	Assignment
1	GND	2	Power Switch
3	BUZZER-	4	BUZZER+
5	HD_LED-	6	HD_LED+
7	POWER LED-	8	Power LED+
9	GND	10	Reset

Front Audio Connector (CN11)

Pin	Assignment	Pin	Assignment
1	Front-R	2	Front-L
3	Surround-R	4	Surround-L
5	LFEOUT	6	CENOUT
7	SPDIFO-N	8	SPDIFI-N
9	GND	10	GND

LVDS Inverter Power Connector (CN12)

Pin	Assignment	Pin	Assignment
1	+12V	2	GND
3	LVDS_BLON	4	CPIS_BLEN
5	+5V		

IEEE 1394 Connector (CN13)

Pin	Assignment	Pin	Assignment
1	PWR	2	GND
3	TPB0-	4	TPB0+
5	TPA0-	6	TPA0+
7	GND	8	N/C

PS2 KB / MS Connector (J5)

Pin	Assignment	Pin	Assignment
1	KB_DATA	2	N / C
3	GND	4	KB_VCC
5	KB_CLK	6	N / C
7	MS_DATA	8	N / C
9	GND	10	KB_VCC
11	MS_CLK	12	N / C

CPU Fan Connector (J7)

Pin	Assignment
1	GND
2	12V
3	FAN Sense

System Fan Connector (J8)

Pin	Assignment
1	GND
2	12V
3	FAN Sense

ATX Power Connector (J9)

Pin	Assignment	Pin	Assignment
1	3.3V	2	3.3V
3	GND	4	5V
5	GND	6	5V
7	GND	8	N / C
9	5VSB	10	12V
11	3.3V	12	-12V
13	GND	14	PSON
15	GND	16	GND
17	GND	18	-5V
19	5V	20	5V

4 Pin Power Connector (J10)

Pin	Assignment
1	12V(Yellow) Limited 0.8A Output
2	GND
3	GND
4	5V (Red) Limited 1A Output

COM1 RS-232 Connector (COM1 DOWN)

Pin	Assignment	Pin	Assignment
1	DCD1#	2	RXD1
3	TXD1	4	DTR1#
5	GND	6	CSR1#
7	RTS1#	8	CTS1#
9	RI1#		

COM2 RS-232/422/485 Connector (COM1 UP)

Pin	Assignment	Pin	Assignment
1	DCD2#(422TXD-/485DATA-)	2	RXD2(422RXD+)
3	TXD2(422TXD+/485DATA+)	4	DTR2#(422RXD-)
5	GND	6	DSR2#
7	RTS2#	8	CTS2#
9	RI2#		

USB Connector (USB1, USB2)

Pin	Assignment	Pin	Assignment
1	USB_VCC	2	GND
3	USB4-	4	GND
5	USB4+	6	USB5+
7	GND	8	USB5-
9	GND	10	USB_VCC

CompactFlash Slot (CFD1)

Standard CompactFlash Connector Type II

Mini-PCI Slot (MPCI1)

Standard Mini-PCI Connector

PCI-E Gigabit LAN / USB Connector (RJUSB1)

Standard RJ - 45 Connector / Standard USB Connector

PCI-E Gigabit LAN / USB Connector (RJUSB2)

Standard RJ - 45 Connector / Standard USB Connector

SATA1 Connector (J1)

Standard Serial ATA Connector

SATA2 Connector (J2)

Standard Serial ATA Connector

CD-IN Connector (CN4)

Standard CD-IN Connector

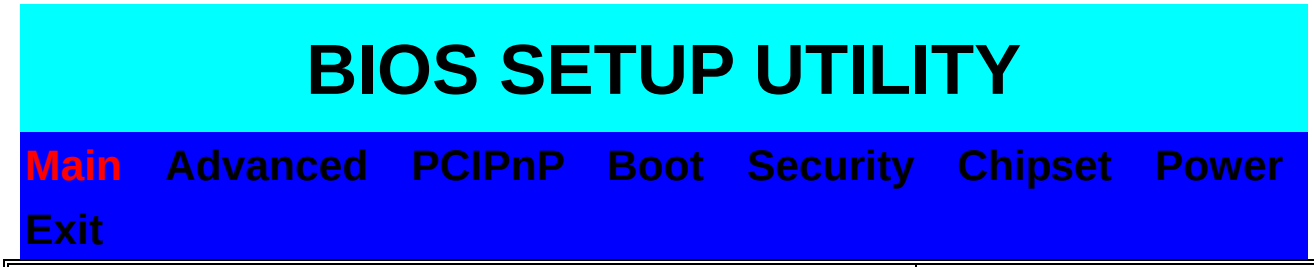
EIDE Connector (J4)

Standard 44-pin EIDE Connector

PCI Connector (J11)

Standard 120-pin PCI Slot Connector

BIOS Setup



System Overview		
AMIBIOS		
Version	:08.00.14	
Build Date	:06/14/07	
ID	:08.00.14	
Processor		
AMD Turion ™ 64x2 Mobile Technology TL-56		
Speed	:1800MHz	
Count	:2	
System Memory		
size	:1984MB	
System Time	**[** 14:20:34 **]**	
System Date	**[** Sat 06/16/2007 **]**	

Use [ENTER], [TAB] or [SHIFT-TAB] to Select a field.
Use [+] or [-] to Configure system Time.

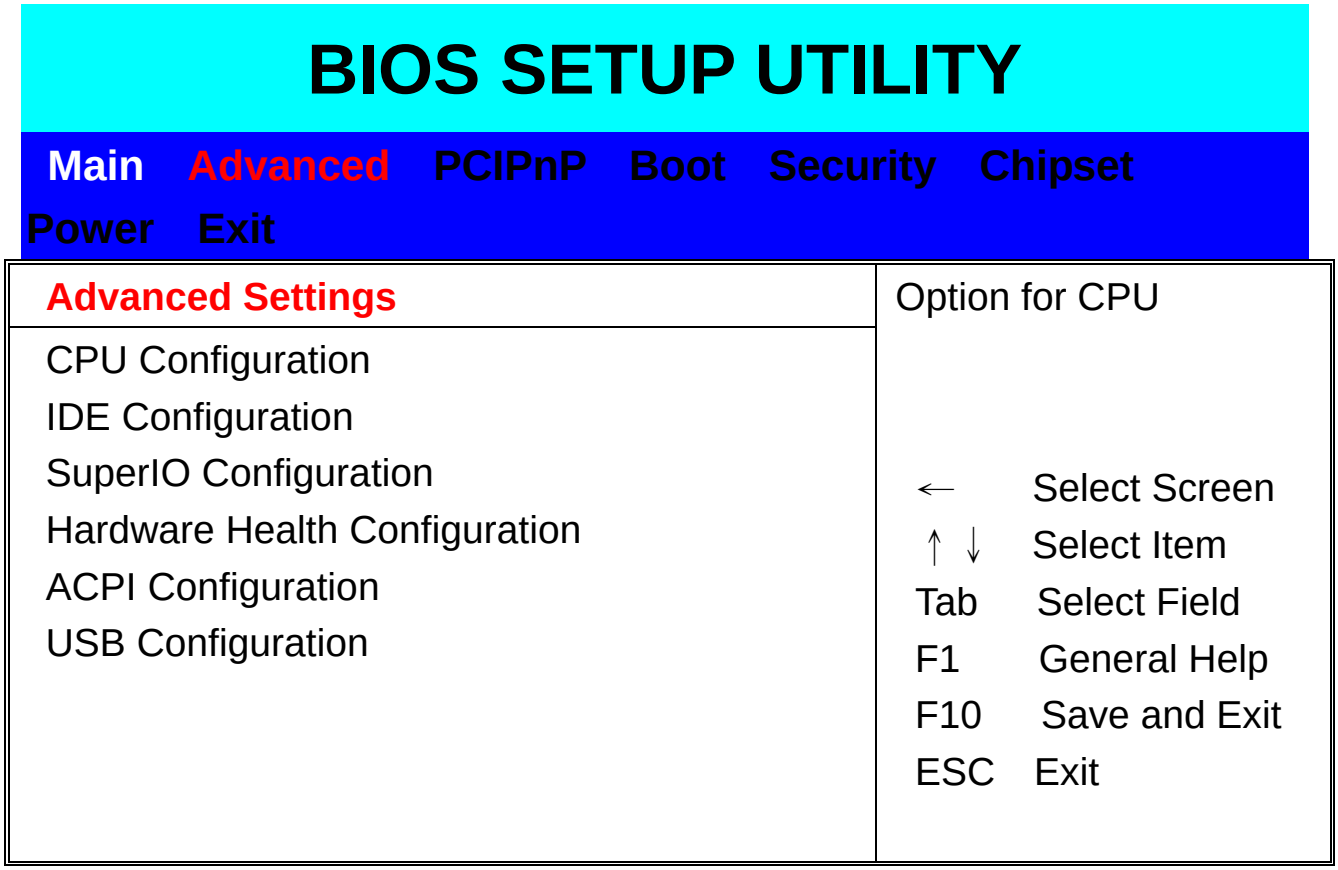
← Select Screen
↑ ↓ Select Item
＋－ Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

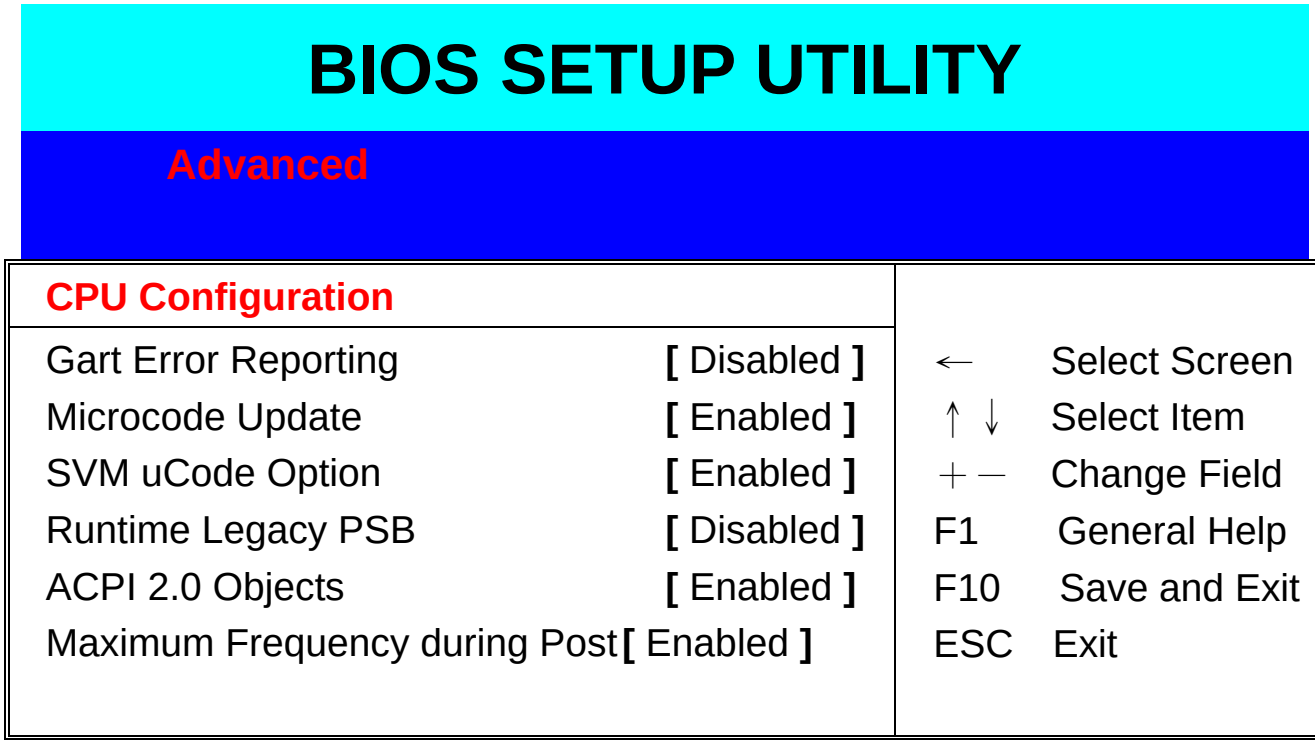
Time

Hour	00 to 23
Minute	00 to 59
Second	00 to 59

Date

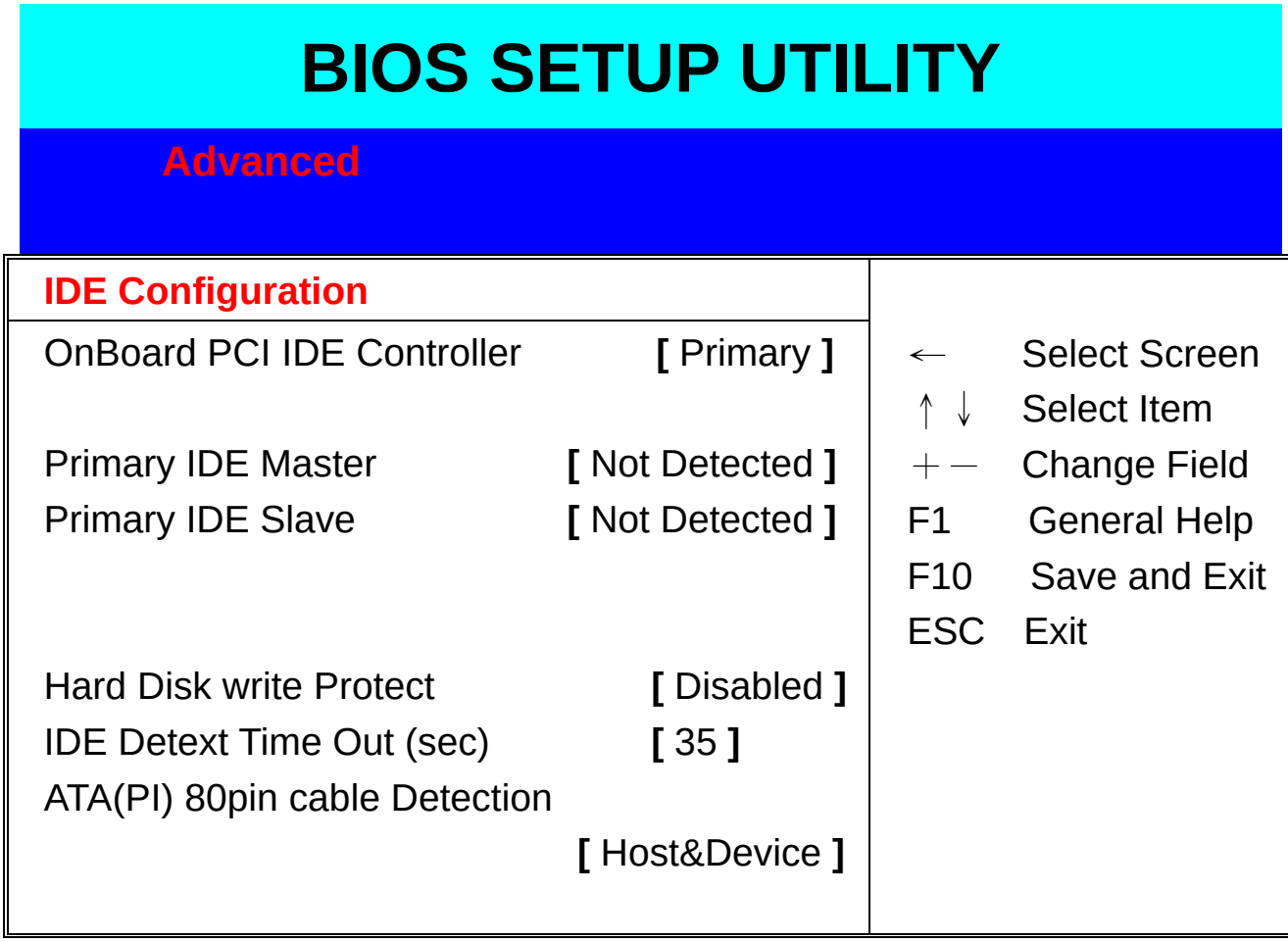
Day	Sun to Sat
Month	Jan. through Dec.
Date	1 to 31
Year	1999 through 2099





CPU Configuration This items show the CPU information, BIOS version

of your system (read only).

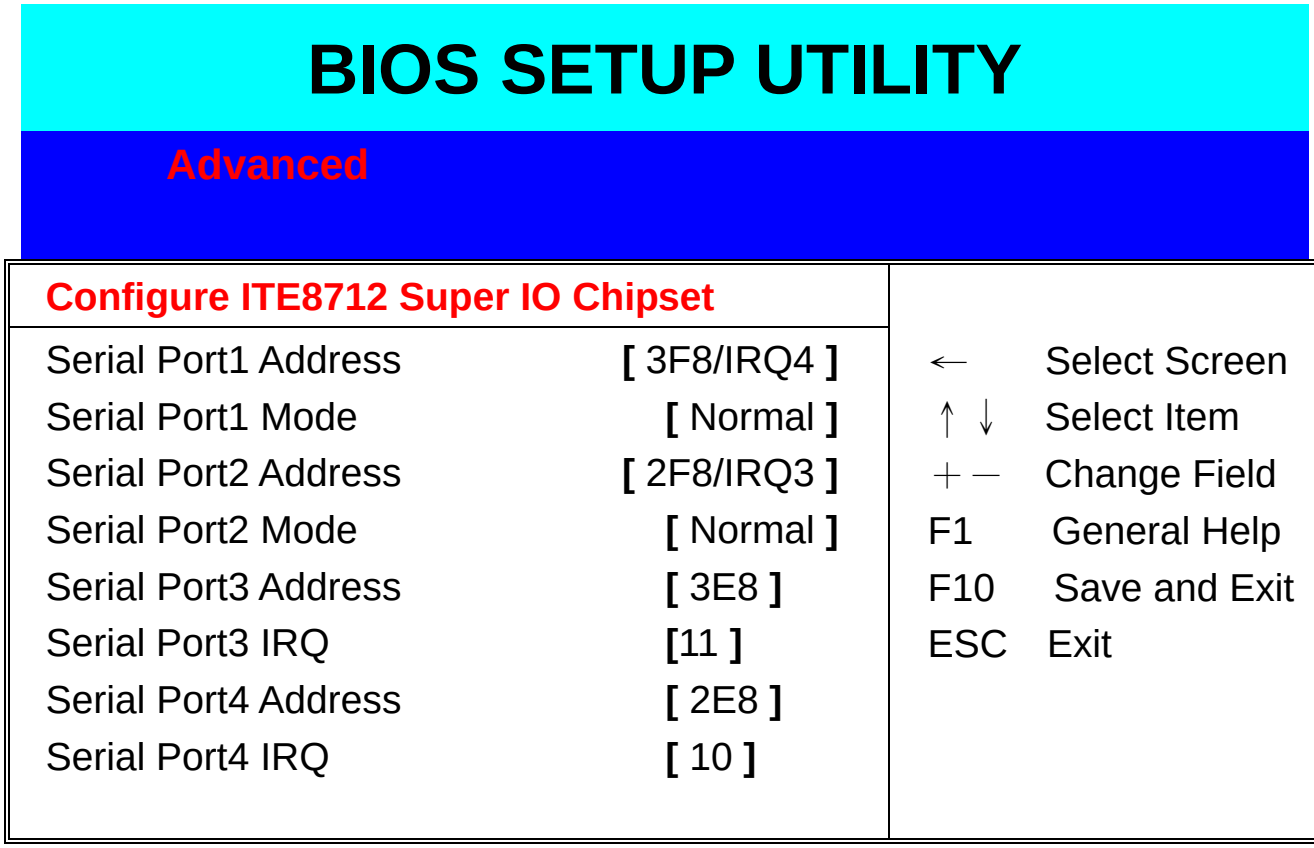


Primary Master / Slave Enables only the primary IDE controller.

Hard Disk Write Protect This will be effective only if device is accessed through BIOS.

IDE Detext Time Out (sec) Select the time out value for detecting ATA/ATAPI devices.

ATA(PI) 80pin cable Detection Select the mechanism for detecting 80pin ATA(PI) cable.



Serial Port1 Address Allows BIOS to select serial port1 base

address.

Serial Port1 Mode Allows BIOS to select mode for serial port1.

Serial Port2 Address Allows BIOS to select serial port2 base

address.

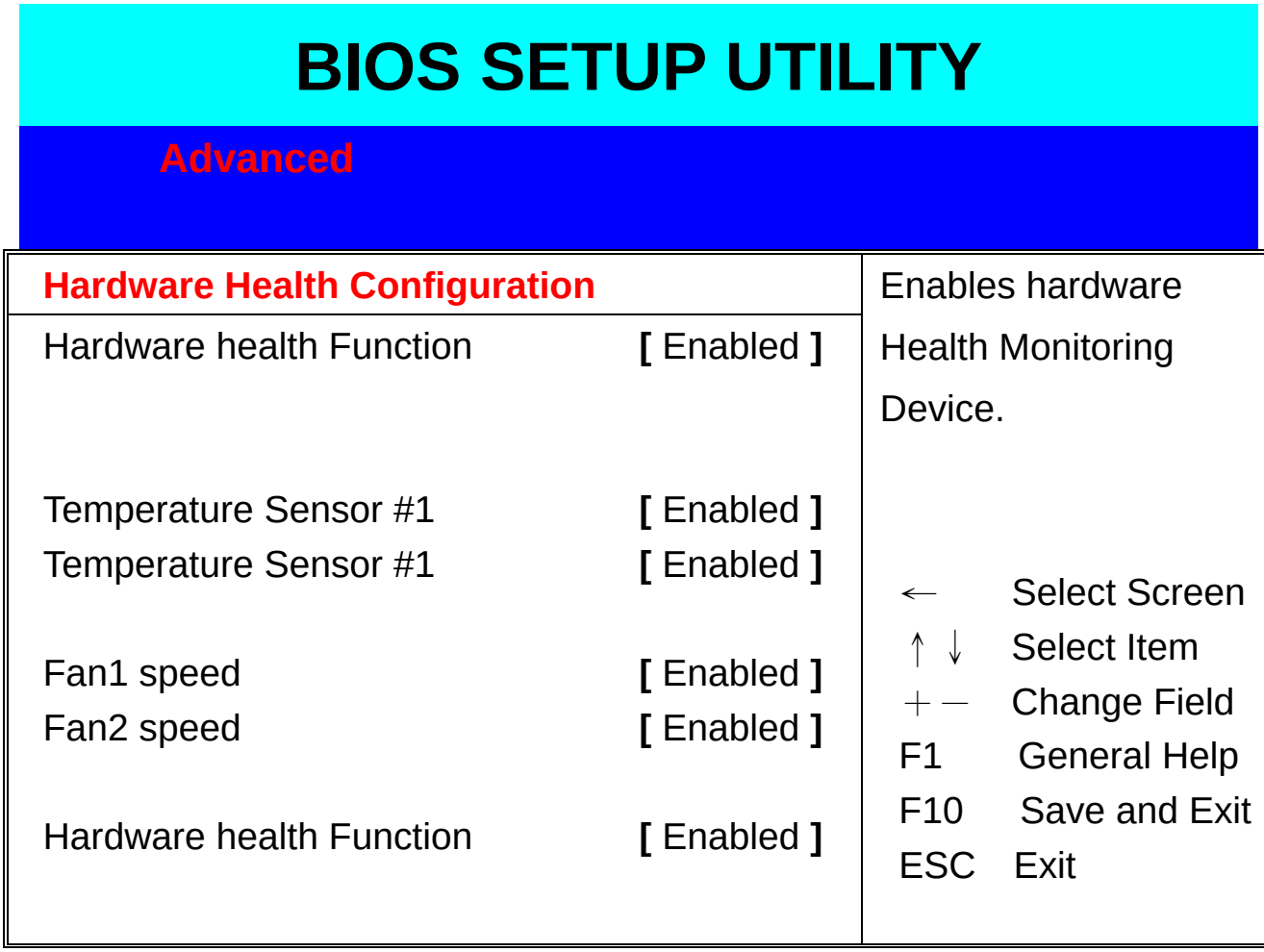
Serial Port2 Mode Allows BIOS to select mode for serial port2.

Serial Port3 Address Allows BIOS to select serial port3 base

address.

Serial Port3 Mode Allows BIOS to select serial port3 IRQ.

Serial Port4 Address	Allows BIOS to select serial port4 base address.
Serial Port4 Mode	Allows BIOS to select serial port4 IRQ.



PC Health

This option allows you to see the temperature

Monitoring function feature of the board. The

Values are read-only as monitored by the

system and show the PC health status.

BIOS SETUP UTILITY

Advanced

ACPI Settings	
General ACPI Configuration Advanced ACPI Configuration	← Select Screen ↑ ↓ Select Item + − Change Field F1 General Help F10 Save and Exit ESC Exit

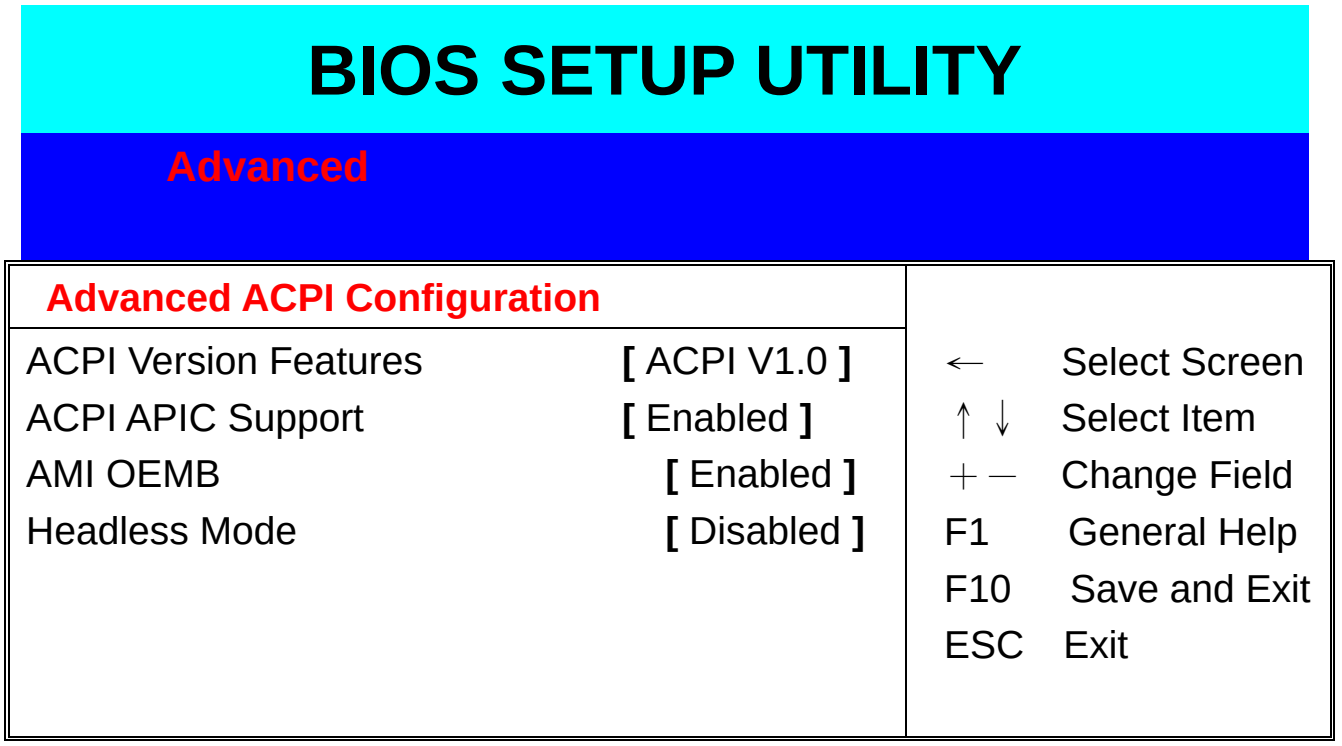
BIOS SETUP UTILITY

Advanced

General ACPI Configuration		General ACPI Configuration settings.
Suspend mode	[Auto]	← Select Screen ↑ ↓ Select Item + − Change Field F1 General Help F10 Save and Exit ESC Exit
Repost video on S3 Resume	[No]	
C1E Support	[Disabled]	

Suspend mode Select the ACPI state used for system suspend.

Repost video on S3 Resume Determines whether in voke VGA BIOS post on S3/STR resume.



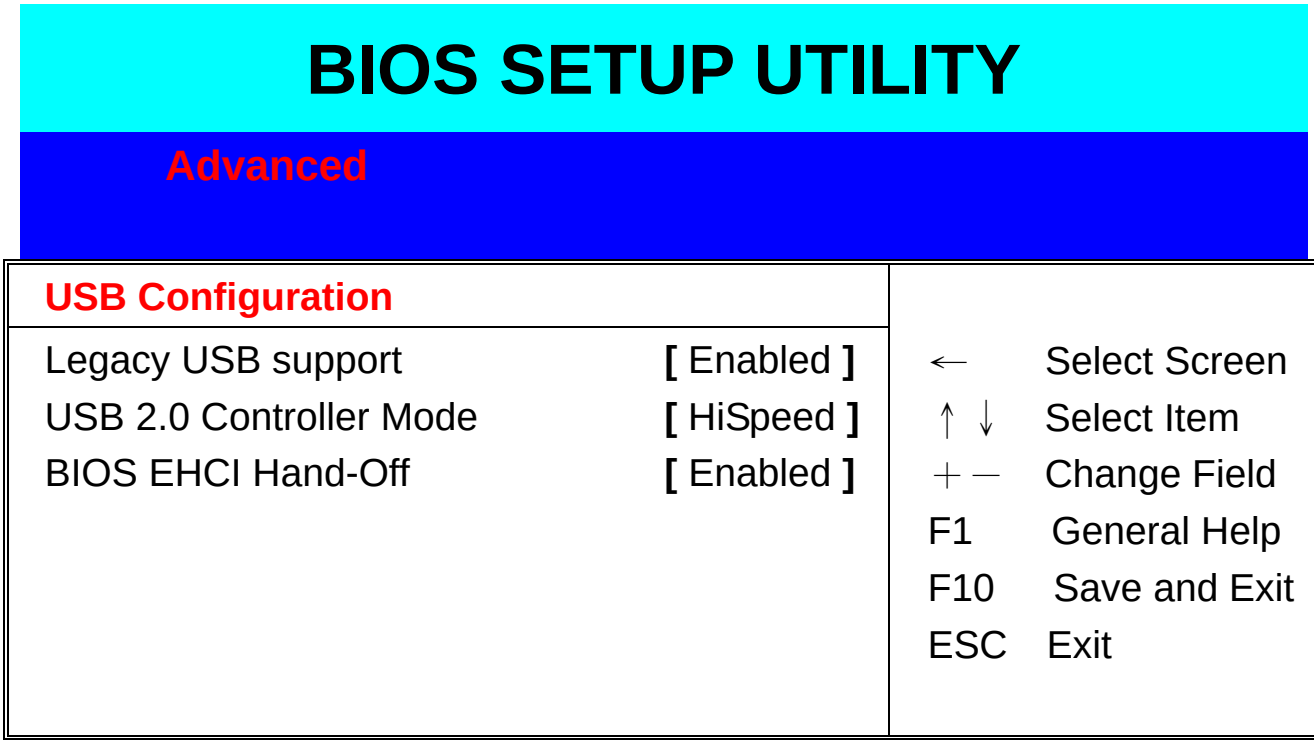
ACPI Version Features Enable RSDP points to 64-bit.

ACPI APIC Support Include ACPI APIC table pointer to RSDT point lists.

AMI OEMB Include OEMB table pointer to RSDT point lists.

Headless Mode Enable/Disable Headless operation mode through

ACPI.



Legacy USB support Enable support for legacy USB. Auto Option. Disables legacy support if no USB device are

connected.

USB 2.0 Controller Mode Configures the USB 2.0 controller in Hispeed(480Mbps) or

fullspeed(12Mbps).

BIOS EHCI Hand-Off This is workaround for OS without EHCI

hand-off support. The EHCI ownership chang

should claim by EHCI driver.

BIOS SETUP UTILITY

Main Advanced PCIPnP Boot Security Chipset Power Exit

Advanced PCI/PnP Settings	

Clear NVRAM	**[** No **]**	
Plug & Play O/S	**[** No **]**	
PCI Latency Timer	**[** 64 **]**	
Allocate IRQ to PCI VGA	**[** Yes **]**	
Palette Snooping	**[** Disabled **]**	
PCI IDE BusMaster	**[** Enabled **]**	
Off Board PCI/ISA IDE card	**[** Auto **]**	
IRQ3	**[** Available **]**	
IRQ4	**[** Available **]**	
IRQ5	**[** Available **]**	
IRQ7	**[** Available **]**	
IRQ9	**[** Available **]**	
IRQ10	**[** Available **]**	
IRQ11	**[** Available **]**	
IRQ14	**[** Available **]**	
IRQ15	**[** Available **]**	
DMA Channel0	**[** Available **]**	
DMA Channel1	**[** Available **]**	← Select Screen
DMA Channel3	**[** Available **]**	↑ ↓ Select Item
DMA Channel5	**[** Available **]**	Tab Select Field
DMA Channel6	**[** Available **]**	F1 General Help
DMA Channel7	**[** Available **]**	
		F10 Save and Exit
Reserved memory size	**[** Disabled **]**	ESC Exit

Clear NVRAM Clear NVRAM during system boot.

Plug & Play O/S Lets the BIOS configure all the device

in the

system

PCI Latency Timer Value in units of PCI clocks for PCI driver

Latency timer register.

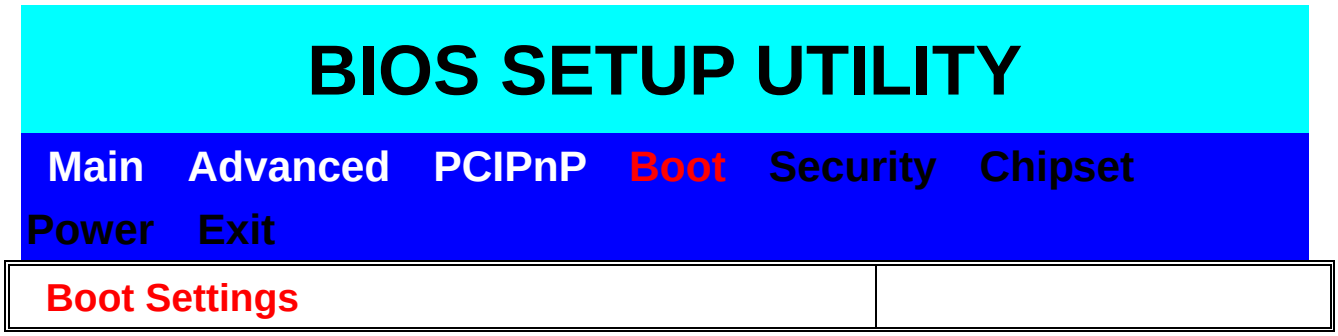
Allocate IRQ to PCI VGA Assigns IRQ to PCI VGA card if card request IRQ.

Palette Snooping Informs the PCI device on ISA graphics device is

installed in the system,so the card will function.

PCI IDE BusMaster BIOS use PCI busmaster for R/W to IDE device.

Off Board PCI/ISA IDE card Works for most PCI IDE card.



Booting Settings Configuration Boot Device Priority Removable Drivers	Configure setting during System boot. ← Select Screen ↑ ↓ Select Item Tab Select Field F1 General Help F10 Save and Exit ESC Exit

BIOS SETUP UTILITY

Boot

Boot Settings Configuration	

Quick Boot Quiet Boot Add on Rom Display Mode BIOS **]** Bootup Num-lock PS/2 Mouse support Interrupt 19 Capture	**[** Enabled **]** **[** Disabled **]** **[** Force **[** On **]** **[** Auto **]** **[** Disabled **]**	Allows BIOS to Skip Certain tests while booting. This will decrease the time needed to boot the system. ← Select Screen ↑ ↓ Select Item Tab Select Field F1 General Help F10 Save and Exit ESC Exit

Quick Boot Allows BIOS to skip certain tests while booting.

Quiet Boot This will decrease the time needed to boot the system. Displays normal POST message.

Add on Rom Display Mode Set display mode for option ROM.

Bootup Num-lock Select power-on state for numlock

PS/2 Mouse support Select support for PS/2 mouse.

Interrupt 19 Capture Allows option ROMS to trap interrupt 19.

BIOS SETUP UTILITY

Main Advanced PCIPnP Boot Security Chipset Power Exit

Security Settings	
Change Supervisor Password	
Change User Password	
Boot sector virus Protection	[Disabled]

←	Select Screen
↑ ↓	Select Item
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

BIOS SETUP UTILITY

Main Advanced PCIPnP Boot Security Chipset Power Exit

Chipset configuration
NorthBridge Configuration
SouthBridge Configuration
AMD 690T Configuration
OnBoard Peripheral Configuration

I

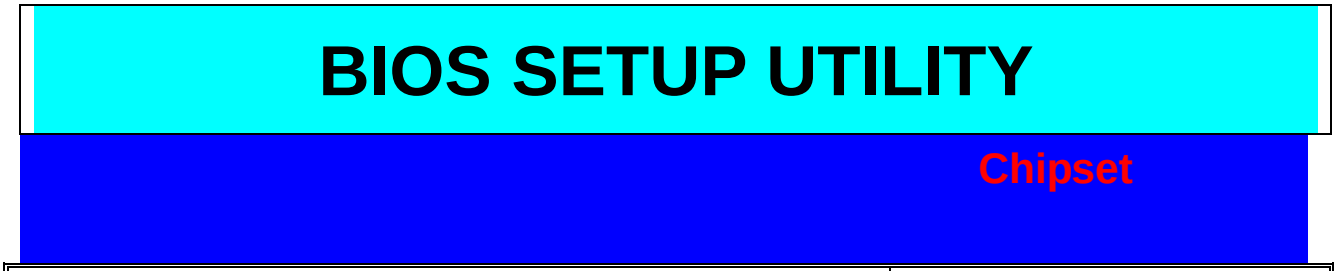
←	Select Screen
↑ ↓	Select Item
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

BIOS SETUP UTILITY

Chipset

NorthBridge Chipset configuration		I
Memory Configuration		← Select Screen
		↑ ↓ Select Item
		Tab Select Field
Power down control	[Auto]	F1 General Help
		F10 Save and Exit
		ESC Exit

Power down control Allows DIMMs to enter power down mode by deasserting the clock enable signal when DIMMs are not in use.



Memclock Mode Select the DRAM frequency programming method, if Auto the DRAM speed will be base on SPDs.

Bank Interleaving If Auto the memory will be checked which executes 64 or 128-bits mode

Enable Clock to all DIMMs Enable Unused clocks to DIMMs even memory slots are not populated.

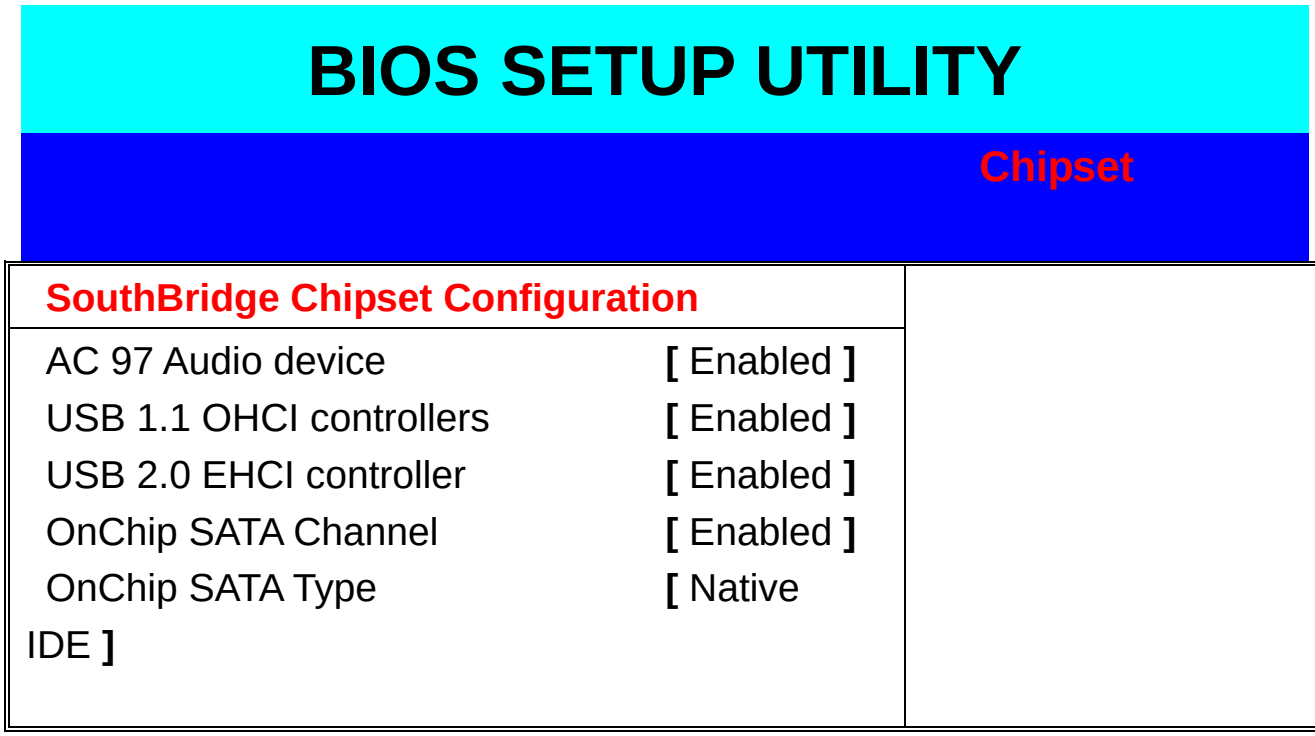
Memclk tristate C3/ATLVID Enable/Disable Memclk Tri-stating during C3 and ATLVID.

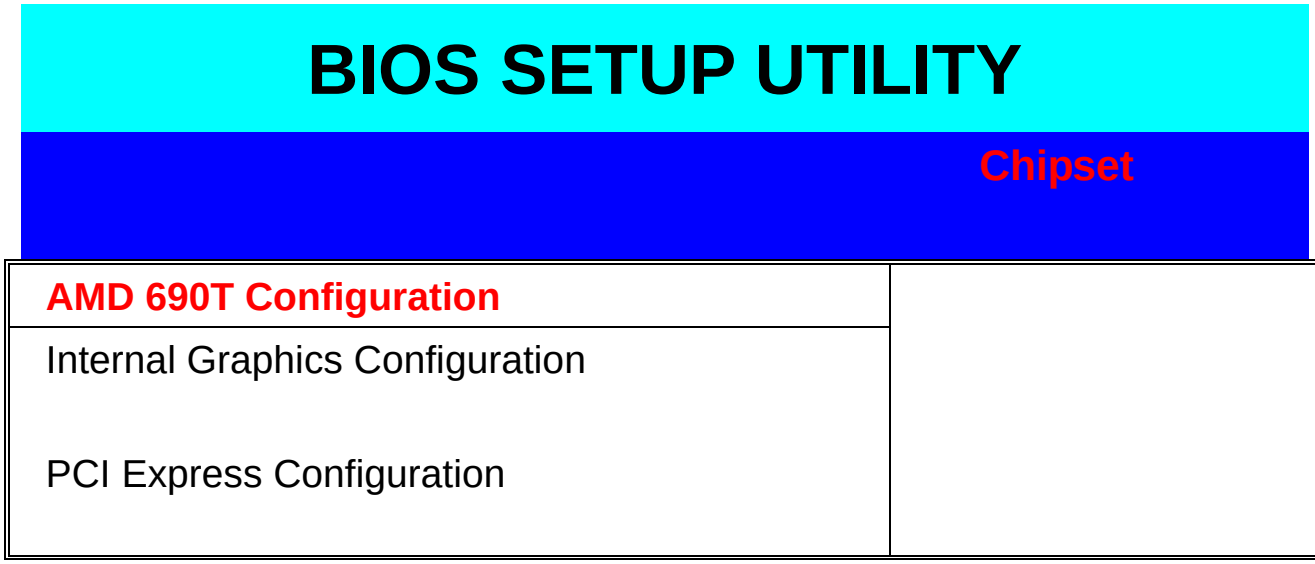
DQS Signal Training Control Turing this off will require custom memory timing programming. Training will be

automatically disabled

if CS sparing is enable.

Memory Table remapping Enable memory remapping around memory hole.

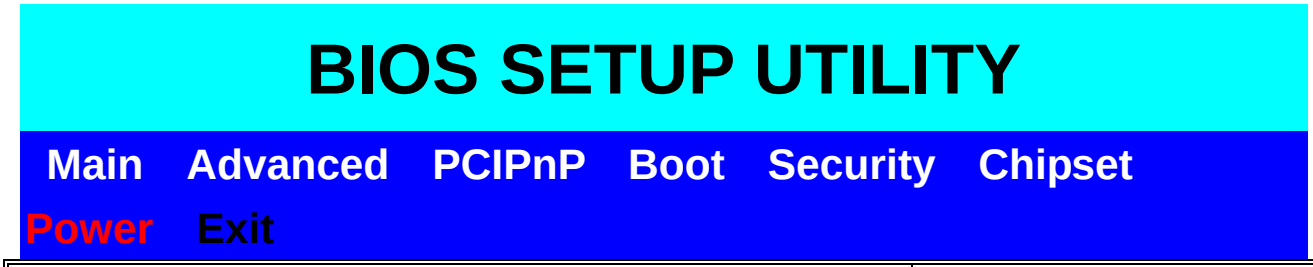




BIOS SETUP UTILITY

Chipset

Internal Graphics Configuration		
Internal Graphics mode	[UMA]	← Select Screen
UMA Frame buffer size	[64MB]	↑ ↓ Select Item
Graphics clock mode	[SYNC]	+ − Change Field
GFX engine clock	[200]	F1 General Help
Multifunction	[Disabled]	F10 Save and Exit
Primary Video controller [PCIE/IGFX/PCI]		ESC Exit
Video Display Devices	[Auto]	
TV standard	[NTSC]	
Expansion mode	[Disabled]	

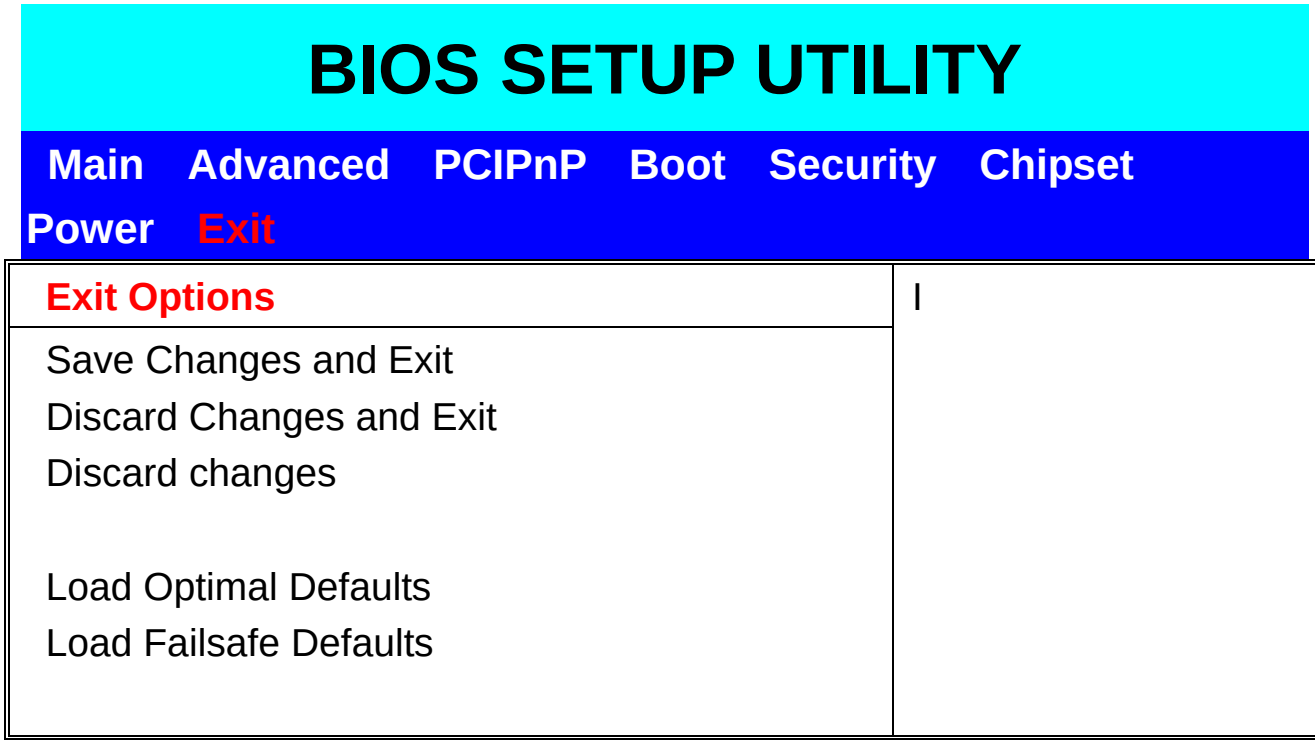


Power Configuration		I
Power Management/APM	[Enabled]	
Suspend Time Out	[Disabled]	
Power Button Mode	[On/Off]	
Video Power Down Mode	[suspend]	
Hard Disk time out(Minute)	[Disabled]	
Restore On AC Power Loss	[Disabled]	
RTC Resume	[Disabled]	

Power Management/APM Enable/Disable SMI based power management and APM support.

Suspend Time Out If no activity during this time period the BIOS will place the system into suspend low power state.

Power Button Mode Select Power button functionality.



Save Changes and Exit Exit system setup after saving changes.

Discard Changes and Exit Exit system setup without saving any changes.

Discard changes Discard changes done so for to any of the setup questions

Load Optimal Defaults Load Optimal default values for all the setup questions.

Load Failsafe Defaults Load Failsafe default values for all the setup questions.

Appendix

Watchdog Timer

User could test watchdog timer function under “ DEBUG.EXE “ program as follows:

DEBUG	Description
O 2e 87	
O 2e 01	
O 2e 55	
O 2e 55	
O 2e 07	
O 2f 07	
O 2e 72	
O 2f c0	C0: second (40: minute)
O 2e 72	
O 2e 73	Control second or minute
O 2f 00 ~ FF	O 2f 08 (8 second reset)