

SBC Series

Single Board Computer
Full Size PICMG with
LAN x 2, VGA, Audio, Video

SPI-8150-LLVA

LAN x 2, VGA, Audio, Video

SPI-8151-LLVA

User's Manual

CONTEC CO.,LTD.

Copyright

Copyright 2004 CONTEC CO., Ltd. All Rights Reserved. No part of this document may be copied or reproduced in any form by any means without prior written consent of CONTEC CO., Ltd.

CONTEC Co., Ltd. makes no commitment to update or keep current the information contained in this document. The information in this document is subject to change without notice.

All relevant issues have been considered in the preparation of this document. Should you notice an omission or any questionable item in this document, please feel free to notify CONTEC CO., Ltd.

Regardless of the foregoing statement, CONTEC assumes no responsibility for any errors that may appear in this document nor for results obtained by the user as a result of using this product.

Acknowledgments

IBM/AT and PS/2 are trademarks of International Business Machines Corporation.

Award is a registered trademark of Award Software International, Inc.

Intel, Celeron and Pentium 4 are registered trademarks of Intel Corporation.

Microsoft Windows is a registered trademark of Microsoft Corporation.

All Other product names or trademarks are properties of their respective owners.

Liability

The obligation of the warrantor is solely to repair or replace the product. In no event will the warrantor be liable for any incidental or consequential damages due to such defect or consequences that arise from inexperienced usage, misuse, or malfunction of this device.

Limited One Year Warranty

CONTEC Industrial CPU card is warranted by CONTEC CO., Ltd. to be free from defects in material and workmanship for up to one year from the date of purchase by the original purchaser.

Repair will be free of charge only when this device is returned freight prepaid with a copy of the original invoice and a Return Merchandise Authorization to the distributor or the CONTEC group office from which it was purchased.

This warranty is not applicable for scratches or normal wear, but only for the electronic circuitry and original boards. The warranty is not applicable if the device has been tampered with or damaged through abuse, mistreatment, neglect, or unreasonable use, or if the original invoice is not included, in which case repairs will be considered beyond the warranty policy.

How to Obtain Service

For replacement or repair, return the device freight prepaid, with a copy of the original invoice. Please obtain a Return Merchandise Authorization Number (RMA) from our Sales Administration Department before returning any product.

No product will be accepted by CONTEC group without an RMA number.

Caution about Battery

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the local ordinances or regulations.

Table of Contents

1. Introduction.....	1
1.1 Specification.....	1
1.2 Mechanical & Environmental.....	3
1.3 Check List	4
1.4 Description	5
1.5 Power Management Features	6
1.6 Power Requirements.....	6
1.7 Connector & Jumper Location.....	7
1.8 Block Diagram.....	8
2. Hardware Installations	9
2.1 Installation procedure	9
2.2 Main Memory Installation: DIMM1 / DIMM2	10
2.3 FAN1 Connector: CN1.....	11
2.4 FAN2 Connector: CN2.....	11
2.5 FAN3 Connector: CN3.....	11
2.6 DVI Connector: CN4.....	12
2.7 Parallel Port Connector: CN5.....	13
2.8 Floppy Disk Connector: CN6.....	14
2.9 EXT. Keyboard Connector: CN7.....	15
2.10 Keyboard / Mouse Connector: CN8	15
2.11 Serial Port connector: CN9 / CN10	16
2.12 IDE port Connector: CN11 / CN13.....	18
2.13 Compact Flash Slot : CN12.....	19
2.14 USB Connector: CN14 / CN15.....	20
2.15 CD Audio connector: CN16	21

2.16	<i>AC97 Sound connector: CN17</i>	21
2.17	<i>PC/104 Connector: CN18 / CN19</i>	22
2.18	<i>LAN connector : CN20/CN21</i>	23
2.19	<i>Power connector: CN22</i>	24
2.20	<i>Standby power connector: CN23</i>	24
2.21	<i>Front Panel Connector: CN24</i>	25
3.	Jumper Setting	27
3.1	<i>Clear CMOS Content: JP1</i>	27
3.2	<i>Reserved jumper: JP3 / JP4</i>	27
3.3	<i>IrDA Connector: JP5</i>	28
3.4	<i>Key/Mouse signal selector: JP6 / JP7</i>	28
3.5	<i>RS-232/422/485 Selector: JP8 & JP9</i>	29
3.6	<i>RS-422/485 Terminator: JP10</i>	32
3.7	<i>CF Master / Slave selector: JP11</i>	33
3.8	<i>SSD Memory Add. Selector: JP12</i>	33
3.9	<i>Watch Dog Timer output selector: JP13</i>	34
3.10	<i>Reserved connector: JP14</i>	34
3.11	<i>DDC Selector: JP16/JP17</i>	34
4.	CPU Card Resources	35
4.1	<i>Interrupters</i>	35
4.2	<i>Memory Map</i>	35
4.3	<i>I/O Map</i>	36
4.4	<i>DMA Channel</i>	37
5.	Software Utilities	39
5.1.	<i>Driver for Intel 815e chipset</i>	39
5.2.	<i>LAN Driver</i>	40
5.3.	<i>AUDIO Driver</i>	41

5.4.	<i>Watch-Dog-Timer (WDT) Setting</i>	42
6.	BIOS Setup	43
6.1.	<i>Introduction</i>	43
6.2.	<i>Standard CMOS Setup</i>	47
6.3.	<i>BIOS Features Setup</i>	50
6.4.	<i>Chipset Features Setup</i>	54
6.5.	<i>Integrated Peripherals</i>	58
6.6.	<i>Power Management Setup</i>	63
6.7.	<i>PnP/PCI Configuration Setup</i>	68
6.8.	<i>PC Health Status</i>	71
6.9.	<i>Frequency/Voltage Control</i>	72
6.10.	<i>Defaults Menu</i>	74
6.11.	<i>Supervisor/User Password Setting</i>	74
6.12.	<i>Exit Selecting</i>	75
6.13.	<i>POST Messages</i>	76
6.14.	<i>POST Beep</i>	76
6.15.	<i>Error Messages</i>	76
6.16.	<i>POST Codes</i>	81
7.	Accessories	89

1. Introduction

1.1 Specification

- **Processor:** Ultra-Low Voltage Intel Celeron
 - SPI-8150-LVA: 400MHz
 - SPI-8151-LVA: 650MHz
- **Form Factor:** PICMG bus
- **Chipset:** Intel 815e Chipset includes GMCH (Graphics and Memory Controller Hub), ICH2 (I/O Controller Hub) and FWH (Firm Ware Hub)
- **Cache Size:** 256KB L2 cache is integrated in the Celeron CPU
- **Memory(Option):** Up to 512MB SDRAM (PC-100), ECC not support.
- **Memory Sockets:** Two 168-pin DIMM sockets for SDRAM in 16MB, 32MB, 64MB, 128MB, 256MB and 512MB configurations.
- **BIOS:** Award BIOS, PnP support
 - ◆ Flash EEPROM (256KB) for BIOS update
 - ◆ Power management
 - ◆ Frequency / Voltage control
- **Bus Speed:** 100MHz
- **Multi I/O:** Winbond W83627 chipset (LPC revision 1.0)
- **Parallel port:** One high-speed parallel port, SPP/EPP/ECP mode
- **Series Port:** Two 16550 UART port, COM2 is RS-232/422/485 configurable.
- **Enhanced IDE:** Two EIDE port, up to 4 IDE devices *1, support Ultra DMA 33/66/100
- **FDD Interface:** Two floppy drives (360KB, 720KB, 1.2MB, 1.44MB, 2.88MB)
- **USB Interface:** Two box-header support 4 USB v1.1 ports
- **Watchdog Timer:** Software programmable 15 levels, Reset or NMI (Jumper selectable)
- **IrDA:** One 1x6 Pin-header

- **Keyboard / Mouse connector:** One PS/2 keyboard/Mouse MiniDIN 6-pinsconnector and one 5-pins box-header for external keyboard
- **VGA/LCD Connector:** DVI interface *2
- **Audio:** Support AC97 Codec integrated in ICH2.
- **LAN1:** Intel ICH2 integrated with Intel 82562ET chipset
 - ♦ Wake On LAN support
- **LAN2:** Intel 82551 LAN controller
 - ♦ Wake On LAN support
- **SSD Socket :** DIP socket supports DiskOnChip flash disks (2MB - 144MB)
- **CF Slot :** Slot supports Compact Flash card (Power +5V, PCMCIA-ATA standard, TypeI/II type card correspondence). Connecting to the Secondary IDE.
- **RTC:** battery backup by Lithium Battery (CR2450)
 - ♦ The clock is accurate to ± 3 minutes/month at 25°C.
 - ♦ The coin type Lithium battery specification is shown in table

Model	CR2450
Nominal Voltage	3V
Nominal Capacity	620mAh
Nominal Weight	6.3g

* The maximum using duration of CR2450 Battery is over 8 years at 20°C.

- **Operating System Support:**

Windows XP Professional/ Home Edition
Windows 2000 Professional
Windows 98SE
Windows NT Workstation 4.0 *3

- *1 The number of drives includes a CF card inside the CF slot.
- *2 The interface can connect to a CONTEC Panel Link input type display (using an optional cable) or an ordinary analog RGB input display (using the bundled DVI-analog RGB adapter).
- *3 USB is not supported.

1.2 Mechanical & Environmental

- POWER CONSUMPTION :
 - ◆ +5VDC \pm 5 %
SPI-8150-LLVA (Celeron 400 MHz) : 4.2A max.
SPI-8151-LLVA (Celeron 650 MHz) : 6.0A max.
 - ◆ +5VSB \pm 5 % (Only at the time of ATX power supply use):
0.3A max.
 - ◆ +12VDC \pm 5 % (Only the power supply of the fan connector)
A necessary current depends on the fan that uses.
- OPERATING TEMPERATURE: 0 to 60 °C.
- STORAGE TEMPERATURE: -40 to 80 °C.
- HUMIDITY: 10% to 90%RH (non-condensing)
- BOARD DIMENSION: 338mm(L) X 122mm(H) / 13.3 inch X 4.8 inch.
- BOARD WEIGHT: 414.5g

1.3 Check List

Please check that your package is complete and contains the items below. If you discover damaged or missing items, please contact your dealer.

- The SPI-8150-LLVA and SPI-8151-LLVA Industrial PICMG CPU board
- This User's Manual & Registration Card
- One CD-ROM
- One IDE 40pin Ribbon Cables
- One IDE 80Pin Ribbon Cables
- One Floppy Ribbon Cable
- One mounting bracket attached with 2 serials ports ribbon cables
- One mounting bracket attached with 1 parallel port ribbon cable
- One mounting bracket attached with audio jacks ribbon cable
- One 6 pin mini-DIN cable (2 in 1 cable for PS2 Mouse & Keyboard functions)
- One DVI-Analog RGB conversion adapter
- Jumper Short Pin: 6 pcs

1.4 Description

The SPI-8150/1-LLVA is a PICMG standard Industrial CPU board based on Intel 815e chipset and is fully designed for harsh industrial environment. It features with Intel's Ultra-Low Voltage Mobile 400/650MHz processor. This card accommodates up to 512MB of SDRAM memory.

The SPI-8150/1-LLVA comes with onboard CPU temperature sensor to protect your processor from overheating (Winband W83627 chipset). Wired for Management (WFM) 2.0 specification compliance.

The SPI-8150/1-LLVA has two LAN connectors that use Intel ICH2 integrated with Intel 82562ET (AOL & 10/100) controller and Intel's chipset 82551.

The SPI-8150/1-LLVA has a DVI connector supports VGA/LCD which accepts a digital graphics input signal.

1.5 Power Management Features

Overview

- SMRAM space remapping to A0000h (128KB)
- Optional Extended SMRAM space above 256MB, additional 512KB, 1MB TSEG from Top of Memory, cacheable
- Stop Clock Grant and Halt special cycle translation from the host to the hub interface
- ACPI Compliant power management
- APIC Buffer Management
- SMI, SCI, and SERR error indication

Specifications Supported

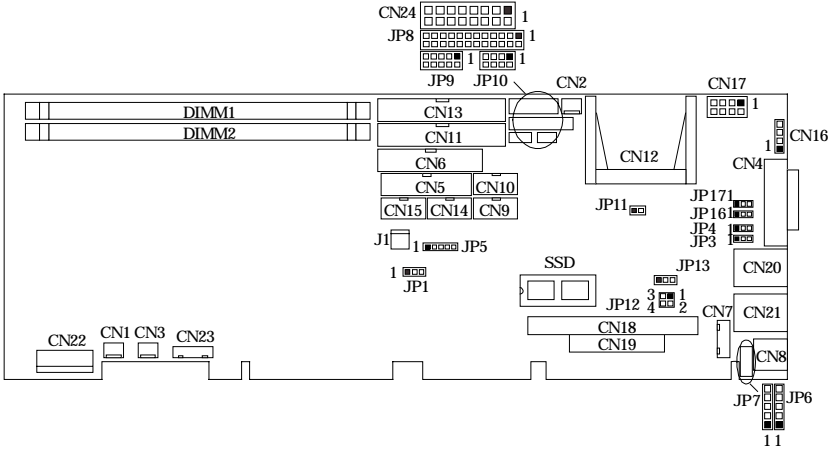
- APM rev. 1.2
- ACPI Rev. 1.0
- PCI Power Management, Rev. 1.0
- PC 99 System Design Guide, Rev. 1.0

1.6 Power Requirements

Your system requires a clean, steady power source for reliable performance of the high frequency CPU on the SPI-8150/1-LLVA Industrial CPU card, the quality of the power supply is even more important. For the best performance make sure your power supply provides a range of 4.75 volts minimum to 5.25 volts maximum DC power source.

- Rise time for power supply: 2 ms to 20 ms

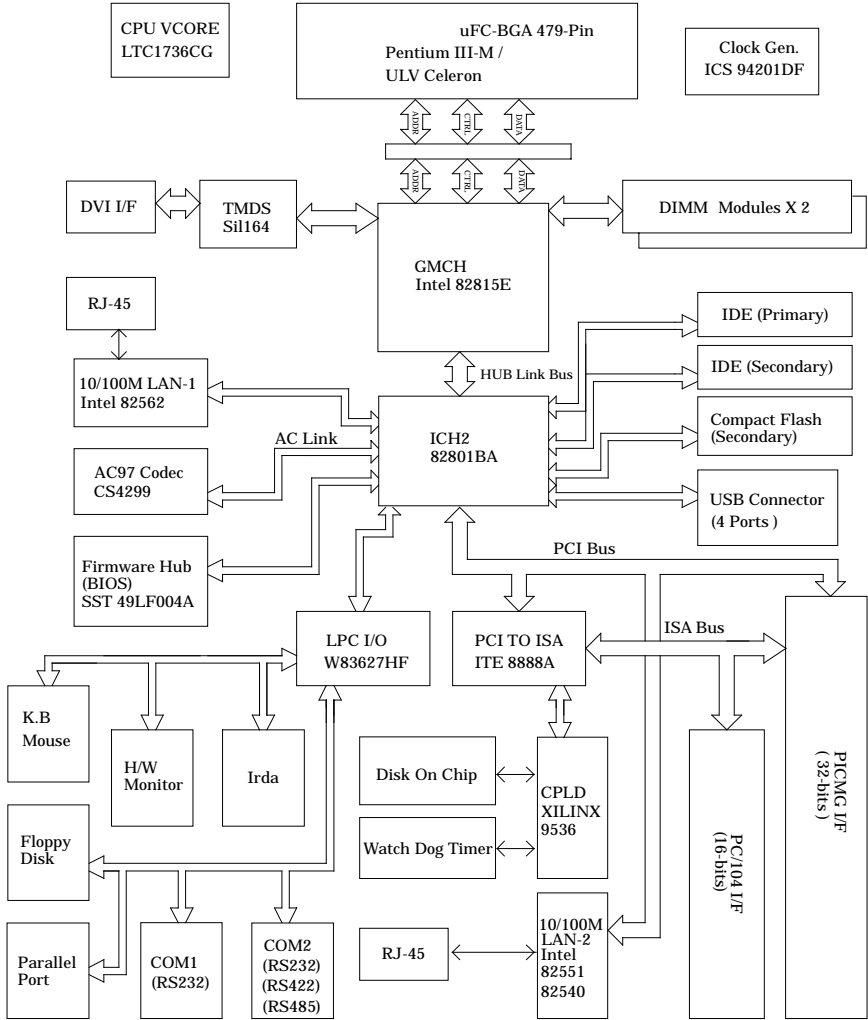
1.7 Connector & Jumper Location



Connector	Function
DIMM1 / 2	DIMM Socket
CN1	FAN1 Connector(+12V Power)
CN2	FAN2 Connector(+12V Power)
CN3	FAN3 Connector(+5V Power)
CN4	DVI Connector
CN5	Parallel Port Connector
CN6	Floppy Disk Connector
CN7	Ext. Keyboard Connector
CN8	Keyboard/Mouse Connector
CN9	Serial Port Connector(COM1)
CN10	Serial Port Connector(COM2)
CN11	Primar IDE Connector
CN12	Compact Flash Slot
CN13	Secondary IDE Connector
CN14, CN15	USB Connector
CN16	CD Audio Connector
CN17	AC97 Sound Connector
CN18, CN19	PC/104 Connector
CN20	LAN1 Connector
CN21	LAN2 Connector
CN22	Power Connector
CN23	ATX Control Connector
J1	Ext. Battery Connector
SSD	Disk On Chip Socket

Jumper	Function
JP1	Clear CMOS Content
JP3, JP4	Reserved (Use with default)
JP5	IrDA Connector
JP6, JP7	Keyboard/Mouse Signal Selector
JP8, JP9	RS-232/422/485 Selector
JP10	RS-422/485 Terminator
JP11	CF Master/Slave Selector
JP12	SSD Memory Add. Selector
JP13	Watch Dog Timer Output Selector
JP14	Reserved Connector
JP16, JP17	DDC Selector

1.8 Block Diagram



2. Hardware Installations

This chapter provides information on how to use the jumpers and connectors on the SPI-8150/1-LLVA in order to set up a workable system.

2.1 Installation procedure

- 2.1.1 Confirm the power supply is off.
- 2.1.2 Insert the DRAM module with correct orientation.
- 2.1.3 Insert all external cables except for flat panel. (Hard disk, floppy, keyboard, Mouse, LAN, etc.)
- 2.1.4 Prepare a CRT monitor for CMOS setup.
- 2.1.5 Turn on the power.
- 2.1.6 Enter the BIOS setup mode by pressing 'Del' key during boot up.
- 2.1.7 Use the "Load BIOS Optimal Defaults" feature.
- 2.1.8 Configure the *Peripheral Setup* and the *Standard Setup* correctly.

Note: The CMOS memory may be in an undefined state at power-on after a period of no battery backup.

2.2 Main Memory Installation: DIMM1 / DIMM2

The SPI-8150/1-LLVA Industrial CPU Card supports two dual inline memory module (DIMM 168-pin) sockets for a maximum total memory of 512MB. Using the serial presence detect (SPD) data structure, programmed into an E²PROM on the DIMM, the BIOS can determine the SDRAM's size and speed. Minimum memory size is 16MB; maximum memory size is 512MB. Memory size and speed can vary between sockets.

The CPU card supports the following memory features:

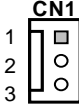
- 168-pin DIMMs with gold-plated contacts
- 100MHz SDRAM
- Non-ECC DIMMs
- 3.3V memory only
- Unbuffered single or double-sided DIMMs in the following sizes:

DIMM size	Non-ECC configuration
16MB	2Mbit x 64
32MB	4Mbit x 64
64MB	8Mbit x 64
128MB	16Mbit x 64
256MB	32Mbit x 64
512MB	64Mbit x 64

*Note: All memory components and DIMMs used with the SPI-8150/1-LLVA CPU card must comply with the PC SDRAM Specification. These include: the PC SDRAM Specification *memory component specific), the PC Unbuffered DIMM Specification, and the PC Serial Presence Detect Specification.*

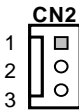
2.3 FAN1 Connector: CN1

CN1 is a 3-pins box-header for the cooling fan power connector. The fan must be a 12V fan. Pin 3 is for Fan speed sensor input.

		PIN No.	Function	Connector type for Cable
1		1	GND	Housing: 5102-03 (molex) Contact: 5103 (molex)
2		2	POWER(+12V)	
3		3	FAN	

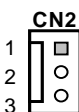
2.4 FAN2 Connector: CN2

CN2 is a 3-pins box-header for the cooling fan power connector. The fan must be a 12V fan. Pin 3 is for Fan speed sensor input.

		PIN No.	Function	Connector type for Cable
1		1	GND	Housing: 5102-03 (molex) Contact: 5103 (molex)
2		2	POWER(+12V)	
3		3	FAN	

2.5 FAN3 Connector: CN3

CN3 is a 3-pins box-header for the cooling fan power connector. The fan must be a 5V fan.

		PIN No.	Function	Connector type for Cable
1		1	GND	Housing: 5102-03 (molex) Contact: 5103 (molex)
2		2	POWER(+5V)	
3		3	N.C.	

2.6 DVI Connector: CN4

CN4 is a DVI connector LCD / CRT displays. The following shows the pin assignments of this connector.

You can use it to connect a CRT (even a DB-15 connector is acceptable by using the bundled DVI-analog RGB adapter) or a CONTEC Panel Link display.

Connector		CN4 DVI-I 29pin			
Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	DATA2-	13	N.C.	C1	RED
2	DATA2+	14	+5V	C2	GREEN
3	DATA2 SHIELD	15	GND	C3	BLUE
4	N.C.	16	HPD	C4	HSYNC
5	N.C.	17	DATA0-	C5	GND
6	DDC CLK	18	DATA0+		
7	DDC DATA	19	DATA0 SHIELD		
8	VSYNC	20	TXD		
9	DATA1-	21	RXD		
10	DATA1+	22	DATA0 SHIELD		
11	DATA1 SHIELD	23	CLK+		
2	N.C.	24	CLK-		

2.7 Parallel Port Connector: CN5

The parallel port bracket can be used to add an additional parallel port for additional parallel devices. There are four options for parallel port operation:

- Compatible (Standard mode)
- Bi-Directional (PS/2 compatible)
- Bi-Directional EPP. A driver from the peripheral manufacturer is required for operation.
- Bi-Directional High-speed ECP

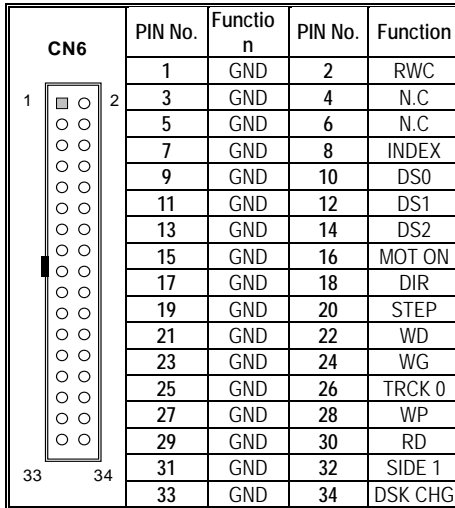
	PIN No.	Function	PIN No.	Function
	1	STROBE	2	ALF
	3	PD0	4	ERROR
	5	PD1	6	INIT
	7	PD2	8	SLCT IN
	9	PD3	10	GND
	11	PD4	12	GND
	13	PD5	14	GND
	15	PD6	16	GND
	17	PD7	18	GND
	19	ACK	20	GND
	21	BUSY	22	GND
	23	PE	24	GND
	25	SLCT	26	N.C

2.8 Floppy Disk Connector: CN6

The floppy interface can be configured for the following floppy drive capacities and sizes:

- 360 KB, 5.25-inch
- 1.2 MB, 5.25-inch
- 720 KB, 3.5-inch
- 1.25/1.44 MB, 3.5-inch
- 2.88 MB, 3.5-inch

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives.

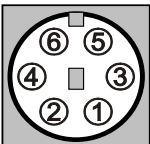


2.9 EXT. Keyboard Connector: CN7

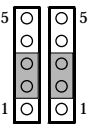
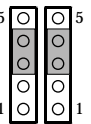
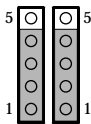
CN7		PIN No.	Function	Housing: XHP-5(JST) Contact: SXH-001T-P06 (JST)
5	○	5	+5V	
4	○	4	GND	
3	○	3	N.C	
2	○	2	KB DATA	
1	□	1	KB CLOCK	

2.10 Keyboard / Mouse Connector: CN8

The CPU card provides a standard PS/2[®] keyboard/mouse connector for attaching a PS/2[®] keyboard/mouse. You can plug a PS/2[®] mouse or keyboard cable directly into PS2 connector by jumper setting or 1 to 2 cable to connection .

CN8		PIN No.	Function
		1	KB or MS Data
		2	MS or KB Data
		3	GND
		4	+5VSB
		5	KB or MS Clock
		6	MS or KB Clock

Jumper setting table for JP6, JP7

CN8	Plug Keyboard	Plug PS/2 Mouse	Plug Keyboard & Mouse* (2 in 1 cable to connection)
JP6 JP7	JP7 JP6 	JP7 JP6 	JP7 JP6 

*Manufactory Default: Plug Keyboard & Mouse

2.11 Serial Port connector: CN9 / CN10

COM1 and COM2 are 10-pins box-header, are onboard serial ports of the CPU card SPI-8150/1-LLVA. The following table shows the pin assignments of these connectors.

CN9: COM1 CN10: COM2

PIN	RS-232	RS-422*	RS-485*
	1	DCD	TX-
2	RXD	TX+	TX+
3	TSD	RX+	RX+
4	DTR	RX-	RX-
5	GND	GND	GND
6	DST	RTS-	N.C
7	RTS	RTS+	N.C
8	CTS	CTS+	N.C
9	RI	CTS-	N.C
10	N.C	N.C	N.C

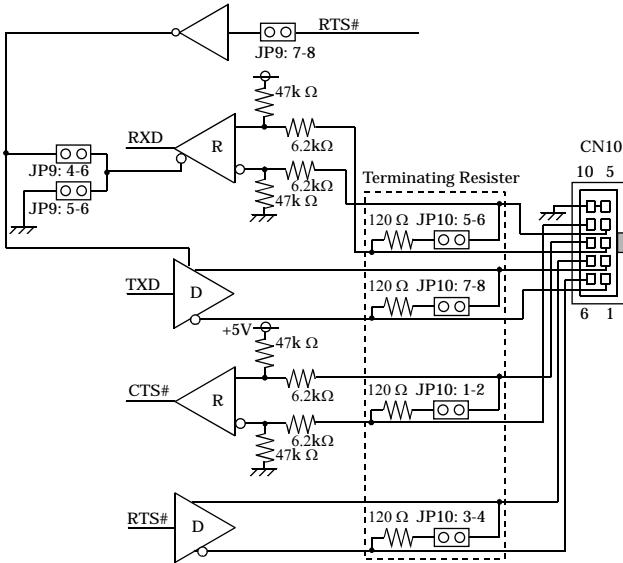
* RS422/485 assigned for COM2 connector only

Note:

- For RS-485, TX+(pin 2) and RX+ (pin 3) must jumper together inside the D type connector.
- TX- (pin 1) and RX- (pin 4) is the same.

2.11.1 RS-422 / RS-485 specifications

- Transmission system: Asynchronous, half-/full-duplex serial transmission conforming to RS-422/RS-485
- Baud rate: 19200 to 50bps (programmable)
- Signal extensible distance: 1.2km Max.



2.12 IDE port Connector: CN11 / CN13

CN11:Primary IDE connector CN13:Secondary IDE connector

The CPU card SPI-8150-LLVA provides a bus-mastering PCI IDE interfaces. These interfaces support PIO Mode 3, PIO Mode 4, ATAPI devices (e.g., CD-ROM), and Ultra DMA/33/66/100 synchronous-DMA mode transfers. The BIOS supports logical block addressing (LBA) and extended cylinder head sector (ECHS) translation modes. The BIOS automatically detects the IDE device transfer rate and translation mode.

CN11/CN13		PIN No.	Function	PIN No.	Function
1	○	1	RESET	2	GND
	○	3	D7	4	D8
	○	5	D6	6	D9
	○	7	D5	8	D10
	○	9	D4	10	D11
	○	11	D3	12	D12
	○	13	D2	14	D13
	○	15	D1	16	D14
	○	17	D0	18	D15
	○	19	GND	20	N.C
	○	21	DREQ	22	GND
	○	23	IOW	24	GND
	○	25	IOR	26	GND
	○	27	IORDY	28	ALE
	○	29	DACK	30	GND
	○	31	IRQ	32	N.C.
	○	33	A1	34	PDIAG
	○	35	A0	36	A2
	○	37	CS0	38	CS1
	○	39	HD ACT	40	GND

2.13 Compact Flash Slot : CN12

The CPU card SPI-8150/1-LLVA provides a CompactFlash interfaces. This interface is a very small removable mass storage device. It provide compatibility plus TrueIDE functionality compatible with ATA/ATA-4.

This slot is connected to the Secondary IDE port. And the CF card works as the Secondary IDE drive. When this slot is used, only 1 drive is able to connect to the Secondary IDE connector(CN13). The Master/Slave selection of this slot with JP11.

CN12		PIN No.	Function	PIN No.	Function
	1	1	GND	2	D3
	2	3	D4	4	D5
	3	5	D6	6	D7
	4	7	CS0	8	A102
	5	9	ATASEL#	10	A092
	6	11	A082	12	A072
	7	13	VCC(+5V)	14	A062
	8	15	A052	16	A042
	9	17	A032	18	A02
	10	19	A01	20	A00
	11	21	D0	22	D1
	12	23	D2	24	N.C.
	13	25	CD2#	26	CD1#
	14	27	D111	28	D121
	15	29	D131	30	D141
	16	31	D151	32	CS11
	17	33	VS1#	34	IOR
	18	35	IOW	36	WE3#
	19	37	INTQ	38	VCC(+5V)
	20	39	CSEL#	40	VS2
	21	41	RESET	42	IORDY
	22	43	INPACK	44	REG3#
	23	45	DASP#	46	PDIAG
	24	47	D081	48	D091
	25	49	D101	50	GND

2.14 USB Connector: CN14 / CN15

The Universal Serial Bus (USB) that allows plug and play computer peripherals such as keyboard, mouse, joystick, scanner, printer, modem/ISDN, CD-ROM and floppy disk drive to be automatically detected when they are attached physically without having to install drivers or reboot.

The USB connectors allow any of several USB devices to be attached to the computer. Typically, the device driver for USB devices is managed by the operating system. However, because keyboard and mouse support may be needed in the Setup program before the operating system boots, the BIOS supports USB keyboards and mice.

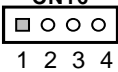
The CPU card has four USB ports; one USB peripheral can be connected to each port. For more than four USB devices, an external hub can be connected to either port. The four USB ports are implemented with stacked back panel connectors. The CPU card fully supports the universal host controller interface (UHCI) and uses UHCI-compatible software drivers.

Note: Computer systems that have an unshielded cable attached to a USB port may not meet FCC Class B requirements, even if no device or a low-speed USB device is attached to the cable. Use shielded cable that meets the requirements for full-speed devices.

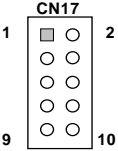
CN14 / CN15		PIN No.	Function	PIN No.	Function
1	□	1	OC1#	2	OC0#
3	○	3	USBP1-	4	USBP0-
5	○	5	USBP1+	6	USBP0+
7	○	7	USB-GND	8	USB-GND
9	○	9	GND	10	GND

2.15 CD Audio connector: CN16

This connector is used to connect CD Audio cable from CD-ROM or DVD drive to onboard sound.

 <p style="text-align: center;">CN16</p> <p style="text-align: center;">1 2 3 4</p>	PIN No.	Function
	1	L
	2	GND
	3	GND
	4	R

2.16 AC97 Sound connector: CN17

 <p style="text-align: center;">CN17</p> <p style="text-align: center;">1 2</p> <p style="text-align: center;">9 10</p>	PIN No.	Function	PIN No.	Function
	1	LINE-OUT-R	2	LINE-OUT-L
	3	GND	4	N.C.
	5	MICPWR	6	MICIN
	7	GND	8	GND
	9	LINE-IN-R	10	LINE-IN-L

2.17 PC/104 Connector: CN18 / CN19

The PC/104 expansion bus let you attach PC/104 modules. The PC/104 bus is already become the industrial embedded PC bus standards. The pin assignments are as follows:

C N 1 8							
1						32	
33						64	
	65				84		
	85				104		
C N 1 9							
Pin #	Signal	Pin #	Signal	Pin #	Signal	Pin #	Signal
1	IOCHK#	27	SA4	53	IRQ7	79	SD11
2	SD7	28	SA3	54	IRQ6	80	SD12
3	SD6	29	SA2	55	IRQ5	81	SD13
4	SD5	30	SA1	56	IRQ4	82	SD14
5	SD4	31	SA0	57	IRQ3	83	SD15
6	SD3	32	NC	58	DACK2#	84	GND
7	SD2	33	GND	59	TC	85	GND
8	SD1	34	RSTDRV	60	BALE	86	MEMCS16#
9	SD0	35	VCC	61	VCC	87	IOCS16#
10	IOCHRDY	36	IRQ9	62	ISA_OS C	88	IRQ10
11	AEN	37	-5V	63	GND	89	IRQ11
12	SA19	38	DREQ2	64	GND	90	IRQ12
13	SA18	39	-12V	65	GND	91	IRQ15
14	SA17	40	ZWS#	66	SBHE#	92	IRQ14
15	SA16	41	+12V	67	LA23	93	DACK0#
16	SA15	42	GND	68	LA22	94	DREQ0
17	SA14	43	SMEMW#	69	LA21	95	DACK5#
18	SA13	44	SMEMR#	70	LA20	96	DREQ5
19	SA12	45	IOW#	71	LA19	97	DACK6#
20	SA11	46	IOR#	72	LA18	98	DREQ6
21	SA10	47	DACK3#	73	LA17	99	DACK7#
22	SA9	48	DREQ3	74	MEMR#	100	DREQ7
23	SA8	49	DACK1#	75	MDMW#	101	VCC
24	SA7	50	DREQ1	76	SD8	102	MASTER
25	SA6	51	REFRESH#	77	SD9	103	GND
26	SA5	52	SYSCLK	78	SD10	104	GND

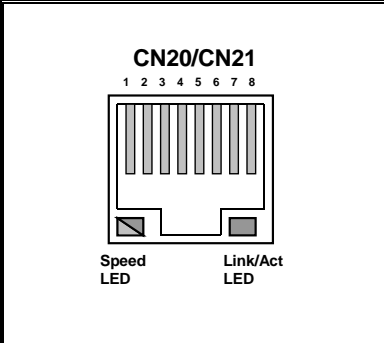
2.18 LAN connector : CN20/CN21

This connector is for the LAN adapter that has LED indicate the 10/100Mbps transfer rate / Link / Act status of Ethernet capability of the CPU card. The follow table shows the pin assignments of this connector.


- The category-5 cable is required for transmission at 100Mbps.

SPEED LED: Green 100Mbps, without light 10Mbps

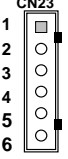
Link/Act LED: Orange LED on Link, Brink Act

 <p style="text-align: center;">CN20/CN21</p> <p style="text-align: center;">1 2 3 4 5 6 7 8</p> <p style="text-align: center;">Speed LED Link/Act LED</p>	PIN No.	Function
	1	TX+
	2	TX-
	3	N.C
	4	GND
	5	GND
	6	N.C
	7	RX+
	8	RX-

2.19 Power connector: CN22

CN22	PIN No.	Function
	1	N.C.
	2	+5V
	3	+12V
	4	-12V
	5	GND
	6	GND

2.20 Standby power connector: CN23

CN23	PIN No.	Function
	1	N.C.
	2	GND
	3	Power BTN
	4	GND
	5	PS-ON#
	6	5VSB

2.21 Front Panel Connector: CN24

This header can be connected to a front panel power switch. The front panel connector includes headers for these I/O connections:

Power switch

This header can be connected the power on switch when ATX power supply use.

Power LED

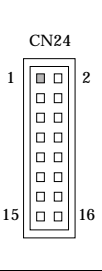
This header can be connected to an LED that will light when the computer is powered on. And this LED can blink for into suspend mode.

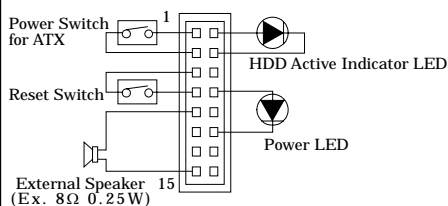
HDD LED

This header can be connected to an LED to provide a visual indicator that data is being read from or written to an IDE hard drive. For the LED to function properly, the IDE drive must be connected to the onboard IDE controller.

Speaker

The external speaker can be installed on the SPI-8150/1-LLVA as a option. The external speaker is enabled by a jumper on pins 9, 11, 13, 15 of the front panel connector. The speaker (onboard or external) provides error beep code information during the POST in the event that the computer cannot use the video interface.



	Pin No.	Sign name	Pin No.	Sign name
	1	Power BT	2	VCC
	3	GND	4	IDE ACT
	5	RESET	6	N.C.
	7	GND	8	VCC
	9	VCC	10	VCC
	11	GND	12	GND
	13	GND	14	N.C.
	15	BUZZER	16	N.C.
	Speaker	9, 11, 13, 15	Power Button	1, 3
	Reset Button	5, 7	HDD LED	2, 4
	Power LED	8, 10, 12		





3. Jumper Setting

3.1 Clear CMOS Content: JP1

The time, date, and CMOS values can be specified in the Setup program. The CMOS values can be returned to their defaults by using the Setup program. The RAM data contains the password information is powered by the onboard button cell battery. User can erase the CMOS memory content by short pin2 and pin3 of JP1 together.

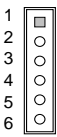
JP1	Function
 <p>JP1 1 2 3</p>	Normal Operation (Default)
 <p>JP1 1 2 3</p>	Clear CMOS Content

3.2 Reserved jumper: JP3 / JP4

JP3 / JP4	Function
 <p>JP3 / JP4 1 2 3</p>	Default
 <p>JP3 / JP4 1 2 3</p>	Do not setting

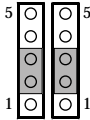
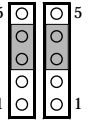
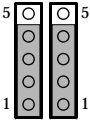
3.3 IrDA Connector: JP5

There are six pins that support Hewlett Packard HSDL-1000 compatible infrared (IR) transmitters and receivers. In the Setup program, COM2 can be directed to a connected IR device. (In this case, the serial COM2 connector cannot be used.) The IR connection can be used to transfer files to or from portable devices like laptops, PDAs, and printers. The Infrared Data Association (IrDA) specification supports data transfers of 115 Kbit/sec at a distance of 1 meter.

JP5	PIN No.	Function
	1	IRTX
	2	GND
	3	IRRX
	4	NC
	5	VCC
	6	VCC3

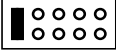
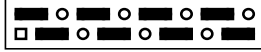




3.4 Key/Mouse signal selector: JP6 / JP7

This jumper setting in accordance with the connection to CN8. Jumper.

CN8	Plug Keyboard	Plug PS/2 Mouse	Plug Keyboard & Mouse* (2 in 1 cable to connection)
	<p>JP7 JP6</p> 	<p>JP7 JP6</p> 	<p>JP7 JP6</p> 

*Manufactory Default: Plug Keyboard & Mouse

3.5 RS-232/422/485 Selector: JP8 & JP9

<p>RS-232 (Default)</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>JP9</p> <p>2 4 6 8 10</p>  <p>1 3 5 7 9</p> </div> <div style="text-align: center;"> <p>JP8</p> <p>2 4 6 8 10 12 14 16 18 20 22 24</p>  <p>1 3 5 7 9 11 13 15 17 19 21 23</p> </div> </div>
<p>RS-422</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>JP9</p> <p>2 4 6 8 10</p>  <p>1 3 5 7 9</p> </div> <div style="text-align: center;"> <p>JP8</p> <p>2 4 6 8 10 12 14 16 18 20 22 24</p>  <p>1 3 5 7 9 11 13 15 17 19 21 23</p> </div> </div>
<p>RS-485</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>JP9</p> <p>2 4 6 8 10</p>  <p>1 3 5 7 9</p> </div> <div style="text-align: center;"> <p>JP8</p> <p>2 4 6 8 10 12 14 16 18 20 22 24</p>  <p>1 3 5 7 9 11 13 15 17 19 21 23</p> </div> </div>
<ol style="list-style-type: none"> 1. For RS-485, TX+(pin 2) and RX+ (pin 3) must jumper together inside the D type connector. 2. TX- (pin 1) and RX- (pin 4) is the same. 	

Transmit date control in half-duplex mode

In half-duplex mode, the transmission buffer must be controlled to prevent transmit data from causing a collision. The SPI-8150/1-LLVA uses the RTS signal and bit 1 in the modem control register to control transmit data.

Modem control register

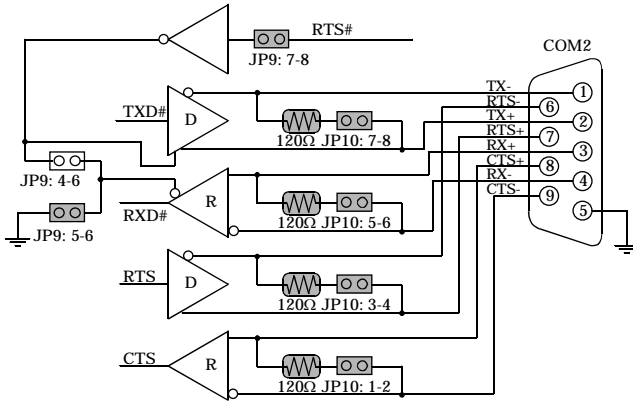
(Setting I/O address +4H) bit 1: 0 ... RTS High (Disables transmission)

1 ... RTS low (Enables transmission)

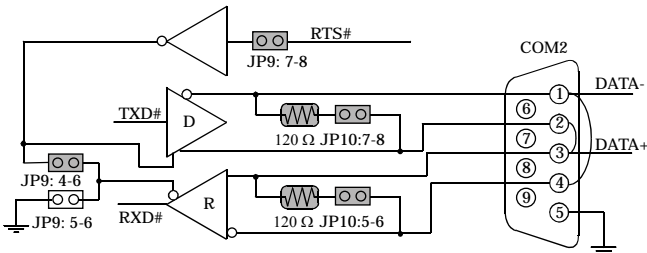
Setting the RS-422/RS-485 receiver disable control jumper

When the RS-422/RS-485 port is used, the RTS signal is used for driver enable control. Connecting JP9 Pins 4-6 set to OFF disables the receiver at the same time, preventing the port from receiving output data to an external device.

3.5.1 RS-422 Setting



3.5.2 RS-422 Setting








I/O addresses and instructions

The table below lists I/O addresses for use as COM2.



I/O address	DLAB	Read/Write	Register	
02F8H	0	W	Transmitter holding Register	THR
		R	Receiver buffer Register	RBR
	1	W	Divisor latch Register (LSB)	DLL
02F9H	1	W	Divisor latch Register (MSB)	DLM
	0	W	Interrupt enable Register	IER
02FAH	X	R	Interrupt ID Register	IIR
02FBH	X	W	Line control Register	LCR
02FCH	X	W	Modem Control Register	MCR
02FDH	X	R	Line status Register	LSR
02FEH	X	R	Modem Status Register	MSR
02FFH	X	R/W	Scratch Register	SCR

3.6 RS-422/485 Terminator: JP10

JP10	Terminator	Function
 <p>JP10 1 ○ 2 3 ○ 4 5 ○ 6 7 ○ 8</p>	-	No terminating resistor (Default)
 <p>JP10 1 ○ 2 ■ 3 ○ 4 5 ○ 6 7 ○ 8</p>	CTS for RS-422	terminating resistor provided
 <p>JP10 1 ○ 2 3 ■ 4 5 ○ 6 7 ○ 8</p>	RTS for RS-422	terminating resistor provided
 <p>JP10 1 ○ 2 3 ○ 4 5 ■ 6 7 ○ 8</p>	RXD for RS-422/485	terminating resistor provided
 <p>JP10 1 ○ 2 3 ○ 4 5 ○ 6 7 ■ 8</p>	TXD for RS-422/485	terminating resistor provided





3.7 CF Master / Slave selector: JP11

The Master/Slave selection of the Compact Flash slot(CN12).

JP11	Function
 JP11 1 2	Set to Master (Default)
 JP11 1 2	Set to Slave

3.8 SSD Memory Add. Selector: JP12



JP12 is used for memory address selection of DiskOnChip. Below are 4 kinds of DiskOnChip memory address configuration.

JP12	Function
 JP12 3 1 4 2	0DC000~ 0DDFFFh
 JP12 3 1 4 2	0D8000h~0D9FFFh
 JP12 3 1 4 2	0D4000h~0D5FFFh
 JP12 3 1 4 2	0D0000h~0D1FFFh (Default)

3.9 Watch Dog Timer output selector: JP13







When the watchdog timer activates, setup involves two jumpers. (CPU processing has come to a halt), it can reset the system or generate a NMI.

This can be setting JP13 as shown below:

JP13	Function
 1 2 3	NMI (Default)
 1 2 3	Reset



3.10 Reserved connector: JP14

Do not connect anything with this connector.

JP14	PIN No.	Function
1 	1	+5V
2 	2	TDO
3 	3	TDI
4 	4	TMS
5 	5	TCK
6 	6	GND

3.11 DDC Selector: JP16/JP17

DDC of Analog Display /Digital Display is selected.

JP16,JP17	Function
 1 2 3	DDC for Analog Display
 1 2 3	DDC for Digital Display (Default)

4. CPU Card Resources

4.1 Interrupters

Interrupters

IRQ#	System Resources
NMI	I/O Channel check
0	Reserved(interval Timer)
1	Reserved (Keyboard Controller)
2	Reserved (cascade interrupt from slave PIC)
3	COM2*
4	COM1*
5	LPT2(Plug and Play option)
6	FDD controller
7	LPT1*
8	Real Time Clock
9	User available
10	User available
11	User available
12	Reserved (PS/2 mouse port)
13	Reserved (math Processor)
14	Primary IDE (if present, else user available)
15	Secondary IDE(if present, else user available)

* Default, but can be changed to another IRQ

4.2 Memory Map

Compatibility Area

Address Range (h)	Size	Description
100000 -	511MB	Extended Memory
E8000 - FFFFF	96KB	System BIOS
E0000 - E7FFF	32KB	System BIOS(Available as UMB)
CC000 - DFFFF	80KB	Available high DOS memory(Open to ISA bus)
A0000 - CBFFF	176KB	Video memory and BIOS
00000 - 9FFFF	640KB	Conventional memory

4.3 I/O Map

I/O Map

Address (h)	Size	Description
0000 - 001F	32 bytes	DMA Controller
0020 - 002D	14 bytes	Interrupt Control (PIC)
002E - 002F	2 bytes	Super I/O controller configuration registers
0030 - 003D	14 bytes	Interrupt Control (PIC)
0040 - 0043	4 bytes	System timer 1
0048 - 004B	4 bytes	System timer 2
004E - 004F	2 bytes	Super I/O controller configuration registers
0050 - 0053	4 bytes	Timer/Counter
0060,0062, 0064,0066	4 byte	Keyboard Controller
0061,0063, 0065,0067	4 byte	NMI, speaker control
0064	1 byte	Keyboard controller
0070 - 0077	8 bytes	Real Time Clock Controller
0080 - 009F	32 bytes	DMA page registers
00A0 - 00AD	14 bytes	Interrupt controller 2
00B0 - 00B1	2 bytes	Interrupt controller
00B2 - 00B3	2 bytes	APM control
00B4 - 00BD	10 bytes	Interrupt controller
00C0 - 00DF	32 bytes	DMA controller 2
00F0 - 00FF	16 bytes	Numeric processor
0170 - 0177	8 bytes	Secondary IDE controller
01F0 - 01F7	8 bytes	Primary IDE controller
0274 - 0277	4 bytes	I/O read data port for ISA PnP enumerator
0278 - 027F	8 bytes	LPT2
0295 - 0296	2 bytes	LPC
02E8 - 02EF	8 bytes	COM4
02F8 - 02FF	8 bytes	COM2
0370 - 0377	8 bytes	Secondary IDE channel
0378 - 037F	8 bytes	LPT1
0388 - 038D	6 bytes	Reserved
03B0 - 03BB	12 bytes	Reserved
03BC - 03BF	8 bytes	LPT3
03C0 - 03DF	32 bytes	Video (VGA)
03E8 - 03EF	8 bytes	COM3
03F0 - 03F5, 03F7	8 bytes	FDD controller
03F6	1 byte	Primary IDE channel
03F8 - 03FF	8 bytes	COM1
04D0 - 04D1	2 bytes	Reserved
LPT n + 400h	8 bytes	ECP port, LPT n base address + 400h
0CF8 - 0CFF *1	4 bytes	PCI configuration address register
0CF9 *2	1 byte	Reset control register

*1: Dword access only, *2: Byte access only

Recommendation: x300 - x31F, x700 - x71F, xB00 - xB1F, xF00 - xF1F (x: 0-F)

4.4 DMA Channel

DMA Channel

DMA	Data Width	System Resource
0	8 or 16bit	Reserved
1	8 or 16bit	Reserved (or Parallel port(ECP))
2	8 or 16bit	FDD Driver
3	8 or 16bit	Reserved (or Parallel port(ECP))
4	---	Reserved (Cascade Channel)
5	16bit	Open
6	16bit	Open
7	16bit	Reserved

5.2. LAN Driver

Introduction

The SPI-8150/1-LVA used the Intel ICH2's integrated LAN controller and Intel 82551 LAN controller.

Specifications

- Advanced Configuration and Power Interface (ACPI) 1.20A based power management
- Wake on Magic Packet
- Wake on interesting packet
- Advanced System Management Bus (SMB) based manageability
- Wired for Management (WFM) 2.0 compliance
- IP checksum assist
- PCI 2.2 compliance
- PC98, PC99, and Server 99 compliance.

LAN Drivers

```
+                               ; CD-ROM Root Directory
+---- LAN                       ; Intel(R) LAN Driver
|   (pro2kxp.exe)               ; for Windows 2000 or Windows XP
|   (pro98me.exe)              ; for Windows 98
|   (pront4.exe)                ; for WindowsNT4.0
|
|
|
|
|
|
|
```

5.3. AUDIO Driver

Introduction

The Audio Codec '97 (AC97) specification defines a digital interface can be used to attach an audio codec (AC). The ICH2's AC'97 not only replaces ISA audio and modem functionality, also improves overall platform integration by incorporating the AC'97 digital link.

AUDIO Drivers

```

+                               ; CD-ROM Root Directory
+---- AUDIO                     ; Audio Driver
|   +----Win2kxp                ; for Windows 2000 or Windows XP
|   |   +----WDM
|   |   |   (SETUP.EXE)
|   |   |
|   |   +----Win98              ; for Windows 98
|   |   |   (SETUP.EXE)        ;
|   |   |
|   |   +----Winnt40            ; for WindowsNT4.0
|   |   |   (SETUP.EXE)
|   |
|

```


5.4. Watch-Dog-Timer (WDT) Setting

WDT is widely used for industry application to monitoring the activity of CPU. Application software depends on its requirement to trigger WDT with adequate timer setting. Before WDT time out, the functional normal system will reload the WDT. The WDT never time out for a normal system. The WDT will not be reload by an abnormal system, then WDT will time out and reset the system automatically to avoid abnormal operation.

SPI-8150-LLVA supports 15 levels watchdog timer by software programming I/O ports. Write any value to I/O address 0441H will disable Watch-Dog-Timer. Write setting code (please reference to WDT Setting Table) to I/O 0443h will re-load WDT.

Below is an assembly program example for disable and load of WDT.

```
MOV DX,0441H REM Write any value to 0441H, disable WDT
OUT DX,AX;
MOV AX,0001H REM set WDT timer = 28 Sec
MOV DX,0443H
OUT DX,AX REM trigger WDT with timer setting
```

VALUE	TIMER	VALUE	TIMER	VALUE	TIMER	VALUE	TIMER
0	30 Sec.	4	22 Sec.	8	14 Sec.	C	6 Sec.
1	28 Sec.	5	20 Sec.	9	12 Sec.	D	4 Sec.
2	26 Sec.	6	18 Sec.	A	10 Sec.	E	2 Sec.
3	24 Sec.	7	16 Sec.	B	8 Sec.	F	Don't set

Note: The timer's intervals have a tolerance of $\pm 5\%$.

6. BIOS Setup

6.1. Introduction

This chapter discusses Award's Setup program built into the FLASH ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The rest of this chapter is intended to guide you through the process of configuring your system using Setup.

Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing immediately after switching the system on, or
2. by pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

Press DEL to enter SETUP.

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

Press F1 to continue, DEL to enter SETUP

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the

PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Key	Function
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item on the left (menu bar)
Right Arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

Getting Help

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

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AwardBIOS™ supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

A Final Note About Setup

The information in this chapter is subject to change without notice.

Phoenix - AwardBIOS CMOS Setup Utility	
<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. See section 6.6. for the details.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configuration

This entry appears if your system supports PnP / PCI.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Supervisor / User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Save

Abandon all CMOS value changes and exit setup.

6.2. Standard CMOS Setup

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Standard CMOS Features		
Date (mm:dd:yy)	Thu, Mar 14 2002	Menu Level ▶ Change the day, month, year and century
Time (hh:mm:ss)	14 : 22 : 34	
▶ IDE Primary Master	[None]	
▶ IDE Primary Slave	[None]	
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All , But Keyboard]	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	
↑ --:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Main Menu Selections

This table shows the selections that you can make on the Main Menu

Item	Options	Description
Date	Month DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	HH : MM : SS	Set the system time
IDE Primary Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Secondary Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	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

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive.

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 3 to configure the hard disk.

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 Primary 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 !
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.
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk
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

Function description	Choice
<p>CPU L2 Cache ECC Checking</p> <p>This item allows you to enable/disable CPU L2 Cache ECC checking.</p>	<p>CPU L2 Cache ECC Checking</p> <p>Enabled [] Disabled [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Processor Number Feature</p> <p>This item enables the serial number feature of the Pentium III processor. Select 'Disabled' in case that you do not want to use this feature.</p>	<p>Processor Number Feature</p> <p>Enabled [] Disabled [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Quick Power On Self Test</p> <p>This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.</p>	<p>Quick Power On Self Test</p> <p>Enabled [■] Disabled []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>First / Second / Third / Other Boot Device</p> <p>The BIOS attempts to load the operating system from the devices in the sequence selected in these items.</p>	<p>First Boot Device</p> <p>Floppy [■] LS120 [] HDD-0 [] SCSI [] CDROM [] HDD-1 [] HDD-2 [] HDD-3 [] ZIP100 [] USB-FDD [] USB-ZIP [] USB-CDROM [] USB-HDD [] LAN [] Disabled []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Swap Floppy Drive</p> <p>If the system has two floppy drives, you can swap the logical drive name assignments.</p>	<p>Swap Floppy Drive</p> <p>Enabled [] Disabled [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>

Function description	Choice
<p>Boot Up Floppy Seek</p> <p>If this item is enabled, it checks the geometry of the floppy disk drives at start-up time. You don't need to enable this item unless you have an old diskette drive with 360K capacity.</p>	<pre> Boot Up Floppy Seek ----- Enabled [] Disabled [] ↑↓:Move ENTER:Accept ESC:Abort </pre>
<p>Boot Up NumLock Status</p> <p>If set to "Off", the cursor controls will function on the numeric keypad. The default setting is "On".</p>	<pre> Boot Up NumLock Status ----- Off [] On [] ↑↓:Move ENTER:Accept ESC:Abort </pre>
<p>Gate A20 Option</p> <p>This option accesses memory above 1 MB using the fast gate A20 line when set to "Fast" (default).</p>	<pre> Gate A20 Option ----- Normal [] Fast [] ↑↓:Move ENTER:Accept ESC:Abort </pre>
<p>Typematic Rate Setting</p> <p>Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.</p>	<pre> Typematic Rate Setting ----- Enabled [] Disabled [] ↑↓:Move ENTER:Accept ESC:Abort </pre>
<p>Typematic Rate (Chars/Sec)</p> <p>Sets the number of times a second to repeat a key stroke when you hold the key down.</p>	<pre> Typematic Rate <Chars/Sec> ----- 6 [] 8 [] 10 [] 12 [] 15 [] 20 [] 24 [] 30 [] ↑↓:Move ENTER:Accept ESC:Abort </pre>
<p>Typematic Delay (Msec)</p> <p>Sets the delay time after the key is held down before it begins to repeat the keystroke.</p>	<pre> Typematic Delay <Msec> ----- 250 [] 500 [] 750 [] 1000 [] ↑↓:Move ENTER:Accept ESC:Abort </pre>

Function description	Choice
<p>Security Option</p> <p>Select whether the password is required every time the system boots or only when you enter setup.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Security Option</p> <p>Setup [<input type="checkbox"/>]</p> <p>System [<input type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
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.
<p>Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.</p>	
<p>OS Select For DRAM > 64MB</p> <p>Select the operating system that is running with greater than 64MB of RAM on the system.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>OS Select For DRAM > 64MB</p> <p>Non-OS2 [<input type="checkbox"/>]</p> <p>OS2 [<input type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Report No FDD For Win 95</p> <p>If you are running a system with no floppy drive and using the Windows 95 OS, select “Yes” for this item to ensure compatibility with the Windows 95 logo certification.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Report No FDD For WIN 95</p> <p>No [<input type="checkbox"/>]</p> <p>Yes [<input type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

6.4. Chipset Features Setup

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

		Item Help
SDRAM CAS Latency Time	[3]	Menu Level1 >
SDRAM Cycle Time Tras/Trc	[Auto]	
SDRAM RAS-to-CAS Deley	[Auto]	
SDRAM RAS Precharge Time	[Auto]	
System BIOS Cacheable	[Disabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
CPU Latency Timer	[Enabled]	
Delay Transaction	[Enabled]	
AGP Graphic Aperture Size	[64MB]	
Power Supply Type	[AT]	
On Chip Video Windows Size	[64MB]	

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

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the 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.

Function description	Choice
<p>SDRAM CAS Latency Time</p> <p>You can select CAS latency time in HCLK of 2/2 or 3/3. The system board designer should set the values in this field, depends on the DRAM installed specifications of the installed DRAM or the installed CPU.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>SDRAM CAS Latency Time</p> <hr/> <p>2 []</p> <p>3 [■]</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>SDRAM Cycle Time Tras/Trc</p> <p>This item sets the timing parameters for the system memory such as the Tras and Trc.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>SDRAM Cycle Time Tras/Trc</p> <hr/> <p>7/9 []</p> <p>5/7 []</p> <p>Auto [■]</p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>SDRAM RAS-to-CAS Delay</p> <p>This item sets the timing parameters for the system memory such as the CAS (Column Address Strobe) and RAS (Row Address Strobe).</p>	<div style="border: 1px solid black; padding: 5px;"> <p>SDRAM RAS to CAS Delay</p> <hr/> <p>3 []</p> <p>2 []</p> <p>Auto [■]</p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>SDRAM RAS Precharge Time RAS# Precharge Timing</p> <p>SDRAM must continually be refreshed or it will lose its data. This option allows you to determine the timing for RAS.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>SDRAM RAS Precharge Time</p> <hr/> <p>3 []</p> <p>2 []</p> <p>Auto [■]</p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>System BIOS Cacheable</p> <p>Selecting <i>Enabled</i> allows caching of the system BIOS ROM at F0000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>System BIOS Cacheable</p> <hr/> <p>Disabled [■]</p> <p>Enabled []</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>Video BIOS Cacheable Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.</p>	<p>Video BIOS Cacheable</p> <p>Disabled [<input type="checkbox"/>] Enabled [<input type="checkbox"/>]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Memory Hole At 15M-16M In order to improve performance, certain space in memory can be reserved for ISA card. This memory must be mapped into the memory space below 16MB.</p>	<p>Memory Hole At 15M-16M</p> <p>Disabled [<input type="checkbox"/>] Enabled [<input type="checkbox"/>]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>CPU Latency Timer This item sets a timing parameter for CPU access. Since the CPU timing is determined by the system hardware, leave this item at the default value.</p>	<p>CPU Latency Timer</p> <p>Disabled [<input type="checkbox"/>] Enabled [<input type="checkbox"/>]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Delay Transaction This item sets a timing parameter for CPU access. Since the CPU timing is determined by the system hardware, leave this item at the default value. Delayed Transaction: The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Enable to support compliance with PCI specification version 2.1.</p>	<p>Delayed Transaction</p> <p>Disabled [<input type="checkbox"/>] Enabled [<input type="checkbox"/>]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>AGP Graphics Aperture Size (MB) Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded. Host cycles that hit the aperture range are forwarded to the AGP without any translation.</p>	<p>AGP Graphics Aperture Size</p> <p>64MB [<input type="checkbox"/>] 32MB [<input type="checkbox"/>]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>

Function description	Choice
<p>Power Supply Type This item selects the power-supply type to AT or ATX.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Power-Supply Type</p> <hr/> <p>AT []</p> <p>ATX []</p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>On-Chip Video Window Size This item defines the size of the aperture if you use an AGP graphics adapter. It refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>On-Chip Video Window Size</p> <hr/> <p>64MB [■]</p> <p>Disabled []</p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>

6.5. Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

On Chip Primary PCI IDE	[Enabled]	Item Help
On Chip Secondary PCI IDE	[Enabled]	Menu Level1 >
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
USB Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
Init Display First	[PCI Slot]	
AC97 Audio	[Auto]	
Onboard 551 Lan Active	[Enabled]	
Onboard 562 Lan Active	[Enabled]	
Flash Protect	[Enabled]	
IDE HDD Block Mode	[Enabled]	
Power On Function	[BUTTON ONLY]	
KB Power On Password	[Enter]	
Hot Key Power On	[Ctrl-F1]	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port1	[3F8/IRQ4]	
Onboard Serial Port2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
RXD ,TXD Active	[Hi Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Use IR Pins	[IR-Rx2TX2]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
EPP Mode Select	[EPP1.7]	
ECP Mode Use DMA	[3]	

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

Function description	Choice																
<p>On-Chip Primary/Secondary PCI IDE</p> <p>The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select <i>Enabled</i> to activate each channel separately.</p>	<table border="1"> <tr> <td colspan="2">On-Chip Primary PCI IDE</td> </tr> <tr> <td>Disabled</td> <td>[]</td> </tr> <tr> <td>Enabled</td> <td>[*]</td> </tr> <tr> <td colspan="2">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	On-Chip Primary PCI IDE		Disabled	[]	Enabled	[*]	↑↓:Move ENTER:Accept ESC:Abort									
On-Chip Primary PCI IDE																	
Disabled	[]																
Enabled	[*]																
↑↓:Move ENTER:Accept ESC:Abort																	
<p>IDE Primary / Secondary Master / Slave PIO</p> <p>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.</p>	<table border="1"> <tr> <td colspan="2">IDE Primary Master PIO</td> </tr> <tr> <td>Auto</td> <td>[*]</td> </tr> <tr> <td>Mode 0</td> <td>[]</td> </tr> <tr> <td>Mode 1</td> <td>[]</td> </tr> <tr> <td>Mode 2</td> <td>[]</td> </tr> <tr> <td>Mode 3</td> <td>[]</td> </tr> <tr> <td>Mode 4</td> <td>[]</td> </tr> <tr> <td colspan="2">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	IDE Primary Master PIO		Auto	[*]	Mode 0	[]	Mode 1	[]	Mode 2	[]	Mode 3	[]	Mode 4	[]	↑↓:Move ENTER:Accept ESC:Abort	
IDE Primary Master PIO																	
Auto	[*]																
Mode 0	[]																
Mode 1	[]																
Mode 2	[]																
Mode 3	[]																
Mode 4	[]																
↑↓:Move ENTER:Accept ESC:Abort																	

Function description	Choice
<p>IDE Primary / Secondary Master/Slave UDMA</p> <p>Ultra DMA/33 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, select Auto to enable BIOS support.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>IDE Primary Master UDMA</p> <p>Disabled [] Auto [■]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>USB Controller</p> <p>This should be enabled if your system has a USB installed on the system board and you wish to use it.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>USB Controller</p> <p>Disabled [■] Enabled []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>USB Keyboard Support</p> <p>Disable this function when a PS/2 keyboard is being used. Set to "Enabled" (default) when a USB keyboard is used.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>USB Keyboard Support</p> <p>Disabled [■] Enabled []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Init Display First</p> <p>This item allows you to decide to active whether PCI Slot or on-chip VGA first. This item sets whether the PCI Slot or AGP is activated first.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Init Display First</p> <p>PCI Slot [■] Onboard/AGP []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>AC97 Audio</p> <p>Set these items to "Auto" when you are using the on board AC'97 audio chip. If you are using an audio add-in card, you should disable this item.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>AC97 Audio</p> <p>Auto [■] Disabled []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>Onboard 551 LAN Active Set whether the use of LAN2 is Enabled or Disabled.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Onboard 551 LAN Active</p> <p>Enabled <input checked="" type="checkbox"/></p> <p>Disabled <input type="checkbox"/></p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>Onboard 562 LAN Active Set whether the use of LAN1 is Enabled or Disabled.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Onboard 562 LAN Active</p> <p>Enabled <input checked="" type="checkbox"/></p> <p>Disabled <input type="checkbox"/></p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>Flash Protect Set whether the protect of BIOS is Enabled or Disabled.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Flash Protect</p> <p>Enabled <input checked="" type="checkbox"/></p> <p>Disabled <input type="checkbox"/></p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>
<p>IDE HDD Block Mode This allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive (HDD)</p>	<div style="border: 1px solid black; padding: 5px;"> <p>IDE HDD Block Mode</p> <p>Disabled <input type="checkbox"/></p> <p>Enabled <input checked="" type="checkbox"/></p> <hr/> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Power On Function Set the method of Power On.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Power On Function</p> <p>Password <input type="checkbox"/></p> <p>Hot Key <input type="checkbox"/></p> <p>Mose Left <input type="checkbox"/></p> <p>Mose Right <input type="checkbox"/></p> <p>Any KEY <input type="checkbox"/></p> <p>BUTTON ONLY <input checked="" type="checkbox"/></p> <p>Keyboard 98 <input type="checkbox"/></p> <hr/> <p>↑ ↓ Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>KB Power of Password When the value of "Power On Function" is set to "password", Set your password.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>Enter Password</p> </div>
<p>Onboard FDC Controller Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Onboard FDC Controller</p> <p>Disabled [] Enabled [■]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Onboard Serial Port 1/Port 2 Select an address and corresponding interrupt for the first and second serial ports.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Onboard Serial Port 1</p> <p>Disabled [] 3F8/IRQ4 [■] 2F8/IRQ3 [] 3E8/IRQ4 [] 2E8/IRQ3 [] Auto []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>UART Mode Select Enables you to select the infrared communication protocol: Standard (default) IrDA ASKIR, IrDA is Hewlett Packard's infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to 57.6K bps.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>UART Mode Select</p> <p>IrDA [] ASKIR [] Normal [■]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>RxD, TxD Active Defines the voltage level for Infrared module RxD (receive) mode and TxD (transmit) mode. This setting has to match the requirements of the infrared module used in the system.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>RxD , TxD Active</p> <p>Hi,Hi [] Hi,Lo [■] Lo,Hi [] Lo,Lo []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>IR Transmission Delay When set to "Enabled", utilizes the capability of the Keyboard computer to allow faster infrared transmission rates.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>IR Transmission Delay</p> <p>Disabled [] Enabled [■]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>UR2 Duplex Mode</p> <p>This field is available when UART Mode Select is set to either ASKIR or IrDA. This item enables you to determine the infrared (IR) function of the onboard infrared chip. The options are "Full" and "Half" (default). Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>UR2 Duplex Mode</p> <p>Full [] Half [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Use IR Pins</p> <p>Use this item to set the IR pins. The options are "IR Rx2Tx2" (default) and "RxD2,TxD2".</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Use IR Pins</p> <p>RxD2,TxD2 [] IR-Rx2Tx2 [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Onboard Parallel Port</p> <p>Select a logical LPT port name and matching address for the physical parallel (printer) port</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Onboard Parallel Port</p> <p>Disabled [] 378/1RQ7 [■] 278/1RQ5 [] 3BC/1RQ7 []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Parallel Port Mode</p> <p>Selected an operating mode for the onboard parallel port. Select Compatible or extended unless you are certain both your hardware and software support EPP or ECP mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Parallel Port Mode</p> <p>SPP [■] EPP [] ECP [] ECP+EPP [] Normal []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>EPP Mode Select</p> <p>Sets the EPP specification. There are two options- "EPP 1.7" (default) and "EPP 1.9".</p>	<div style="border: 1px solid black; padding: 5px;"> <p>EPP Mode Select</p> <p>EPP1.9 [] EPP1.7 [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>ECP Mode Use DMA</p> <p>Select a DMA channel for the port</p>	<div style="border: 1px solid black; padding: 5px;"> <p>ECP Mode Use DMA</p> <p>1 [] 3 [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>

6.6. Power Management Setup

The Power Management Setup allows you to configure your 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
Power Management	[Min Saving]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[NA]	
Suspend Mode	[1 Hour]	
HDD Power Down	15 Min	
Soft-Off by PWR-BTN	[Instant-Off]	
Wake-Up by PCI card	[Disabled]	
Power On by Ring	[Enabled]	
CPU Thermal-Throttling	[50.0%]	
Resume by Alarm	[Enabled]	
Date(Month) Alarm	[0]	
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:Ualue  F10:Save  ESC:Exit  F1:General Help
F5: Previous Values  F6: Fail-Safe Defaults  F7: 0 timized Defaults

```

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Standby Mode

Function description	Choice
<p>ACPI Function: When set to "Enabled", turns on the ACPI Function. The default setting is "Enabled".</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">ACPI Function</p> <p>Disabled [] Enabled []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Note: ACPI (Advanced Configuration and Power Interface) is a power management specification that makes hardware status information available to the operating system. ACPI enables a computer to turn its peripherals on and off for improved power management. It also allows the computer to be turned on and off by external devices, so that mouse or keyboard activity wakes up the computer.</p>	
<p>Power Management This setting controls the System Doze Mode, Standby Mode, and Suspend Mode Timer features. This category allows you to select the type (or degree) of power saving and is directly related to the following mode: HDD Power Down Min Saving: Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min. Max Saving: Maximum power management – ONLY AVAILABLE FOR SL CPU's. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min. User Define: Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Power Management</p> <p>User Define [] Min Saving [] Max Saving []</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>Video Off Method</p> <p>This determines the manner in which the monitor is blanked.</p> <p>Blank Screen: This option only writes blanks to the video buffer.</p> <p>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.</p> <p>DPMS: Initial display power management signaling.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Video Off Method</p> <p>Blank Screen []</p> <p>V/H SYNC+Blank []</p> <p>DPMS [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Video Off In Suspend</p> <p>Set this to "Yes" if you want the Video display to turn off during suspend mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Video Off In Suspend</p> <p>No []</p> <p>Yes [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Suspend Type</p> <p>Enables you to select the Suspend type. Options are "Stop Grant" and "PwrOn Suspend".</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Suspend Type</p> <p>Stop Grant [■]</p> <p>PwrOn Suspend []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>MODEM Use IRQ</p> <p>If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to a Keyboard computer Wake On Modem connector for this feature to work.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>MODEM Use IRQ</p> <p>NA [■]</p> <p>3 []</p> <p>4 []</p> <p>5 []</p> <p>7 []</p> <p>9 []</p> <p>10 []</p> <p>11 []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Suspend Mode</p> <p>The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Suspend Mode</p> <p>Disabled []</p> <p>1 Min []</p> <p>2 Min []</p> <p>4 Min []</p> <p>8 Min []</p> <p>12 Min []</p> <p>20 Min []</p> <p>30 Min []</p> <p>40 Min []</p> <p>1 Hour [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>HDD Power Down</p> <p>When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>HDD Power Down</p> <p>Disable [<input type="checkbox"/>]</p> <p>1 Min [<input type="checkbox"/>]</p> <p>2 Min [<input type="checkbox"/>]</p> <p>4 Min [<input type="checkbox"/>]</p> <p>5 Min [<input type="checkbox"/>]</p> <p>6 Min [<input type="checkbox"/>]</p> <p>7 Min [<input type="checkbox"/>]</p> <p>8 Min [<input type="checkbox"/>]</p> <p>9 Min [<input type="checkbox"/>]</p> <p>10 Min [<input type="checkbox"/>]</p> <p>11 Min [<input type="checkbox"/>]</p> <p>12 Min [<input type="checkbox"/>]</p> <p>13 Min [<input type="checkbox"/>]</p> <p>14 Min [<input type="checkbox"/>]</p> <p>15 Min [<input type="checkbox"/>]</p> <p style="text-align: right;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Soft-Off by PWRBTN</p> <p>When set to "Instant-Off" (default), pressing the power button will turn off the system power. When set to "Delay 4 Sec." you have to press the power button and hold it for more than 4 seconds to turn off the system power. Otherwise, the system just goes into suspend mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Soft-Off by PWR-BTIN</p> <p>Instant-Off [<input type="checkbox"/>]</p> <p>Delay 4 Sec. [<input type="checkbox"/>]</p> <p style="text-align: right;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Wake-Up by PCI card</p> <p>When set to "Enabled", the system power will be turned on if the PCI card receives an incoming signal.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Wake-Up by PCI card</p> <p>Disabled [<input type="checkbox"/>]</p> <p>Enabled [<input type="checkbox"/>]</p> <p style="text-align: right;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>Power On by Ring</p> <p>When set to "Enabled," any activity on the Modem port will wake up the system from a power saving mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Power On by Ring</p> <p>Disabled [<input type="checkbox"/>]</p> <p>Enabled [<input type="checkbox"/>]</p> <p style="text-align: right;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>USB KB Wake-Up From S3</p> <p>Use this item to enable USB activity to wakeup the system from a power saving mode.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>USB KB Wake-Up From S3</p> <p>Disabled [<input type="checkbox"/>]</p> <p>Enabled [<input type="checkbox"/>]</p> <p style="text-align: right;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

Function description	Choice
<p>CPU Thermal-Throttling This item sets the percentage of time that the CPU is idled if CPU throttling is initiated by excess heat.</p>	<p>CPU Thermal-Throttling</p> <p>87.5% [] 75.0% [] 62.5% [] 50.0% [■] 37.5% [] 25.0% [] 12.5% []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Resume by Alarm When set to "Enabled", you may set the date (day of the month), hour, minute and second to turn on your system. When set to set "0" (zero) for the day of the month, the alarm will power on your system every day at the specified time.</p>	<p>Resume by Alarm</p> <p>Disabled [] Enabled [■]</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Date<of Month> Alarm</p> <p>Min= 0 Max= 31</p> <p>Key in a DEC number :</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>	<p>Time<hh:mm:ss> Alarm</p> <p>Min= 0 Max= 23</p> <p>Key in a DEC number :</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>Global Timer Event Global Timer (power management) events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything that occurs to a device that is configured as "Enabled", even when the system is in a power down mode.</p>	
<p>Primary & Secondary 0 / 1 When enabled, any activity on the primary or secondary IDE channels will wake up the system from a power saving mode.</p>	<p>Primary IDE 0</p> <p>Disabled [■] Enabled []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>
<p>FDD, COM, LPT Port When enabled, any activity on the floppy disk drive (FDD), serial ports (COM), or parallel ports (LPT) will wake up the system from a power saving mode.</p>	<p>FDD, COM, LPT Port</p> <p>Disabled [■] Enabled []</p> <p>↑↓:Move ENTER:Accept ESC:Abort</p>

Function description	Choice								
<p>PCI PIRQ [A-D]#</p> <p>When enabled, any activity on the PCI card channels will wake up the system from a power saving mode. Press ESC to return to the main menu.</p>	<table border="1"> <tr> <td colspan="2">PCI PIRQ[A-D]#</td> </tr> <tr> <td>Disabled</td> <td>..... []</td> </tr> <tr> <td>Enabled</td> <td>..... []</td> </tr> <tr> <td colspan="2">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	PCI PIRQ[A-D]#		Disabled []	Enabled []	↑↓:Move ENTER:Accept ESC:Abort	
PCI PIRQ[A-D]#									
Disabled []								
Enabled []								
↑↓:Move ENTER:Accept ESC:Abort									

6.7. PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, 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

<p>PNP OS Installed [No]</p> <p>Reset Configuration Data [Disabled]</p> <p>Resources Controlled By [Manual]</p> <p>▶ IRQ Resources [Press Enter]</p> <p>▶ DMA Resources [Press Enter]</p> <p>PCI/UGA Palette Snoop [Disabled]</p>	<p>Item Help</p> <p>Menu Level ▶</p> <p>Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices</p>
---	---

↑↓:Move Enter>Select +/~/PU/PD:Ualue F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Function description	Choices								
<p>PNP OS Installed</p> <p>Select Yes if the system operating environment is Plug-and-Play aware.</p>	<table border="1"> <tr> <td colspan="2">PNP OS Installed</td> </tr> <tr> <td>No</td> <td>..... []</td> </tr> <tr> <td>Yes</td> <td>..... []</td> </tr> <tr> <td colspan="2">↑↓:Move ENTER:Accept ESC:Abort</td> </tr> </table>	PNP OS Installed		No []	Yes []	↑↓:Move ENTER:Accept ESC:Abort	
PNP OS Installed									
No []								
Yes []								
↑↓:Move ENTER:Accept ESC:Abort									

Function description	Choices
Reset Configuration Data The system BIOS supports the Plug and Play feature so the resources assigned to each peripheral have to be recorded to prevent them from conflicting. The location to store the assigned resources is called ESCD (Extended System Configuration Data), which is located in the system flash EEPROM. If this option is set to "Disabled," the ESCD will update automatically when the new configuration varies from the last one. If set to "Enable," the ESCD will be cleared and updated and then this option will automatically be set to "Disabled" .	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Reset Configuration Data</p> <p>Disabled [<input type="checkbox"/>] Enabled [<input type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
Resources Controlled By The default setting is "Manual" which allows you to control IRQs and DMAs individually. The other option is "Auto" which will detect the system resources and automatically assign the relative IRQs and DMAs for each peripheral.	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Resources Controlled By</p> <p>Auto(ESCD) [<input type="checkbox"/>] Manual [<input checked="" type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>

IRQ n Resources

Phoenix - AwardBIOS CMOS Setup Utility IRQ Resources

IRQ-3 assigned to IRQ-4 assigned to IRQ-5 assigned to IRQ-7 assigned to IRQ-9 assigned to IRQ-10 assigned to IRQ-11 assigned to IRQ-12 assigned to IRQ-14 assigned to IRQ-15 assigned to	[PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP] [PCI/ISA PnP]	<p style="text-align: center;">Item Help</p> <p>Menu Level ▶▶</p> <p>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</p>
↑↓←:Move Enter:Select +/~/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

IRQ Resources These fields only become available if the Resources Controlled By field is set to "Manual" . If there is a legacy ISA device which uses an IRQ or a DMA, set the corresponding IRQ or DMA to "Legacy ISA" ; otherwise, you should set this field to "PCI/ISA PnP" .	<div style="border: 1px solid black; padding: 5px;"> <p>IRQ-3 assigned to</p> <p>PCI/ISA PnP [<input checked="" type="checkbox"/>] Legacy ISA [<input type="checkbox"/>]</p> <p style="text-align: center;">↑↓:Move ENTER:Accept ESC:Abort</p> </div>
Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (Such as IRQ4 for serial port 1) PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for	

PCI or ISA bus architecture.									
<p>DMA Resources When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:</p>	<table border="1"> <tr> <td colspan="2">DMA-0 assigned to</td> </tr> <tr> <td>PCI/ISA PnP</td> <td>..... [<input type="checkbox"/>]</td> </tr> <tr> <td>Legacy ISA</td> <td>..... [<input type="checkbox"/>]</td> </tr> <tr> <td colspan="2"> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </td> </tr> </table>	DMA-0 assigned to		PCI/ISA PnP [<input type="checkbox"/>]	Legacy ISA [<input type="checkbox"/>]	<p>↑↓:Move ENTER:Accept ESC:Abort</p>	
DMA-0 assigned to									
PCI/ISA PnP [<input type="checkbox"/>]								
Legacy ISA [<input type="checkbox"/>]								
<p>↑↓:Move ENTER:Accept ESC:Abort</p>									
<p>PCI/VGA Palette Snoop This item is designed to overcome some problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.</p>	<table border="1"> <tr> <td colspan="2">PCI/VGA Palette Snoop</td> </tr> <tr> <td>Disabled</td> <td>..... [<input type="checkbox"/>]</td> </tr> <tr> <td>Enabled</td> <td>..... [<input type="checkbox"/>]</td> </tr> <tr> <td colspan="2"> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </td> </tr> </table>	PCI/VGA Palette Snoop		Disabled [<input type="checkbox"/>]	Enabled [<input type="checkbox"/>]	<p>↑↓:Move ENTER:Accept ESC:Abort</p>	
PCI/VGA Palette Snoop									
Disabled [<input type="checkbox"/>]								
Enabled [<input type="checkbox"/>]								
<p>↑↓:Move ENTER:Accept ESC:Abort</p>									

6.8. PC Health Status

The board computer supports hardware monitoring.

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
PC Health Status		Menu Level ▶
CPU Warning Temperature	[Disabled]	
Current System Temp.		
Current CPU1 Temperature		
Current CPU2 Temperature		
Current CPUFAN1 Speed		
Current CPUFAN2 Speed		
Current CPUFAN3 Speed		
IN0(U)		
IN1(U)		
IN2(U)		
+ 5 U		
+12 U		
-12 U		
- 5 U		
UBAT(U)		
5USB(U)		
Shutdown 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

Function description	Choices																		
CPU Warning Temperature This feature enables you to set the warning temperature for CPU overheating. When the CPU temperature exceeds the set temperature, the computer speaker will beep. The beep sound will not turn off unless you power down the computer and allow your CPU to cool down.	<table border="1"> <thead> <tr> <th colspan="2">CPU Warning Temperature</th> </tr> </thead> <tbody> <tr> <td>Disabled</td> <td>..... []</td> </tr> <tr> <td>50°C/122°F</td> <td>..... []</td> </tr> <tr> <td>53°C/127°F</td> <td>..... []</td> </tr> <tr> <td>56°C/133°F</td> <td>..... []</td> </tr> <tr> <td>60°C/140°F</td> <td>..... []</td> </tr> <tr> <td>63°C/145°F</td> <td>..... []</td> </tr> <tr> <td>66°C/151°F</td> <td>..... []</td> </tr> <tr> <td>70°C/158°F</td> <td>..... []</td> </tr> </tbody> </table> <p>↑↓:Move ENTER:Accept ESC:Abort</p>	CPU Warning Temperature		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 Warning Temperature																			
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 []																		

The BIOS shows the PC health status in this window.

Item	Description
Current CPU Temp.	This field displays the current CPU temperature, if your computer contains a monitoring system.
Current System Temp.	This field displays the current system temperature, if your computer contains a monitoring system.
Current CPUFAN 1/2 Speed	These fields display the current speed of up to three CPU fans, if your computer contains a monitoring system.
±12V / ±5V / IN(0) / IN(1) / IN(2) / VBAT / 5VSB(V)	These fields display the current voltage of input lines, if your computer contains a monitoring system.

Function description	Choices												
<p>Shutdown Temperature</p> <p>Enables you to set the maximum temperature the system can reach before powering down.</p>	<table border="1"> <thead> <tr> <th colspan="2">Shutdown Temperature</th> </tr> </thead> <tbody> <tr> <td>Disabled</td> <td>..... []</td> </tr> <tr> <td>60°C/140°F</td> <td>..... []</td> </tr> <tr> <td>65°C/149°F</td> <td>..... []</td> </tr> <tr> <td>70°C/158°F</td> <td>..... []</td> </tr> <tr> <td>75°C/167°F</td> <td>..... []</td> </tr> </tbody> </table> <p>↑↓:Move ENTER:Accept ESC:Abort</p>	Shutdown Temperature		Disabled []	60°C/140°F []	65°C/149°F []	70°C/158°F []	75°C/167°F []
Shutdown Temperature													
Disabled []												
60°C/140°F []												
65°C/149°F []												
70°C/158°F []												
75°C/167°F []												

6.9. Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	Menu Level ▶
CPU Host/PCI Clock	[Default]	
CPU Clock Ratio	[X 3]	

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

Function description	Choices						
<p>Auto Detect DIMM / PCI CLK</p> <p>To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in DIMM and PCI slots and turns off system clock generator pulses to empty slots.</p>	<table border="1"> <thead> <tr> <th colspan="2">Auto Detect DIMM/PCI Clk</th> </tr> </thead> <tbody> <tr> <td>Enabled</td> <td>..... []</td> </tr> <tr> <td>Disabled</td> <td>..... []</td> </tr> </tbody> </table> <p>↑↓:Move ENTER:Accept ESC:Abort</p>	Auto Detect DIMM/PCI Clk		Enabled []	Disabled []
Auto Detect DIMM/PCI Clk							
Enabled []						
Disabled []						
<p>Spread Spectrum</p> <p>When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.</p>	<table border="1"> <thead> <tr> <th colspan="2">Spread Spectrum</th> </tr> </thead> <tbody> <tr> <td>Enabled</td> <td>..... [■]</td> </tr> <tr> <td>Disabled</td> <td>..... []</td> </tr> </tbody> </table> <p>↑↓:Move ENTER:Accept ESC:Abort</p>	Spread Spectrum		Enabled [■]	Disabled []
Spread Spectrum							
Enabled [■]						
Disabled []						

Function description	Choices
<p>CPU Host/PCI clock</p> <p>Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values</p>	<div style="border: 1px solid black; padding: 5px;"> <p>CPU Host/PCI Clock</p> <p>Default <input checked="" type="checkbox"/></p> <p>66/33MHz <input type="checkbox"/></p> <p>70/35MHz <input type="checkbox"/></p> <p>75/38MHz <input type="checkbox"/></p> <p>80/40MHz <input type="checkbox"/></p> <p>83/42MHz <input type="checkbox"/></p> <p>100/33MHz <input type="checkbox"/></p> <p>103/34MHz <input type="checkbox"/></p> <p>105/35MHz <input type="checkbox"/></p> <p>110/37MHz <input type="checkbox"/></p> <p>115/38MHz <input type="checkbox"/></p> <p>133/33MHz <input type="checkbox"/></p> <p>137/34MHz <input type="checkbox"/></p> <p>140/35MHz <input type="checkbox"/></p> <p>145/36MHz <input type="checkbox"/></p> <p>150/38MHz <input type="checkbox"/></p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>
<p>CPU Clock Ratio</p> <p>This item allows you to select the CPU clock ratio.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>CPU Clock Ratio</p> <p>X 3 <input checked="" type="checkbox"/></p> <p>X 3.5 <input type="checkbox"/></p> <p>X 4 <input type="checkbox"/></p> <p>X 4.5 <input type="checkbox"/></p> <p>X 5 <input type="checkbox"/></p> <p>X 5.5 <input type="checkbox"/></p> <p>X 6 <input type="checkbox"/></p> <p>X 6.5 <input type="checkbox"/></p> <p>X 7 <input type="checkbox"/></p> <p>X 7.5 <input type="checkbox"/></p> <p>X 8 <input type="checkbox"/></p> <p>↑↓:Move ENTER:Accept ESC:Abort</p> </div>

6.10. Defaults 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.

6.11. Supervisor/User Password Setting

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

SUPERVISOR PASSWORD: can enter and change the options of the setup menus.

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.

6.12. Exit Selecting

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)? **Y**

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.

6.13. POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error requiring you to do something to fix, it will either sound a beep code or display a message.

If a message is displayed, it will be accompanied by:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

6.14. POST Beep

Currently there are two kinds of beep codes in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

6.15. Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

CMOS battery has failed

CMOS battery is no longer functional. It should be replaced.

CMOS checksum error

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT failure

INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

Diskette drives or types mismatch error

RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

Display switch is set incorrectly

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

Display type has changed since last BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

EISA configuration checksum error

PLEASE RUN EISA CONFIGURATION UTILITY

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

EISA configuration is not complete

PLEASE RUN EISA CONFIGURATION UTILITY

The slot configuration information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Error encountered initializing hard drive

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

Error initializing hard disk controller

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

Floppy disk controller error or no controller present

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

Invalid EISA configuration

PLEASE RUN EISA CONFIGURATION UTILITY

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory address error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory size has changed since last BOOT

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

Memory verify error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

Offending address not found

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

Offending segment

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

Press a key to REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

Press F1 to disable NMI, F2 to REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM parity error

CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

Should be empty but EISA board found

PLEASE RUN EISA CONFIGURATION UTILITY

A valid board ID was found in a slot that was configured as having no board ID.

NOTE; When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.
--

Should have EISA board but not found

PLEASE RUN EISA CONFIGURATION UTILITY

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot not empty

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

System halted, (CTRL-ALT-DEL) to REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong board in slot

PLEASE RUN EISA CONFIGURATION UTILITY

The board ID does not match the ID stored in the EISA non-volatile memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Floppy disk(s) fail (80)

Unable to reset floppy subsystem.

Floppy disk(s) fail (40)

Floppy Type mismatch.

Hard disk(s) fail (80)

HDD reset failed.

Hard disk(s) fail (40)

HDD controller diagnostics failed.

Hard disk(s) fail (20)

HDD initialization error.

Hard disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key.

Unlock the key. BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop

System will repeat POST procedure infinitely while the P15 of keyboard controller is pulled low. This is also used for M/B burn in test.

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFFH is bad.

Memory test fail

BIOS reports the memory test fail if the onboard memory is tested error.

6.16. POST Codes

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved

POST (hex)	Description
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26h.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686)
19h	Reserved

POST (hex)	Description
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR & S/W interrupts to SPURIOUS_osft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	<ol style="list-style-type: none"> 1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
24h	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
25h	<p>Early PCI Initialization:</p> <ul style="list-style-type: none"> - Enumerate PCI bus number. - Assign memory & I/O resource - Search for a valid VGA device & VGA BIOS, and put it into C000:0.
26h	<ol style="list-style-type: none"> 1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 2. Init onboard PWM. 3. Init onboard H/W monitor devices.
27h	Initialize INT 09 buffer
28h	Reserved
29h	<ol style="list-style-type: none"> 1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed.
2Ah	Reserved
2Bh	Invoke video BIOS.
2Ch	Reserved
2Dh	<ol style="list-style-type: none"> 1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed

POST (hex)	Description
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips. See also POST 63h.
34h	Reserved
35h	Test DMA Channel 0.
36h	Reserved
37h	Test DMA Channel 1.
38h	Reserved
39h	Test DMA page registers.
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	<ol style="list-style-type: none"> 1. Calculate total memory by testing the last double word of each 64K page. 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved

POST (hex)	Description
4Eh	<ol style="list-style-type: none"> 1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB keyboard & mouse.
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Clear password according to H/W jumper (Optional)
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	<ol style="list-style-type: none"> 1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	<ol style="list-style-type: none"> 1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onboard_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reset keyboard if Early_Reset_KB is not defined.
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved

POST (hex)	Description
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	<ol style="list-style-type: none"> 1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	<ol style="list-style-type: none"> 1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved
73h	Reserved
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM.....
76h	(Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Init HDD write protect.
7Dh	Reserved
7Eh	Reserved

POST (hex)	Description
7Fh	<ol style="list-style-type: none"> Switch back to text mode if full screen logo is supported. <ul style="list-style-type: none"> -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: <ul style="list-style-type: none"> ◆Clear EPA or customization logo.
80h	Reserved
81h	Reserved
82h	<ol style="list-style-type: none"> Call chipset power management hook. Recover the text font used by EPA logo (not for full screen logo) If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	<ol style="list-style-type: none"> USB final Initialization Switch screen back to text mode
86h	Reserved
87h	NET PC: Build SYSID structure
88h	Reserved
89h	<ol style="list-style-type: none"> Assign IRQs to PCI devices. Set up ACPI table at top of memory.
8Ah	Reserved
8Bh	<ol style="list-style-type: none"> Invoke all ISA adapter ROMs Invoke all PCI ROMs(except VGA)
8Ch	Reserved
8Dh	<ol style="list-style-type: none"> Enable/Disable Parity Check according to CMOS Setup APM Initialization
8Eh	Reserved
8Fh	Clear noise of IRQs
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code

POST (hex)	Description
94h	<ol style="list-style-type: none">1. Enable L2 cache2. Program Daylight Saving3. Program boot up speed4. Chipset final initialization.5. Power management final initialization6. Clear screen & display summary table7. Program K6 write allocation8. Program P6 class write combining
95h	Update keyboard LED & typematic rate
96h	<ol style="list-style-type: none">9. Build MP table10. Build & update ESCD11. Set CMOS century to 20h or 19h12. Load CMOS time into DOS timer tick13. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

7. Accessories

Memory

- PC-MSD128-168V 168PIN DIMM, PC133 SDRAM, 128MB, No ECC
- PC-MSD256-168V 168PIN DIMM, PC133 SDRAM, 256MB, No ECC
- PC-MSD512-168V 168PIN DIMM, PC133 SDRAM, 512MB, No ECC

CABLE

- USB Connector Cable USB connector shielded cable (2port)
- IDE-66 Cable IDE Ultra ATA cable

SPI-8150-LLVA SPI-8151-LLVA

User's Manual

CONTEC CO.,LTD.

October 2005 Edition

3-9-31, Himesato, Nishiyodogawa-ku, Osaka 555-0025, Japan

Japanese <http://www.contec.co.jp/>

English <http://www.contec.com/>

Chinese <http://www.contec.com.cn/>

No part of this document may be copied or reproduced in any form by any means without prior written consent of CONTEC CO., LTD. [10122005]

[09162004]

Management No. A-46-868

[10122005_rev2]

Parts No. LYDR981