



AXIOMTEK

MANO830 Series

**Intel® Cedarview
D2550/N2600 with NM10
Mini ITX Board with LVDS**

User's Manual



Disclaimers

This manual has been carefully checked and believed to contain accurate information. Axiomtek Co., Ltd. assumes no responsibility for any infringements of patents or any third party's rights, and any liability arising from such use.

Axiomtek does not warrant or assume any legal liability or responsibility for the accuracy, completeness or usefulness of any information in this document. Axiomtek does not make any commitment to update the information in this manual.

Axiomtek reserves the right to change or revise this document and/or product at any time without notice.

No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Axiomtek Co., Ltd.

CAUTION

If you replace wrong batteries, it causes the danger of explosion. It is recommended by the manufacturer that you follow the manufacturer's instructions to only replace the same or equivalent type of battery, and dispose of used ones.

©Copyright 2013 Axiomtek Co., Ltd.

All Rights Reserved

September 2013, Version A1

Printed in Taiwan

ESD Precautions

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before holding the board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

Trademarks Acknowledgments

Axiomtek is a trademark of Axiomtek Co., Ltd.

Windows[®] is a trademark of Microsoft Corporation.

AMI is a trademark of American Megatrend Inc.

IBM, PC/AT, PS/2, VGA are trademarks of International Business Machines Corporation.

Intel[®] is a trademark of Intel Corporation.

Winbond is a trademark of Winbond Electronics Corp.

Other brand names and trademarks are the properties and registered brands of their respective owners.

Table of Contents

Disclaimers.....	ii
ESD Precautions.....	iii
Chapter 1 Introduction.....	1
1.1 Features.....	1
1.2 Specifications.....	2
1.3 Utilities Supported.....	3
Chapter 2 Board and Pin Assignments.....	5
2.1 Board Dimensions and Fixing Holes.....	5
2.2 Board Layout.....	7
2.3 Jumper Settings.....	8
2.3.1 LVDS Voltage Selection (JP1).....	9
2.3.2 COM4 Data/Power Selection (JP2).....	9
2.3.3 COM3 Data/Power Selection (JP3).....	9
2.3.4 COM2 Data/Power Selection (JP4).....	9
2.3.5 COM1 Data/Power Selection (JP5).....	10
2.3.6 Mini Card Selection (JP7).....	10
2.3.7 Restore BIOS Optimal Defaults (JP10).....	10
2.3.8 LVDS Backlight Control Mode Setting (JP11).....	10
2.4 Connectors.....	11
2.4.1 Front Panel Connector (CN1).....	12
2.4.2 Parallel Port (CN2).....	13
2.4.3 Inverter Connector (CN4).....	13
2.4.4 PS/2 Mini-DIN Keyboard and Mouse Connector (CN5).....	14
2.4.5 PS/2 2x5-pin Keyboard and Mouse Connector (CN6).....	14
2.4.6 LVDS Connector (CN7).....	15
2.4.7 Digital I/O Connector (CN8).....	16
2.4.8 HDMI Connector (CN9).....	16
2.4.9 VGA and COM1 D-Sub Connector (CN10A and CN10B).....	17
2.4.10 Ethernet and USB Connectors (CN12 and CN14).....	18
2.4.11 PCI-Express Mini Card Connector (CN16).....	19
2.4.12 Audio Jack (CN18).....	19
2.4.13 PCI-Express x1 Slot (CN19).....	20
2.4.14 COM Connectors (COM2~COM4).....	20
2.4.15 FAN Connectors (FAN1~FAN2).....	21
2.4.16 Serial ATA Connectors (SATA1~SATA2).....	21
2.4.17 Internal USB Connectors (USB1~USB3).....	22
2.4.18 ATX Power Connector (ATX1).....	23

Chapter 3	Hardware Installation	25
3.1	Installing the Memory	25
Chapter 4	Hardware Description	27
4.1	Microprocessors	27
4.2	BIOS	27
4.3	System Memory.....	27
4.4	I/O Port Address Map.....	28
4.5	Interrupt Controller (IRQ) Map	30
4.6	Memory Map	33
Chapter 5	AMI BIOS Setup Utility	35
5.1	Starting.....	35
5.2	Navigation Keys	35
5.3	Main Menu.....	37
5.4	Advanced Menu.....	38
5.5	Chipset Menu.....	44
5.6	Boot Menu.....	47
5.7	Security Menu.....	48
5.8	Save & Exit Menu	49
Appendix A	Watchdog Timer.....	51
	About Watchdog Timer.....	51
	How to Use Watchdog Timer.....	51
Appendix B	Digital I/O	53
	Digital I/O Software Programming	53

This page is intentionally left blank.

1.2 Specifications

- **CPU**
 - Intel® Cedarview D2550 processor.
 - Intel® Cedarview N2600 processor.
 - **System Chipset**
 - Intel® NM10.
 - **BIOS**
 - AMI UEFI BIOS.
 - 16Mbit SPI flash, DMI, Plug and Play.
 - Support One Button Recovery.
 - **System Memory**
 - One non-ECC SO-DIMM socket for DDR3 800/1066MHz memory.
 - Maximum up to 4GB for D2550.
 - Maximum up to 2GB for N2600.
-  **Note:** Support Small Outline DIMMs Raw Cards RC-A (2Rx16), RC-B (1Rx8), RC-C (1Rx16) and RC-F (2Rx8). Do not support RC-D (2Rx16 dual die) and RC-E (2Rx16).
- **Onboard Multi I/O**
 - Controller: NCT6627UD.
 - Serial ports: Four RS-232 ports.
 - One parallel port.
 - SATA ports: Two SATA ports (One port can be routed to PCI-Express Mini Card for mSATA).
 - **USB Interface**
 - Seven USB ports with fuse protection, compliant with USB Spec. Rev. 2.0 (USB port 8 routed to PCI-Express Mini Card).
 - **Display**
 - One CRT connector.
 - One HDMI port.
 - One 40-pin connector for 18/24-bit dual channel LVDS output interface with EDID up to 1920x1200 @ 60Hz resolution via CH7511B or 18/24-bit single channel via Gfx, co-design by BOM option.
 - **Watchdog Timer**
 - 1~255 seconds; up to 256 levels.
 - **Expansion Interface**
 - One PCI-Express x1 slot.
 - One PCI-Express Mini Card socket; compliant with PCI-Express Mini Card Spec. V1.2.
 - Support mSATA or PCI-Express x1 on PCI-Express Mini Card socket via jumper selection.

- **Ethernet**
 - Dual port with RTL8111E for Gigabit/Fast Ethernet.
 - RJ-45 over double-deck USB.

- **Audio**
 - Support dual independent audio output and microphone input via HD CODEC VT1708S.
 - Support audio amplifier LM1877 with 1W/channel @ 8Ohm for dual independent audio output.
 - One audio output and microphone routed to stacked phone jack on rear I/O; another audio output routed to 1x5-pin 1.25mm wafer connector for internal audio connection.

- **Power Management**
 - Standard ATX power with 2x10-pin power input connector.

- **Form Factor**
 - Mini ITX form factor.



Note: *All specifications and images are subject to change without notice.*

1.3 Utilities Supported

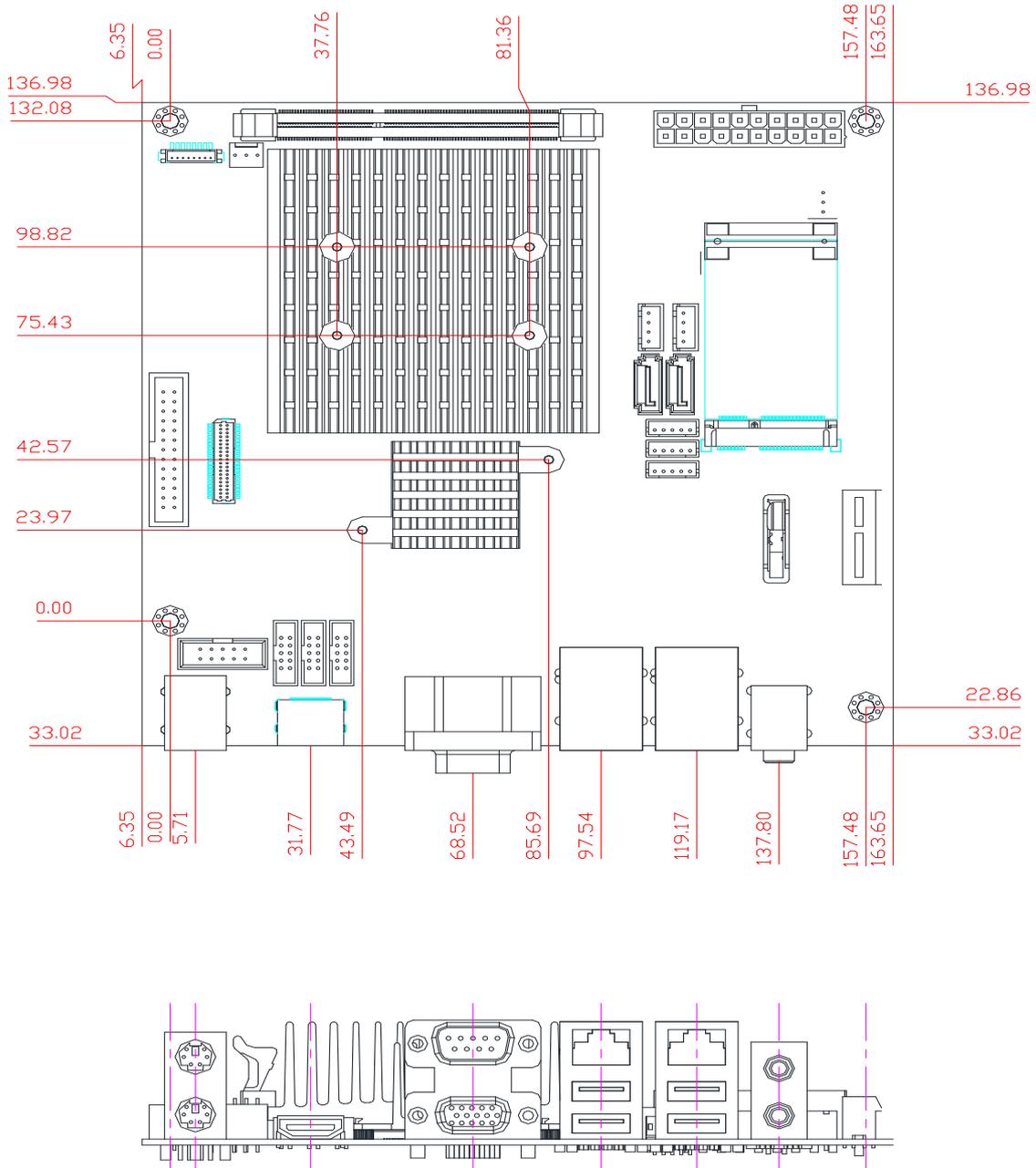
- Chipset driver
- Ethernet driver
- Graphics driver
- Audio driver

This page is intentionally left blank.

Chapter 2

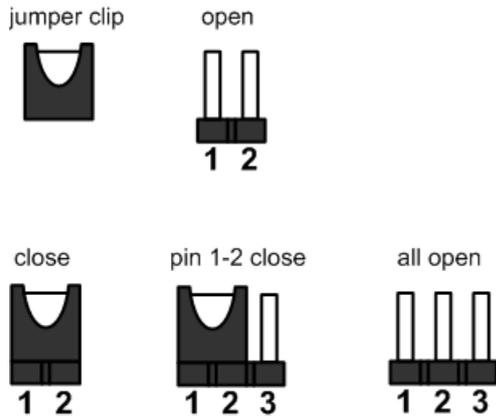
Board and Pin Assignments

2.1 Board Dimensions and Fixing Holes



2.3 Jumper Settings

Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins to close. And remove jumper clip from 2 jumper pins to open. The following illustration shows how to set up jumper.



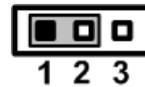
Before applying power to MANO830 Series, please make sure all of the jumpers are in factory default position. Below you can find a summary table and onboard default settings.

Jumper	Description	Setting	
JP1	LVDS Voltage Selection Default: +3.3V	1-2 Close	
JP2	COM4 Data/Power Selection Default: RS-232 Data	COM4 Pin 1: DCD	3-5 Close
		COM4 Pin 8: RI	4-6 Close
JP3	COM3 Data/Power Selection Default: RS-232 Data	COM3 Pin 1: DCD	3-5 Close
		COM3 Pin 8: RI	4-6 Close
JP4	COM2 Data/Power Selection Default: RS-232 Data	COM2 Pin 1: DCD	3-5 Close
		COM2 Pin 8: RI	4-6 Close
JP5	COM1 Data/Power Selection Default: RS-232 Data	CN10B Pin 1: DCD	3-5 Close
		CN10B Pin 9: RI	4-6 Close
JP7	Mini Card Selection Default: PCI-Express x1	1-2 Close	
JP10	Restore BIOS Optimal Defaults Default: Normal Operation	1-2 Close	
JP11	LVDS Backlight Control Mode Setting Default: PWM Mode	1-2 Close	

2.3.1 LVDS Voltage Selection (JP1)

The board supports voltage selection for flat panel displays. Use JP1 to set LVDS connector (CN7) pin 1~6 VCCM to +3.3V or +5V. To prevent hardware damage, before connecting please make sure that the input voltage of LVDS flat panel is correct.

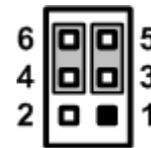
Function	Setting
+3.3V level (Default)	1-2 close
+5V level	2-3 close



2.3.2 COM4 Data/Power Selection (JP2)

The COM4 port has +5V level power capability on RI and +12V level on DCD by setting this jumper.

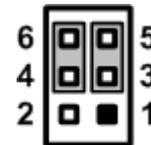
Function	Setting
Power: Set COM4 pin 1 to +12V level	1-3 close
Data: Set COM4 pin 1 to DCD (Default)	3-5 close
Power: Set COM4 pin 8 to +5V level	2-4 close
Data: Set COM4 pin 8 to RI (Default)	4-6 close



2.3.3 COM3 Data/Power Selection (JP3)

The COM3 port has +5V level power capability on RI and +12V level on DCD by setting this jumper.

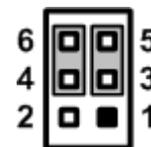
Function	Setting
Power: Set COM3 pin 1 to +12V level	1-3 close
Data: Set COM3 pin 1 to DCD (Default)	3-5 close
Power: Set COM3 pin 8 to +5V level	2-4 close
Data: Set COM3 pin 8 to RI (Default)	4-6 close



2.3.4 COM2 Data/Power Selection (JP4)

The COM2 port has +5V level power capability on RI and +12V level on DCD by setting this jumper.

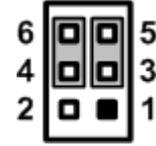
Function	Setting
Power: Set COM2 pin 1 to +12V level	1-3 close
Data: Set COM2 pin 1 to DCD (Default)	3-5 close
Power: Set COM2 pin 8 to +5V level	2-4 close
Data: Set COM2 pin 8 to RI (Default)	4-6 close



2.3.5 COM1 Data/Power Selection (JP5)

The COM1 port has +5V level power capability on RI and +12V level on DCD by setting this jumper.

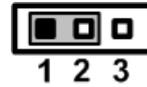
Function	Setting
Power: Set CN10B pin 1 to +12V level	1-3 close
Data: Set CN10B pin 1 to DCD (Default)	3-5 close
Power: Set CN10B pin 9 to +5V level	2-4 close
Data: Set CN10B pin 9 to RI (Default)	4-6 close



2.3.6 Mini Card Selection (JP7)

Select mSATA or PCI-Express x1 support on PCI-Express Mini Card socket.

Function	Setting
Select PCI-Express x1 (Default)	1-2 close
Select mSATA	2-3 close



2.3.7 Restore BIOS Optimal Defaults (JP10)

Put jumper clip to pin 2-3 for a few seconds then move it back to pin 1-2. Doing this procedure can restore BIOS optimal defaults.

Function	Setting
Normal operation (Default)	1-2 close
Restore BIOS optimal defaults	2-3 close



2.3.8 LVDS Backlight Control Mode Setting (JP11)

The JP11 is enabled to select PWM or voltage control mode for inverter connector (CN4). These two control modes are for adjusting brightness on flat panel.

Function	Setting
PWM mode (Default)	1-2 close
Voltage mode	3-4 close



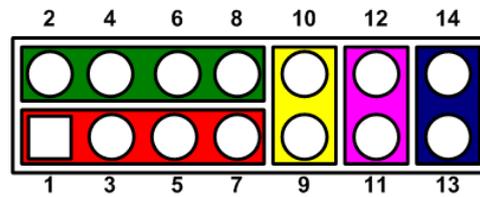
2.4 Connectors

Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors on the hardware.

Connector	Description
CN1	Front Panel Connector
CN2	Parallel Port
CN4	Inverter Connector
CN5	PS/2 Mini-DIN Keyboard and Mouse Connector
CN6	PS/2 2x5-pin Keyboard and Mouse Connector
CN7	LVDS Connector
CN8	Digital I/O Connector
CN9	HDMI Connector
CN10A	VGA D-Sub Connector
CN10B	COM1 D-Sub Connector
CN12	Ethernet Port 1 and USB Port 0, 1
CN14	Ethernet Port 2 and USB Port 2, 3
CN16	PCI-Express Mini Card Connector
CN18	Audio Jack
CN19	PCI-Express x1 Slot
COM2~COM4	COM2~COM4 Connectors
FAN1	CPU Fan Connector
FAN2	System Fan Connector
SATA1~SATA2	Serial ATA Port 0~1 Connectors
USB1~USB3	Internal USB Port 4~6
DIMM1	DDR3 SO-DIMM Connector
ATX1	ATX Power Connector

2.4.1 Front Panel Connector (CN1)

Pin	Signal
1	PWRLED+
2	EXT SPK-
3	GND
4	Buzzer
5	PWRLED-
6	N.C.
7	N.C.
8	EXT SPK+
9	PWRSW-
10	PWRSW+
11	HW RST-
12	HW RST+
13	HDDLED-
14	HDDLED+



Power LED

Pin 1 connects anode(+) of LED and pin 5 connects cathode(-) of LED. The power LED lights up when the system is powered on. The pin 3 is defined as GND.

External Speaker and Internal Buzzer

Pin 2, 4, 6 and 8 connect the case-mounted speaker unit or internal buzzer. While connecting the CPU board to an internal buzzer, please set pin 2 and 4 closed; while connecting to an external speaker, you need to set pins 2 and 4 opened and connect the speaker cable to pin 8(+) and pin 2(-).

Power On/Off Button

Pin 9 and 10 connect the power button on front panel to the CPU board, which allows users to turn on or off power supply.

System Reset Switch

Pin 11 and 12 connect the case-mounted reset switch that reboots your computer without turning off the power switch. It is a better way to reboot your system for a longer life of system power supply.

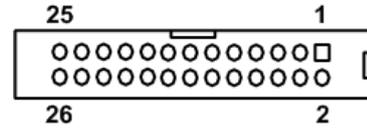
HDD Activity LED

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. Pin 13 and 14 connect the hard disk drive to the front panel HDD LED, pin 13 is assigned as cathode(-) and pin 14 is assigned as anode(+).

2.4.2 Parallel Port (CN2)

The parallel port interface is available through this connector.

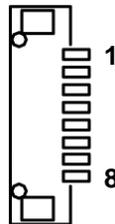
Pin	Signal	Pin	Signal
1	LPTSTB#	2	LPTAFD#
3	LPTD0	4	LPT_ERR#
5	LPTD1	6	LPTINIT#
7	LPTD2	8	LPTSLIN#
9	LPTD3	10	GND
11	LPTD4	12	GND
13	LPTD5	14	GND
15	LPTD6	16	GND
17	LPTD7	18	GND
19	LPT_ACK#	20	GND
21	LPT_BUSY	22	GND
23	LPT_PE	24	GND
25	LPT_SLCT	26	N/C



2.4.3 Inverter Connector (CN4)

The CN4 is a DF13-8P-1.25V 8-pin connector for inverter. We strongly recommend you to use the matching DF13-8S-1.25C connector to avoid malfunction.

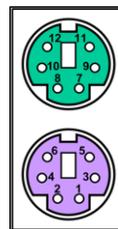
Pin	Signal
1	VBL1 (+12V level)
2	VBL1 (+12V level)
3	VBL2 (+5V level)
4	VBL_ENABLE
5	GND
6	GND
7	GND
8	LVDS_BRICTL



2.4.4 PS/2 Mini-DIN Keyboard and Mouse Connector (CN5)

The board has two 6-pin mini-DIN PS/2 connectors; green for mouse and purple for keyboard.

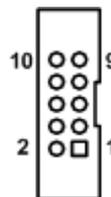
Pin	Signal	Pin	Signal
1	K/B Data	7	M/S Data
2	NC	8	NC
3	GND	9	GND
4	+5V	10	+5V
5	K/B CLK	11	M/S CLK
6	NC	12	NC



2.4.5 PS/2 2x5-pin Keyboard and Mouse Connector (CN6)

The PS/2 2x5-pin keyboard and mouse interface is available through this connector.

Pin	Signal	Pin	Signal
1	KBVCC	2	PS2_GND
3	K/B CLK	4	K/B Data
5	Ex_K/B CLK	6	Ex_K/B Data
7	M/S CLK	8	M/S Data
9	Ex_M/S CLK	10	Ex_M/S Data



For external keyboard and mouse settings, please refer to table below.

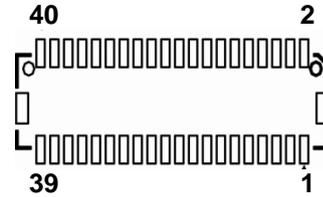
Function	Setting
For keyboard	CN6 pin 3-5, 4-6 close
For mouse	CN6 pin 7-9, 8-10 close

2.4.6 LVDS Connector (CN7)

This board has a 40-pin connector for LVDS LCD interface. It is strongly recommended to use the matching GLA1001WV-S-2x20P 40-pin connector for LVDS interface. Pin 1~6 VCCM can be set to +3.3V or +5V level by JP1 (see section 2.3.1).

18-bit single channel

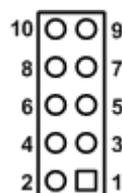
Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	DDC_DATA	8	DDC_CLK
9	GND	10	GND
11	Channel B D3-	12	Channel B D0-
13	Channel B D3+	14	Channel B D0+
15	GND	16	GND
17	Channel B CLK-	18	Channel B D1-
19	Channel B CLK+	20	Channel B D1+
21	GND	22	GND
23	Channel A D0-	24	Channel B D2-
25	Channel A D0+	26	Channel B D2+
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	Channel A D3+
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND



2.4.7 Digital I/O Connector (CN8)

The board is equipped with an 8-channel (4 inputs and 4 outputs) digital I/O connector that meets requirements for a system customary automation control. The digital I/O can be configured to control cash drawers and sense warning signals from an Uninterrupted Power System (UPS), or perform store security control. You may use software programming to control these digital signals.

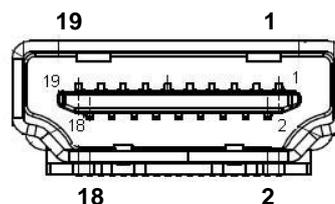
Pin	Signal	Pin	Signal
1	Digital Input 0	2	Digital Output 0
3	Digital Input 1	4	Digital Output 1
5	Digital Input 2	6	Digital Output 2
7	Digital Input 3	8	Digital Output 3
9	GND	10	GND



2.4.8 HDMI Connector (CN9)

The HDMI (High-Definition Multimedia Interface) interface is available through this connector.

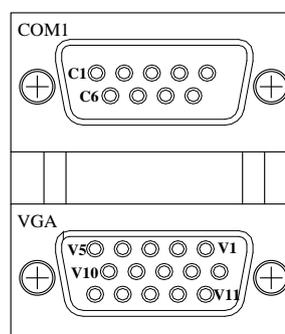
Pin	Signal	Pin	Signal
1	DATA2+	2	DATA2 GND
3	DATA2-	4	DATA1+
5	DATA1 GND	6	DATA1-
7	DATA0+	8	DATA0 GND
9	DATA0-	10	Clock+
11	Clock GND	12	Clock-
13	N.C.	14	N.C.
15	SCL	16	SDA
17	GND	18	+5V
19	HPD		



2.4.9 VGA and COM1 D-Sub Connector (CN10A and CN10B)

The upper 9-pin D-Sub connector (CN10B) is for COM1 interface and the lower 15-pin D-Sub connector (CN10A) is for VGA interface. Note that CN10B is also equipped with power capability on DCD and RI pins by setting JP5 (see section 2.3.5).

Pin	Signal
C1	DCD, Data carrier detect
C2	RXD, Receive data
C3	TXD, Transmit data
C4	DTR, Data terminal ready
C5	GND, Ground
C6	DSR, Data set ready
C7	RTS, Request to send
C8	CTS, Clear to send
C9	RI, Ring indicator
V1	Red
V2	Green
V3	Blue
V4	N.C
V5	Analog Ground (AGND)
V6	CRT_RET#
V7	Analog Ground (AGND)
V8	Analog Ground (AGND)
V9	GVCC
V10	Analog Ground (AGND)
V11	N.C
V12	DDC DATA
V13	Horizontal Sync
V14	Vertical Sync
V15	DDC CLK

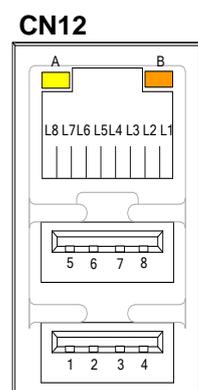


2.4.10 Ethernet and USB Connectors (CN12 and CN14)

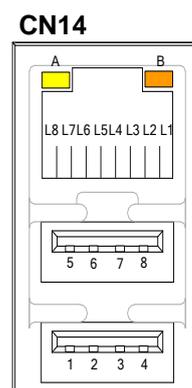
The board comes with two high performance plug and play ethernet interfaces (RJ-45) which are fully compliant with the IEEE 802.3 standard. Connection can be established by plugging one end of the ethernet cable into this RJ-45 connector and the other end to a 1000/100/10-Base-T hub.

The lower double-deck Universal Serial Bus (compliant with USB 2.0) connectors are for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	Signal	Pin	Signal
L1	MDI0+	1	+5V
L2	MDI0-	2	USB D0-
L3	MDI1+	3	USB D0+
L4	MDI1-	4	Ground (GND)
L5	MDI2+	5	+5V
L6	MDI2-	6	USB D1-
L7	MDI3+	7	USB D1+
L8	MDI3-	8	Ground (GND)
A	Active LED (Yellow)		
B	100 LAN LED (Green)/1000 LAN LED (Orange)		



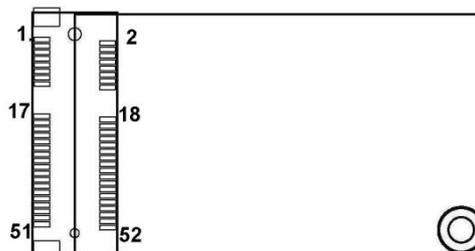
Pin	Signal	Pin	Signal
L1	MDI0+	1	+5V
L2	MDI0-	2	USB D2-
L3	MDI1+	3	USB D2+
L4	MDI1-	4	Ground (GND)
L5	MDI2+	5	+5V
L6	MDI2-	6	USB D3-
L7	MDI3+	7	USB D3+
L8	MDI3-	8	Ground (GND)
A	Active LED (Yellow)		
B	100 LAN LED (Green)/1000 LAN LED (Orange)		



2.4.11 PCI-Express Mini Card Connector (CN16)

CN16 is a PCI-Express Mini Card connector which supports a PCI-Express x1 link and a USB 2.0 link. A PCI-Express Mini Card can be applied to either PCI-Express or USB 2.0. It complies with PCI-Express Mini Card Spec. v1.2.

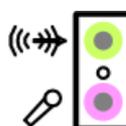
Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND
19	No use	20	W_DISABLE#
21	GND	22	PERST#
23	PE_RXN3	24	+3.3VSB
25	PE_RXP3	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN3	32	SMB_DATA
33	PE_TXP3	34	GND
35	GND	36	USB_D8-
37	GND	38	USB_D8+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB



2.4.12 Audio Jack (CN18)

The board provides HD audio jack on the rear I/O. Install audio driver, and then attach audio devices to CN18.

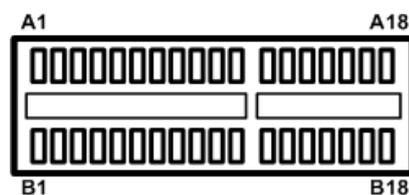
Pin Color	Signal
Green	LINE-OUT
Pink	MIC-IN



2.4.13 PCI-Express x1 Slot (CN19)

This board has one PCI-Express x1 slot.

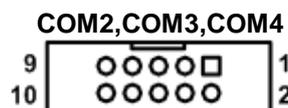
Pin	Signal	Pin	Signal
B1	+12V	A1	PRSNT1#
B2	+12V	A2	+12V
B3	RSVD	A3	+12V
B4	GND	A4	GND
B5	SMCLK	A5	NC
B6	SMDAT	A6	NC
B7	GND	A7	NC
B8	+3.3V	A8	NC
B9	NC	A9	+3.3V
B10	3.3Vaux	A10	+3.3V
B11	WAKE#	A11	PERST#
B12	NC	A12	GND
B13	GND	A13	REFCLK+
B14	HSOP0	A14	REFCLK-
B15	HSO0	A15	GND
B16	GND	A16	HSIP0
B17	NC	A17	HSIN0
B18	GND	A18	GND



2.4.14 COM Connectors (COM2~COM4)

The board comes with 10-pin connectors for COM2~COM4 serial port interfaces, see table below.

Pin	Signal
1	Data Carrier Detect (DCD)
2	Data Set Ready (DSR)
3	Receive Data (RXD)
4	Request to Send (RTS)
5	Transmit Data (TXD)
6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)
8	Ring Indicator (RI)
9	Ground (GND)
10	No Connector

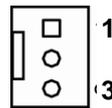


2.4.15 FAN Connectors (FAN1~FAN2)

Fans are always needed for cooling down CPU and system temperature. The board has two fan connectors. You can find fan speed option(s) at BIOS Setup Utility if either fan is installed. For further information, see BIOS Setup Utility: Advanced\HW Monitor\PC Health Status.

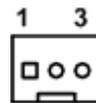
CPU fan interface is available through FAN1, see table below.

Pin	Signal
1	Ground
2	+12V
3	Fan Detect



System fan interface is available through FAN2, see table below.

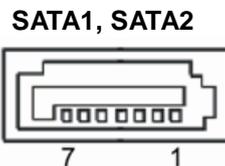
Pin	Signal
1	Ground
2	+12V
3	Fan Detect



2.4.16 Serial ATA Connectors (SATA1~SATA2)

These Serial Advanced Technology Attachment (Serial ATA or SATA) connectors are for high-speed SATA interfaces. They are computer bus interfaces for connecting to devices such as hard disk drives.

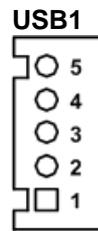
Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND



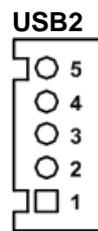
2.4.17 Internal USB Connectors (USB1~USB3)

These are internal connectors for USB 2.0 interfaces.

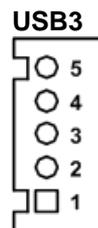
Pin	Signal
1	+5V
2	USB D4-
3	USB D4+
4	Ground (GND)
5	Ground (GND)



Pin	Signal
1	+5V
2	USB D5-
3	USB D5+
4	Ground (GND)
5	Ground (GND)



Pin	Signal
1	+5V
2	USB D6-
3	USB D6+
4	Ground (GND)
5	Ground (GND)



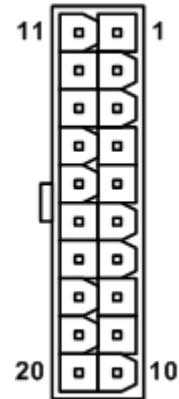
2.4.18 ATX Power Connector (ATX1)

Steady and sufficient power can be supplied to all components on the board by connecting power connector. Please make sure all components and devices are properly installed before connecting the power connector.

External power supply plug fits into this connector in only one orientation. Properly press down power supply plug until it completely and firmly fits into this connector. Loose connection may cause system instability.

This is a 2x10-pin ATX power connector. Its pin assignments are given in table below.

Pin	Signal	Pin	Signal
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V



This page is intentionally left blank.

Chapter 3

Hardware Installation

3.1 Installing the Memory

The board supports one 204-pin DDR3 SO-DIMM memory socket with maximum memory capacity up to 4GB.

Please follow steps below to install the memory modules:

- Push down latches on each side of the SO-DIMM socket.
- Align the memory module with the socket that notches of memory module must match the socket keys for a correct installation.
- Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the SO-DIMM.

This page is intentionally left blank.

Chapter 4

Hardware Description

4.1 Microprocessors

The MANO830 Series supports Intel[®] Cedarview D2550/N2600 processors, which enable your system to operate under Windows[®] XP, Windows[®] 7 and Linux environments. The system performance depends on the microprocessor. Make sure all correct settings are arranged for your installed microprocessor to prevent the CPU from damages.

4.2 BIOS

The MANO830 Series uses AMI Plug and Play BIOS with a single 16Mbit SPI Flash.

4.3 System Memory

The MANO830 Series supports one 204-pin DDR3 DIMM socket for a maximum memory of 4GB DDR3 SDRAMs. The memory module comes in sizes of 1GB, 2GB and 4GB.

4.4 I/O Port Address Map

The Intel® Cedarview D2550/N2600 processors communicate via I/O ports. Total 1KB port addresses are available for assigning to other devices via I/O expansion cards.

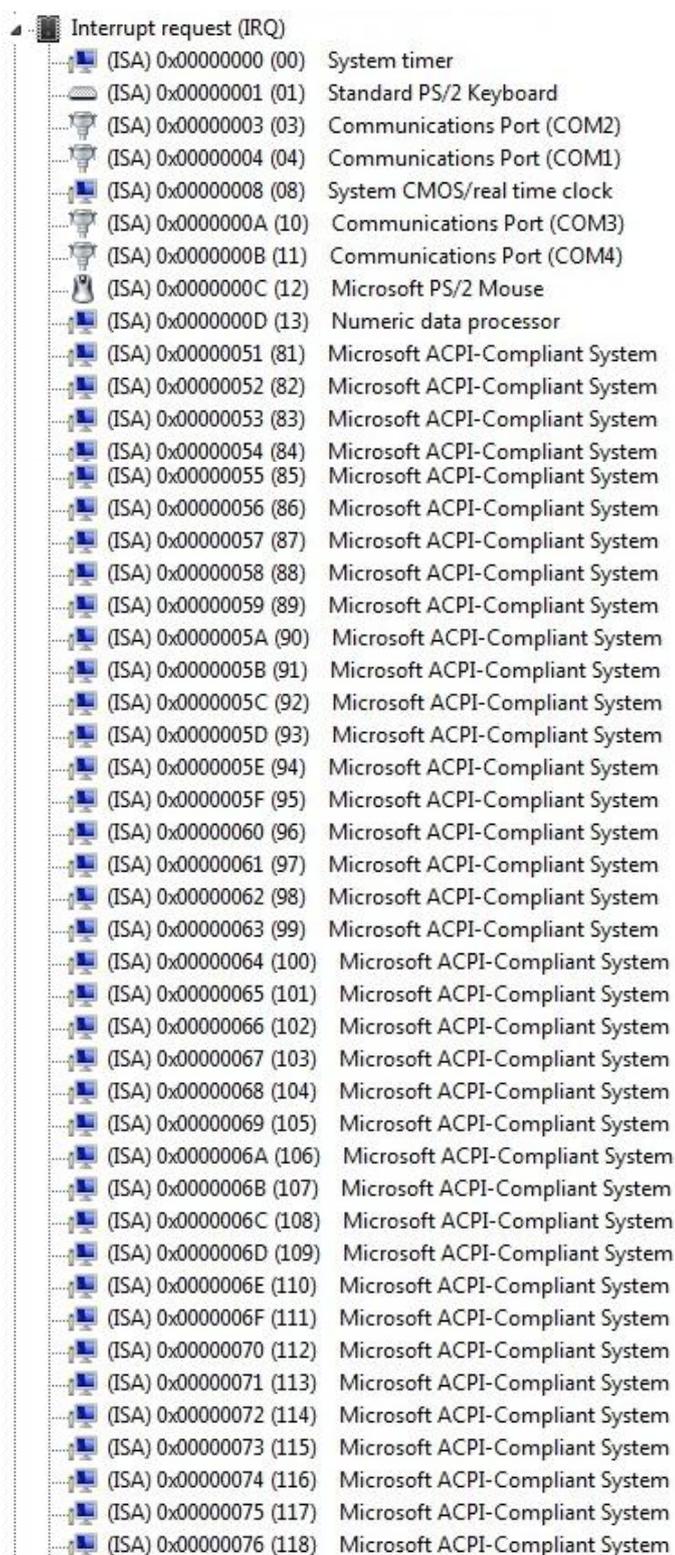
The image shows a screenshot of the Windows Device Manager, specifically the 'Input/output (IO)' section. The list of resources is as follows:

Address Range	Device Name
[00000000 - 0000001F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000024 - 00000025]	Programmable interrupt controller
[00000028 - 00000029]	Programmable interrupt controller
[0000002C - 0000002D]	Programmable interrupt controller
[0000002E - 0000002F]	Motherboard resources
[00000030 - 00000031]	Programmable interrupt controller
[00000034 - 00000035]	Programmable interrupt controller
[00000038 - 00000039]	Programmable interrupt controller
[0000003C - 0000003D]	Programmable interrupt controller
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[0000004E - 0000004F]	Motherboard resources
[00000050 - 00000053]	System timer
[00000060 - 00000060]	Standard PS/2 Keyboard
[00000061 - 00000061]	Motherboard resources
[00000062 - 00000063]	Motherboard resources
[00000063 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard PS/2 Keyboard
[00000065 - 00000065]	Motherboard resources
[00000065 - 0000006F]	Motherboard resources
[00000067 - 00000067]	Motherboard resources
[00000070 - 00000070]	Motherboard resources
[00000070 - 00000077]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000091]	Direct memory access controller

[00000084 - 00000086]	Motherboard resources
[00000088 - 00000088]	Motherboard resources
[0000008C - 0000008E]	Motherboard resources
[00000090 - 0000009F]	Motherboard resources
[00000092 - 00000092]	Motherboard resources
[00000093 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000A4 - 000000A5]	Programmable interrupt controller
[000000A8 - 000000A9]	Programmable interrupt controller
[000000AC - 000000AD]	Programmable interrupt controller
[000000B0 - 000000B1]	Programmable interrupt controller
[000000B2 - 000000B3]	Motherboard resources
[000000B4 - 000000B5]	Programmable interrupt controller
[000000B8 - 000000B9]	Programmable interrupt controller
[000000BC - 000000BD]	Programmable interrupt controller
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000F0]	Numeric data processor
[00000290 - 00000297]	Motherboard resources
[000002E8 - 000002EF]	Communications Port (COM4)
[000002F8 - 000002FF]	Communications Port (COM2)
[00000378 - 0000037F]	Printer Port (LPT1)
[000003B0 - 000003BB]	Intel(R) Graphics Media Accelerator 3600 Series
[000003C0 - 000003DF]	Intel(R) Graphics Media Accelerator 3600 Series
[000003E8 - 000003EF]	Communications Port (COM3)
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 0000047F]	Motherboard resources
[00000400 - 0000047F]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[000004D0 - 000004D1]	Programmable interrupt controller
[00000500 - 0000053F]	Motherboard resources
[00000500 - 0000057F]	Motherboard resources
[00000600 - 0000061F]	Motherboard resources
[00000680 - 0000069F]	Motherboard resources
[000006A0 - 000006AF]	Motherboard resources
[000006B0 - 000006EF]	Motherboard resources
[00000D00 - 0000FFFF]	PCI bus
[00001000 - 0000100F]	Motherboard resources
[0000E000 - 0000E0FF]	Realtek PCIe GBE Family Controller #2
[0000E000 - 0000EFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[0000F000 - 0000F01F]	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
[0000F020 - 0000F03F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
[0000F040 - 0000F05F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
[0000F060 - 0000F07F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
[0000F080 - 0000F09F]	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
[0000F0A0 - 0000F0AF]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000F0B0 - 0000F0B3]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000F0C0 - 0000F0C7]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000F0D0 - 0000F0D3]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000F0E0 - 0000F0E7]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000F0F0 - 0000F0F7]	Intel(R) Graphics Media Accelerator 3600 Series
[0000FFFF - 0000FFFF]	Motherboard resources
[0000FFFF - 0000FFFF]	Motherboard resources

4.5 Interrupt Controller (IRQ) Map

The interrupt controller (IRQ) mapping list is shown as follows:



The image shows a screenshot of the Windows Device Manager, specifically the 'Interrupt request (IRQ)' section. The list contains 19 entries, each with a small icon representing the device type and its corresponding IRQ number and name.

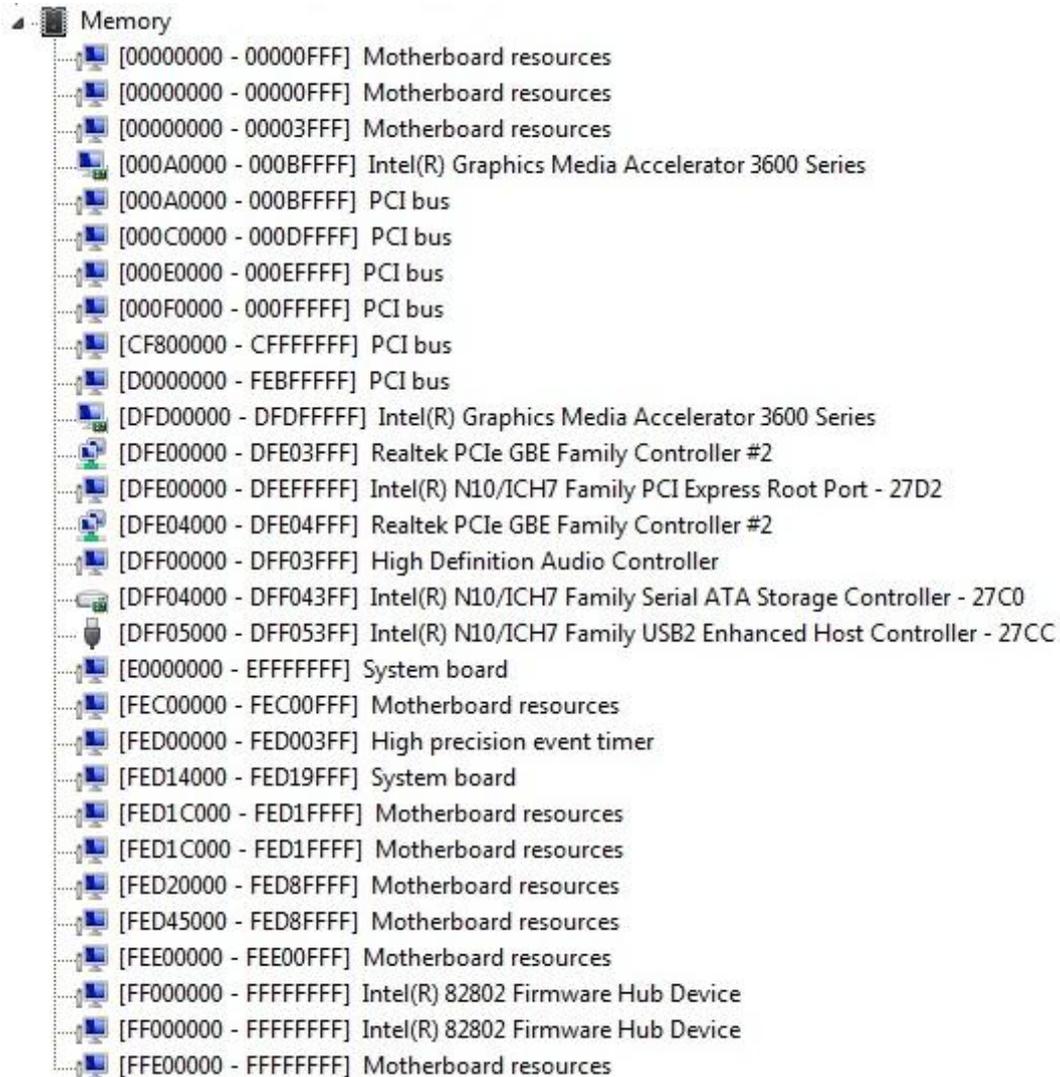
IRQ	Device Name
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x00000008 (08)	System CMOS/real time clock
(ISA) 0x0000000A (10)	Communications Port (COM3)
(ISA) 0x0000000B (11)	Communications Port (COM4)
(ISA) 0x0000000C (12)	Microsoft PS/2 Mouse
(ISA) 0x0000000D (13)	Numeric data processor
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System

(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System

	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000007 (07)	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
	(PCI) 0x00000011 (17)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
	(PCI) 0xFFFFFFFDD (-3)	Realtek PCIe GBE Family Controller #2
	(PCI) 0xFFFFFFFEE (-2)	Intel(R) Graphics Media Accelerator 3600 Series

4.6 Memory Map

The memory mapping list is shown as follows:



The image shows a screenshot of the Windows System Information tool, specifically the 'Memory' section. It displays a list of memory addresses and their corresponding hardware resources. The list is as follows:

Memory Address Range	Hardware Resource
[00000000 - 00000FFF]	Motherboard resources
[00000000 - 00000FFF]	Motherboard resources
[00000000 - 00003FFF]	Motherboard resources
[000A0000 - 000BFFFF]	Intel(R) Graphics Media Accelerator 3600 Series
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000E0000 - 000EFFFF]	PCI bus
[000F0000 - 000FFFFFF]	PCI bus
[CF800000 - CFFFFFFF]	PCI bus
[D0000000 - FEBFFFFF]	PCI bus
[DFD00000 - DFDFFFFF]	Intel(R) Graphics Media Accelerator 3600 Series
[DFE00000 - DFE03FFF]	Realtek PCIe GBE Family Controller #2
[DFE00000 - DFEFFFFFF]	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[DFE04000 - DFE04FFF]	Realtek PCIe GBE Family Controller #2
[DFF00000 - DFF03FFF]	High Definition Audio Controller
[DFF04000 - DFF043FF]	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[DFF05000 - DFF053FF]	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
[E0000000 - EFFFFFFF]	System board
[FEC00000 - FEC00FFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED14000 - FED19FFF]	System board
[FED1C000 - FED1FFFF]	Motherboard resources
[FED1C000 - FED1FFFF]	Motherboard resources
[FED20000 - FED8FFFF]	Motherboard resources
[FED45000 - FED8FFFF]	Motherboard resources
[FEE00000 - FEE00FFF]	Motherboard resources
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device
[FFE00000 - FFFFFFFF]	Motherboard resources

This page is intentionally left blank.

Chapter 5

AMI BIOS Setup Utility

The AMI UEFI BIOS provides users with a built-in setup program to modify basic system configuration. All configured parameters are stored in a flash chip to save the setup information whenever the power is turned off. This chapter provides users with detailed description about how to set up basic system configuration through the AMI BIOS setup utility.



Note: *Before entering OS, please set the LVDS to master when used in dual view display, no matter LVDS+HDMI or LVDS+VGA, or there is no display. This is platform limitation.*

5.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the key immediately.
2. After you press the key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

It is strongly recommended that you should avoid changing the chipset's defaults. Both AMI and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

5.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

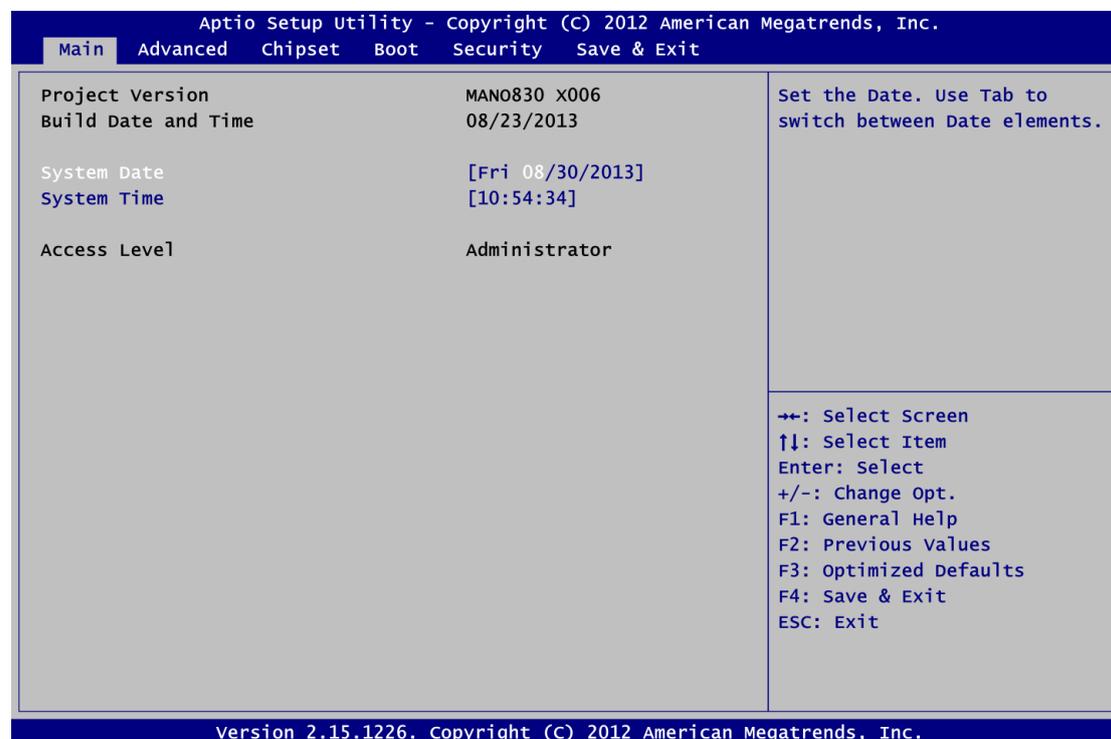


Note: *Some of the navigation keys differ from one screen to another.*

Hot Keys	Description
→← Left/Right	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F2	The <F2> key allows you to Load Previous Values.
F3	The <F3> key allows you to Load Optimized Defaults.
F4	The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

5.3 Main Menu

The first time you enter the setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is shown below.



BIOS Information

Display the auto-detected BIOS information.

System Date/Time

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

Access Level

Display the access level of current user.

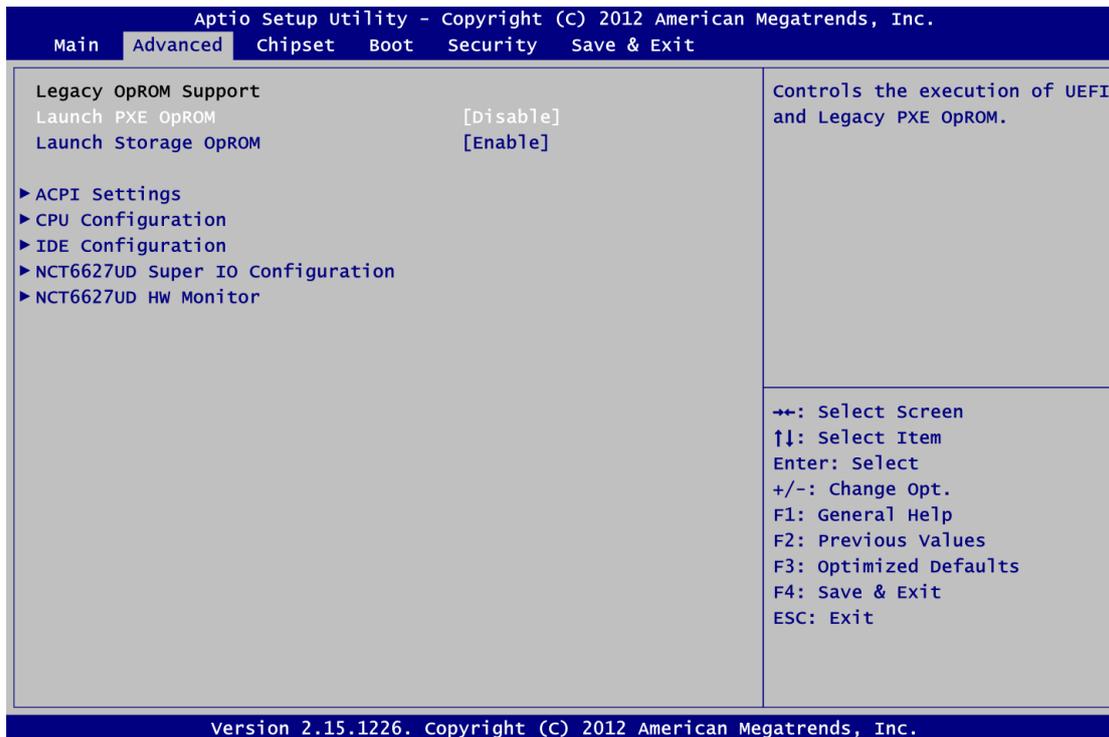
5.4 Advanced Menu

- **Launch PXE OpROM**
Use this item to enable or disable the boot ROM function of the onboard LAN chip when the system boots up.
- **Launch Storage OpROM**
Enable or disable boot option for legacy mass storage devices with option ROM.

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

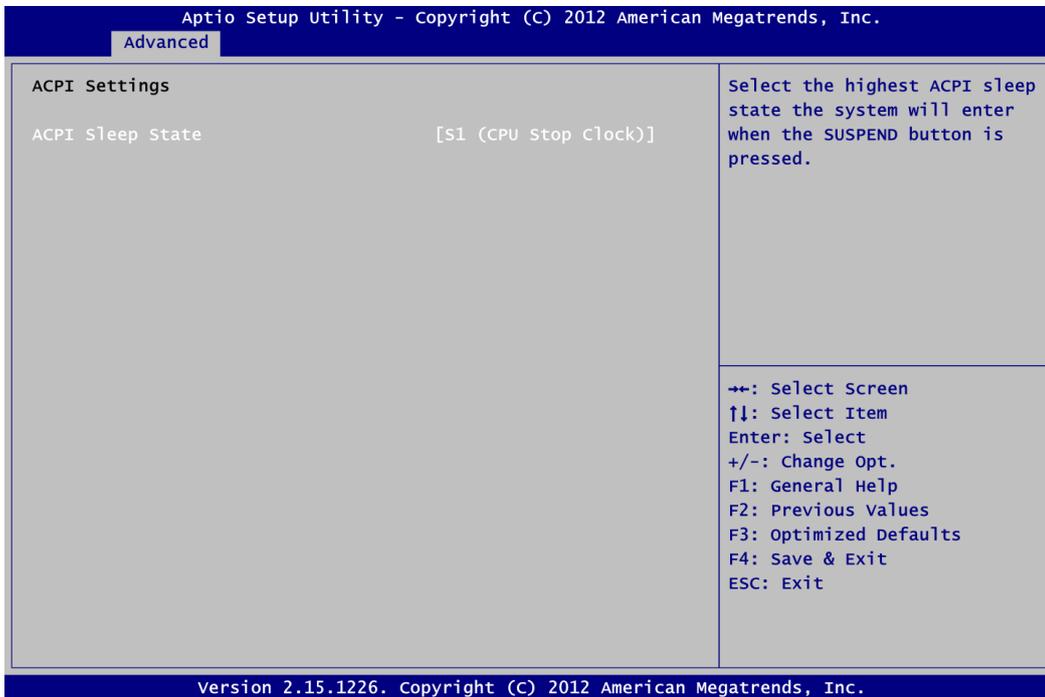
- ▶ ACPI Settings
- ▶ CPU Configuration
- ▶ IDE Configuration
- ▶ NCT6627UD Super IO Configuration
- ▶ NCT6627UD HW Monitor

For items marked with “▶”, please press <Enter> for more options.



- **ACPI Settings**

You can use this screen to select options for the ACPI configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

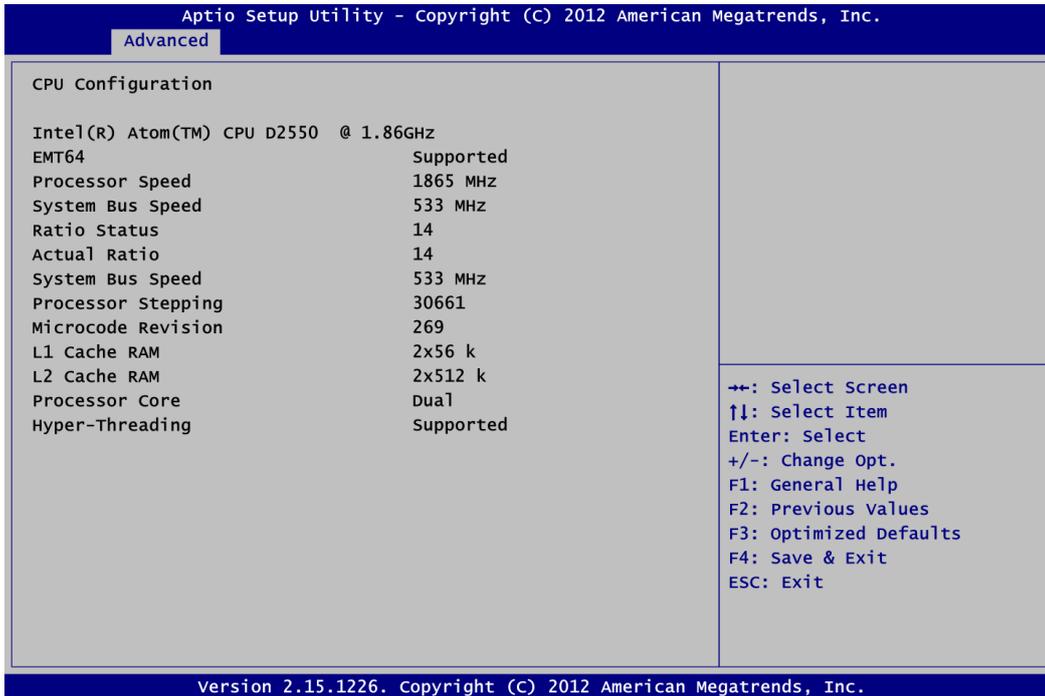


ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed. Configuration options are Suspend Disabled and S1 only (CPU Stop Clock).

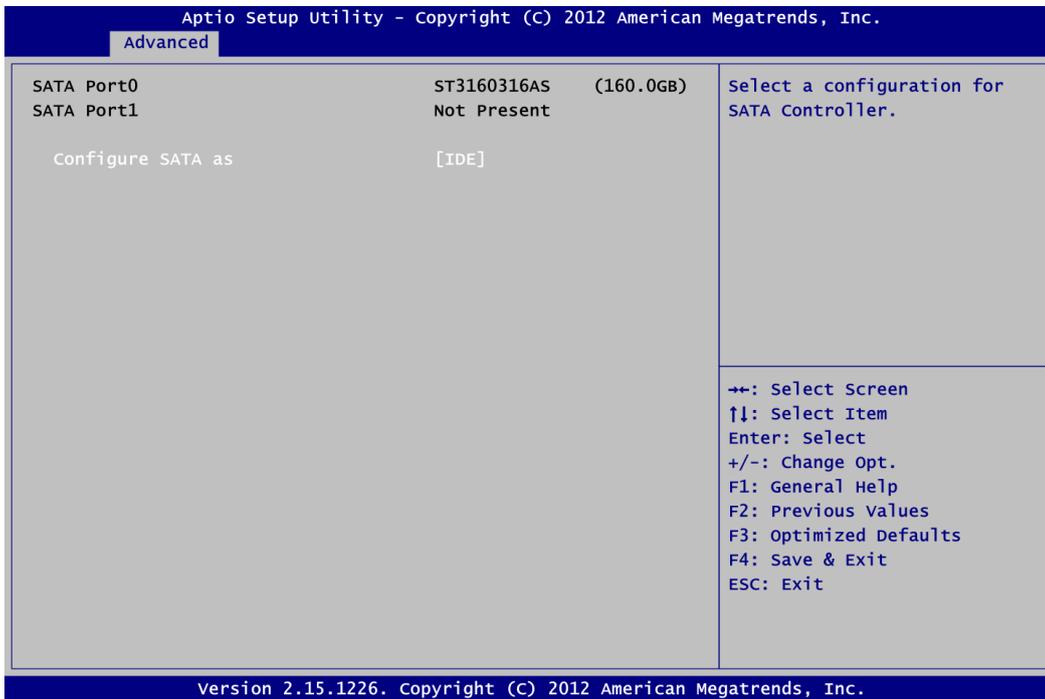
- **CPU Configuration**

This screen shows the CPU information.



- **IDE Configuration**

In this Configuration menu, you can see the currently installed hardware in the SATA ports. During system boot up, the BIOS automatically detects the presence of SATA devices.

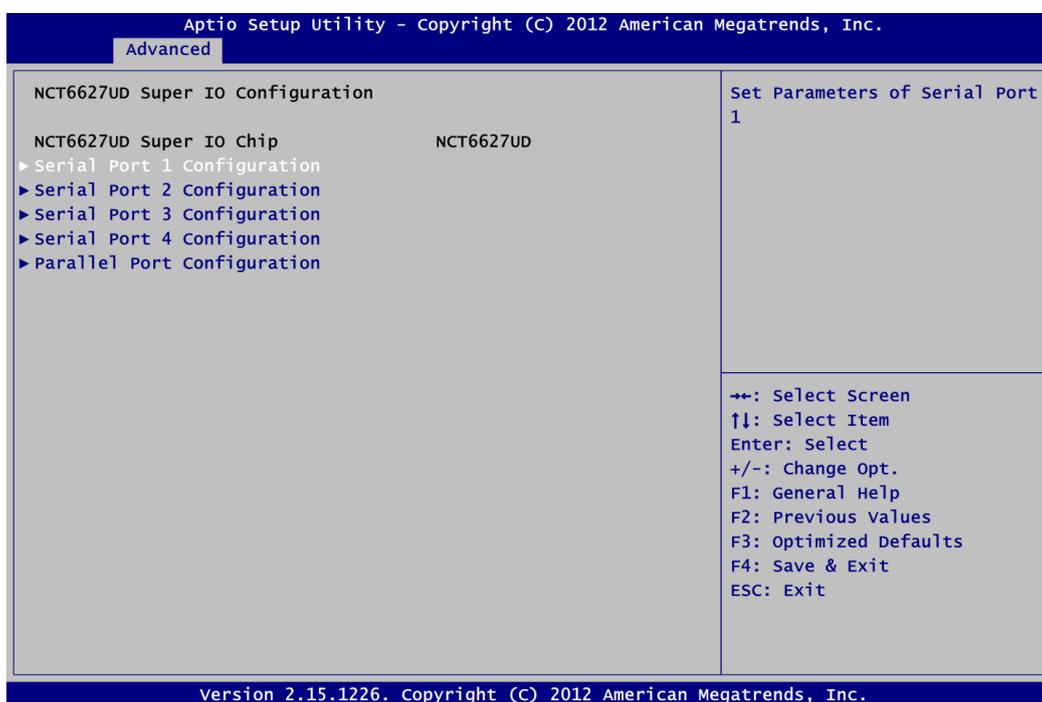


Configure SATA as

Determine how SATA controller(s) operate. Operation mode options are IDE Mode and AHCI Mode.

- **NCT6627UD Super IO Configuration**

You can use this screen to select options for the Super IO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "▶", please press <Enter> for more options.



Serial Port 1~4 Configuration

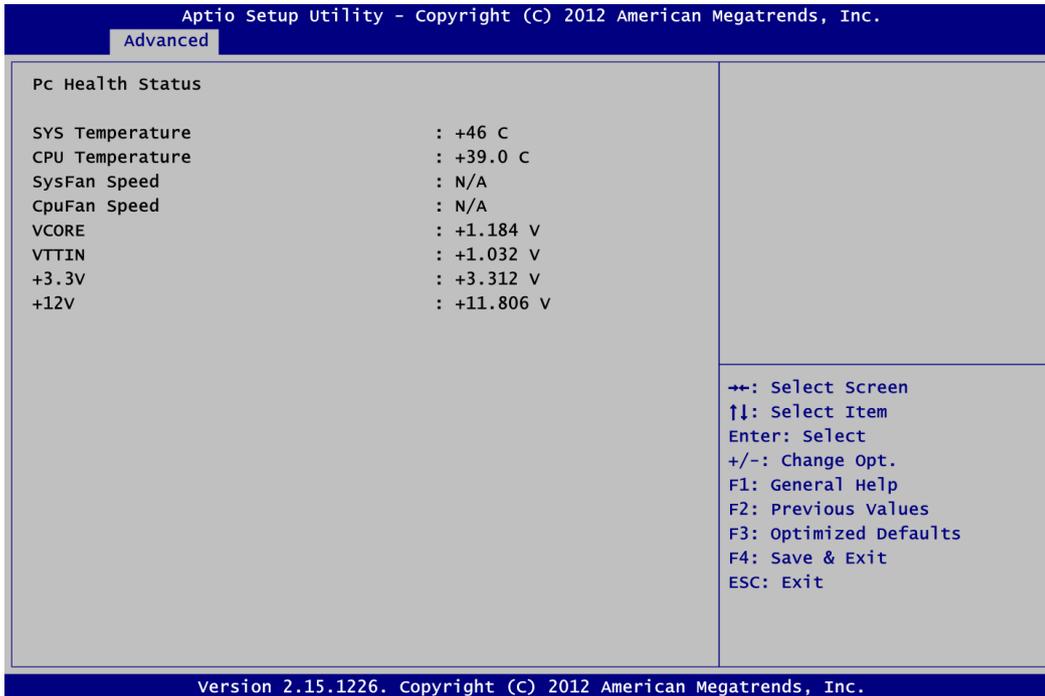
Use this item to set parameters of Serial Port 1~4.

Parallel Port Configuration

This item allows you to determine the parallel port mode and I/O address for onboard parallel port.

- **NCT6106D HW Monitor**

This screen is for hardware health status monitoring.



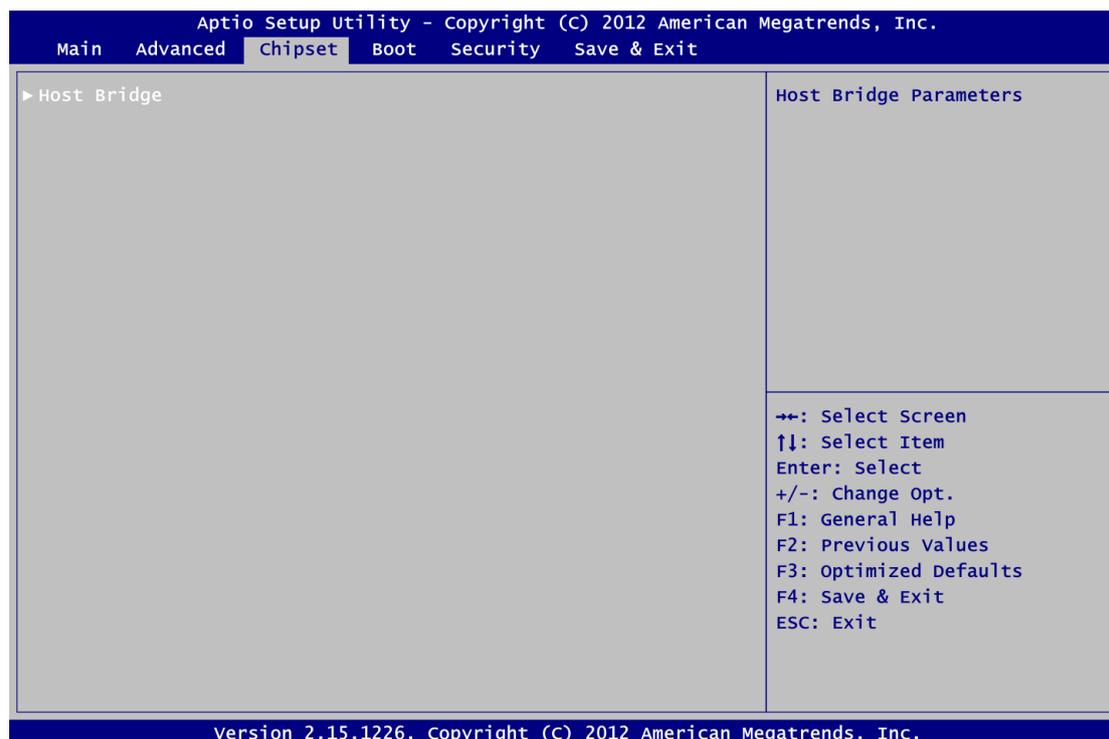
This screen displays the temperature of system and CPU, cooling fan speed in RPM and system voltages (VCORE, VTTIN, +3.3V and +12V).

5.5 Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

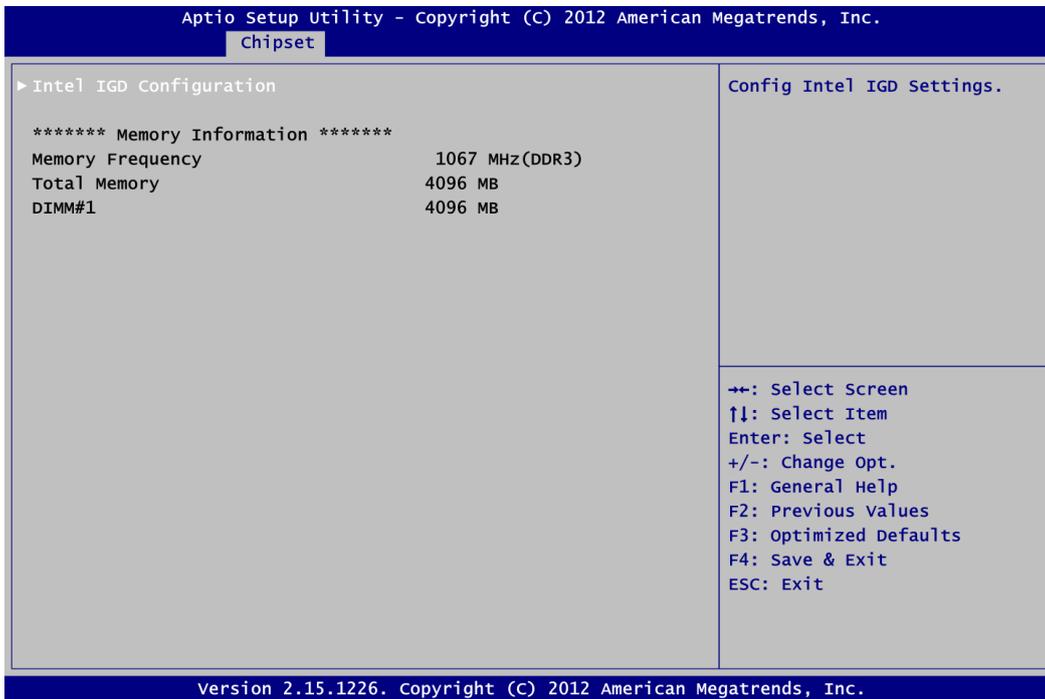
- ▶ Host Bridge

For items marked with “▶”, please press <Enter> for more options.



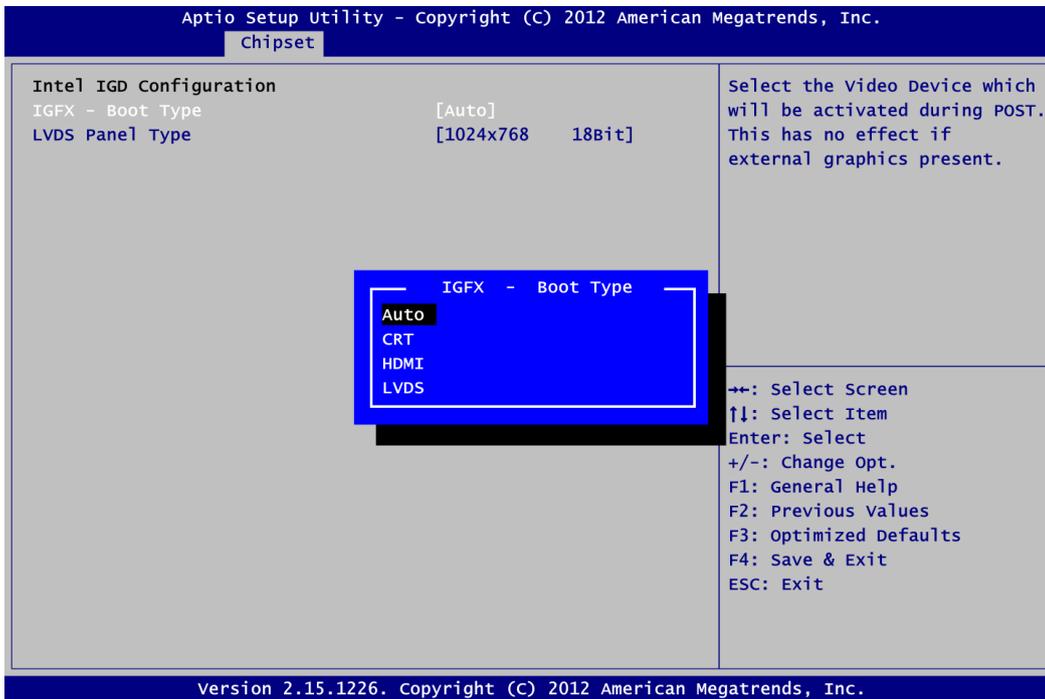
- **Host Bridge**

This screen shows memory information. For items marked with “▶”, please press <Enter> for more options.



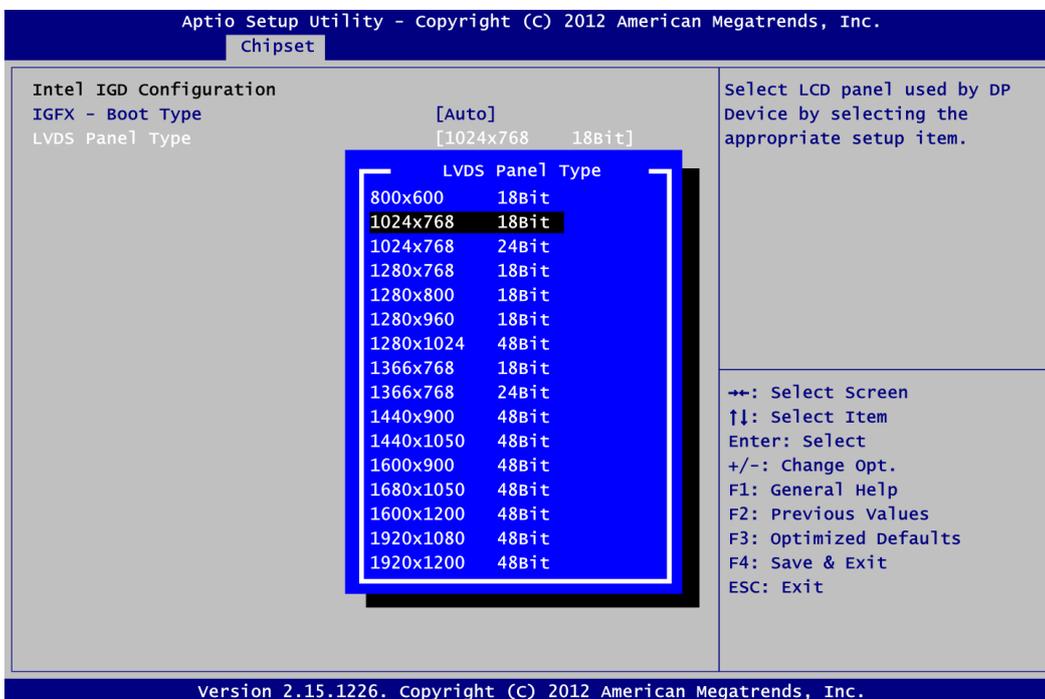
● **Intel IGD Configuration**

This screen provides function for specifying internal graphics controller related parameters.



IGFX – Boot Type

Select the video device which will be activated during POST (Power-On Self Test). This has no effect if external graphics present.

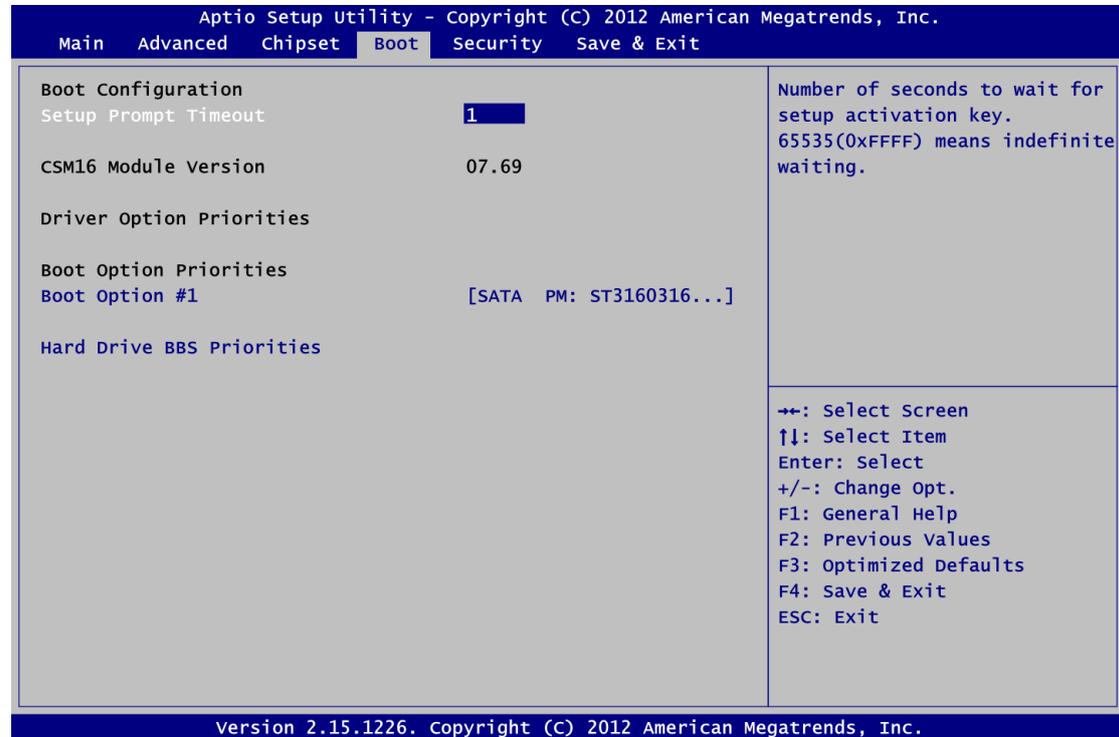


LVDS Panel Type

Select LVDS panel resolution.

5.6 Boot Menu

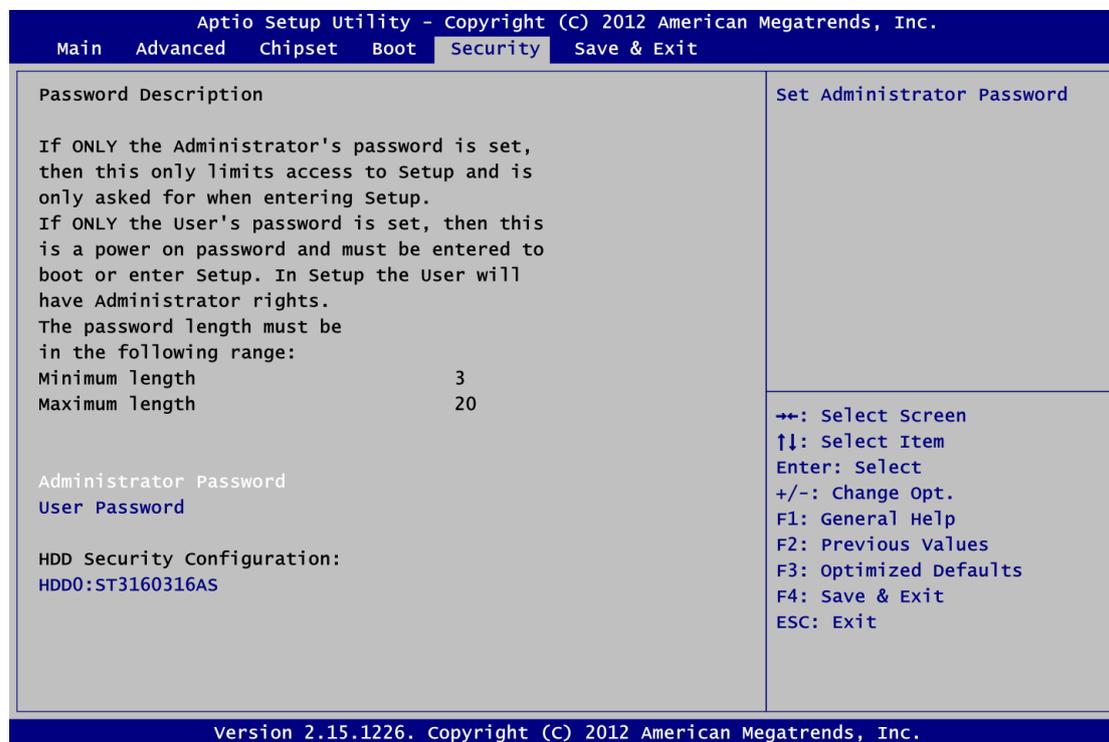
The Boot menu allows users to change boot options of the system.



- Setup Prompt Timeout**
 Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
- Boot Option Priorities**
 These are settings for boot priority. Specify the boot device priority sequence from the available devices.
- Hard Drive BBS Priorities**
 This item is for configuring the boot order for a specific device class. Its option(s) is only visible if at least one device for this class is detected.

5.7 Security Menu

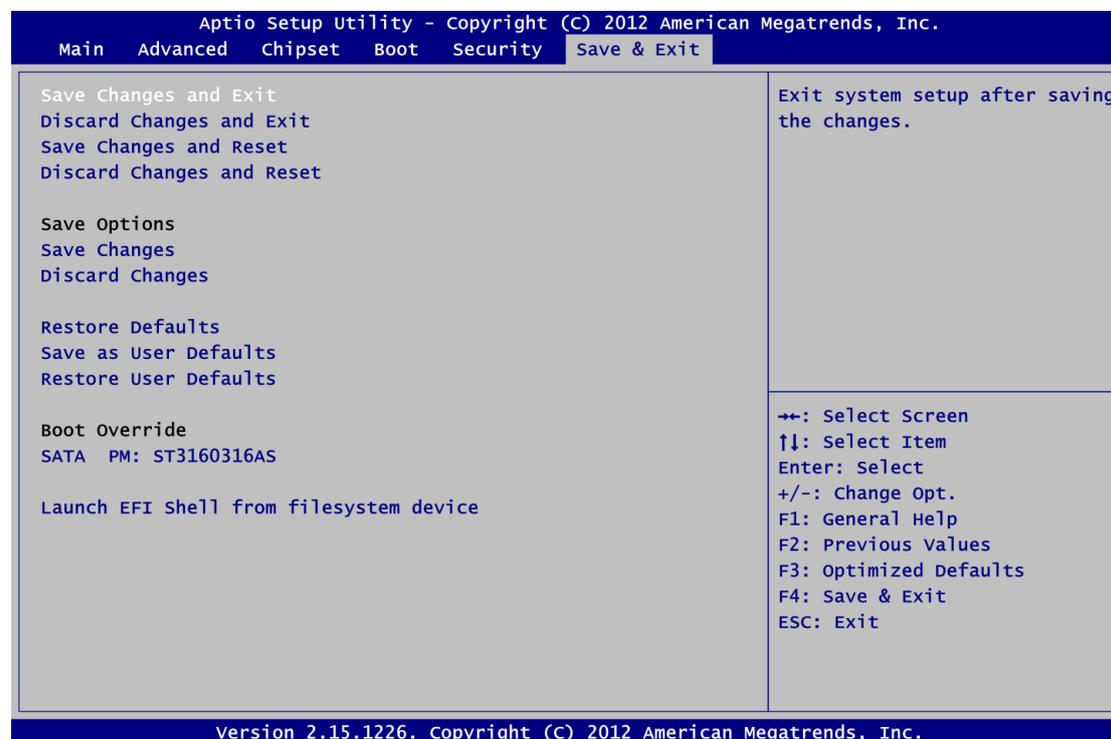
The Security menu allows users to change the security settings for the system.



- **Administrator Password**
This item indicates whether an administrator password has been set (installed or uninstalled).
- **User Password**
This item indicates whether a user password has been set (installed or uninstalled).

5.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or fail-safe default values.



- Save Changes and Exit**
 When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.
- Discard Changes and Exit**
 Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.
- Save Changes and Reset**
 When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.
- Discard Changes and Reset**
 Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.
- Save Changes**
 When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes**
Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.
- **Restore Defaults**
It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.
- **Save as User Defaults**
Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.
- **Restore User Defaults**
It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.
- **Boot Override**
Select a drive to immediately boot that device regardless of the current boot order.
- **Launch EFI Shell from filesystem device**
Attempt to launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

Appendix A

Watchdog Timer

About Watchdog Timer

After the system stops working for a while, it can be auto-reset by the watchdog timer. The integrated watchdog timer can be set up in the system reset mode by program.

How to Use Watchdog Timer

Start

↓

Un-Lock WDT:

O 2E 87 ; Un-lock super I/O
O 2E 87 ; Un-lock super I/O

↓

Select Logic device:

O 2E 07
O 2F 08

↓

Activate WDT:

O 2E 30
O 2F 01

↓

Set Second or Minute:

O 2E F5
O 2F N ; N=00 or 08

↓

Set base timer:

O 2E F6
O 2F M ; M=00,01,02,...FF(Hex) ,Value=0 to 255

↓

;IF to disable WDT:

O 2E 30
O 2F 00 ; Can be disabled at any time

- Timeout Value Range
 - 1 to 255
 - Minute / Second

- Program Sample

O 2E 87	
O 2E 87	
O 2E 07	
O 2F 08	Logical Device 8
O 2E 30	Activate
O 2F 01	
O 2E F5	
O 2F N	Set Minute or Second; N =08 (Min), 00(Sec)
O 2E F6	
O 2F M	Set Value; M =00~FF

Appendix B

Digital I/O

Digital I/O Software Programming

- GPI Program Sample

O 2E 87	
O 2E 87	
O 2E 07	
O 2F 08	Logical Device 8
O 2E 30	
O 2F 02	
O 2E E0	
O 2F FF	GPIO5 pins are programmed as input pins
O 2E E1	
I 2F	Read value from GPIO5 pins

- GPO Program Sample

O 2E 87	
O 2E 87	
O 2E 07	
O 2F 08	Select Device 8
O 2E 30	
O 2F 04	Set GPIO6
O 2E E4	
O 2F F0	GPIO6 pins are programmed as output pins
O 2E E5	Check bit 0~3 (1 High, 0 Low)
O 2F M	Set output value M Bit 0~3 (1 High, 0 Low) (GPO0~3) When M is 0F(Hex), all GPIO6 pins are high