



# NEX852VL Series

User Manual

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## Acknowledgements

The NEX852VL(2) is a trademark of NEXCOM international CO., LTD. All other product names mentioned herein are registered trademarks of their respective owners.

## Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

### **FEDERAL COMMUNICATIONS COMMISSION (FCC) FOR CLASS A DEVICES**

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

### **CE CERTIFICATION**

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

## **WARNINGS**

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

## **CAUTION**

Electrostatic discharge (ESD) can damage NEX components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

## **Safety Information**

Before installing and using the NEX852VL(2), note the following precautions:

- ◆ Read all instructions carefully.
- ◆ Do not place the unit on an unstable surface, cart, or stand.
- ◆ Follow all warnings and cautions in this manual.
- ◆ When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- ◆ Avoid using the system near water, in direct sunlight, or near a hearing device.

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# **Chapter 1**

## **General Information**

## 1.1 Feature

- \* Support Intel®Pentium® M or Celeron® M processor with 400MHz FSB
- \* Support the Low Voltage and Ultra Low Voltage Intel® Pentium M or Intel® Celeron® M processor with 400MHz FSB
- \* Intel® 852GM/GME
- \* 184-pin DIMM x 2 supports DDR 200/266/333 SDRAM memory up to 2GB
- \* Support single/dual pixel LVDS panel display
- \* CRT and LVDS dual display
- \* Single/dual Marvell Gigabit LAN
- \* Internal Compact Flash Socket x 1 (optional)
- \* Serial Ports x 2
- \* USB 2.0 x 6

## 1.2 Specifications

### System Architecture

- \* Micro-ATX 9.6" x 9.6"

### CPU Support

- \* Single 478uFCPGA/479uFCBGA socket
- \* Support Intel® Dothan: 2MB on die L2 cache with 400MHz FSB and speed up to 2.0GHz
- \* Support Intel® Pentium® M: 1MB on die L2 cache with 400MHz FSB and speed up to 1.7GHz
- \* Support Intel® Celeron® M: 512KB on die L2 cache with 400MHz FSB and speed up to 1.3GHz

### Memory

- \* 184-pin DDR DIMM x 2
- \* Support unbuffered non-ECC DDR 200/266 up to 1GB for NEX852VL (Intel® 852GM)
- \* Support unbuffered ECC or non-ECC DDR 200/266/333 up to 2GB for NEX852VL2 (Intel® 852GME)

### BIOS

- \* Award System BIOS
- \* ACPI Support
- \* Advanced Power Management support

- \* 4M bits flash ROM

## Chipset

- \* Intel® 852GM/GME with ICH4 I/O hub

## LAN

- \* Marvell Gigabit LAN 8001 x 2 (one is optional)
- \* RJ45 x 2 with LED

## Display

- \* Intel® 852GME integrated dynamic video shared memory, 32MB(max.) adjusted by OS
- \* Resolution: up to 1600x1200 for CRT or up to 1280x1024 for TFT
- \* D-sub 15-pin VGA port x 1
- \* Internal LVDS: Support 18/24 bit single pixels or 18-bit dual pixels LVDS panel (Resolution support up to 1400 x 1050)
- \* Dual Display: Simultaneous Scan-CRT + LVDS LCD, Dual View-CRT+LVDS LCD

## I/O interface

- \* Serial Port x 2, with 16C550 UART x 2 (9-pin D-sub connector x 1, 10-pin header x 1)
- \* USB 2.0 x 6 (4 through Combo connector with RJ45, 2 from 6-pin header)
- \* HDD: 40-pin connector x 2, support ultra ATA 33/66/100 (Default: IDE channel 1)
- \* Optional Compact Flash Socket: Internal Compact Flash socket x 1 (Default: IDE Channel 2 master), Type-II Compact Flash Card supported
- \* Parallel: 25-pin D-sub connector, bi-directional, EPP/ECP support
- \* Floppy: 34-pin connector x 1
- \* PS/2 Keyboard Mouse: 6-pin Mini-DIN connector x 1
- \* AC 97 audio: Phone Jack x 1 (Line-in /Line-out/Mic-in)
- \* On-board CD-in and Aux-in
- \* GPIO: 4 In and 4 Out
- \* IrDA: Onboard 5-pin header for IrDA Tx Rx

## System Monitor

- \* Driver support for WIN2000, XP, XPe, Linux
- \* Monitoring of voltage, temperature and fans
- \* Watchdog Timer: Programmable via GAL by Software from 1-127 sec. or 1-127 min.



## Expansion Slots

- \* 32-bit PCI slot x 4

## Real-time Clock

- \* On-chip RTC with battery backup
- \* External Lithium Battery x 1

## Watchdog Timer

- \* 1~127 seconds/minute time-out intervals

## Dimensions

- \* 9.6" x 9.6" microATX compliant

## Power Requirements

- \* Standard ATX 20-pin power connector
- \* Power consumption: measure with Intel® Dothan® 2.0GHz
  - a. +12V: 0.5A
  - b. +5V: 5.5A
  - c. +3.3V: 1A
  - d. +5Vsb: 0.1A

## Environments

- \* Operating temperatures: 0°C to 60°C
- \* Storage temperatures -20°C to 80°C
- \* Relative humidity: 10% to 90% (Non-condensing)

## Certification

- \* CE
- \* FCC A

## Ordering Information

- \* NEX852VL: Micro-ATX Socket 478 Intel® Pentium® M/Celeron® M processor, Marvell Gigabit LAN x 1
- \* NEX852VL2: Micro-ATX Socket 478 Intel® Pentium® M/Celeron® M processor, Marvell Gigabit LAN x 2 and CF socket

## 1.3 Power Consumption Measurement

### NEX852VL2 Test Configuration:

Date In: 11/24/2004	Date Out: 11/24/2004
BIOS Version: C-002	
<b>Configuration</b>	<b>Model Name</b>
CPU Type/Speed/Model/Micro-Code	Pentium M/2.0GHz/Dothan 2.0G/(06D6/17D)
Memory Type/Speed/Size/On-Board Chip/Vendor	DDR/DDR333/512MB/SAMSUNG K4H510838B-TCB3/UNIGEN
Power Supply Type/Model/Watts-Value	ATX/Seventeam ST-250BLV/250W
PS2 Keyboard and Mouse	LEMEL 5122 Logitech M-BB48
HDD Drive	HITACHI HDS722580VLAT20
CD-ROM Devices	GIGABYTE GO-D1600B
Monitor	Viewsonic P75f+
Operation System	Windows 2000 Server (English)-5.00.2195+SP4
Test Software / Program	HCT 9.5

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CD-ROM Devices	GIGABYTE GO-D1600B
Monitor	Viewsonic P75f+
Operation System	Windows 2000 Server (English)-5.00.2195+SP4
Test Software / Program	HCT 9.5

**Test Criteria:**

1. Test configuration should include HDD drive and CD-ROM device.
2. Full loading mode should utilize CPU 100% with running of HCT test program.  
Light loading mode will utilize CPU loading below 5%, and there is no data or application running.

**Test Result:****NEX852VL2(GME)**

<b>Low AC Line 110~115V: (System-Only)</b>	<b>CPU Type: Dothan 2.0GHz</b>			
	<b>+12V</b>	<b>+5V</b>	<b>+3.3V</b>	<b>+5Vsb</b>
<b>Full-Loading Mode (A)</b>	<b>0.35</b>	<b>5.32</b>	<b>0.54</b>	<b>0.02</b>
<b>Light-Loading Mode (A)</b>	<b>0.34</b>	<b>2.77</b>	<b>0.54</b>	<b>0.02</b>
<b>Standby Mode (A)</b>	<b>0.28</b>	<b>2.07</b>	<b>0.53</b>	<b>0.01</b>
<b>Suspend to RAM (STR S4) (A)</b>	<b>0.06</b>	<b>0</b>	<b>0</b>	<b>0.39</b>

**NEX852VL(GM)**

<b>Low AC Line 110~115V: (System-Only)</b>	<b>CPU Type: Dothan 2.0GHz</b>			
	<b>+12V</b>	<b>+5V</b>	<b>+3.3V</b>	<b>+5Vsb</b>
<b>Full-Loading Mode (A)</b>	<b>0.44</b>	<b>5.34</b>	<b>0.56</b>	<b>0.03</b>
<b>Light-Loading Mode (A)</b>	<b>0.44</b>	<b>2.71</b>	<b>0.56</b>	<b>0.02</b>
<b>Standby Mode (A)</b>	<b>0.38</b>	<b>2.09</b>	<b>0.55</b>	<b>0.02</b>
<b>Suspend to RAM (STR S4) (A)</b>	<b>0.01</b>	<b>0</b>	<b>0.03</b>	<b>0.35</b>

## 1.4 Board Layout

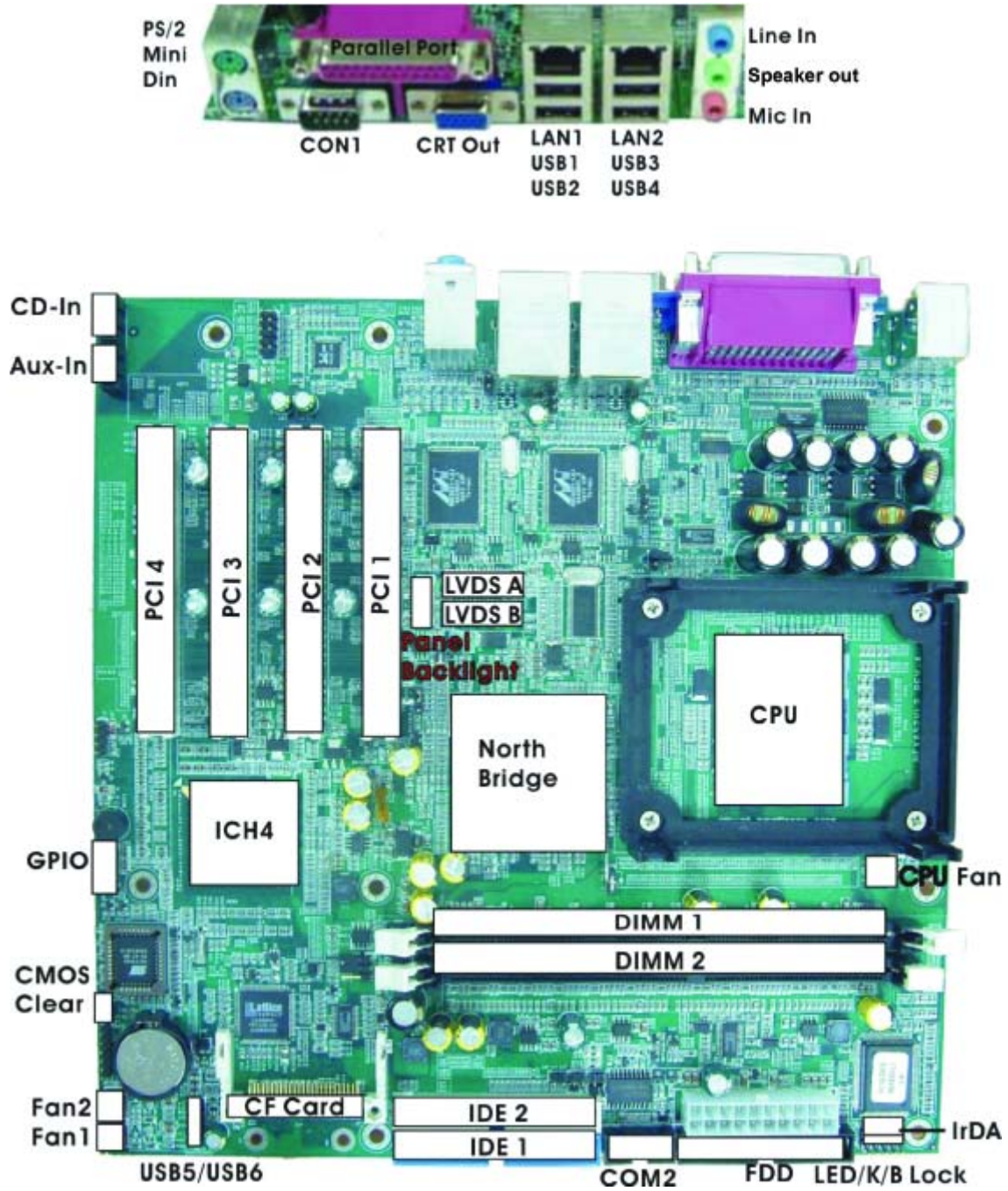


Figure 1.1 : Birdeye's View of the NEX852

# 1.5 Board Dimensions

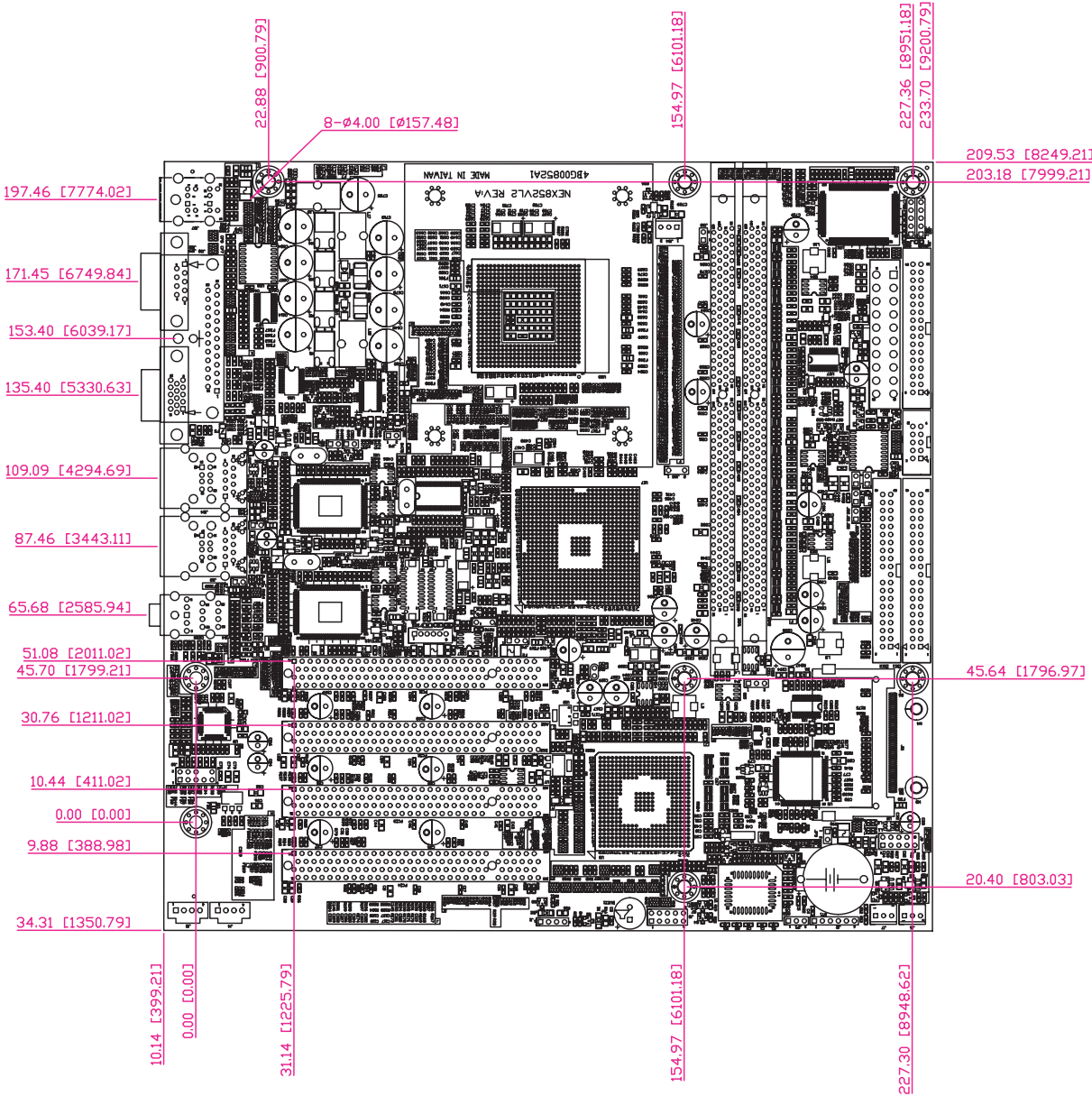


Figure 1.2 : Mechanical Drawing of the NEX852

## **Chapter 2**

# **Jumper Setting**

This chapter of the User Manual describes how to set jumpers.

*Note: The procedures that follow are generic for all NEX852 models*

## 2.1 Before You Begin

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- ◆ A Phillips screwdriver
- ◆ A flat-tipped screwdriver
- ◆ A set of jewelers Screwdrivers
- ◆ A grounding strap
- ◆ An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

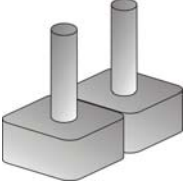
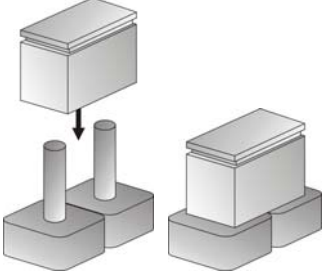
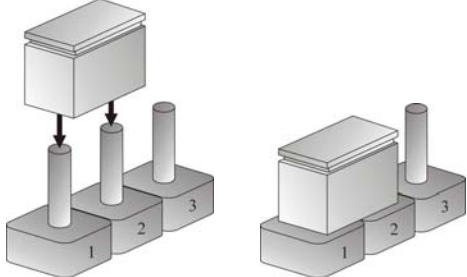
## 2.2 Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to your computer or yourself:

- ◆ Always disconnect the unit from the power outlet whenever you are working inside the case.
- ◆ If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- ◆ Hold electronic circuit boards (such as the NEX852 board) by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- ◆ Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- ◆ Use correct screws and do not over tighten screws.

## 2.3 Setting Jumpers

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**. Please see the following illustrations

<p>The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is <b>SHORT</b>. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is <b>OPEN</b>.</p>		
<p>These illustrations show a 3-pin jumper. Pins 1 and 2 are <b>SHORT</b>.</p>		

**Table 2-1 : Setting Jumpers**



## 2.4 Location of Jumpers

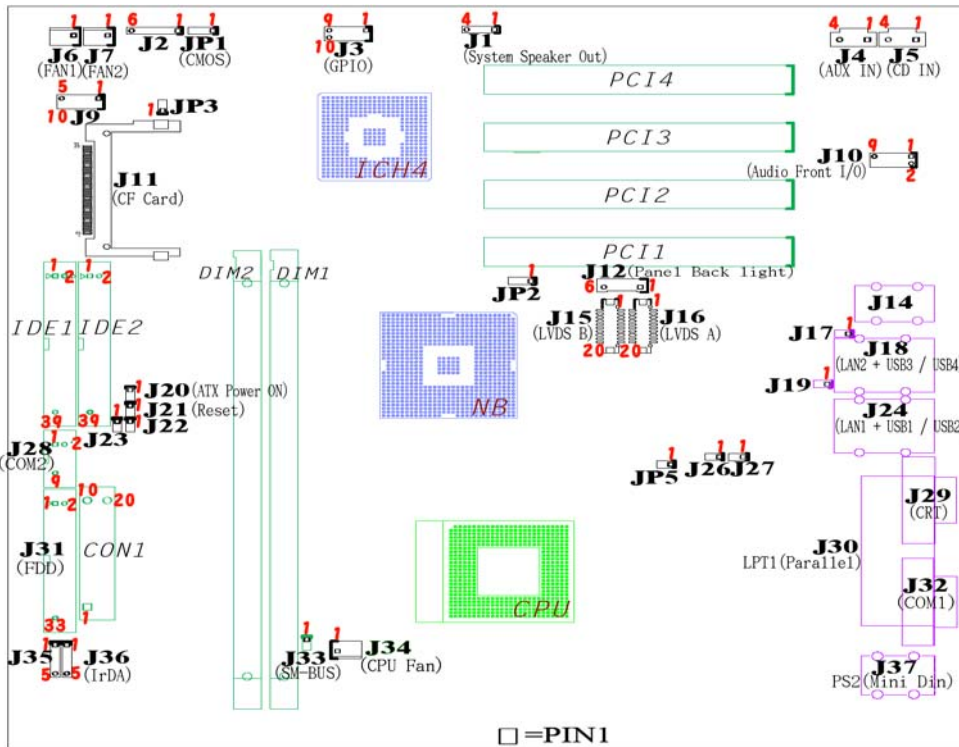


Figure 2-1: Jumper Location

## 2.5 Function of Jumpers

User can use jumpers to set configuration options. The table below defines function of each jumper:

Pin No.	Function	Pin No.	Function
J1	system speaker out, 4x1 pin header	J26	LAN1 link/active LED, 2x1 pin header
J2	CPLD programmer header, 6x1 pin header	J27	LAN1 linking speed LED, 2x1 pin header
J3	GPIO port, 8 pin in/out, 6x2 pin header	J28	COM2, 5x2 pin box header
J4	aux in, 4x1 shrouded header	J29	CRT out, HDS D-sub 15-pin connector 1
J5	CD in, 4x1 shrouded header	J30	LPT1 (parallel port), D-sub 25-pin connector

To continue, please see the following page

Pin No.	Function	Pin No.	Function
J6	system fan 1 connector	J31	FDD, 17x2 box header
J7	system fan 2 connector	J32	COM 1, D-sub 9-pin connector
J9	USB5/USB6, 5x2 pin header	J33	SM-bus header
J10	audio front I/O connector, 5x2 pin header	J34	CPU fan connector
J11	CF card socket	J35	system power on LED/keyboard lock, 5x1 pin header
J12	panel backlight power connector	J36	IrDA, 5x1 pin header
J13	heatsink holder	J37	PS/2 keyboard/mouse, mini DIN connector
J14	line in/headphone out/mic in, 3 phone jack stackup connector	JP1	CMOS setup clear, 3x1 pin header (1-2 short for normal, 2-3 short for CMOS clear)
J15	LVDS channel B connector	JP2	panel digital power selection (1-2 short for 5V, 2-3 short for 3.3V)
J16	LVDS channel A connector	JP3	CF card master/slave selection jumper (short for master/NC for slaves)
J17	LAN2 link/active LED, 2x1 pin header	JP5	CPU front side bus clock 100.133MHz (pin 1, 2 open 100MHz, Pin 1, 2 short 133MHz)
J18	LAN2+USB3/USB4, one port RJ45+two port USB stackup connector	CON1	ATX power connector, 10x2 pin header
J19	LAN2 linking speed LED, 2x1 pin header	PCI 1	PCI slot
J20	ATX power on button, 2x1 pin header	PCI 2	PCI slot
J21	reset button, 2x1 pin header	PCI 3	PCI slot
J22	IDE access LED header, 2x1 pin header	PCI 4	PCI slot
J24	LAN1+USB1/USB2, one port RJ45+two port USB stackup connector	IDE 1	IDE channel 2, 20x2 pin header
J25	heatsink holder	IDE 2	IDE channel 1, 20x2 pin header

## 2.6 Pin Definition

### J37: PS/2 Keyboard/Mouse mini DIN Connector

Keyboard:

Pin No.	Description	Pin No.	Description
1	keyboard data	4	+5V
2	NC	5	keyboard clock
3	chassis ground	6	NC

PS/2 Mouse:

Pin No.	Description	Pin No.	Description
1	mouse data	4	+5V
2	NC	5	mouse clock
3	chassis ground	6	NC

### J32: COM1, D-sub 9-pin Connector

Pin No.	Description	Pin No.	Description
1	data carrier detect (DCD)	6	data set ready (DSR)
2	receive data (RXD)	7	request to send (RTS)
3	transmit data (TXD)	8	clear to send (CTS)
4	data terminal ready (DTR)	9	ring indicator (RI)
5	GND		

### J29: CRT Out, HDS D-sub 15-pin Connector

Pin No.	Description	Pin No.	Description
1	red	9	+5V
2	green	10	chassis ground
3	blue	11	NC
4	NC	12	DDC data
5	chassis ground	13	horizontal sync
6	chassis ground	14	vertical sync
7	chassis ground	15	DDC clock
8	chassis ground		

J24: LAN1+USB1/USB2, One Port RJ45+Two Ports USB Stackup Connector

LAN1

Pin No.	Description	Pin No.	Description
1	TX0+	5	TX2-
2	TX0-	6	TX1-
3	TX1+	7	TX3+
4	TX2+	8	TX3-

USB1/USB2

Pin No.	Description
1	+5V
2	USB data-
3	USB data+
4	Chassis Ground

J18: LAN2+USB3/USB4, One Port RJ45+Two Ports USB Stackup Connector

LAN 2

Pin No.	Description	Pin No.	Description
1	TX0+	5	TX2-
2	TX0-	6	TX1-
3	TX1+	7	TX3+
4	TX2+	8	TX3-

USB1/USB2

Pin No.	Description
1	+5V
2	USB data-
3	USB data+
4	Chassis Ground

J18: Line In/Headphone Out/Mic In, Three Phone Jacks Stackup Connector

- Line In
- Line Out
- Microphone In

J36: IrDA, 5x1 Pin Header

Pin No.	Description
1	+5V
2	NC
3	IrRX
4	ground
5	IrTX

CON1:ATX Power Connector, 10x2 pin

Pin No.	Description	Pin No.	Description
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	ground	13	ground
4	+5V	14	PS_on
5	ground	15	ground
6	+5V	16	ground
7	ground	17	ground
8	power good	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

J34/J6/J7: CPU Fan/System Fan1/System Fan2 Connector

Pin No.	Description
1	ground
2	programmable fan power
3	fan speed sensor

J28: COM2 5x2 Pin Box Header

Pin No.	Description	Pin No.	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	ground	6	DSR
7	RTS	8	CTS
9	RI	10	NC

J30: LPT1 (Parallel Port), D-sub 25-pin Connector

Pin No.	Description	Pin No.	Description
1	line print strobe	14	auto feed
2	parallel data 0	15	error
3	parallel data 1	16	initialize
4	parallel data 2	17	select
5	parallel data 3	18	ground
6	parallel data 4	19	ground
7	parallel data 5	20	ground
8	parallel data 6	21	ground
9	parallel data 7	22	ground
10	acknowledge	23	ground
11	busy	24	ground
12	paper empty	25	ground
13	select	26	NC

J31: FDD, 17x2 Box Header

Pin No.	Description	Pin No.	Description
1	ground	18	DIR#
2	DSNSEL#	19	ground
3	ground	20	STEP#
4	NC	21	ground
5	ground	22	WDATA#
6	NC	23	ground
7	ground	24	WGATE#
8	INDEX#	25	ground
9	ground	26	TK00#
10	MOTEA#	27	ground
11	ground	28	WPT#
12	DRVB#	29	NC
13	ground	30	RDATA#
14	DRVA#	31	ground
15	ground	32	side1#
16	MOTEB#	33	NC
17	ground	34	DSKCHG#

J22: IDE Access LED Header, 2x1 Pin Header

Pin No.	Description
1	LED+
2	LED-

IDE1/IDE2: IDE Channel 1/2, 20x2 Pin Header

Pin No.	Description	Pin No.	Description
1	reset#	2	ground
3	data7	4	data8
5	data6	6	data9
7	data5	8	data10
9	data4	10	data11
11	data3	12	data12
13	data2	14	data13
15	data1	16	data14
17	data0	18	data15
19	ground	20	NC
21	DMA REQ	22	ground
23	IOW#	24	ground
25	IOR#	26	ground
27	IOCHRDY	28	pull down
29	DMA ACK#	30	ground
31	inerrupt 14	32	NC
33	disk address 1	34	DMA66 Detect
35	disk address 0	36	disk address 2
37	HDC CS1	38	HDC CS3
39	HDD active LED	40	ground

J3: GPIO Port, 8-pin In/Out, 6x2 Pin Header

Pin No.	Description	Pin No.	Description
1	GPIO36	2	GPIO40
3	GPIO37	4	GPIO41
5	GPIO38	6	GPIO42
7	GPIO39	8	GPIO43
9	+5v	10	ground

J5: CD In, 4x1 Shrouded Header

Pin No.	Description
1	CD in left
2	CD ground
3	CD ground
4	CD in right

J4: Aux In, 4x1 Shrouded Header

Pin No.	Description
1	aux in left
2	aux ground
3	aux ground
4	aux in right

J10: Audio Front I/O Connector, 5x2 Pin Header

Pin No.	Description	Pin No.	Description
1	mic-	6	line in right
2	ground	7	NC
3	mic+	8	key
4	+5V	9	line out left
5	line out right	10	line in left

J9: USB5/USB6, 5x2 Pin Header

Pin No.	Description	Pin No.	Description
1	+5V	6	+5V
2	USB5-	7	USB6-
3	USB5+	8	USB6+
4	ground	9	ground
5	NC		

J33: SM-Bus 2x1 Pin Header

Pin No.	Description
1	data
2	clock



J1: System Speaker Out, 4x1 Pin Header

Pin No.	Description
1	speaker-
2	ground
3	ground
4	speaker+

J35: System Power on LED/Keyboard Lock, 5x1 Pin Header

Pin No.	Description
1	LED+
2	NC
3	LED-
4	keylock
5	ground

J27: LAN1 Linking Speed LED, 2x1 Pin Header

Pin No.	Description
1	high 10M
2	high 10M
1	high 100M
2	low 100M
1	low 1G
2	high 1G

J26: LAN1 Link/Active LED 2x1 :Pin Header

Pin No.	Description
1	LED+
2	LED-

J19: LAN2 Linking Speed LED 2x1 Pin Header

Pin No.	Description
1	high 10M
2	high 10M
1	high 100M
2	low 100M
1	low 1G
2	high 1G

J17: LAN2 Link/Active LED 2x1 Pin Header

Pin No.	Description
1	LED+
2	LED-

J12: Panel Backlight Power Connector

Pin No.	Description
1	panel backlight power +12V
2	panel VDD(3.3V or 5V select by JP2)
3	ground
4	ground
5	panel backlight enable
6	panel brightness control

J16/J15: LVDS Channel A/B Connector

Pin No.	Description	Pin No.	Description
1	panel DDC clock	2	panel DDC data
3	panel VDD(3.3Vor 5V select by JP2)	4	LVDS_P0
5	LVDS_P3	6	LVDS_N0
7	LVDS_N3	8	panel VDD(3.3Vor 5V select by JP2)
9	ground	10	LVDS_YBP1
11	LVDS_CLKBP	12	LVDS_YBN1
13	LVDS_CLKBN	14	ground
15	ground	16	panel backlight power +12V
17	LVDS_P2	18	panel backlight power +12V
19	LVDS_N2	20	ground

J11: CF Card Socket

Pin No.	Description	Pin No.	Description
1	ground	2	data3
3	data4	4	data5
5	data6	6	data7
7	HDC CS1	8	ground
9	ground	10	ground
11	ground	12	ground
13	+5V	14	ground
15	ground	16	ground
17	ground	18	disk address 2
19	disk address 1	20	disk address 0
21	data0	22	data1
23	data2	24	IOCS16#(nc)
25	CF_cd2#(pull-down)	26	CF_CD1#(pull-down)
27	data11	28	data12
29	data13	30	data14
31	data15	32	HDC CS3
33	CF_VS1#(NC)	34	IOR
35	IOW	36	CF_WE#(+5V)
37	interrupt 15	38	+5V
39	CF_CSEL#(master or slave)	40	CF_VS2#(NC)
41	reset#	42	IOCHRDY
43	DMA REQ/DACK(NC)	44	DMA ACK#/CF_REG#(+5V)
45	HDD Active LED	46	DMA66 detect/CF_PDIAG#
47	data8	48	data9
49	data10	50	ground

PCI1/PCI2/PCI3/PCI4: PCI Slot

Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
A1	test reset#	A32	AD16	B1	-12V	B32	AD17
A2	+12V	A33	+3.3V	B2	test clock	B33	CMD/byte enable2#
A3	test mode	A34	frame#	B3	ground	B34	ground
A4	test input	A35	ground	B4	NC	B35	initiator ready#
A5	+5V	A36	target ready#	B5	+5V	B36	+3.3V
A6	interruptA#	A37	ground	B6	+5V	B37	device select#
A7	interruptC#	A38	stop#	B7	interruptB#	B38	ground
A8	+5V	A39	+3.3V	B8	interruptD#	B39	lock#
A9	NC	A40	SM_CLK	B9	NC	B40	parity error#
A10	+5V	A41	SM_DATA	B10	NC	B41	+3.3V
A11	NC	A42	ground	B11	NC	B42	system error#
A12	ground	A43	parity	B12	ground	B43	+3.3V
A13	ground	A44	AD15	B13	ground	B44	CMD/byte enable1#
A14	3.3VAUX	A45	+3.3V	B14	NC	B45	AD14
A15	reset#	A46	AD13	B15	ground	B46	ground
A16	+5V	A47	AD11	B16	clock	B47	AD12
A17	grant(GNT#)	A48	ground	B17	ground	B48	AD10
A18	ground	A49	AD9	B18	request#	B49	ground
A19	PME#	A50	keyway	B19	+5V	B50	keyway
A20	AD30	A51	keyway	B20	AD31	B51	keyway
A21	+3.3V	A52	CMD/byte enable0#	B21	AD29	B52	AD8
A22	AD28	A53	+3.3V	B22	ground	B53	AD7
A23	AD26	A54	AD6	B23	AD27	B54	+3.3V
A24	ground	A55	AD4	B24	AD25	B55	AD5
A25	AD24	A56	ground	B25	+3.3V	B56	AD3
A26	ID select	A57	AD2	B26	CMD/byte enable3#	B57	ground
A27	+3.3V	A58	AD0	B27	AD23	B58	AD1
A28	AD22	A59	+5V	B28	ground	B59	+5V
A29	AD20	A60	request 64bits#	B29	AD21	B60	acknowledge 64bits#
A30	ground	A61	+5V	B30	AD19	B61	+5V
A31	AD18	A62	+5V	B31	+3.3V	B62	+5V

## **Chapter 3**

# **Expansion Capability**

### 3.1 System Memory

Your system memory is provided by DIMM's (Dual In-Line Memory Modules) on the CPU board. The board contains two memory banks: Bank 0 and 1, which correspond to connector DIMM1 and DIMM2.

The table below shows possible DIMM Configurations for the memory banks. Please note that the NEX852VL2 supports Double Data Rate DDR 200/266/333 SDRAM. Configurations using different brands of memory modules are not recommended.

<b>DIMM1</b>	<b>DIMM2</b>	<b>Total</b>
128 MB	Empty	128 MB
Empty	128 MB	128 MB
128 MB	128 MB	256 MB
256 MB	Empty	256 MB
Empty	256 MB	256 MB
256 MB	256 MB	512 MB
512 MB	Empty	512 MB
Empty	512 MB	512 MB
512 MB	512 MB	1024 MB
1024 MB	Empty	1024 MB
Empty	1024 MB	1024 MB
1024 MB	1024 MB	2048 MB

**Table 3-1: DIMM Configurations of the NEX852VL2**

### 3.2 Installing DIMM

To install DIMM

- 1. Make sure the two handles of the DIMM sockets are in the “open” position, i.e. the handles stay outward.

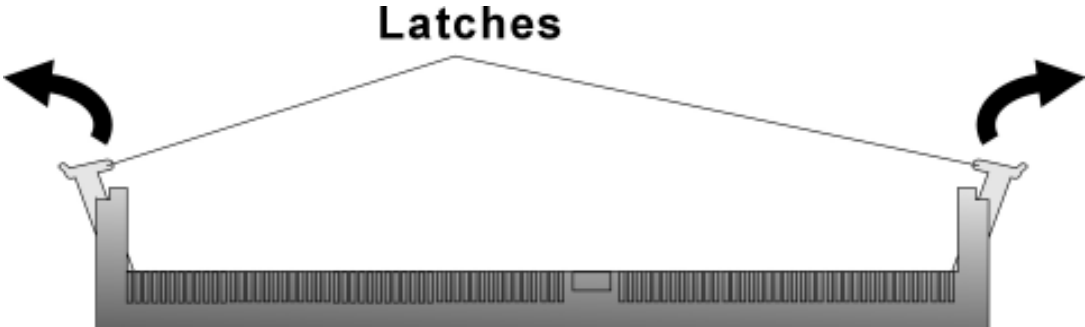


Figure3-1: How to Install DIMM (1)

- 2. Slowly slide the DIMM modules along the plastic guides in the both ends of the socket.

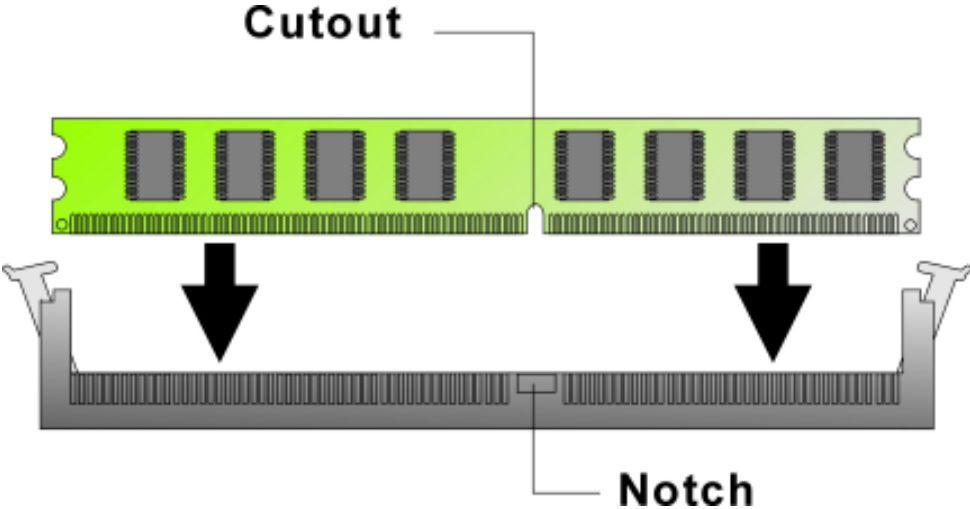
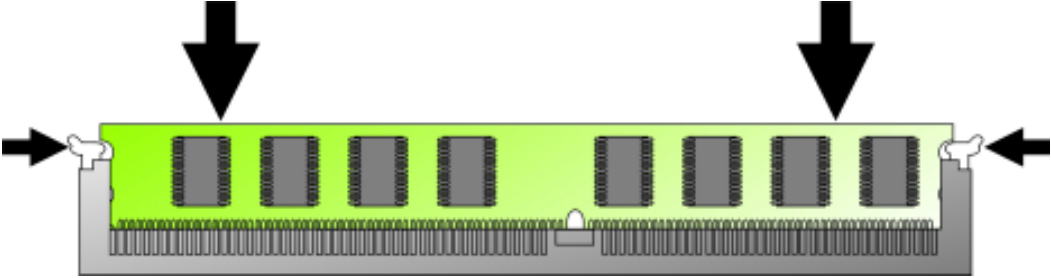


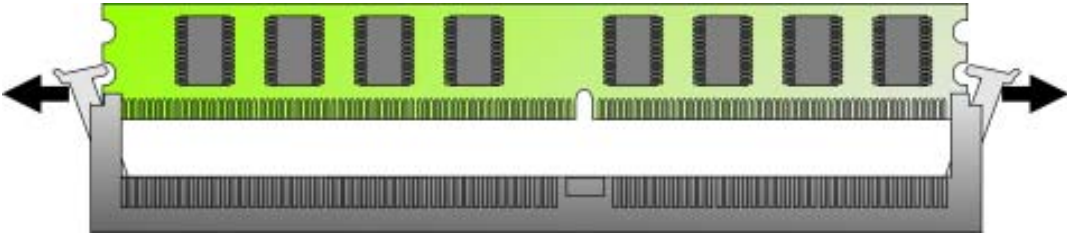
Figure 3-2: How to Install DIMM (2)

3. Then press the DIMM module down right into the socket, until a click is heard. That means the two handles automatically locked the memory modules into the right position of the DIMM socket.



**Figure 3-3: How to Install DIMM (3)**

4. To take away the memory module, just push the both handles outward, the memory module will be ejected by the mechanism in the socket.



**Figure 3-4: How to Install DIMM (4)**



### 3.3 Installing Compact Flash

1. To install a Compact Flash memory card into NEX852VL2, align the notches on the card with the Compact Flash socket in the NEX852VL2. Then firmly insert the card into the socket until it is completely seated.

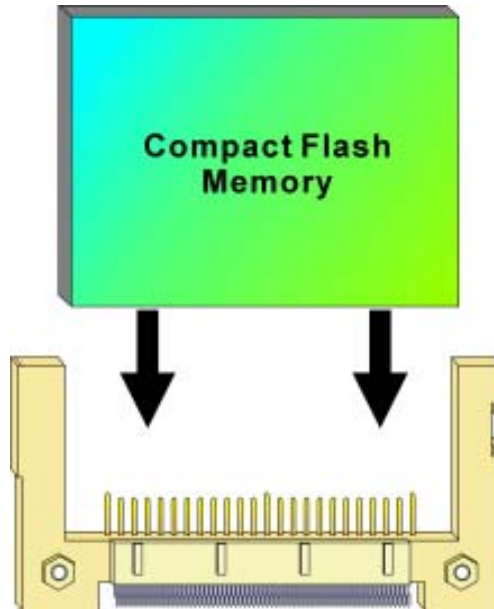


Figure 3-5: How to Install Compact Flash Memory (1)

2. To remove the Compact Flash memory card from NEX852VL2, pull out the memory card from the Compact Flash socket.

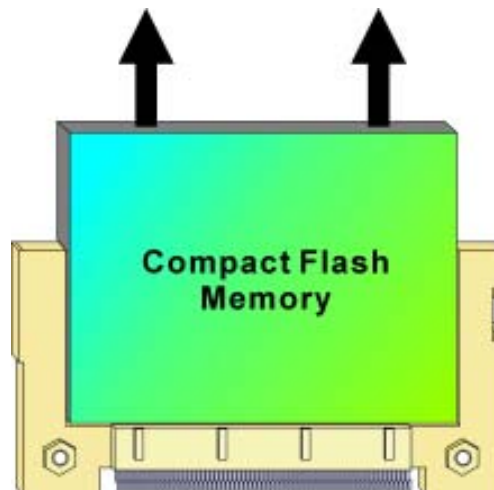


Figure 3-6: How to Install Compact Flash Memory (2)

### 3.4 Installing Intel Pentium-M CPU and Fan Heatsink

The NEX852VL2 supports a full range of Intel® Pentium®-M processors. Below is the installation instruction:

*Note: Prepare a slot type screwdriver before starting the installation process.*

1. Be sure that the beveled corner of the CPU as shown in the picture is aligned with that of the socket.

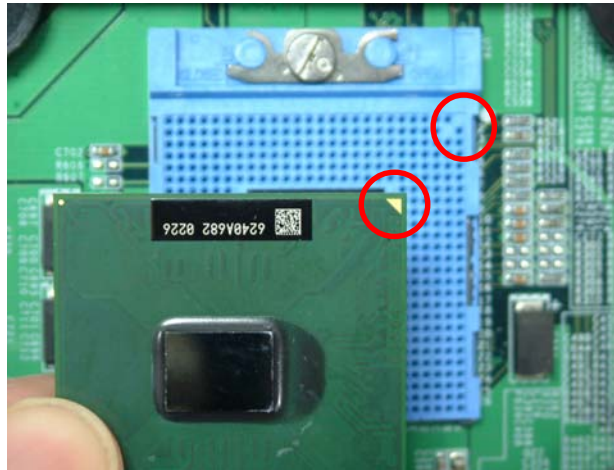


Figure 3-7: How to Install CPU (1)

2. Screw it tight as shown in the picture.

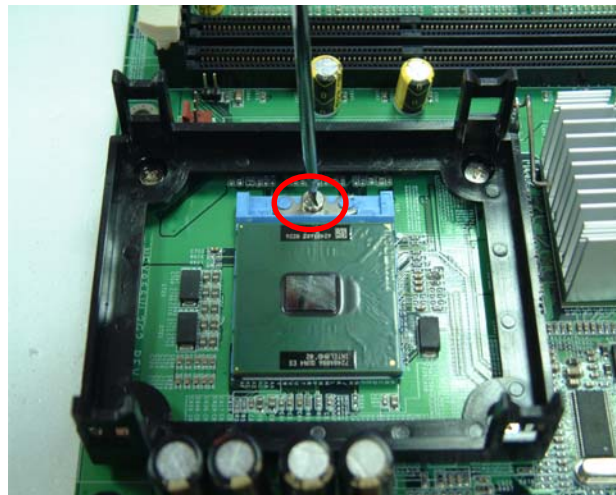
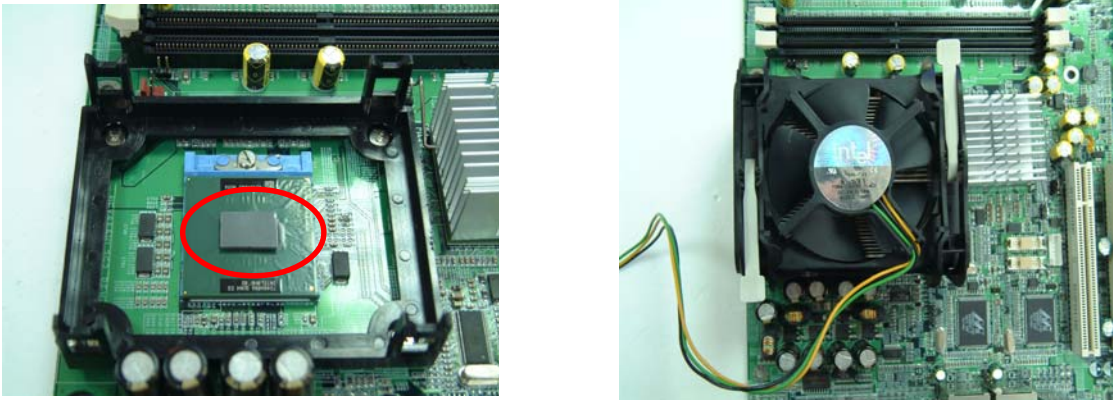


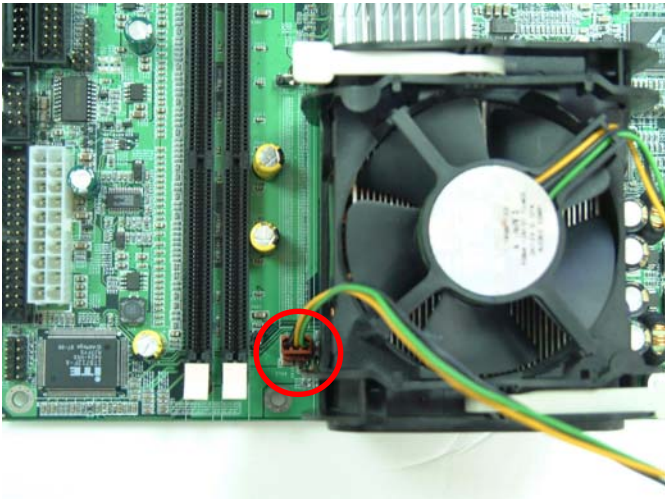
Figure 3-8: How to Install CPU (2)

3. Tear off the protective membrane of one side of the thermal pad and stick it on the CPU, while the other side of the thermal pad is stuck on the heatsink after tearing off the protective membrane.



**Figure 3-9: How to Install CPU (3)**

4. Insert the fan power connector onto J2 on the NEX852VL(2) embedded CPU board.



**Figure 3-10: How to Install fan heatsink (1)**

## **Chapter 4**

### **Award BIOS Setup**

This chapter explains how to use the BIOS Setup program for the NEX852VL2. The current BIOS setup pictures in the chapter is for reference only, which may change by the BIOS modification in the future. Users can download any major updated items or reversion from NEXCOM web site <http://www.nexcom.com.tw>. If any unclear message occurs, please contact NEXCOM customer service representative for help or log onto <http://www.nexcom.com.tw/contact/contact.htm>.

## 4.1 About the BIOS

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- ◆ Hard drives, diskette drives, and peripherals
- ◆ Video display type and display options
- ◆ Password protection from unauthorized use
- ◆ Power management features

The settings made in the Setup program intimately affect how the computer performs. It is important, therefore, first to try to understand all the Setup options, and second, to make settings appropriate for the way you use the computer.

## 4.2 When to Run BIOS

This program should be executed under the following conditions:

- ◆ When changing the system configuration
- ◆ When a configuration error is detected by the system and you are prompted to make changes to the Setup program
- ◆ When resetting the system clock
- ◆ When setting the CPU clock speed so that it automatically runs either fast or slow
- ◆ When redefining the communication ports to prevent any conflicts
- ◆ When making changes to the Power Management configuration
- ◆ When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

## 4.3 Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- ◆ If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- ◆ If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

**TO ENTER SETUP BEFORE BOOT  
PRESS <CTRL-ALT-ESC> OR <DEL> KEY**

Press the <Del> key or press the <Ctrl>, <Alt>, and <Esc> keys to enter Setup:

## 4.4 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The main menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

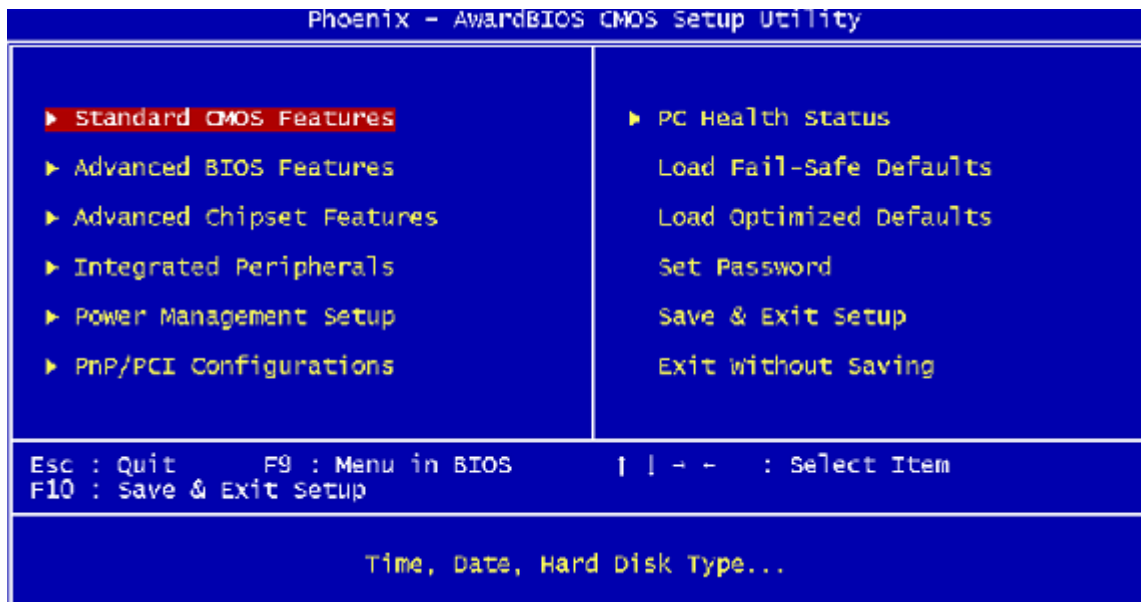


Figure 4-1: BIOS Setup Utility Main Menu

### Standard CMOS Features

Use this menu for basic system configuration

### Advanced BIOS Features

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

### **Advanced Chipset Features**

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

### **Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals

### **Power Management Setup**

Use this menu to specify your settings for power management.

### **PnP/PCI Configurations**

This entry appears if your system supports Plug and Play and PCI Configuration

### **PC Health Status**

Displays CPU, System Temperature, Fan Speed, and System Voltages Value

### **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, i.e., factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the option to change these defaults to meet their needs.

### **Set Password**

Enables you to change, set, or disable the supervisor or user password.

### **Save & Exit Setup**

Saves CMOS value changes to CMOS and exits setup

### **Exit Without Saving**

Ignores all CMOS value changes and exits setup.

## **4.5 Getting Help**

### **Main Menu**

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### **Status Page Setup Menu/Option Page Setup Menu**

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

## 4.6 Control Keys

The table below lists the keys that help you navigate the setup program.






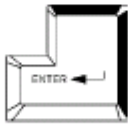
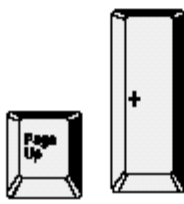








Up arrow		Move to previous item
Down arrow		Move to next item
Left arrow		Move to the item to the left
Right arrow		Move to the item to the right
Esc key		<i>Main Menu:</i> Quit without saving changes to CMOS <i>Status/Option Page Setup Menus:</i> Exit current page and return to Main Menu.
Enter Key		Select or Accept an Item
PgUp/plus key		Increase the numeric value or make changes
PgDn/minus key		Decrease the numeric value or make changes
F1 key		General help, only for Status Page Setup Menu and Option Page Setup Menu
F2/Shift + F2 key		Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F5 key		Restore the previous CMOS value from CMOS (only for Option Page Setup Menu)
F6 key		Load the default CMOS value from BIOS default table (only for Option Page Setup Menu)
F7 key		Load the Setup default value (only for Option Page Setup Menu)
F9 Key		Menu in BIOS
F10 key		Save all the CMOS changes (only for Main Menu)

Table 4-1: BIOS Control Keys



## 4.7 Standard CMOS Features

Selecting Standard CMOS Features on the main program screen displays the following menu:

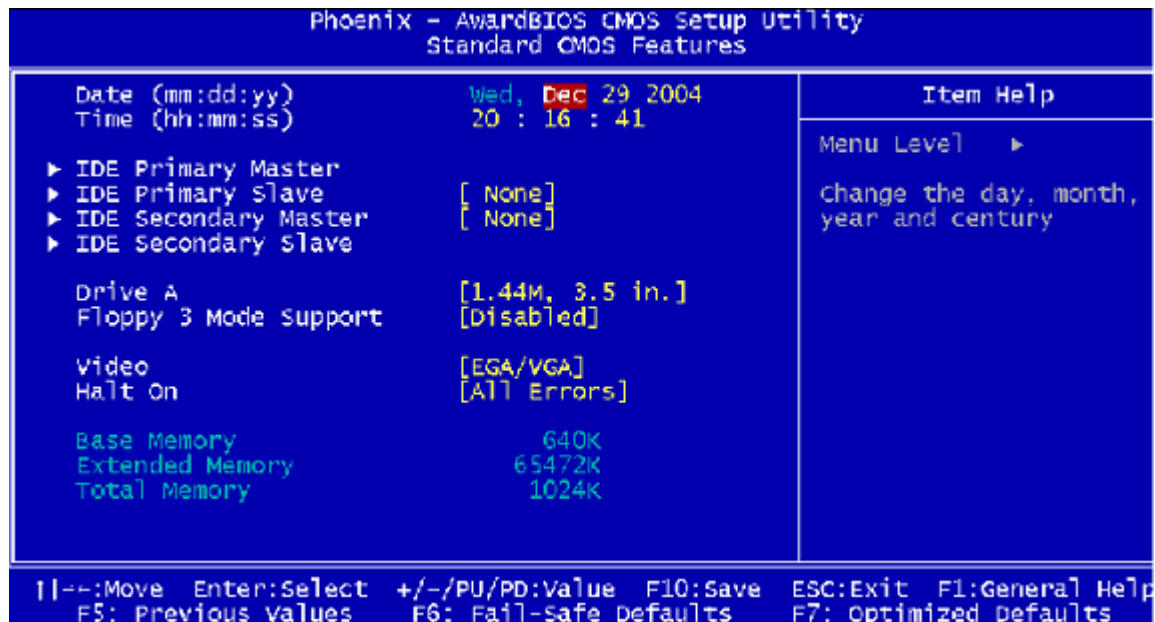


Figure 4-2: BIOS – Standard CMOS Features

The Standard CMOS Setup utility is used to configure the following features:

### Date (mm:dd:yy)

The BIOS determines the day of the week from the other data information. This field is for information only. Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

### Time (hh:mm:ss)

The time format is based on the 24-hour military time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to the desired field. Press the PgUp or Pg Dn key to increment the setting, or type the desired value into the field.

### IDE Devices (Primary/Secondary Master/Slave)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel. If you leave this item at Auto, the system will automatically detect and configure any IDE devices it finds. If it fails to find

a hard disk, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items below:

- ◆ Capacity            Approximate hard disk drive capacity
- ◆ Cylinder            Number of cylinders
- ◆ Head                Number of heads
- ◆ Precomp            Write pre-compensation cylinder
- ◆ Landing Zone        Landing zone
- ◆ Sector              Number of sector

Refer to your drive's documentation or look on the drive if you need to obtain this information. If no device is installed, change the value to None.

## Drive A

Select this field to the type of floppy disk drive installed in your system. The choices are:

- ◆ None                No floppy drive installed
- ◆ 360K, 5.25 in        5-1/4 inch PC type standard drive; 360 kilobyte capacity
- ◆ 1. 2M, 5.25 in        5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
- ◆ 720K, 3.5 in         3-1/2 inch double-sided drive; 720 kilobyte capacity
- ◆ 1.44M, 3.5 in        3-1/2 inch double-sided drive; 1.44 megabyte capacity
- ◆ 2. 88M, 3.5 in        3-1/2 inch double-sided drive; 2.88 megabyte capacity

*Note: The None option could be used for diskless workstations.*

## Floppy 3 Mode Support

Floppy 3 mode refers to 3.5" diskette with a capacity of 1.2MB. This mode is sometimes used in Japan.

## Video

Set this field to the type of graphics card installed in your system. If you are using a BGA or higher resolution card, choose the EGA/VGA option. The options are:

- ◆ EGA/VGA    Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA or PGA monitor adapters
- ◆ CGA40        Color Graphics Adapter, power up in 40 column mode
- ◆ CGA80        Color Graphics Adapter, power up in 80 column mode
- ◆ MONO        Monochrome adapter, includes high resolution monochrome adapters

## Halt On

During the Power-On Self-Test (POST), the computer stops if the BIOS detect a hardware error. This setting determines which type of error will cause the system to halt during boot. The options are:

- ◆ All Error: Whenever the BIOS detects a non-fatal error, the system will be stopped and you will be prompted.
- ◆ No Errors: The system boot will not stop for any error that may be detected.
- ◆ All, But Keyboard: The system boot will not stop for a keyboard error, but it will stop for all others.
- ◆ All, But Diskette: The system boot will not stop for a disk error, but it will stop for all others.
- ◆ All, But Disk/Key: The system boot will not stop for a keyboard or disk error, but it will stop for all others.

After you have made your selections in the Standard CMOS Setup screen, press <ESC> to go back to the main screen.

## 4.8 Advanced BIOS Features

Selecting Advanced BIOS Feature on the main program screen displays this menu, which allows you to define advanced information about your system. You can make modifications to most of these items to improve your system performance or set up system features according to your preference, without causing fatal errors to your system.

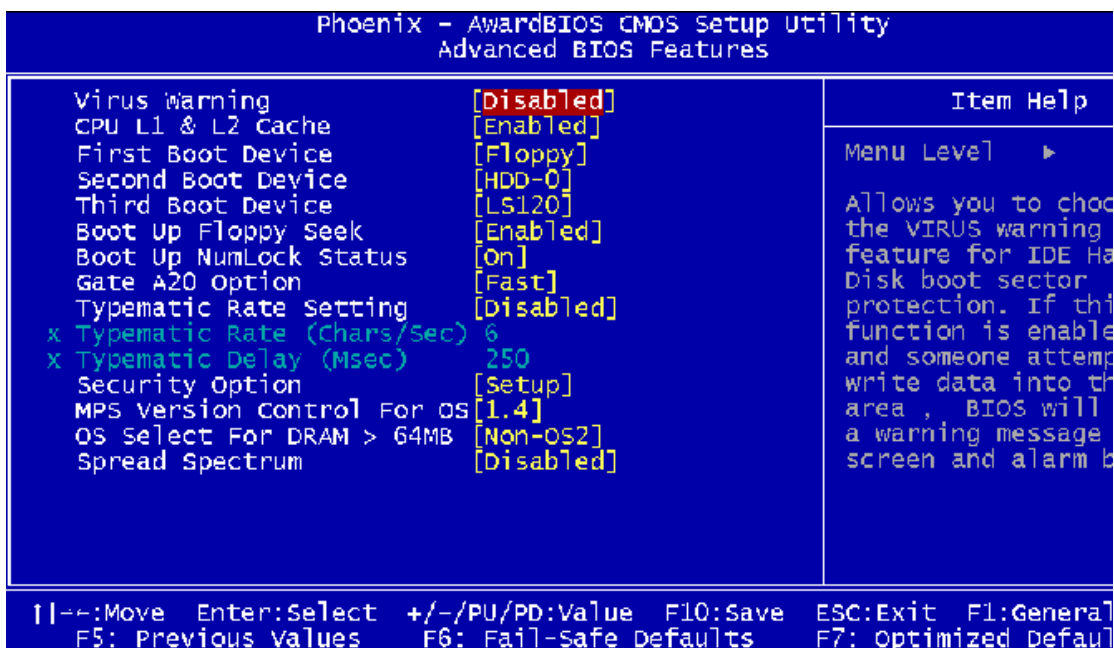


Figure 4-3: BIOS – Advanced BIOS Features

The following explains the options for each feature:

### Virus Warning

Allow you to choose the Virus Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and an alarm will beep.

- ◆ Enabled: Activates automatically when the system boots up causing the following warning

**!WARNING!**  
**Disk boot sector is to be modified**  
**Type “Y” to accept write or “N” to abort write**  
**Award Software, Inc.**

message to appear when anything attempts to access the boot sector or hard disk partition table:

- ◆ Disabled: No warning message will appear when an attempt is made to access the boot sector or hard disk partition table.

*Note: This function is available only for DOS and other operating systems that do not trap INT13. For complete protection against viruses, install virus software in your operating system and update the virus definitions regularly.*

*Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.*

## **CPU L1 and L2**

Cache memory is an additional memory that is much faster than conventional DRAM (system memory). This BIOS feature is used to enable or disable the processor's Level 1 and Level 2 cache. Naturally, the default and recommended setting is Enabled.

## **First/Second/Third Boot Device**

BIOS attempts to load the operating system from the devices in the sequence selected. The available choices are: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, and Disabled.

## **Boot Up Floppy Seek**

Enable this to allow the system to search for floppy drives during the POST. Disable this item to boot faster.

## **Boot Up NumLock Status**

Toggle between On or Off to control the state of the NumLock key when the system boot. If On, the numeric keypad is in numeric mode. If Off, the numeric keypad is in cursor control mode.

## **Typematic Rate Setting**

If set to Enabled, enables you to set the Typematic Rate and Typematic Delay. When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system.

- ◆ **Typematic Rate (Chars/Sec):** When the typematic rate setting is Enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.
- ◆ **Typematic Delay (Msec):** This setting controls the time between the display of the first character and successive characters. There are four delay choices: 250ms, 500ms, 750ms and 1000ms.

## Security Option

Enables you to select whether the password is required every time the system boots or only when you enter Setup.

- ◆ **System:** The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
- ◆ **Setup:** The system will boot, but access to Setup will be denied if the correct password is not entered at setup.

## MPS Version Control for OS

This feature is only applicable to multiprocessor motherboards as it specifies the version of the Multi-Processor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors. MPS version 1.4 is required for a motherboard to support a bridgeless secondary PCI bus.

## OS Select for DRAM>64MB

Set to OS2 if the system memory size is greater than 64 MB and the operating system is OS/2, otherwise select non-OS2 option.

## Spread Spectrum

The BIOS usually offers two levels of modulation - 0.25% or 0.5%. The greater the modulation, the greater the reduction of EMI. Therefore, if you need to significantly reduce your motherboard's EMI, a modulation of 0.5% is recommended.

In most conditions, frequency modulation via this feature should not cause any problems. However, system stability may be slightly compromised in certain situations. For example, this BIOS feature may cause improper functioning of timing-critical devices like clock-sensitive SCSI devices.

Spread Spectrum can also cause problems with overclocked systems, especially those that have been taken to extremes. Even a slight modulation of frequency may cause the processor or any other overclocked components of the system to fail, leading to very predictable consequences.

Therefore, it is recommended that you disable this feature if you are overclocking your system. The risk of crashing your system is not worth the reduction in EMI. Of course, if EMI reduction is important to you, enable this feature by all means. But you should reduce the clock speed a little to provide a margin of safety.

After you have made your selections in the Advanced BIOS Features setup, press <ESC> to go back to the main screen.

### 4.9 Advanced Chipset Features

Since the features in this section are related to the chipset in the CPU board and all are optimized, you are not recommended to change the default settings in the setup table, unless you understand the chipset features.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manage 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. 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.

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

Selecting Advanced Chipset Features on the main program screen displays this menu:

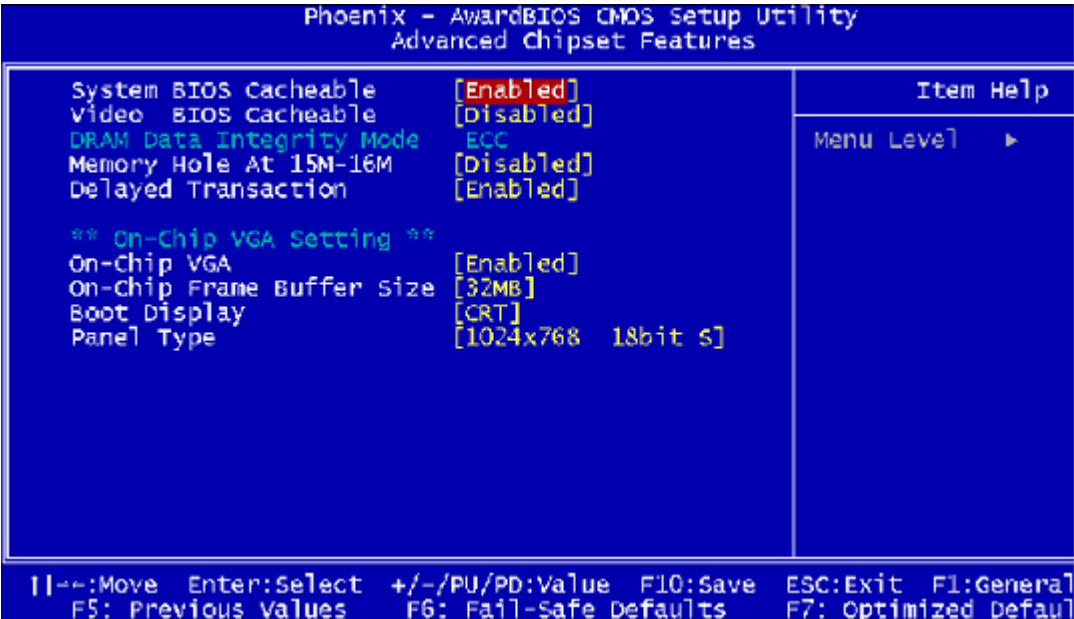


Figure 4-4: BIOS – Advanced Chipset Features

## **System BIOS cacheable**

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

## **Video BIOS Cacheable**

Selecting Enabled allows caching of the video BIOS ROM at C0000h, resulting in better video performance. However, if any program writes to this memory area, a system error may result. The choices: Enabled, Disabled.

## **Memory Hole At 15M – 16M**

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

The choices: Enabled, Disabled.

## **Delayed Transaction**

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

## **On-Chip VGA**

By default, the On-Chip VGA or chipset-integrated VGA is Enabled.

## **On-Chip Frame Buffer Size**

The On-Chip Frame Buffer Size can be set as 1, 4, 8, 16 or 32MB. This memory is shared with the system memory.

## **Boot Display**

Boot Display determines the display output device where the system boots. The options are Auto, CRT, LFP, and CRT+LFP.

## **Panel Type**

This field allows user to decide the LVDS panel resolution. Please refer to the BIOS for the resolution.

After you have made your selections in the Advanced Chipset Features setup, press <ESC> to go back to the main screen.

## 4.10 Integrated Peripherals

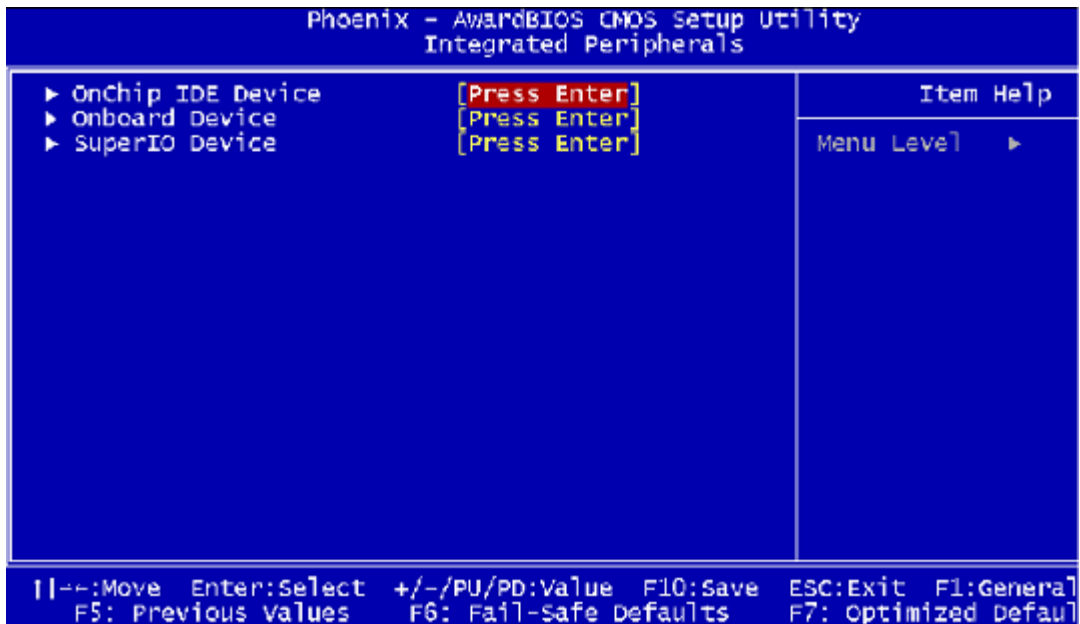


Figure 4-5: BIOS – Integrated Peripherals

### OnChip IDE Device

Select this item to setup the IDE device features. When you select this item, the following menu shows:

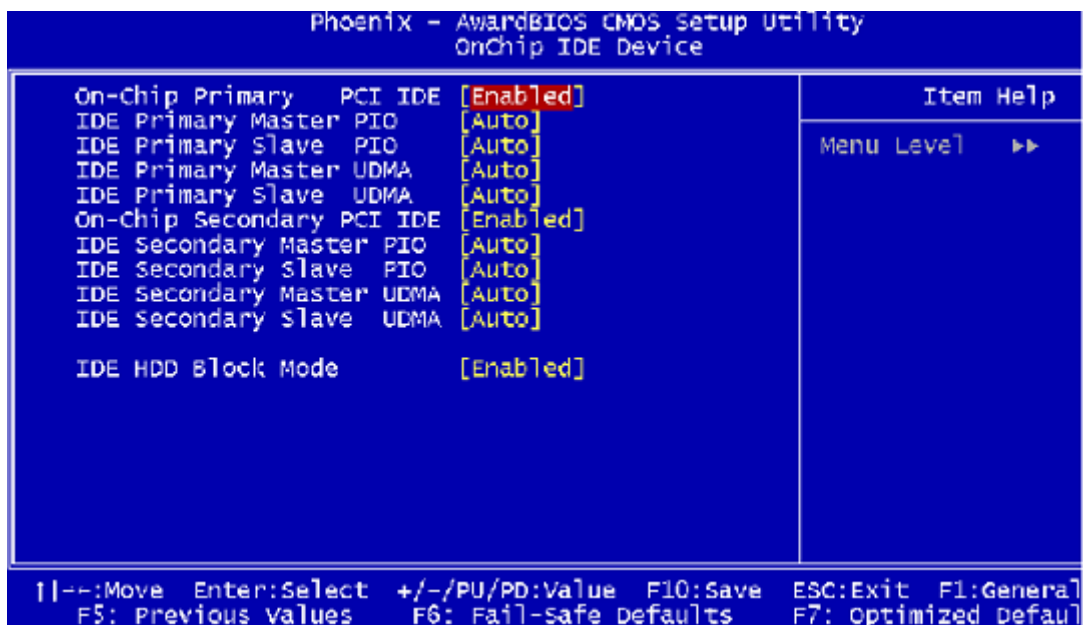


Figure 4-6: BIOS – OnChip IDE Device

### On-Chip Primary/Secondary PCI IDE

The system chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.



## IDE Primary/Secondary Master/Slave PIO

The four IDE PIC (Programmable Input/Output) fields let you set a PIC mode (0-1) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The choices are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

## IDE Primary/Secondary Master/Slave UDMA

Ultra DMA 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, select Auto to enable BIOS support. The choices are Auto, and Disabled.

## IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optional number of block read/write per sector the drive can support. The available choices are Enabled, Disabled.

Press <ESC> to go back to Integrated Peripherals BIOS page when you finish setting up the above items.

## Onboard device

Select this item to setup the onboard device features. When you select this item, the following menu shows:



Figure 4-7: BIOS – Onboard Device

## USB 2.0 Controller

Select Enable if your system contains a Universal Serial Bus 2.0 controller and you have USB 2.0 peripherals.

## USB Keyboard Support

Select Enabled if your USB controller is enabled and it needs USB keyboard support in legacy (old) OS operating systems such as DOS.

## AC97 Audio

Selecting Auto will enable the AC'97 audio if it is detected onboard.

## Onboard Gigabit LAN

Enables and disables the onboard LAN modules.

## SuperI/O Device

Select this item to setup the superI/O device features. When you select this item, the following menu shows:

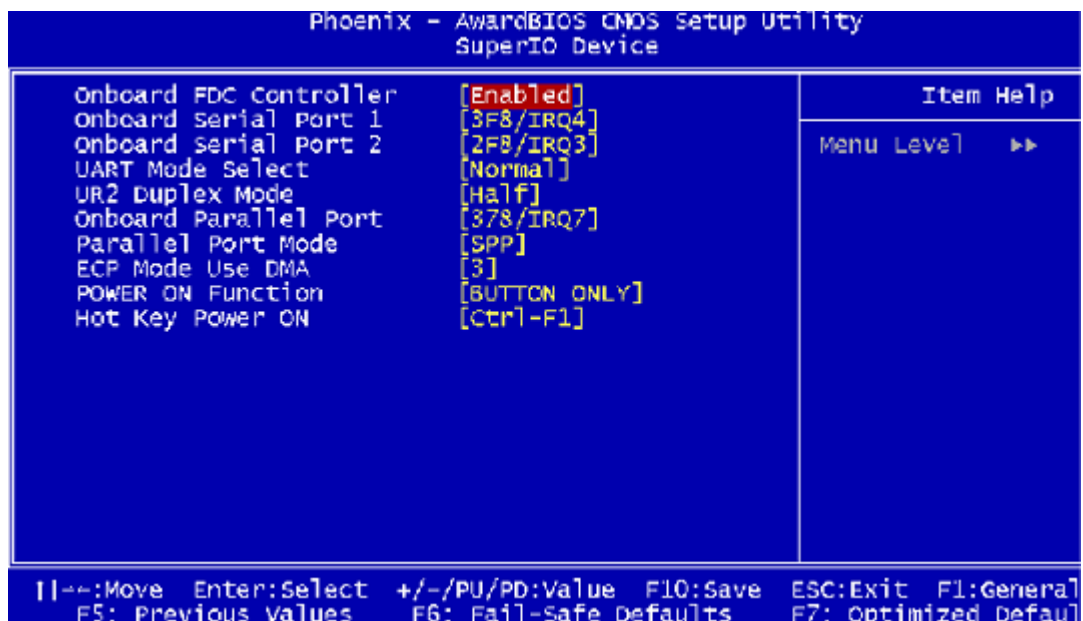


Figure 4-8: BIOS – Onboard Device

## **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 an add-in FDC or the system has no floppy drive, select Disabled to this field.

## **Onboard Serial Ports (1, 2)**

This feature allows you to manually select the I/O address and IRQ for the first and second serial ports. It is recommended that you leave it as Auto so that the BIOS can select the best settings for it. But if you need a particular I/O port or IRQ that's been taken up by this serial port, you can manually select an alternative I/O port or IRQ for it. You can also disable this serial port if you do not need to use it. Doing so frees up the I/O port and IRQ used by this serial port. Those resources can then be reallocated for other devices to use.

## **UART Mode Select**

Select an operating mode for the serial port.  
The choices are: Normal, IrDA, ASKIR.

## **UR2 Duplex Mode**

In an infrared port mode, this field appears. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. Select the value required by the IR device connected to the IR port.

## **Onboard Parallel Port**

This feature allows you to select the I/O address and IRQ for the onboard parallel port. The default I/O address of 378h and IRQ of 7 should work well in most cases. Unless you have a problem with the parallel port, you should leave it at the default settings. The choices: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, and Disabled.

## **Parallel Port Mode**

Select an operating mode for the onboard parallel (printer) port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP+EPP.

## **ECP Mode Use DMA**

When the on-board parallel port is set to ECP mode, the parallel port can use DMA3 or DMA1.

## **Power On Function**

Use the button only for power on function.

## **Hot Key Power On**

Press "Ctrl-F1" for hot key power on.

After you have made your selections in the Integrated Peripherals setup, press the <ESC> key to go back to the main program screen.

## 4.11 Power Management Setup

This option lets you control system power management. The system has various power-saving modes including powering down the hard disk, turning off the video, suspending to RAM, and software power down that allows the system to be automatically resumed by certain events.

The power-saving modes can be controlled by timeouts. If the system is inactive for a time, the timeouts begin counting. If the inactivity continues so that the timeout period elapses, the system enters a power-saving mode. If any item in the list of Reload Global Timer Events is enabled, then any activity on that item will reset the timeout counters to zero.

If the system is suspended or has been powered down by software, it can be resumed by a wake up call that is generated by incoming traffic to a modem, a LAN card, a PCI card, or a fixed alarm on the system real-time clock.

Selecting Power Management Setup on the main program screen displays this menu:

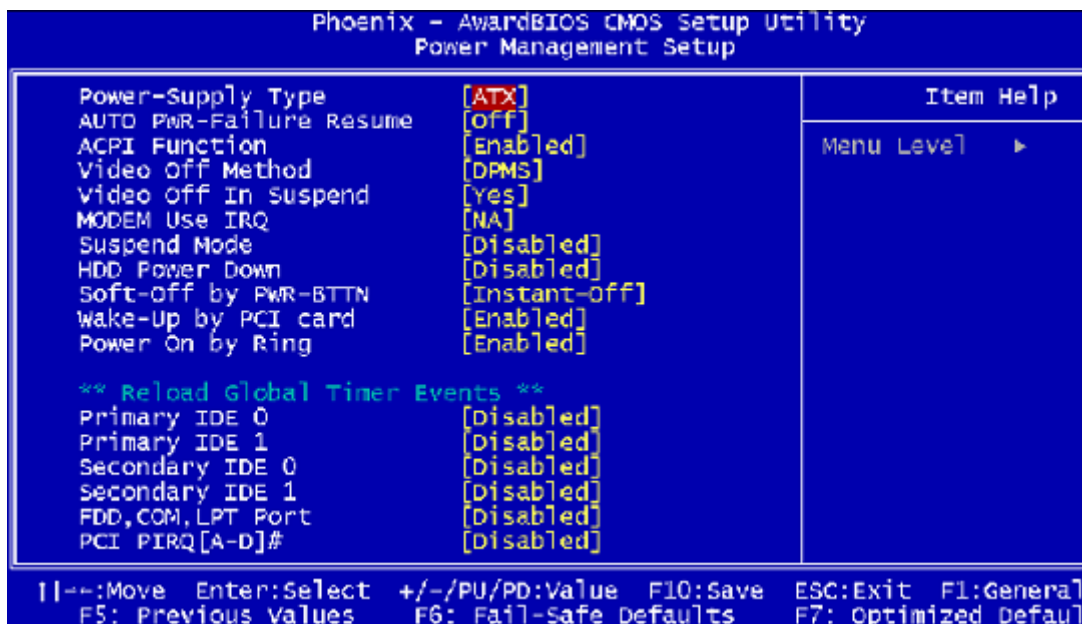


Figure 4-9: BIOS – Power Management Setup

## **Power-Supply Type**

Switch to ATX if it is an ATX power supply type.

## **Auto Power-Failure Resume**

Choose OFF if auto power is resumed.

## **ACPI Function**

The ACPI standard (Advanced Configuration and Interface power) allows the operating system directly to check the functions of energy saving and the PnP (Plug and Play) functionality. The ACPI functions are normally activated by the BIOS. The choices are: Enabled and Disabled.

## **Video Off Method**

This determines the manner in which the monitor is blanked. There are three choices:

1. V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization port and write blanks to the video buffer.
2. Blank Screen: This option only writes blanks to the video buffer.
3. DPMS Support: Select this option if your monitor supports the Display Power Management signaling (DPMS) standard of the Video Electronics Standard to select video power management values.

## **Video Off In Suspend**

This determines the manner in which the monitor is blanked. The choices: Yes, No.

## **MODEM Use IRQ**

This determines the IRQ in which the MODEM can use. The choices are 3, 4, 5, 7, 9, 10, 11, and NA

## **Suspend Mode**

After the selected period of system inactivity, all devices except the CPU shut off. The choices are 1~2 min, 2~3 min,.... Up to 1 hour.

## **HDD Power Down**

After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active.

## **Soft-Off by PWR-BTTN**

This function can turn the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity. The choices are Delay 4 seconds, and Instant-Off.

## Wake up by PCI Card

When the system enters a Soft-off mode (Standby power exist but system is not working), it will wake up system when specific signals occurred. The BIOS monitors the system for “activity” to determine when to enable power management.

If you enable this feature, the computer specifies that any signal noticed on the PCI (Peripheral Component Interconnect) bus channel must make go out from the hibernation state. The choices: Enabled, Disabled.

## Power On by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state. The choices: Enabled, Disabled.

## Reload Global Timer Events

**Primary/Secondary IDE 0/1**  
**FDD, COM, LPT Port**  
**PCI PIRQ [A-D]#**

The 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, which occurs to a device, which is configured as Enabled, even when the system is in a power down mode. The choices are Enabled, and Disabled.

After you have made your selections in the Power Management setup, press the <ESC> key to go back to the main program screen.

## 4.12 PnP/PCI Configurations

This section describes configuring the PCI bus system. Peripheral Component Interface, 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.

Selecting PnP/PCI Configurations on the main program screen displays this menu:

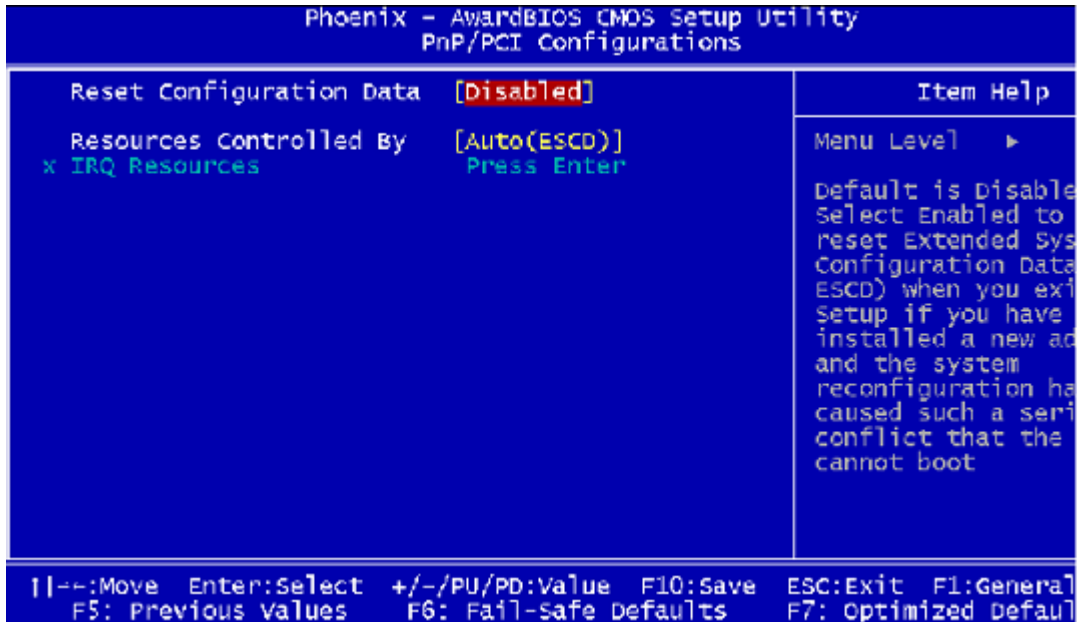


Figure 4-10: BIOS – PnP/PCI Configurations

### Reset Configuration Data

Normally, you leave this field Disabled, Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on Card and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The choices are Enabled and Disabled.

### Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as going into each of the submenus that follows this field. The choices are Auto (ESCD), Manual.

## 4.13 PC Health Status

When main boards support hardware monitoring, this item lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds. These are the read only items.

After you have read the PC Health Status, press the <ESC> key to go back to the main program screen.

## 4.14 Load Fail-Safe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the whole setup utility. Press the <Y> key and then <Enter> to install the defaults. Press the <N> key and then <Enter> to not install the defaults.

Use this option if you have changed your system and it does not operate correctly or does not power up.

## 4.15 Load Optimized Defaults

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the whole setup utility. Press the <Y> key and then <Enter> to install the defaults. Press the <N> key and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press the <F7> key.

## 4.16 Set Password

The User Password utility sets the password. The main board is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt enter your new password. The password is case sensitive. You can use up to eight alphanumeric characters. Press <Enter> after entering the password. At the next prompt, confirm the new password by retyping it and pressing <Enter> again.

To disable the password dialog box appears. A message appears confirming that the password has been disabled. If you have set supervisor and user Password, only the supervisor password allows you to enter the BIOS setup program.

*Note: If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt (jumper cap) on jumper JP2 to short pin 2 and pin 3 for five seconds, then putting the shunt back to pin 1 and pin 2 of JP2.*

## 4.17 Save & Exit Setup

Selecting this option and pressing <Enter> will save the new setting information in the CMOS memory and continue with the booting process.

## 4.18 Exit Without Saving

Selecting this option and pressing <Enter> will exit the Setup utility without recording any new values or changing old ones.

This concludes Chapter 4. The next chapter covers drivers installing.



## **Appendix A**

### **Watchdog Timer**

The NEX852VL(2) features a watchdog timer that reset the CPU or generates an interrupt if the processor stops operating for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

## A.1 Watchdog Timer Working Procedure

The Watchdog Timer (WDT) is a special hardware device that monitors the computer system during normal operation. The WDT has a clock circuit that times down from a set number to zero. If a monitored item occurs before the timer reaches zero, the WDT resets and counts down again. If for some reason the monitored item doesn't occur before the timer reaches zero, the WDT performs an action, such as a diagnostic operation (rebooting the computer) or generate an NMI.

You must enter timer values into the WDT Configuration Register (Write the control value to the Configuration Port), and clear (read the Configuration Port).

<b>WDT Configuration port</b>	I/O port 2E0h	Read/Writable, default at 2E0h
<b>Watchdog Timer</b>	Disabled	Disable WDT functions (Default setting)
	Enabled	Enable WDT functions control by <b>WDT time out active for</b> and <b>WDT Time Out Active Time</b>
<b>WDT Time out active for</b>	Reset Output	Reset system when WDT time out
	NMI Output	Generate NMI when WDT time out
	WDT Notice Output	1. Located at J8 pin No. 6 2. Normal work output low level 3. Output high level when WDT time-out, read or write WDT configuration port return to normal work (output low level)
<b>WDT Time Out Active Time</b>	1 sec/min 2 sec/min 4 sec/min 8 sec/min 16 sec/min 32 sec/min 64 sec/min 127 sec/min	WDT time out occurs after the selected time level

**Table A-1: Watchdog Timer Character and Function**

## A.2 Watchdog Timer Control Register

The Watchdog Timer Control Register controls the EDT working mode. Write the value to the WDT Configuration Port. The following table describes the Control Register bit definition.

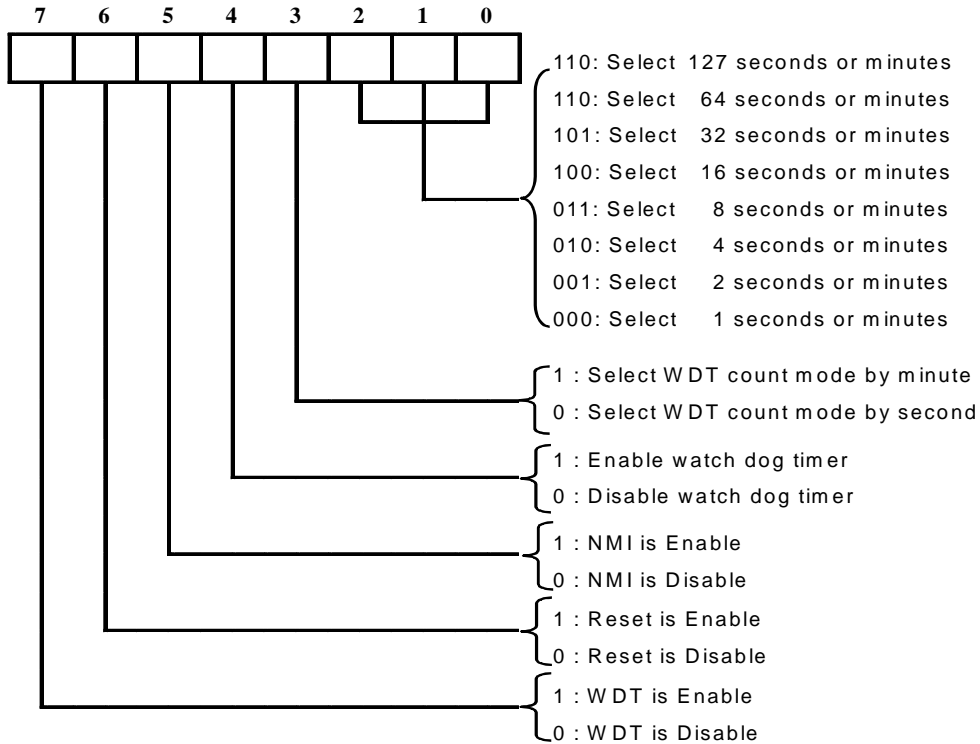


Table A-2: Control Register Bit Definition

## A.3 Watchdog Timer Programming Procedure

### Power on or reset the system

The initial value of WDT Control Register (D4~D0) is zero, when power is on or reset the system. The following shows the initial value of WDT (00000000b):

Bit	Value	Mean
7	0	Disable WDT
6	0	Reset output is disable
5	0	NMI output is disable
4	0	WDT Notice output is disable
3	0	Select WDT count mode by second
2, 1, 0	0 0 0	Select time-out occurs after 1 second/minute

Table A-3: WDT Control Register Initial Value

## Clear the WDT

The WDT counter internal cannot be longer than the preset time, otherwise, the WDT generates a NMI (Non Maskable Interrupt) or sends a reset signal to the system.

*Note: Before running WDT, clear the WDT to make sure the initial value is zero before enabling the WDT.*

## WDT Control Register (Write to WDT configuration port)

*Note: This register writes to the WDT configuration port.*

You can set the WDT Control Register to control the WDT working mode.

Follow below instructions to set the initial value of the WDT working mode.

1. Select the WDT time out occurs time  
Time-out intervals decide by values of bit 2, bit 1, bit 0 in I/O port 2E0h  
minute or second decide by values of bit 3 in I/O port 2E0h
2. Enable or Disable WDT Notice Output decide by bit 4 value in I/O port 2E0h
3. Enable or Disable NMI Output decide by bit 5 value in I/O port 2E0h
4. Enable or Disable Reset Output decide by bit 6 value in I/O port 2E0h
5. Enable or Disable the WDT decide by bit 7 value in I/O port 2E0h

After finishing the above settings, you must output the Control Register's value to the WDT Configuration Port. Then WDT will start according to the above settings.

*Note: Build a mechanism in the program to continue to read the WDT Configuration Port for clearing WDT before time out.*

## **Appendix B**

# **GPI/O Programming**

This appendix provides definitions for the four GPI/O pins in the NEX852VL(2). GPI/O (General Purpose Input/Output) pins are provided for custom system design. The pin programming as input mode (GPI) or output mode (GPO) is depending on the configuration. The pin definitions are shown in the following table:

Pin No.	GPI/O mode	Default Corresponding Pin	Default PowerOn	Pin No.	GPI/O mode	Default Corresponding Pin	Default PowerOn
1	Digital Output 1	1	Read High	2	Digital Input 1	1	High
3	Digital Output 2	1	Read High	4	Digital Input 2	1	High
5	Digital Output 3	1	Read High	6	Digital Input 3	1	High
7	Digital Output 4	1	Read High	8	Digital Input 4	1	High
9	VCC5		-	10	GND		-

**Table B-1 : J38 - GPI/O Connector Pin Definition**

- ◆ All digital output have pull-up to +3.3V
- ◆ BIOS controls the GPI/O Default Function
- ◆ Bit1~3: Reading the bit returns the digital input corresponding pin. Write is ignored.
  - 0 - Corresponding pin level low
  - 1 - Corresponding pin level high
- ◆ Bit4~7: The bit corresponds to pin of digital output. Reading the bit returns it's value that written before.
  - 0 - Corresponding pin driven to low
  - 1 - Corresponding pin released to high (default)