

EMX-PNVB

Intel® Atom™ D525 Processor with ICH8M Chipset
Mini ITX Motherboard

User's Manual



1st Ed – 15 October 2013

FCC Statement



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE 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 INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

<http://www.avalue.com.tw/>

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- Quick Installation Guide X 1
- Driver/Utility CD X 1
- Serial ATA Signal Cable X 1
- COM Port X 1
- Screw X 2
- Motherboard X 1
- Front Audio cable X 1
- IO Shield X 1

1.3 Document Amendment History

Revision	Date	By	Comment
1st	October 2013	Avalue	Initial Release

1.4 Manual Objectives

This manual describes in details Avalue Technology EMX-PNVB Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up EMX-PNVB series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 Specifications

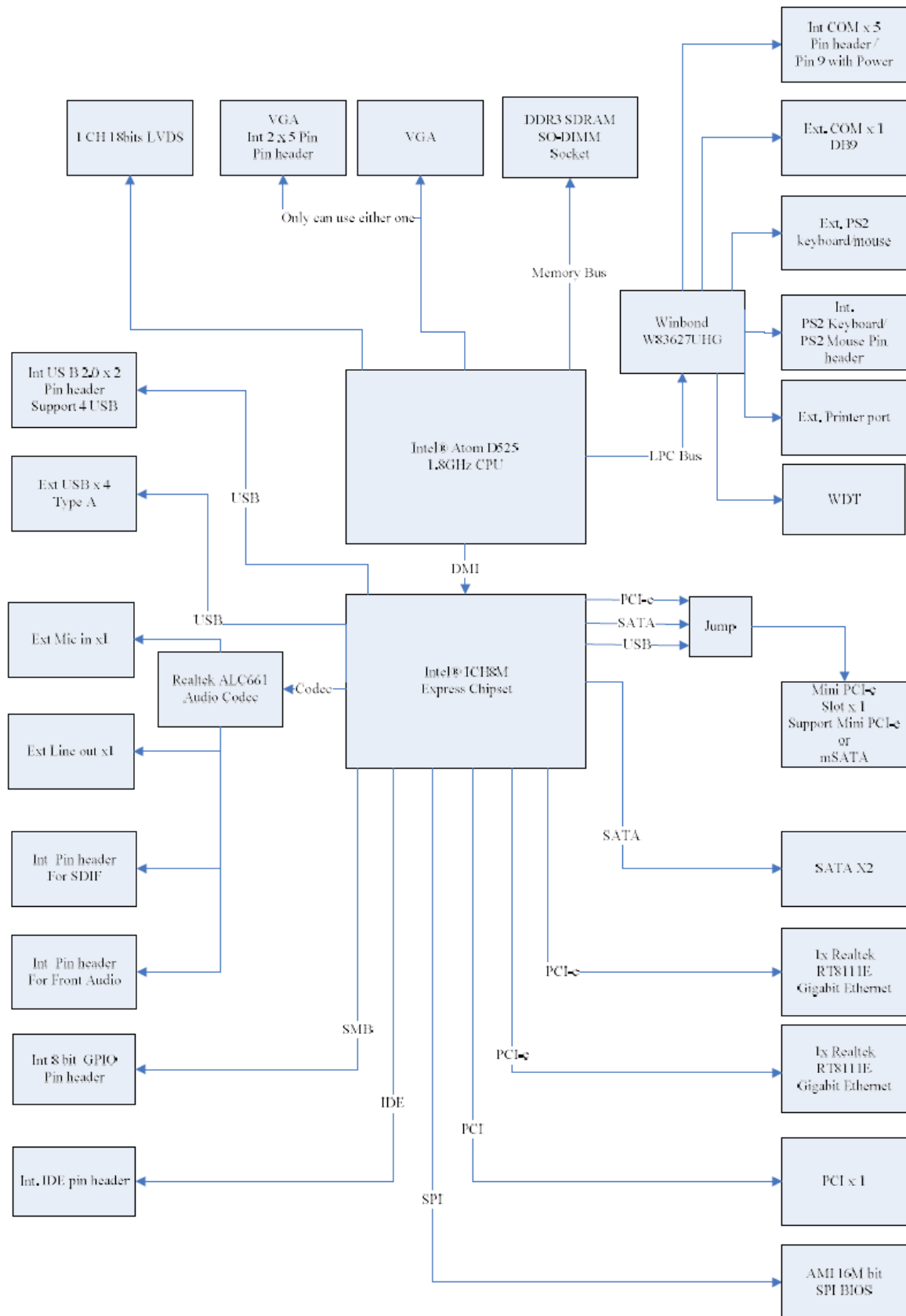
System	
CPU	Intel® Atom™ Processor D525 Processor
BIOS	AMI uEFI BIOS, 16Mbit SPI Flash ROM
System Chipset	Intel® ICH8M
I/O Chip	Winbond W83627UHG
System Memory	1 x 204-pin DDR3 800/1066/1333 MHz SODIMMs, up to 4GB
Watchdog Timer	- H/W Reset, 1sec. – 65535sec./min. 1sec. or 1min. step
H/W Status Monitor	- CPU & system temperature monitoring - Voltages monitoring
Buzzer	Buzzer onboard
Expansion	1 x Mini PCI-e (Mini PCI-e and mSATA SSD is Switchable Through Jumper)
I/O	
Rear Side External I/O Connector	2 x RJ-45 with dual deck USB2.0 connector 1 x VGA 1 x COM support RS-232 connector, Pin 9 with / +5V&12V supported 1 x Printer port 1 x Keyboard PS2 and 1 x Mouse PS2 1 x Mic-In and 1 x Line-out
Internal I/O Connector	- Storage: 2 x SATA II connector - COM: - COM2~6: support RS-232 connector, Pin 9 with / +5V&+12V supported 1 x Mini PCI-e slot (switchable to support mSATA or mini PCIe) 2 x 2 x 5 pin, pitch 2.54mm connector for USB 2.0 1 x 1 x 4 pin, pitch 2.54mm CPU fan connector 1 x horizontal type battery connector 1 x 2 x 8 pin, pitch 2.54mm connector for front panel 1 x 2 x 10 pin ATX power connector 1 x 2 x 20 pin, pitch 1.25mm connector for LVDS 1 x 3 pin, pitch 2.54mm connector for LVDS power 1 x 5 pin, pitch 2.54mm connector for Inverter 1 x 3 pin, pitch 2.54mm connector for Inverter power 1 x 2 x 5 pin, pitch 2.54mm connector for front Audio 1 x 2 x 22 pin, pitch 2.00mm connector for IDE 5 x 2 x 5 pin, pitch 2.00mm connector for COM port

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	• 1 x 2 x 5 pin, pitch 2.54mm connector for VGA • 1 x 2 x 5 pin, pitch 2.54mm connector for Keyboard & Mouse • 1 x 2 x 6 pin, pitch 2.54mm connector for 8 bit GPIO • 1 x 3 pin, pitch 2.54mm connector for SPDIF
Display	
Chipset	• Intel ICH8M integrated
Resolution	• VGA: 2048 x 1536
LVDS	• 1CH 18 bits LVDS 1366 x 768
Audio	
Chipset	• Realtek ALC661 HD Audio Decoding Controller
Audio Interface	• Mic-In, Line-In
Ethernet	
Chipset	• 2 x Realtek RTL8111E PCI-Express Gigabit Ethernet
Ethernet Interface	• 10/100/1000 Gigabit Ethernet
Mechanical & Environmental	
Power Requirement	• +12V / +5V / 5VSB /+3.3V
Power Type	• ATX mode
ACPI	• Single power ATX Support S0,S1, S3, S4, S5 • ACPI 3.0 Compliant
Operating Temp.	• 0°C ~60°C
Storage Temp.	• -40°C ~75°C
Operating Humidity	• 0%~90% relative humidity, non-condensing
Size (L x W)	• 6.7" x 6.7" (170mm x 170mm)
Weight	• 0.40 kg

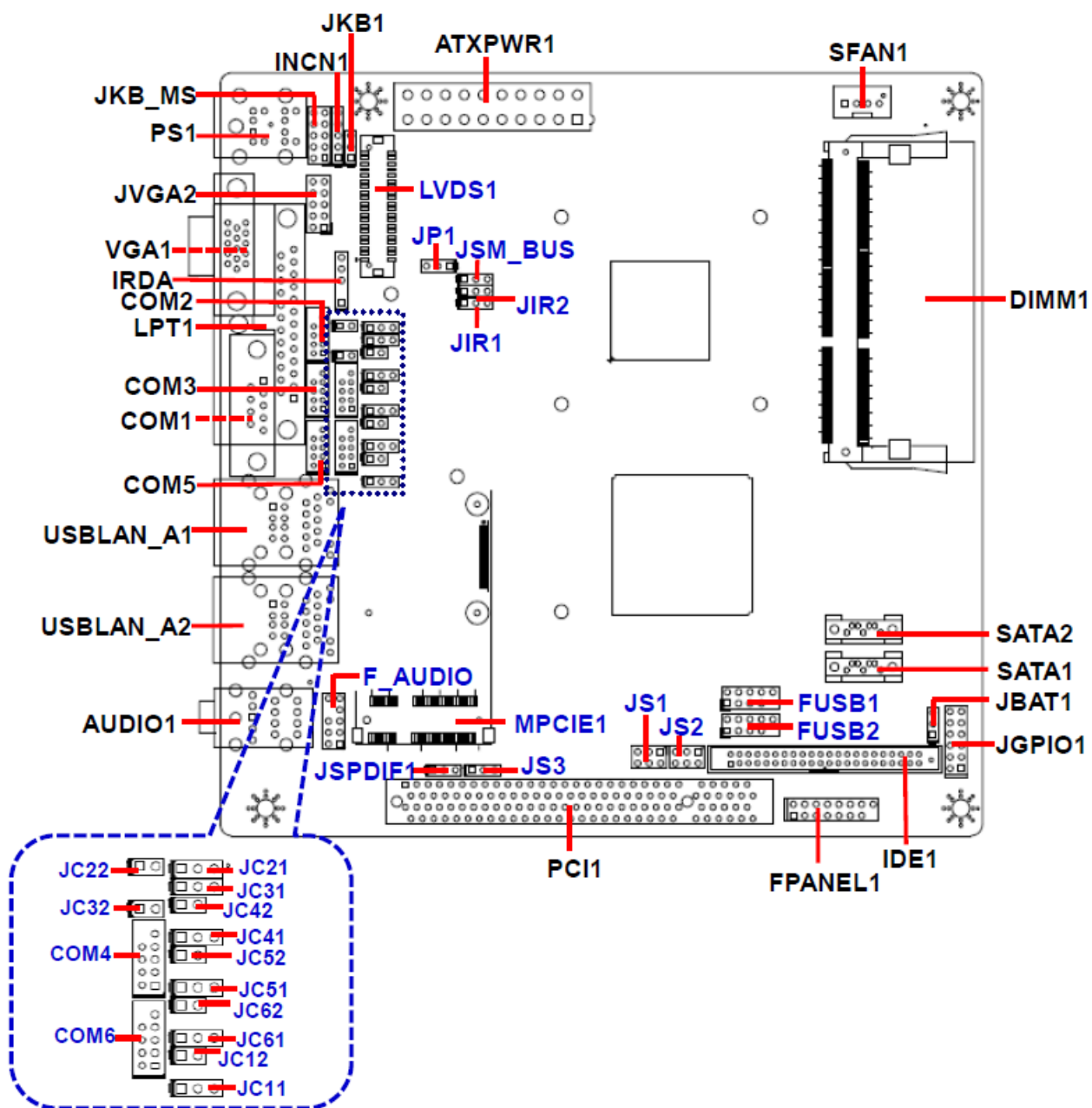
1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EMX-PNVB.



2. Hardware Configuration

2.1 Product Overview



2.2 Installation Procedure

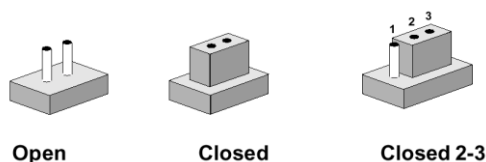
This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the DIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change BIOS settings to support flat panel.
4. Connect power supply to the board via the ATX Power.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "Save & Exit \ Restore Defaults" feature.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

2.3 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

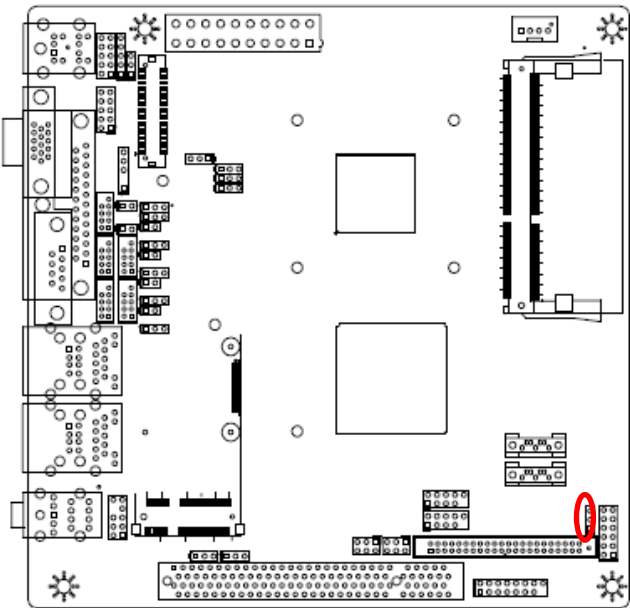
Label	Function	Note
JP1	Jumper for LVDS PWR selection	1 x 3 header, pitch 2.54 mm
JKB1	Keyboard power select jumper	1 x 3 header, pitch 2.54 mm
JIR1~2	Jumper for COM2 or IR selection. The IR function can't be used.	1 x 3 header, pitch 2.54 mm
JC12/22/32/42/52/62	Serial port 1~6 or RI, USE JC11/21/31/41/51/61 PIN 9 selector	1 x 2 header, pitch 2.54 mm
JBAT1	Clear CMOS	1 x 3 header, pitch 2.54 mm
JS1~2	Jumper for MPCIE & MSATA selection	2 x 3 header, pitch 2.54 mm
JS3	Jumper for MPCIE PWR selection	1 x 3 header, pitch 2.54 mm

Connectors		
Label	Function	Note
FPANEL1	Front Panel Switches	2 x 8 header, pitch 2.54 mm
MPCIE1	PCIe signal selector	
PCI1	PCI slot	
COM1	Serial port 1 connector	
COM2~6	Serial port 2~6 connector	2 x 5 header, pitch 2.00 mm
JGPIO1	General Purpose I/O	2 x 6 header, pitch 2.54 mm
LVDS1	LVDS connector	2 x 20 wafer, pitch 1.25 mm
SATA1~2	Serial ATA connector 1~2	
USB LAN_A1~2	USB & LAN port 1~2	
F_USB1~2	USB connector 1~2	2 x 5 header, pitch 2.54 mm
SFAN1	System Fan connector	1 x 4 wafer, pitch 2.54 mm
LPT1	Printer	
DIMM1	DDR3 SODIMM socket	
VGA1	VGA connector	
JVGA2	VGA connector	2 x 5 header, pitch 2.54 mm
PS1	PS/2 Keyboard & Mouse connector	
F_AUDIO	Front Panel Audio Connection Header	2 x 5 header, pitch 2.54 mm
JSPDIF1	Sony/Philips Digital Interface	1 x 3 header, pitch 2.54 mm
IRDA	IRDA connector (not supported)	1 x 5 header, pitch 2.54 mm
IDE1	IDE connector	2 x 22 header, pitch 2.00 mm
ATXPWR1	ATX Power connector	2 x 10 wafer, pitch 4.20 mm
INCN1	Inverter connector	1 x 5 header, pitch 2.54 mm
JSM_BUS	System Management Bus controller	1 x 3 header, pitch 2.54 mm
JC11/21/31/41/51/61	Jumper for Serial port 1~6 pin9 power selection	1 x 3 header, pitch 2.54 mm
JKB_MS	Keyboard & Mouse connector	2 x 5 header, pitch 2.54 mm
AUDIO1	Line-Out & Mic-In connector	

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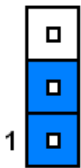
2.4 Setting Jumpers & Connectors

2.4.1 Clear CMOS (JBAT1)

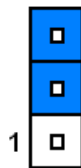


* Default

Normal*

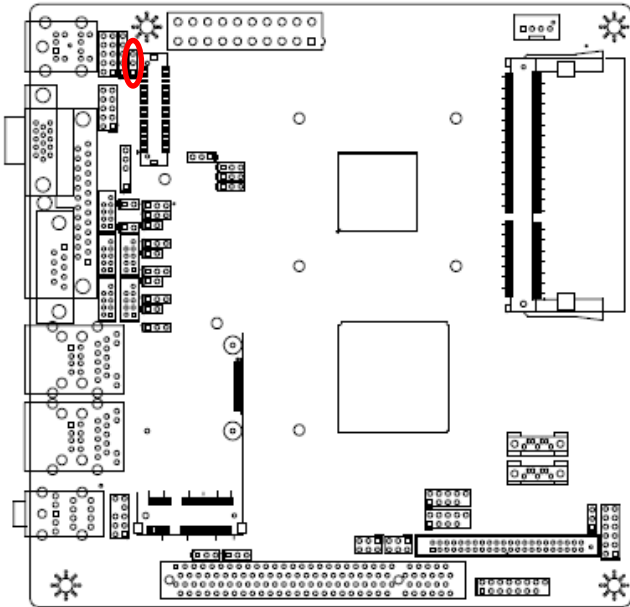


Clear CMOS



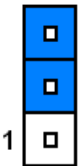
Pin	Define
1-2	Normal
2-3	Clear CMOS

2.4.2 Keyboard power select jumper (JKB1)

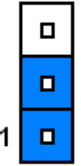


* Default

Disabled*

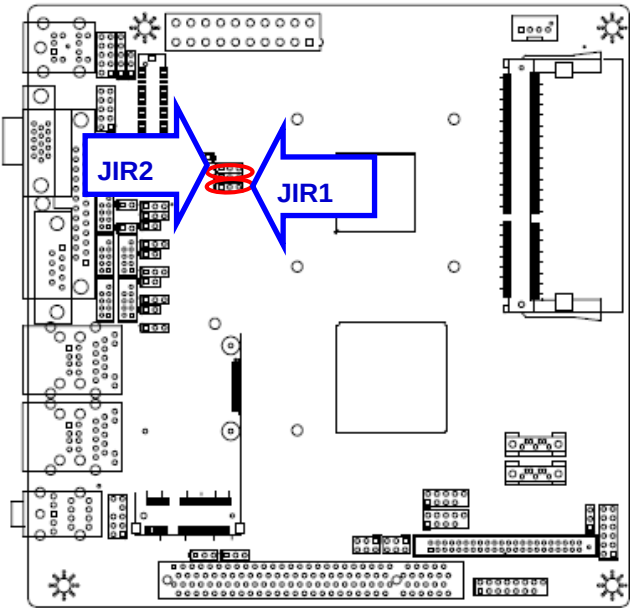


Enabled

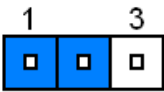


Pin	Define
1-2	Disabled
2-3	Enabled

2.4.3 Jumper for COM2 or IR selection (JIR1~2)



COM2*



IR

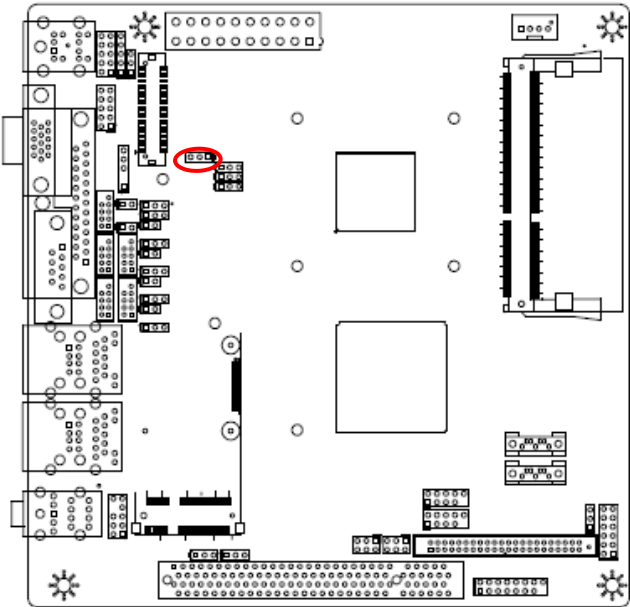


Pin	Define
1-2	COM2
2-3	IR

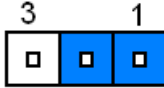
* Default

Note: IR is not functional.

2.4.4 Jumper for LVDS PWR selection (JP1)



3.3V*



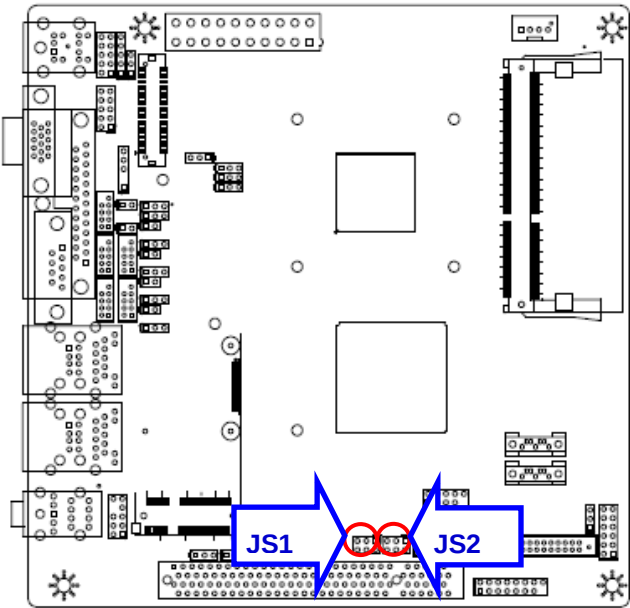
5V



Pin	Define	Max current
1-2	3.3V	1A
2-3	5V	1A

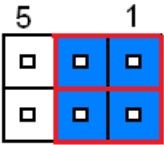
* Default

2.4.5 Jumper for MPCIE selection (JS1~2)

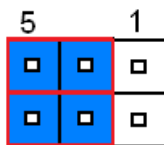


* Default

M-SATA*

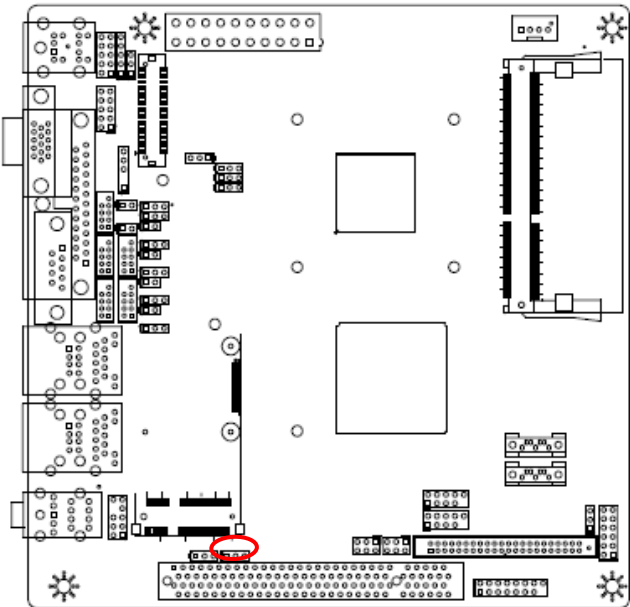


MINIPCIE



Pin	Pin	Define
1-3	2-4	M-SATA
3-5	4-6	MINIPCIE

2.4.6 Jumper for MPCIE PWR selection (JS3)



* Default

3.3V*

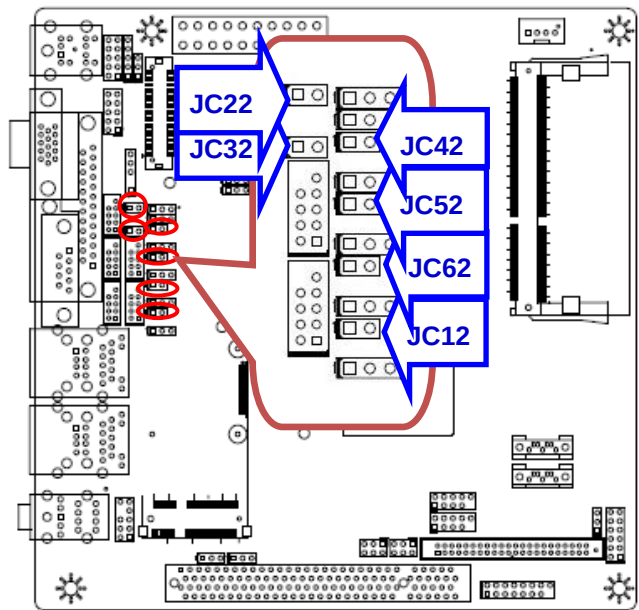


GND



Pin	Define	Max current
2-3	GND	
1-2	3.3V	1A

2.4.7 Serial port 1~6 or RI, USE JC11/21/31/41/51/61 PIN 9 selector
(JC12/22/32/42/52/62)



* Default

RI*

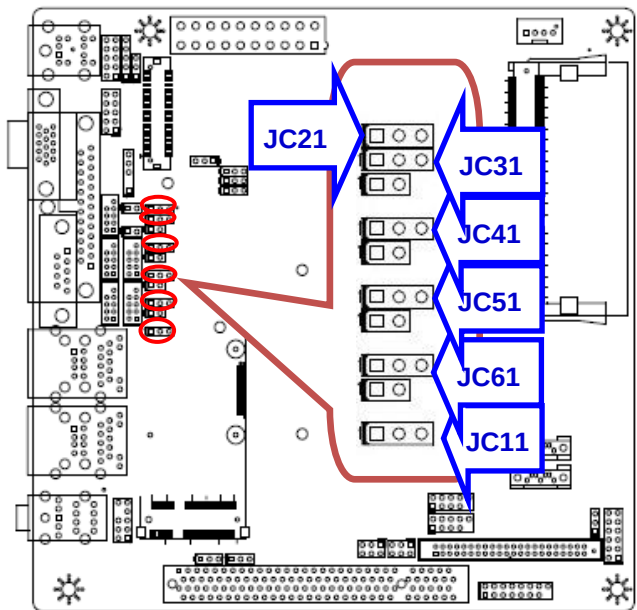


USE JC11_JC61

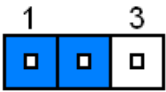


PIN Option	Define
CLOSE	RI
OPEN	USE JC11_JC61

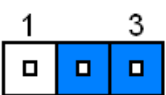
2.4.8 Jumper for Serial port 1~6 pin9 power selection (JC11/21/31/41/51/61)



+5V

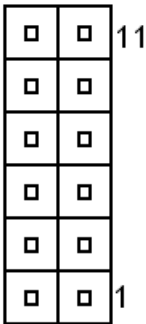
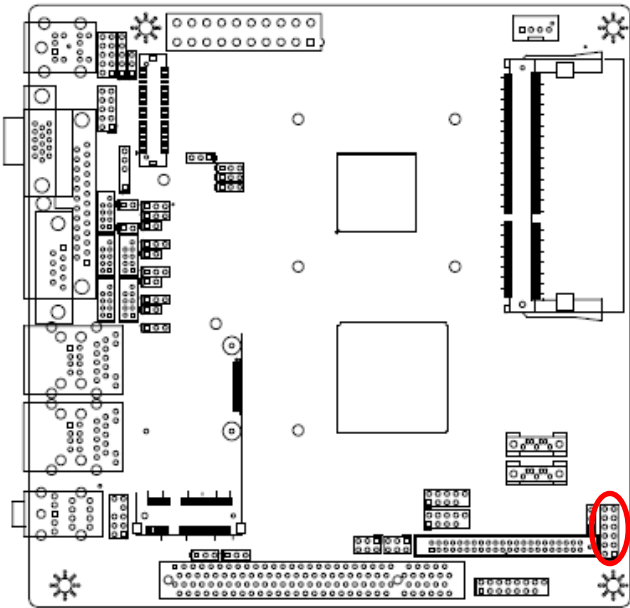


+12V



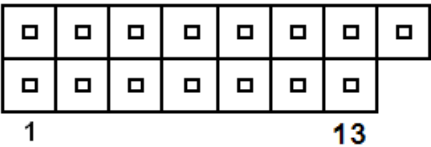
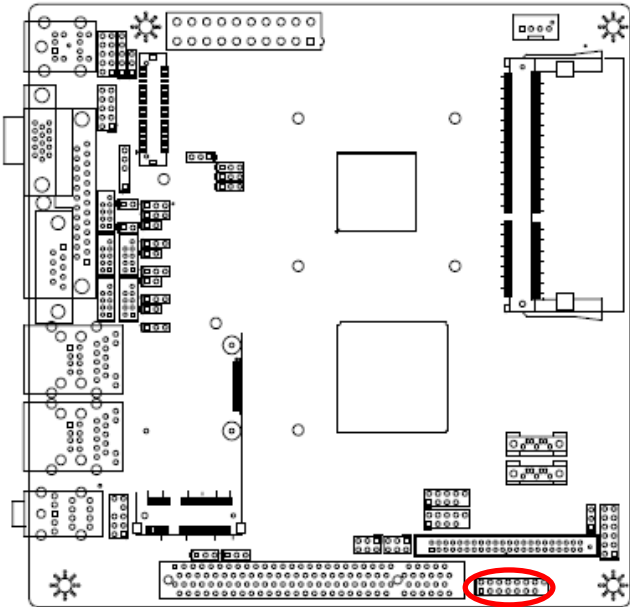
PIN	Define	Max current
1-2	+5V	1A
2-3	+12V	1A

2.4.9 General Purpose I/O (JGPIO1)



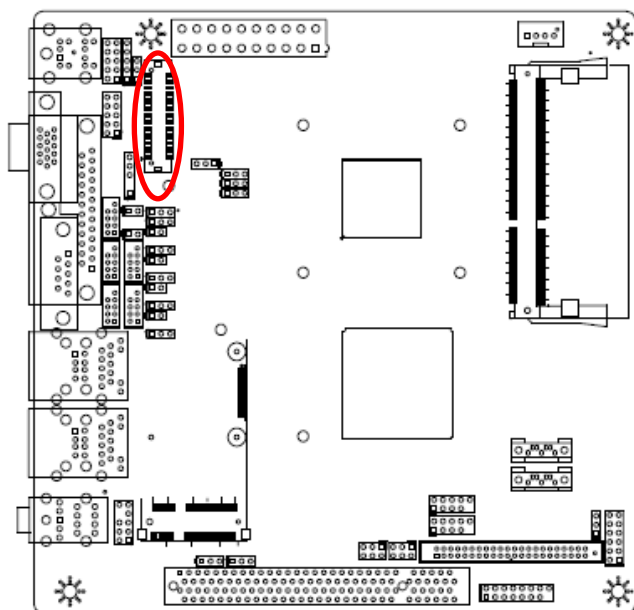
Signal	PIN	PIN	Signal
GND	12	11	GND
GPIO	10	9	GPIO
GPIO	8	7	GPIO
GPIO	6	5	GPIO
GPIO	4	3	GPIO
+12V	2	1	+5V

2.4.10 Front Panel Switches (FPANEL1)



Signal	PIN	PIN	Signal
5VSB	1	2	+HD_LED
+P_LED	3	4	-HD_LED
-P_LED	5	6	PS_ON
+SPEAK	7	8	-PS_ON
NC	9	10	RESET
NC	11	12	-RESET
-SPEAK	13	14	+SLPLED
		16	-SLPLED

2.4.11 LVDS connector (LVDS1)

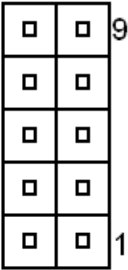
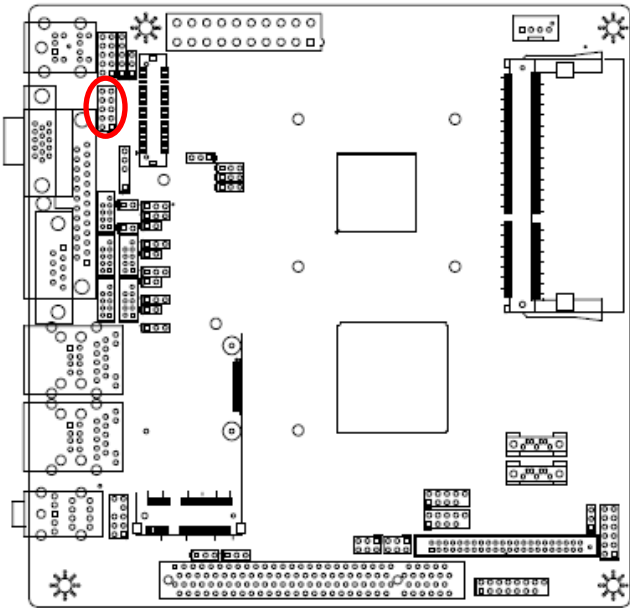


Note: Mapping connector DF13-40DS-1.25C (1.0mm).



Signal	PIN	PIN	Signal
NC	39	40	LVDS_VCON
NC	37	38	NC
NC	35	36	NC
GND	33	34	GND
LVDS_DDCPCLK	31	32	LVDS_DDCPDATA
GND	29	30	GND
NC	27	28	LVDS0_CLKP
NC	25	26	LVDS0_CLKN
GND	23	24	GND
NC	21	22	LVDS0_P2
NC	19	20	LVDS0_N2
GND	17	18	GND
NC	15	16	LVDS0_P1
NC	13	14	LVDS0_N1
GND	11	12	GND
NC	9	10	LVDS0_P0
NC	7	8	LVDS0_N0
VDDSAFE	5	6	VDDSAFE
GND	3	4	GND
VDDSAFE	1	2	VDDSAFE

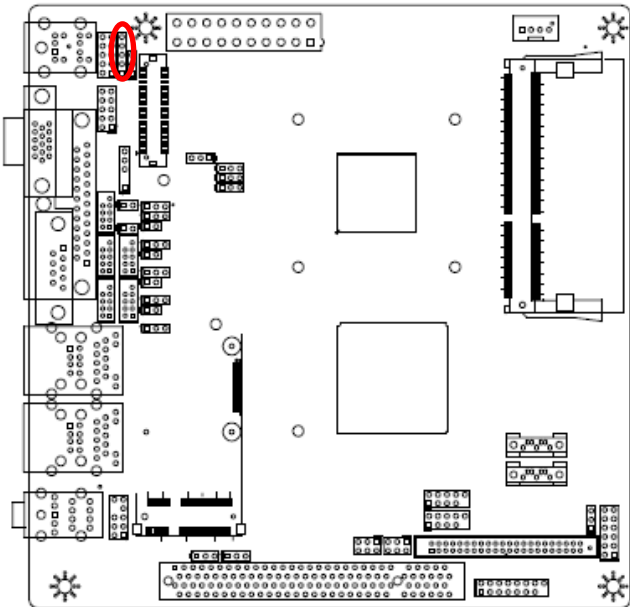
2.4.12 VGA connector (JVGA2)



Signal	PIN	PIN	Signal
DDC_CLK	10	9	DDC_DATA
VSYNC	8	7	HSYNC
BLUE	6	5	GND
GREEN	4	3	GND
RED	2	1	GND

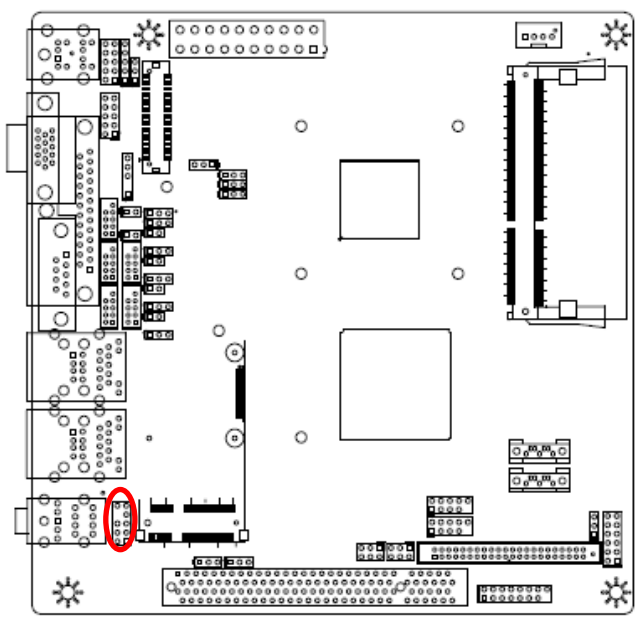
Note: It can be used either D-SUB connector or Pin Header

2.4.13 Inverter connector (INCN1)



PIN	Signal	Max current
5	5V	1A
4	0V	
3	BLFN	
2	GND	
1	12V	1A

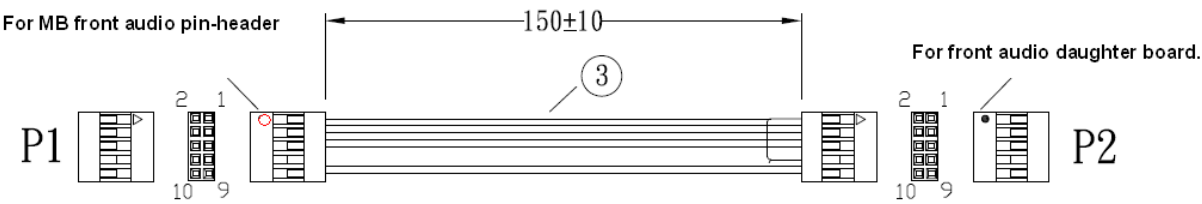
2.4.14 Front Panel Audio Connection Header (F_AUDIO)



□	□	9
	□	
□	□	
□	□	
□	□	1

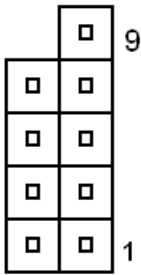
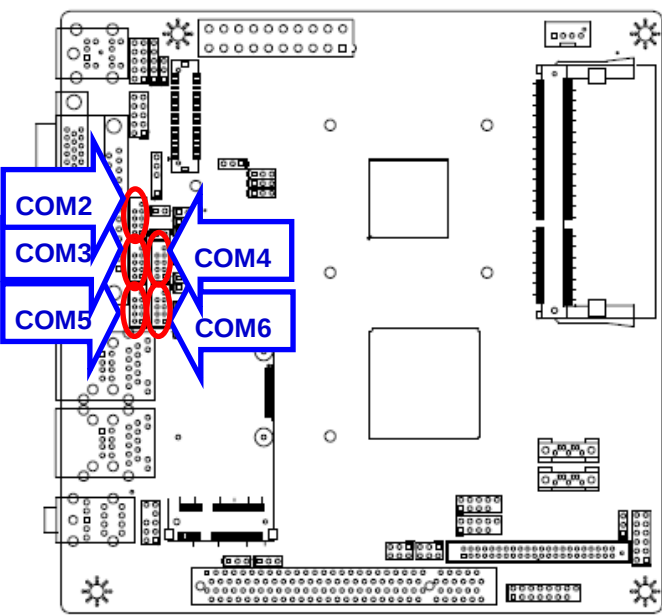
Signal	PIN	PIN	Signal
AUD_RET_L	10	9	FRONT_OUT_L
		7	NC
AUD_RET_R	6	5	FRONT_OUT_R
5V	4	3	VREF_OUT
GND	2	1	FRONT_MIC

Note: Please use the attached audio cable for front audio daughter board.



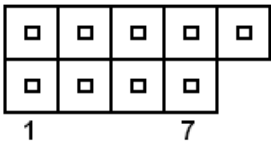
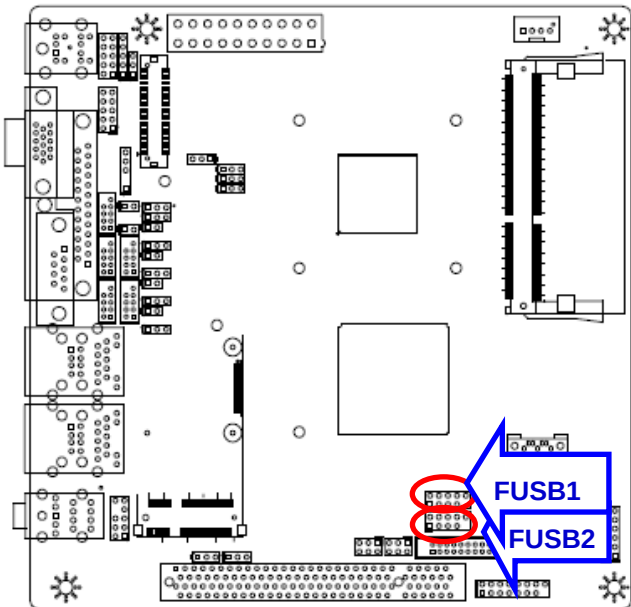
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2.4.15 Serial port 2~6 connector (COM2~6)



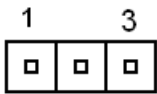
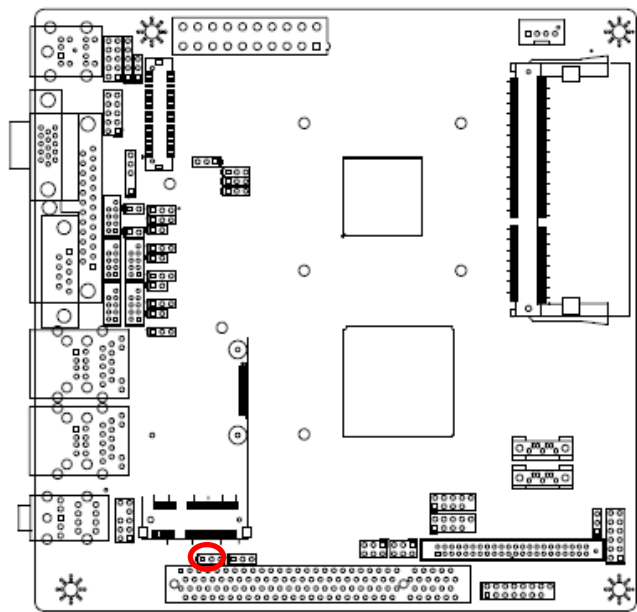
Signal	PIN	PIN	Signal
		9	RI
CTS	8	7	RTS
DSR	6	5	GND
RTD	4	3	TXD
RXD	2	1	DCD

2.4.16 USB connector 1~2 (FUSB1~2)



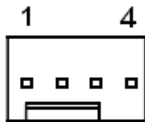
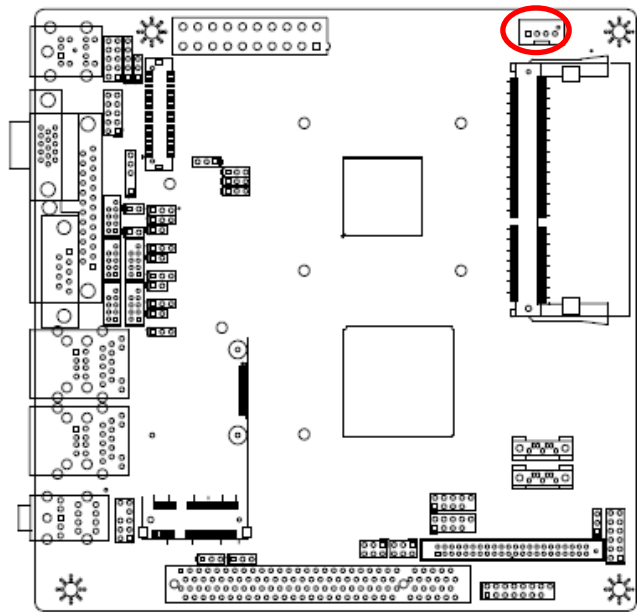
Signal	PIN	PIN	Signal
VCC	1	2	VCC
Data 0-	3	4	Data 1
Data 0+	5	6	Data 1
GND	7	8	GND
		10	GND

2.4.17 Sony/Philips Digital Interface (JSPDIF1)



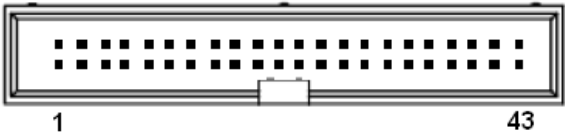
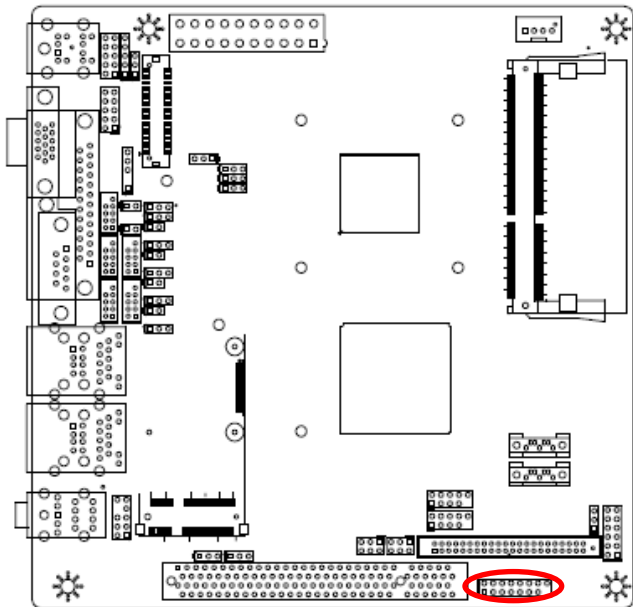
PIN	Signal
1	NC
2	GND
3	OUT

2.4.18 System Fan connector (SFAN1)



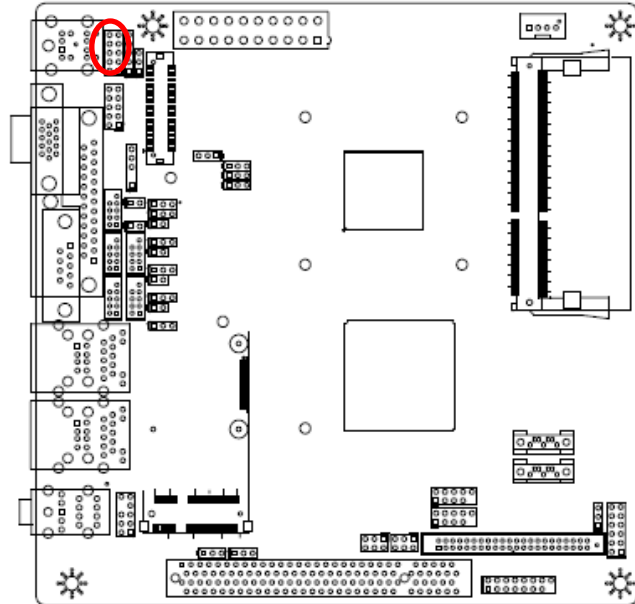
PIN	Signal
1	Ground
2	+12V
3	RPM
4	Control

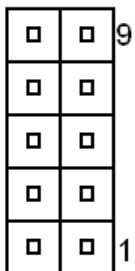
2.4.3 IDE connector (IDE1)



Signal	PIN	PIN	Signal
IDE RESET	1	2	GND
DATA 7	3	4	DATA 8
DATA 6	5	6	DATA 9
DATA 5	7	8	DATA 10
DATA 4	9	10	DATA 11
DATA 3	11	12	DATA 12
DATA 2	13	14	DATA 13
DATA 1	15	16	DATA 14
DATA 0	17	18	DATA 15
GND	19	20	NC
DRQ	21	22	GND
IO WRITE	23	24	GND
IO READ	25	26	GND
HD READY	27	28	NC
HDACK 0	29	30	GND
IDE IRQ	31	32	IOCS16
ADDR 1	33	34	NC
ADDR 0	35	36	ADDR 2
HARD DISK SELECT0	37	38	HARD DISK SELECT 1*
IDE ACTIVE	39	40	GND
VCC	41	42	VCC
GND	43	44	NC

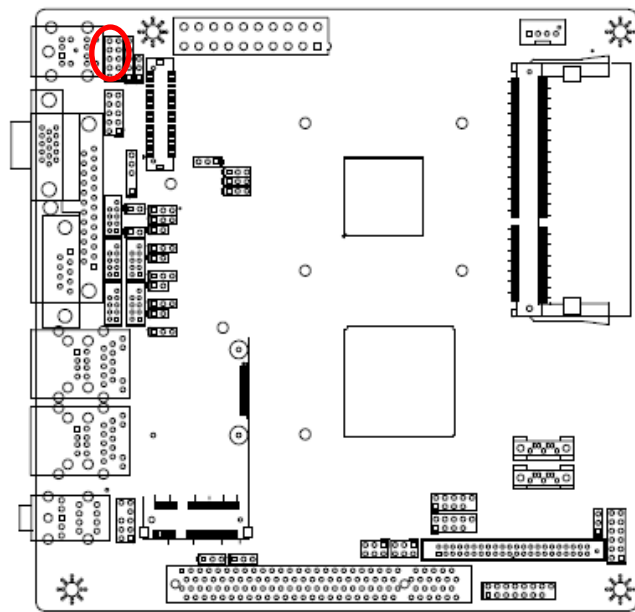
2.4.20 Keyboard & Mouse connector (JKB_MS)

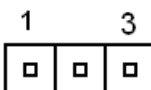




Signal	PIN	PIN	Signal
EMSDT	10	9	EMSCL
MSDT	8	7	MSCK
EKBDT	6	5	EKBCK
KBDT	4	3	KBCK
GAD	2	1	KB_5V

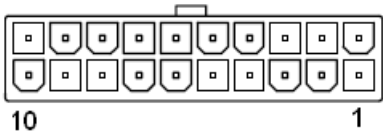
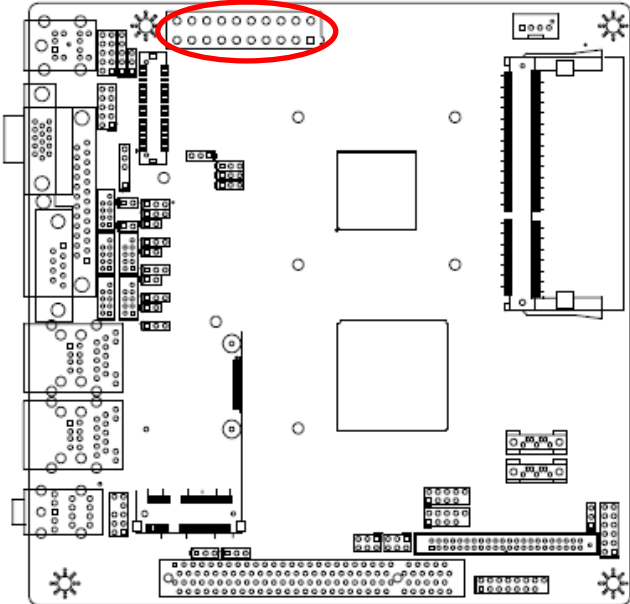
2.4.21 System Management Bus controller (JSM_BUS)





PIN	Signal
1	SMB_CLK_S
2	SMB_DATA_S
3	GND

2.4.22 ATX Power connector (ATXPWR1)



Signal	PIN	PIN	Signal
+3.3V	1	11	+3.3V
+3.3V	2	12	-12V
GND	3	13	GND
+5V	4	14	PS-ON
GND	5	15	GND
+5V	6	16	GND
GND	7	17	GND
PWR OK	8	18	-5V
+5VSB	9	19	+5V
+12V	10	20	+5V

3. BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

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

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

By pressing immediately after switching the system on, or

By pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter setup, F11 to popup menu

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

Press DEL to enter setup, F11 to popup menu

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to the pervious page or Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F7 key	Previous Values
F8 key	Fail-Safe Values
F9 key	Optimized Defaults
F10 key	Save and Exit

- **Navigating Through The Menu Bar**

Use the left and right arrow keys to choose the menu you want to be in.



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

- **To Display a Sub Menu**

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A “➤” pointer marks all sub menus.

3.4 Getting Help

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

3.5 In Case of Problems

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

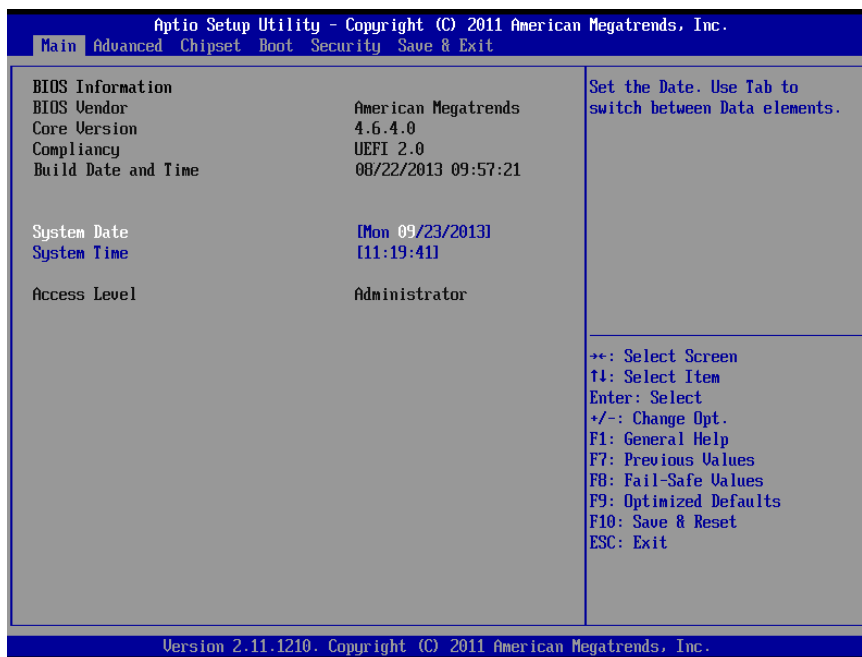
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your systems manufacturer to provide the absolute maximum performance and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

3.6 BIOS setup

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

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.



3.6.1.1 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

3.6.1.2 System Time

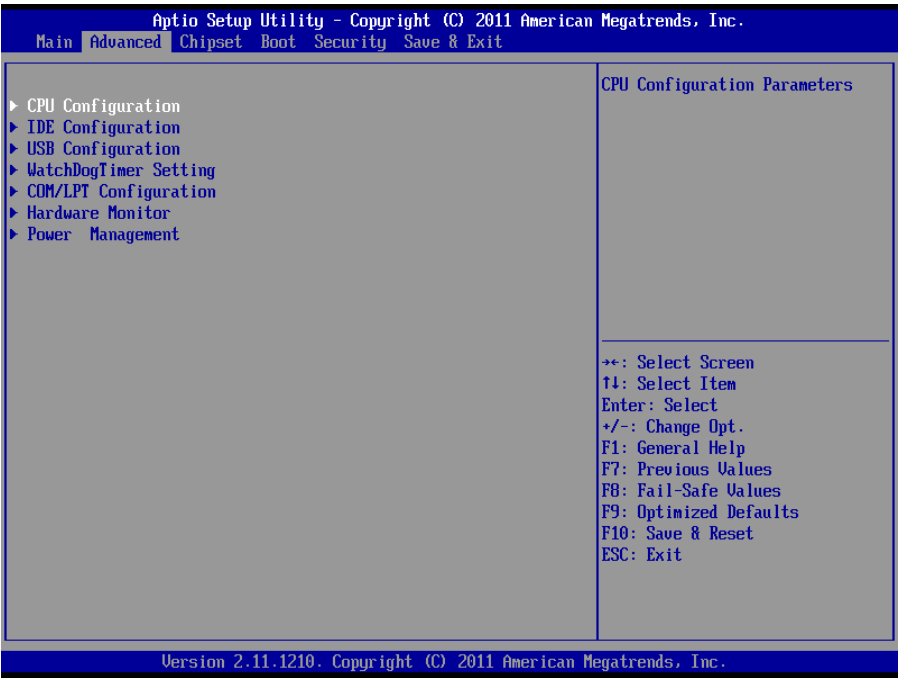
Use the system time option to set the system time. Manually enter the hours, minutes and seconds.



Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

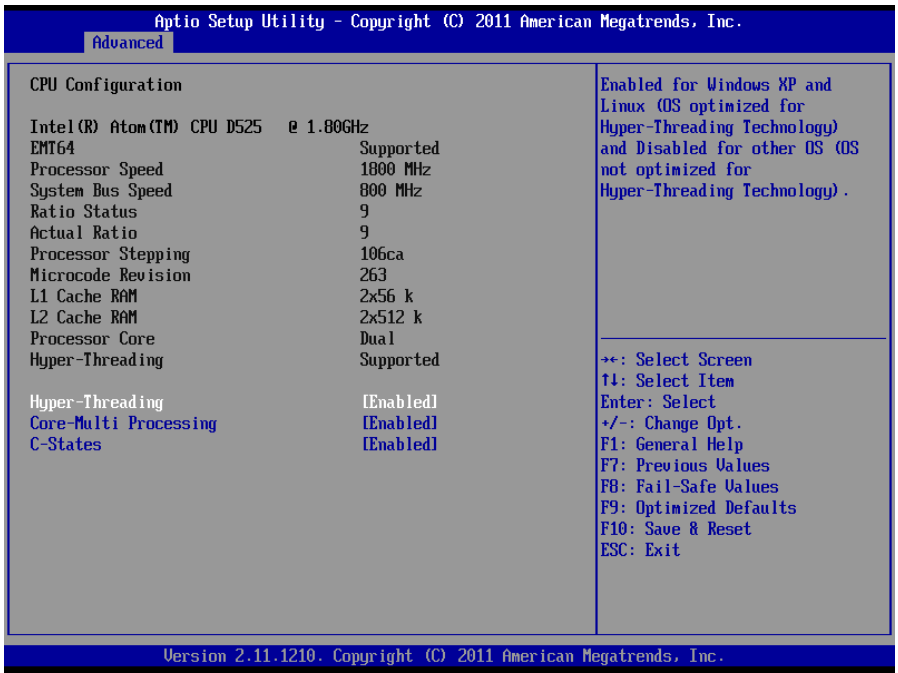
3.6.2 Advanced BIOS settings

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.



3.6.2.1 CPU Configuration

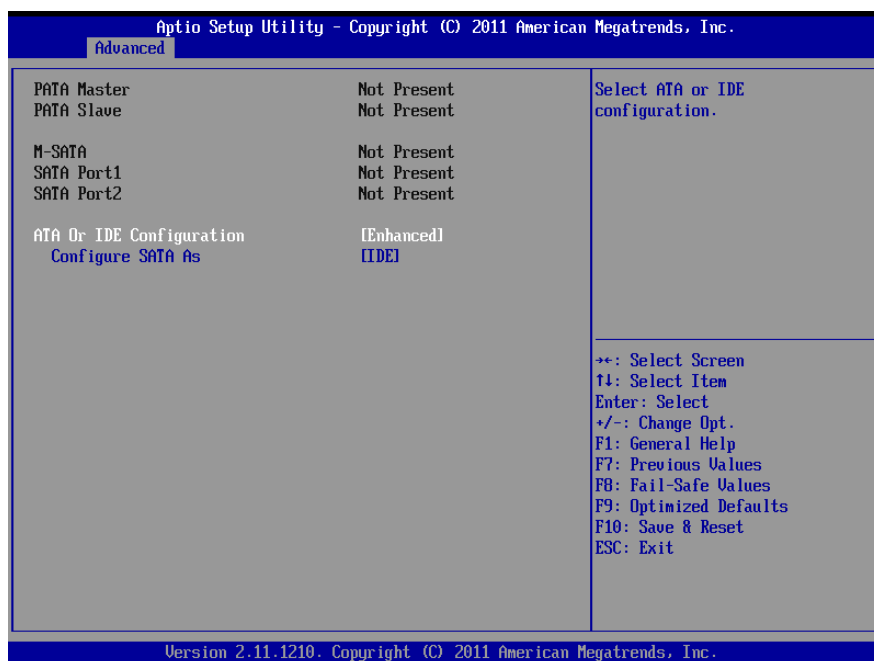
Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



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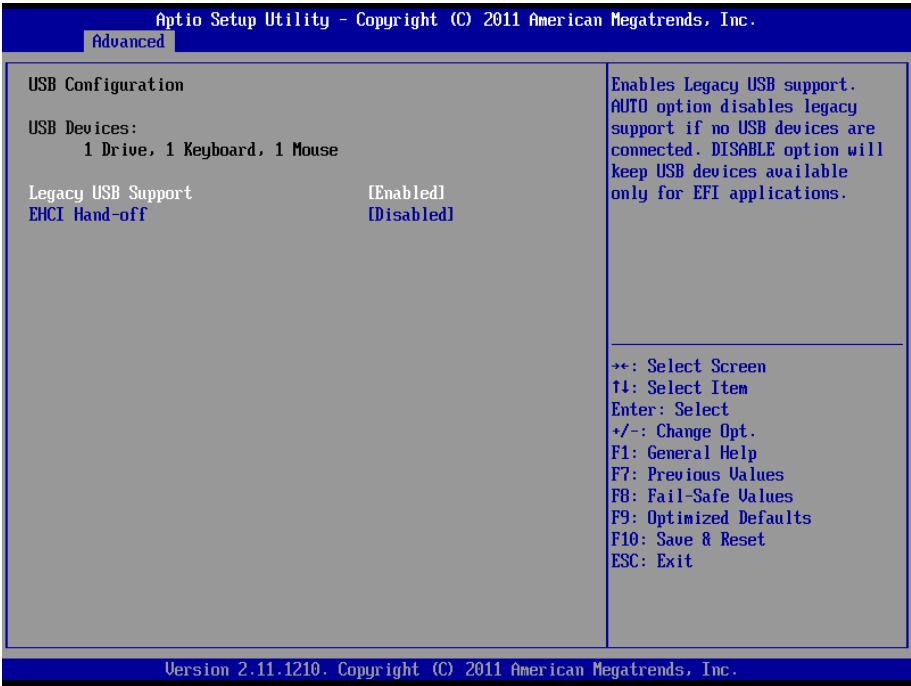
Item	Options	Description
Hyper-Threading	Disabled[Default] Enabled	Enable for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper- threading Technology).
Core-Multi Processing	Disabled[Default] Enabled	Enable or Disable Core-Multi Processing mode.
C-States	Disabled[Default] Enabled	Enable or Disable C2 and above.

3.6.2.2 IDE Configuration



Item	Options	Description
ATA Or IDE Configuration	Disabled Compatible Enhanced[Default]	Select ATA or IDE configuration.
Configure SATA As	IDE[Default] RAID AHCI	Select a configuration for SATA controller.

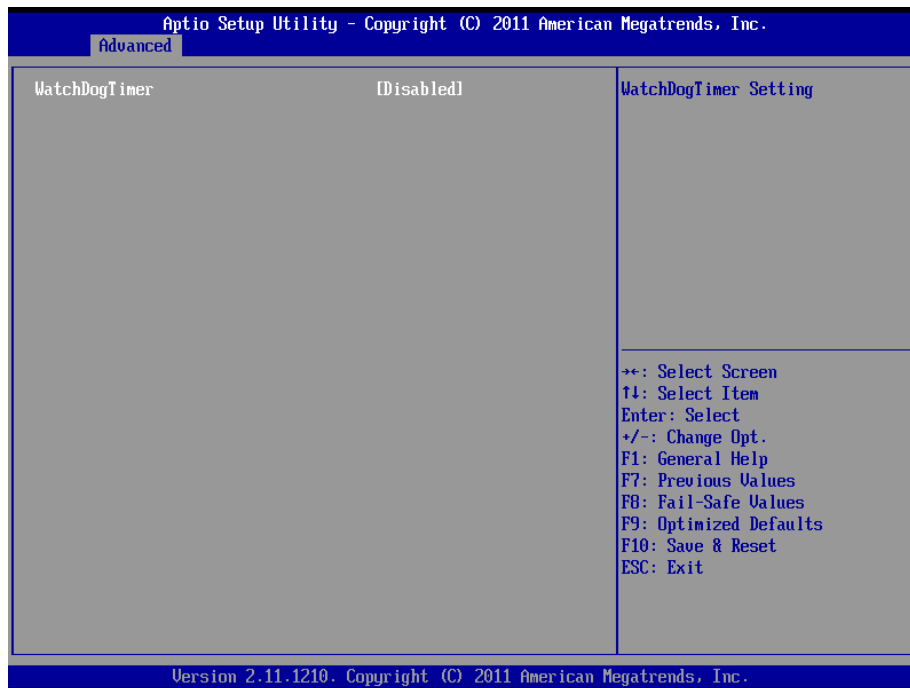
3.6.2.3 USB Configuration



Item	Options	Description
Legacy USB Support	Enabled[Default] Disabled Auto	Enables Legacy USB support, AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
EHCI Hand-off	Disabled[Default] Enabled	This is a workaround for OSeS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

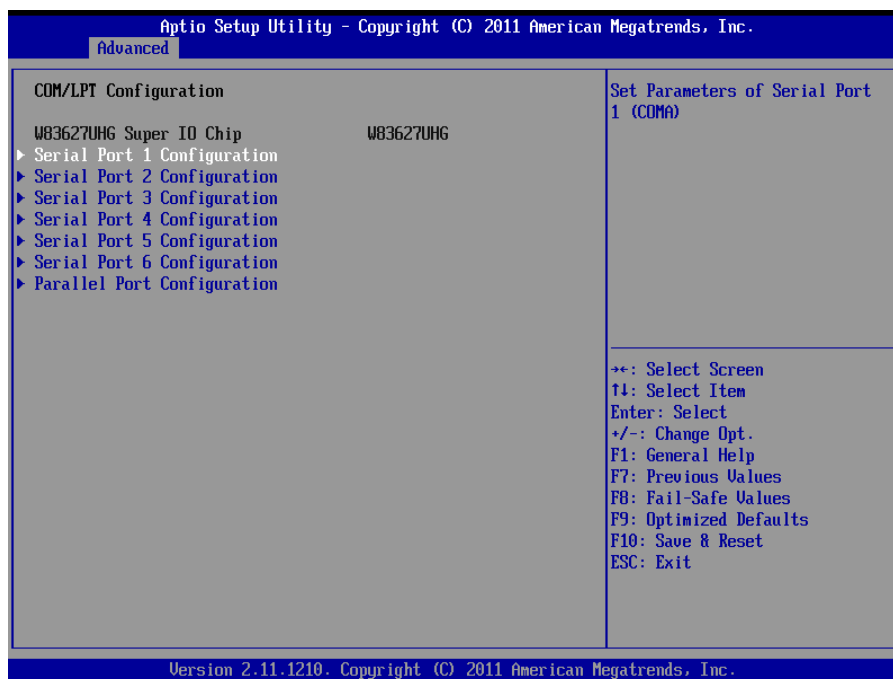
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3.6.2.4 WatchDogTimer Setting



Item	Options	Description
WatchDogTimer	Enabled Disabled[Default]	WatchDogTimer Setting.

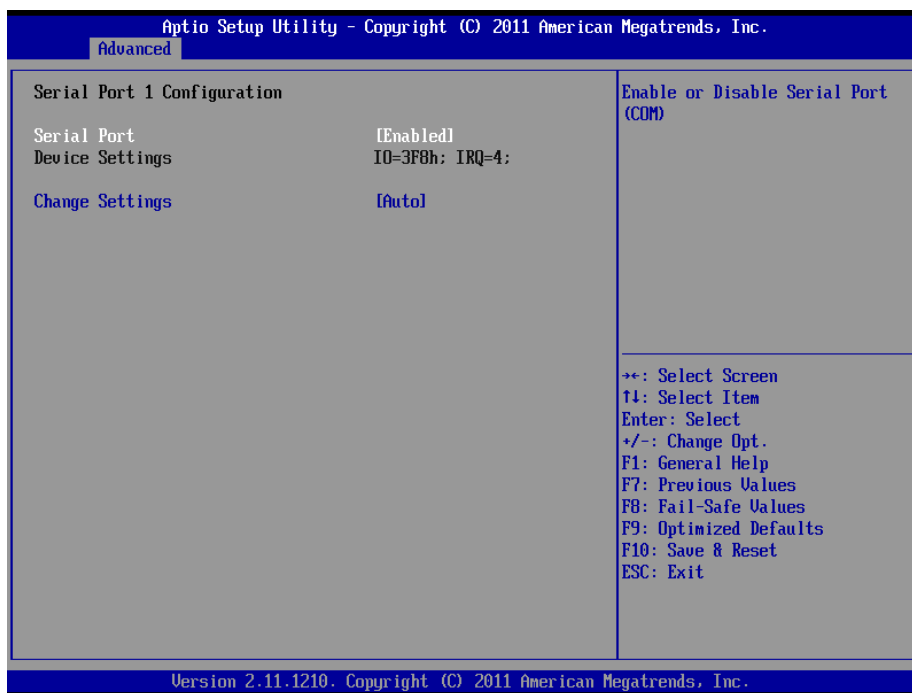
3.6.2.5 COM/LPT Configuration



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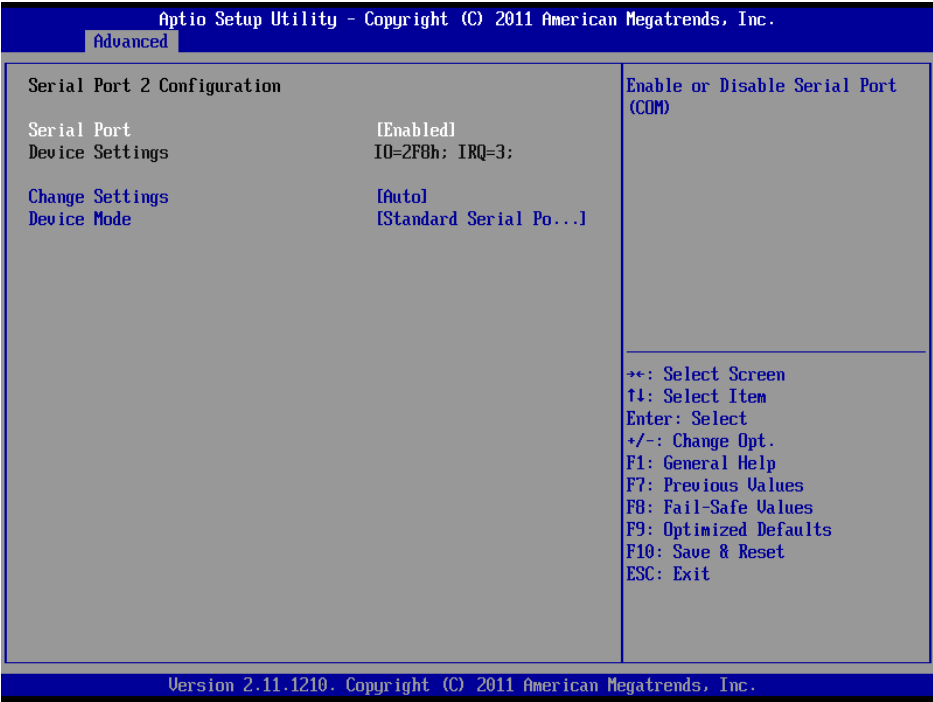
Item	Description
Serial Port 1/2/3/4/5/6 Configuration	Set Parameters of Serial Port 1/2/3/4/5/6 (COMA/B/C/D/E/F).
Parallel Port Configuration	Set Parameters of Parallel Port (LPT/LPTE).

3.6.2.5.1 Serial Port 1 Configuration



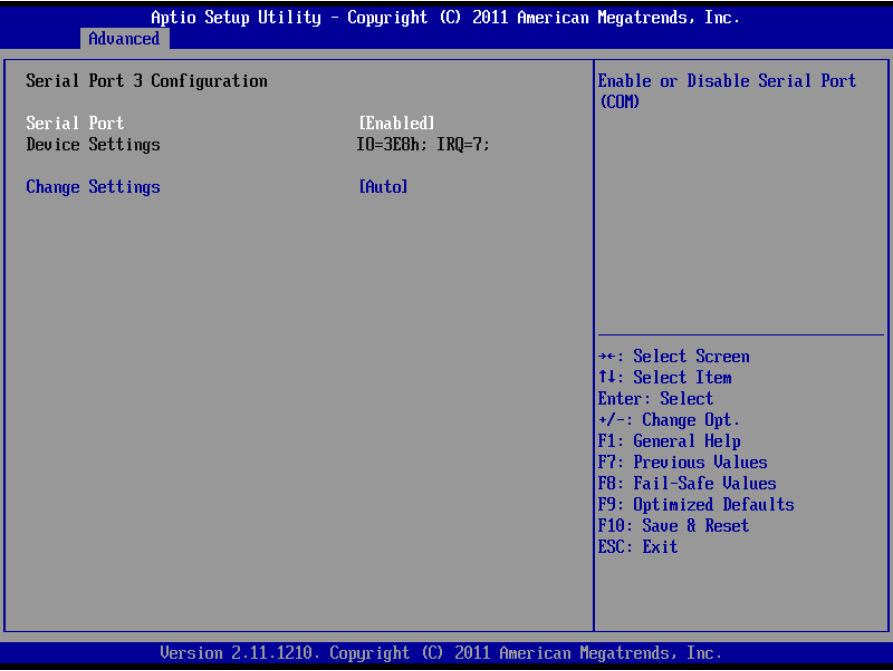
Item	Option	Description
Serial Port	Disabled[Default] Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

3.6.2.5.2 Serial Port 2 Configuration



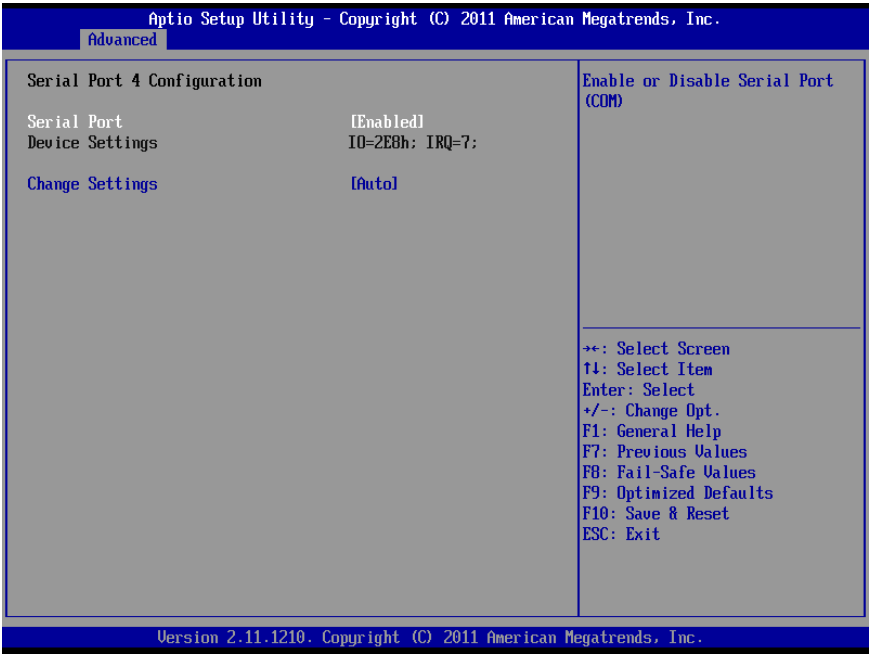
Item	Option	Description
Serial Port	Disabled[Default] Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=2F8h; IRQ=3; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.
Device Mode	Standard Serial Port Mode[Default] None use None use	Change the Serial Port mode. Select <High Speed> or <Normal mode> mode.

3.6.2.5.3 Serial Port 3 Configuration



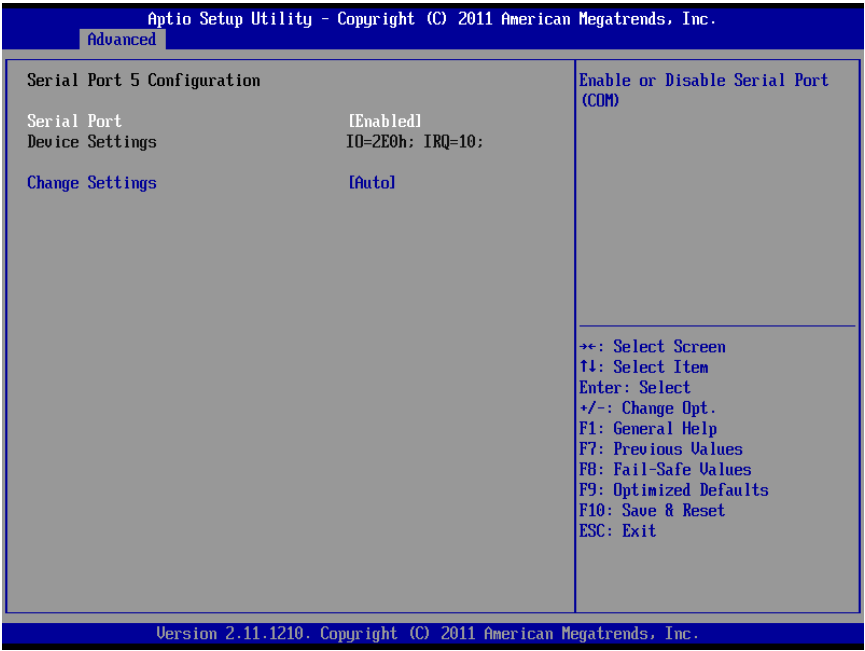
Item	Option	Description
Serial Port	Disabled[Default] Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=3E8h; IRQ=7; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E0h; IRQ=3,4,5,6,7,10,11,12; IO=2F0h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

3.6.2.5.4 Serial Port 4 Configuration



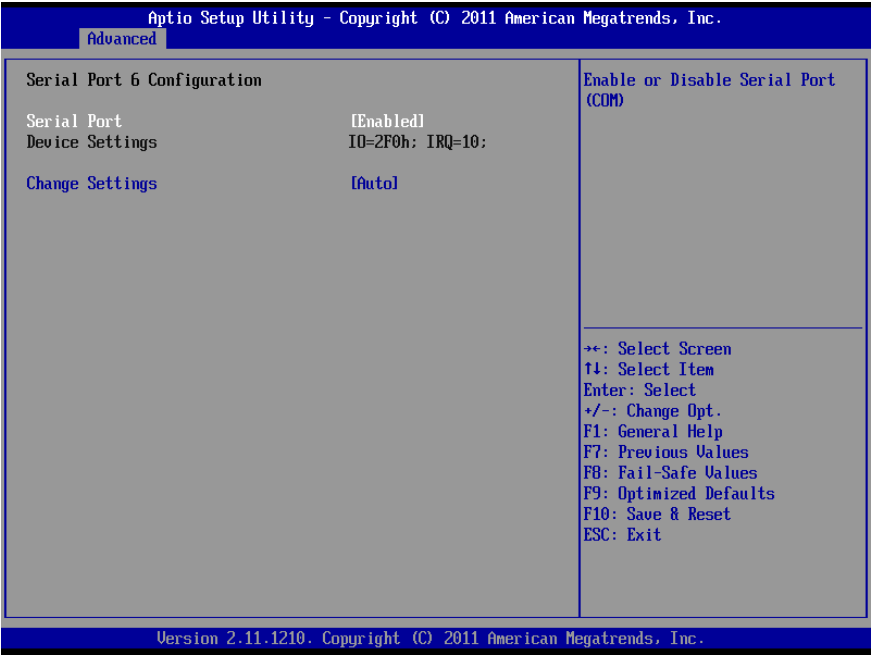
Item	Option	Description
Serial Port	Disabled[Default] Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=2E8h; IRQ=7; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E0h; IRQ=3,4,5,6,7,10,11,12; IO=2F0h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

3.6.2.5.5 Serial Port 5 Configuration



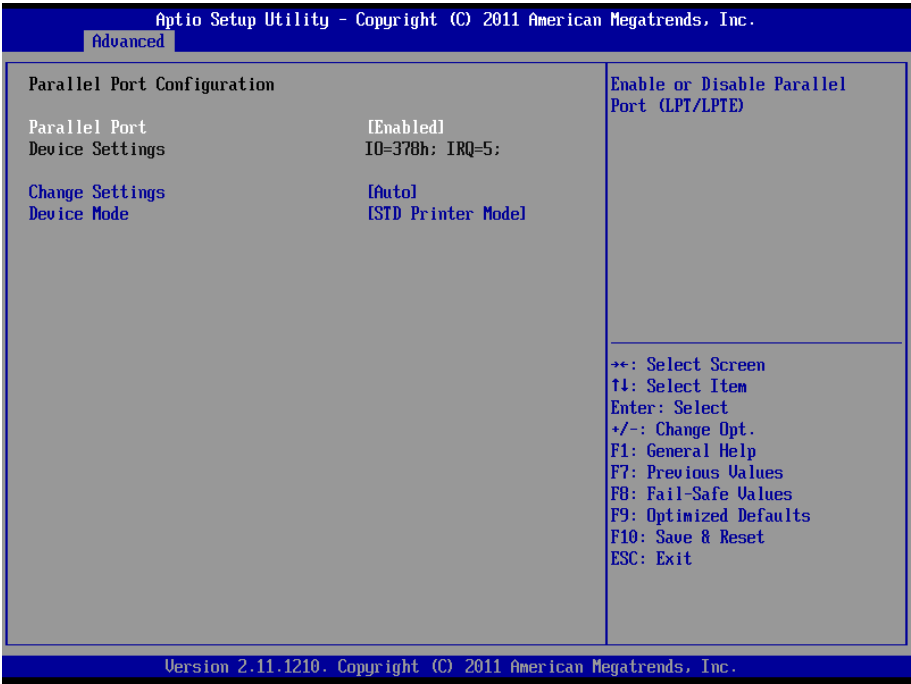
Item	Option	Description
Serial Port	Disabled[Default] Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=2E0h; IRQ=10; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E0h; IRQ=3,4,5,6,7,10,11,12; IO=2F0h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

3.6.2.5.6 Serial Port 6 Configuration



Item	Option	Description
Serial Port	Disabled[Default] Enabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=2F0h; IRQ=10; IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E0h; IRQ=3,4,5,6,7,10,11,12; IO=2F0h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

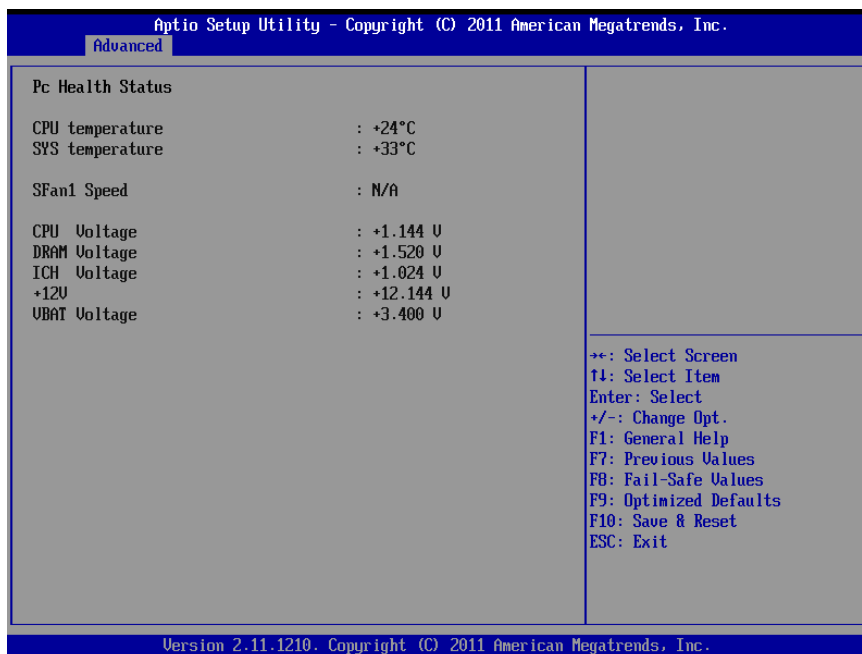
3.6.2.5.7 Parallel Port Configuration



Item	Option	Description
Parallel Port	Disabled[Default] Enabled	Enable or Disable Parallel Port (LPT/LPTE).
Change Settings	Auto[Default] IO=378h; IRQ=5; IO=378h; IRQ=5,6,7,10,11,12; None use None use	Select an optimal setting for Super IO device.
Device Mode	STD Printer Mode[Default] SPP Mode EPP -1.9 and SPP Mode EPP -1.7 and SPP Mode ECP Mode ECP and EPP 1.9 Mode ECP and EPP 1.7 Mode	Change the Printer Port mode.

3.6.2.6 HW Monitor

The H/W Monitor shows the operating temperature, fan speeds and system voltages.



3.6.2.7 Power Management

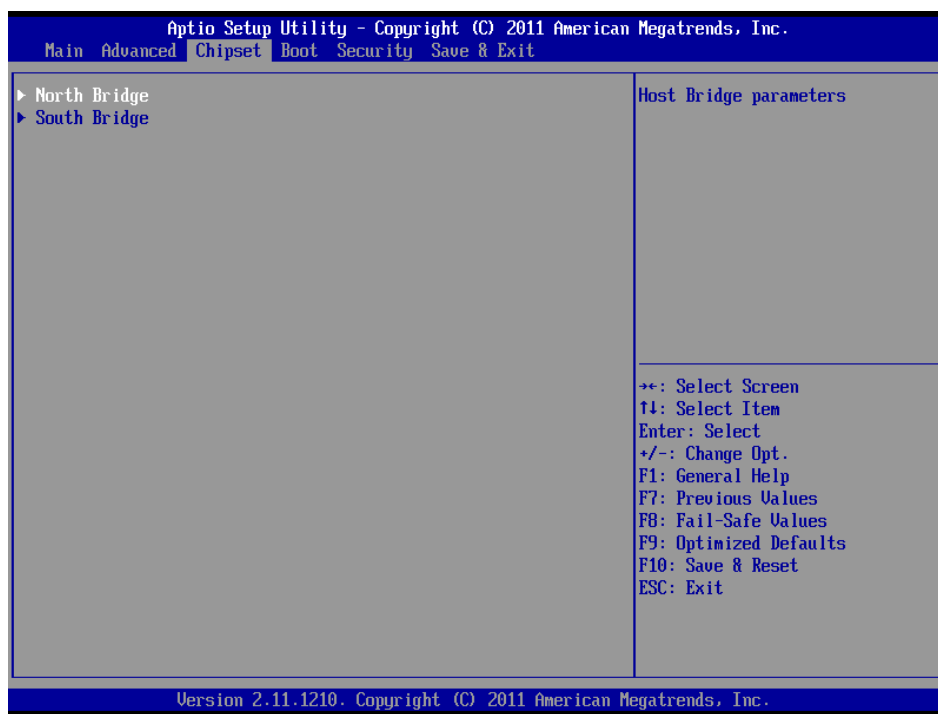


Item	Options	Description
ACPI Sleep State	Suspend Disabled S1 (CPU Stop Clock) [Default]	Select the highest ACPI sleep state the system will enter, when the SUSPEND button is pressed.

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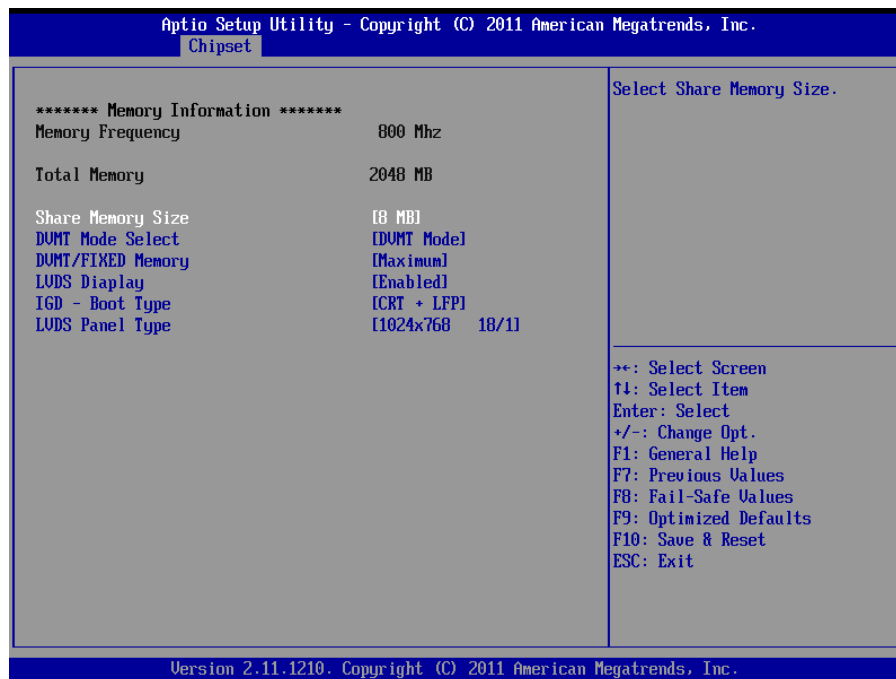
	S3 (Suspend to RAM)	
Power On By PS/2 Keyboard	Disabled[Default] AnyKey Password	Power On By PS/2 Keyboard.
Power On By PS/2 Mouse	Disabled[Default] Enabled	Power On By PS/2 Mouse.
Wake By PME	Disabled Enabled[Default]	Wake By PME.
AC Power Loss	Power Off[Default] Power On Last State	AC Power Loss.
Wake system with Fixed Time	Disabled[Default] Enabled	Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified.
Wake system with Dynamic Time	Disabled[Default] Enabled	Enable or disable System wake on alarm event. When enabled, System will wake on the current time + Increase minute(s).

3.6.3 Chipset



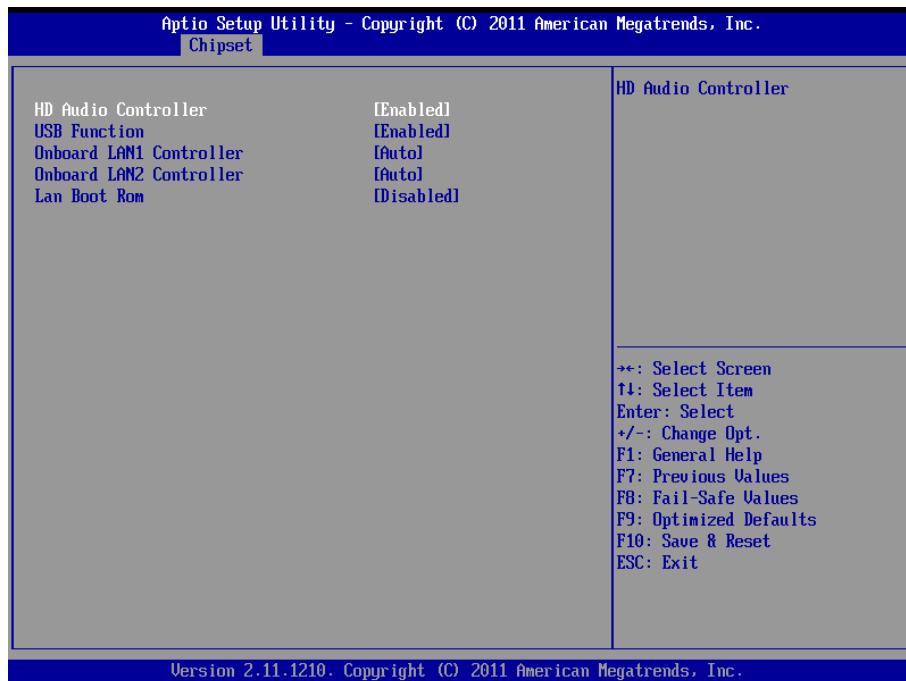
Item	Description
North Bridge	Host Bridge parameters.
South Bridge	South Bridge parameters.

3.6.3.1 North Bridge



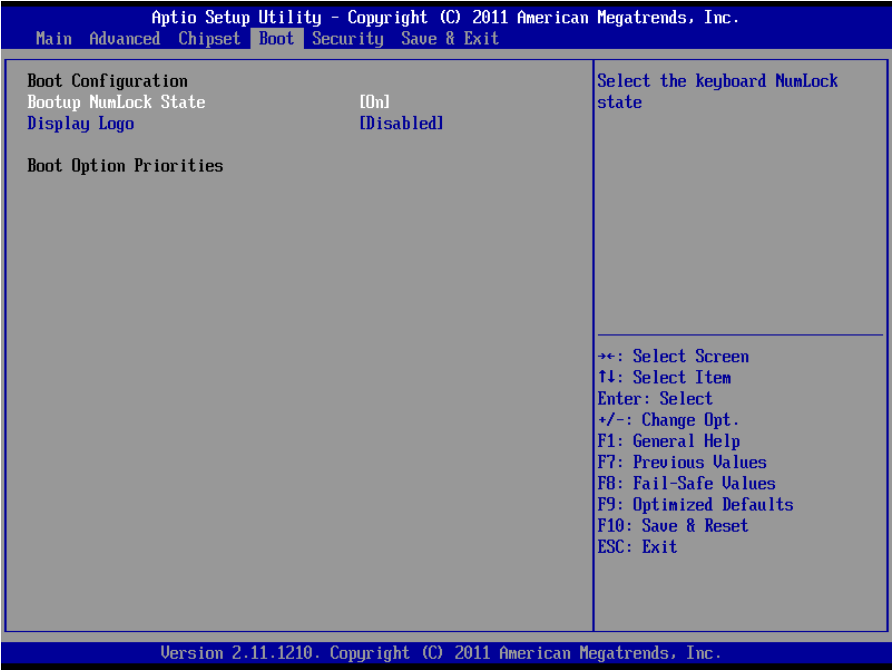
Item	Options	Description
Share Memory Size	8MB[Default]	Select Share Memory Size.
DVMT Mode Select	Fixed Mode[Default] DVMT Mode	Select DVMT Mode/Fixed Mode.
DVMT/FIXED Memory	128MB 256MB Maximum[Default]	Select DVMT/FIXED Mode Memory size used by Internal Graphics Device.
LVDS Display	Disabled Enabled[Default]	Enable or Disable LVDS Display.
IGD – Boot Type	VBIOS Default CRT LFP CRT+LFP[Default]	Select the Video Device which will be activated during POST. This has no effect if external graphics present.
LVDS Panel Type	640x480 18/1[Default] 800x600 18/1 1024x768 18/1 800x400 18/1 1024x600 18/1 None use None use None use 1280x800 18/1	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

3.6.3.2 South Bridge



Item	Options	Description
HD Audio Controller	Disabled Enabled[Default]	HD Audio Controller.
USB Function	Disabled Enabled[Default]	Enable or disable USB Function.
Onboard LAN1/2 Controller	Auto[Default] Enabled Disabled	Onboard LAN1/2 Controller.
Lan Boot Rom	Disabled Enabled[Default]	Enable or Disable Boot Option for Legacy Network Devices.

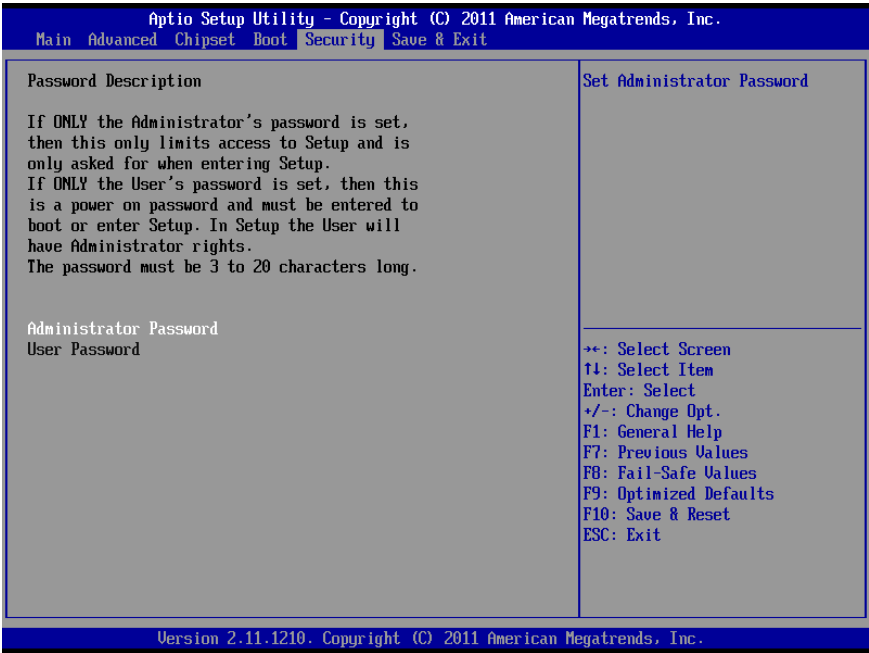
3.6.4 Boot settings



Item	Option	Description
Bootup Numlock State	On Off[Default]	Select the keyboard NumLock state.
Display Logo	Disabled[Default] Enabled	Enables or disables Quiet Boot option.

3.6.5 Security

Use the Security menu to set system and user password.

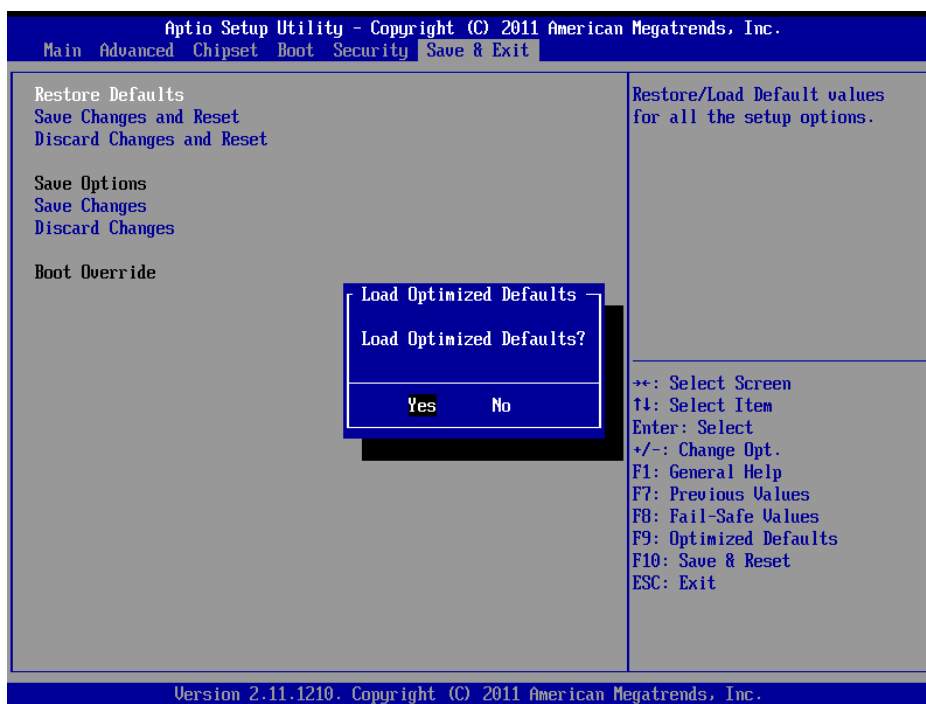
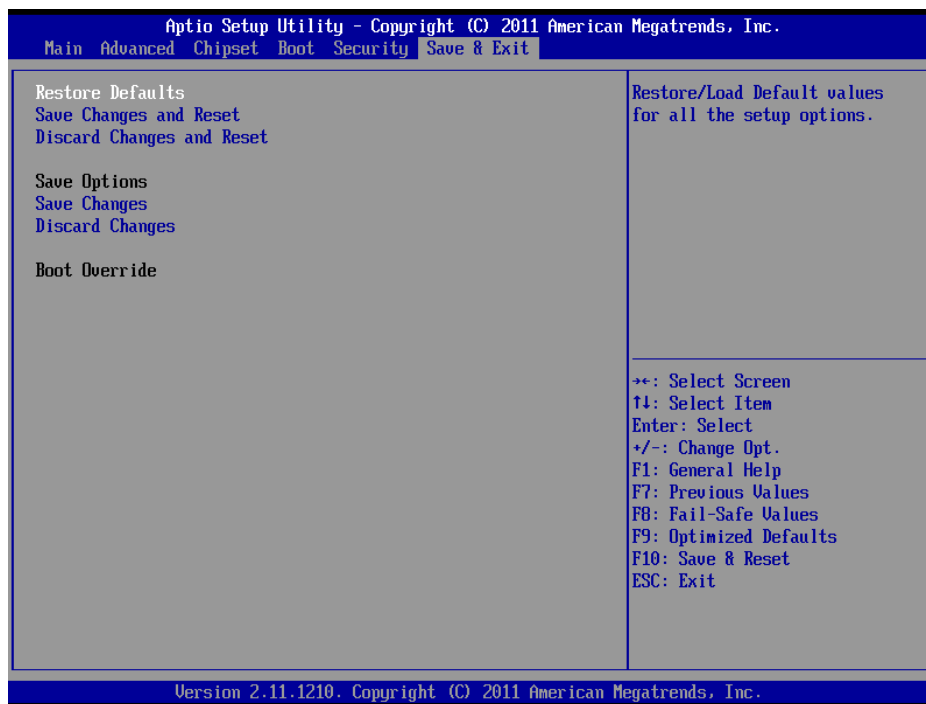


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3.6.5.1 Administrator Password

This setting specifies a password that must be entered to access the BIOS Setup Utility. If only the Administrator's password is set, then this only limits access to the BIOS setup program and is only asked for when entering the BIOS setup program. By default, no password is specified.

3.6.6 Save & Exit



3.6.6.1 *Restore Defaults*

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.6.2 *Save Changes and Reset*

Reset the system after saving the changes.

3.6.6.3 *Discard Changes and Reset*

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.4 *Save Changes*

Save Changes done so far to any of the setup options.

3.6.6.5 *Discard Changes*

Discard Changes done so far to any of the setup options.

4. Drivers Installation



Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

Step 1. Locate

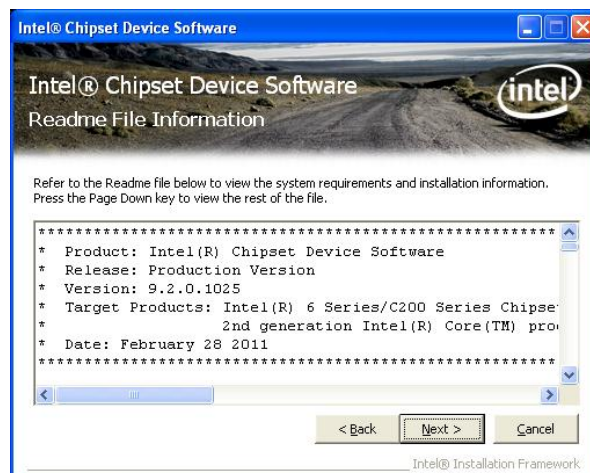
「\Driver_Chipset\Intel\EMX-PNVB_Chipset」.



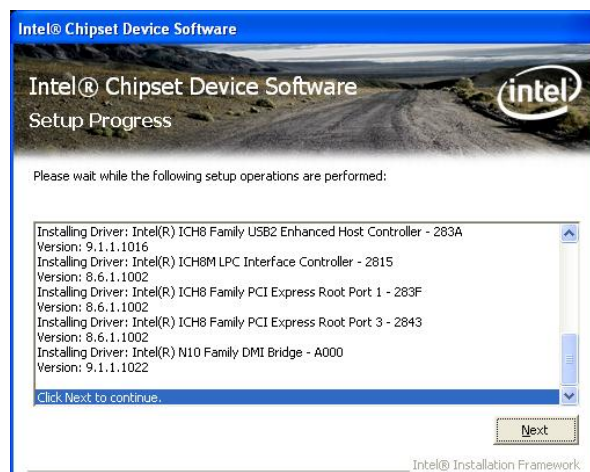
Step 2. Select Next to start setup.



Step 3. Select Yes to the next step.



Step 4. Select Next to continue installation.



Step 5. Select Next to continue installation.



Step 6. Select Finish to complete Installation.

4.2 Install VGA Driver

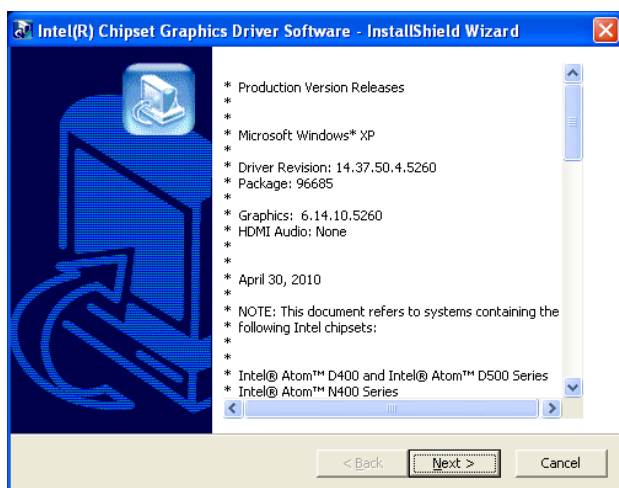
Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

Step 1. Locate

「\VGA\EMX-PNVB_VGA」.



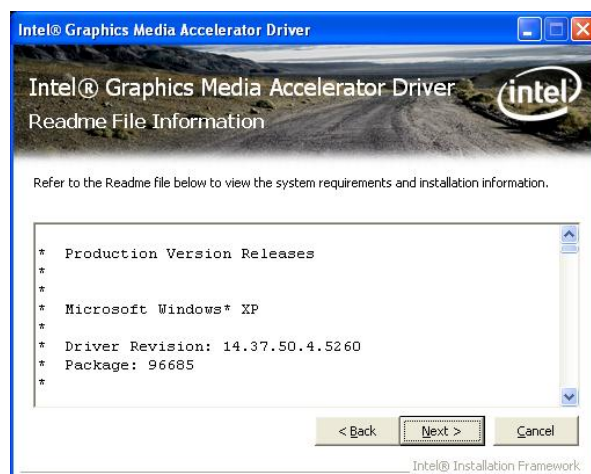
Step 2. Select Next to start setup.



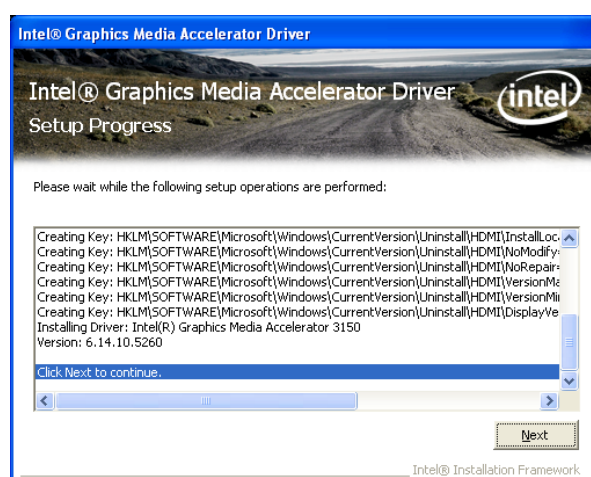
Step 3. Select Next to the next step.



Step 4. Select NEXT to continue installation.



Step 5. Select Next to continue installation.



Step 6. Select Next to continue installation.

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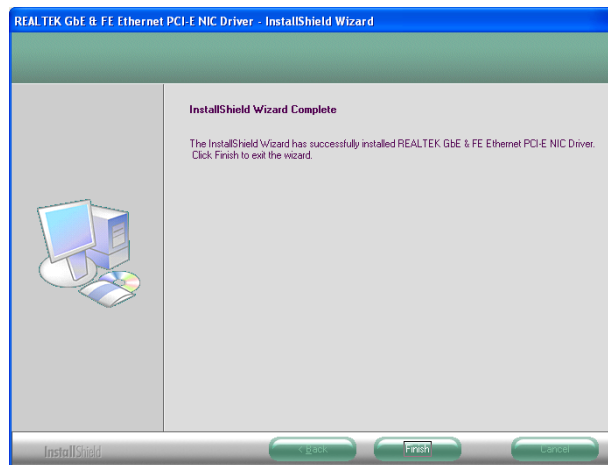
Step 7. Select **Finish** to complete Installation.

4.3 Install LAN Driver (For Realtek 8111E Gigabit Ethernet)

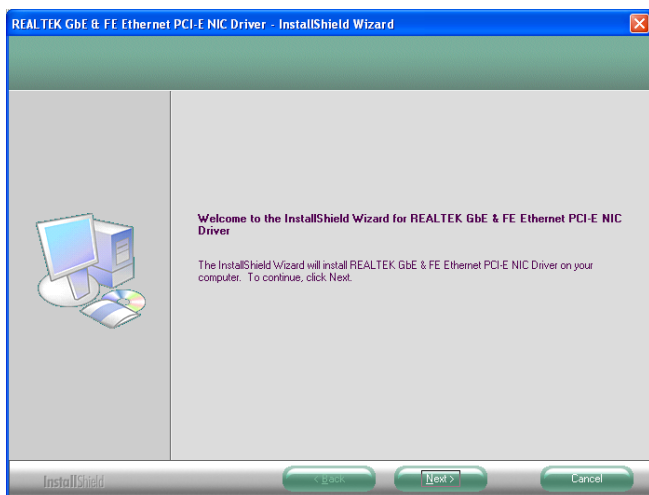
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to
 \Driver_Gigabit\Realtek\RTL8111E\EMX-PN
 VB_LAN.



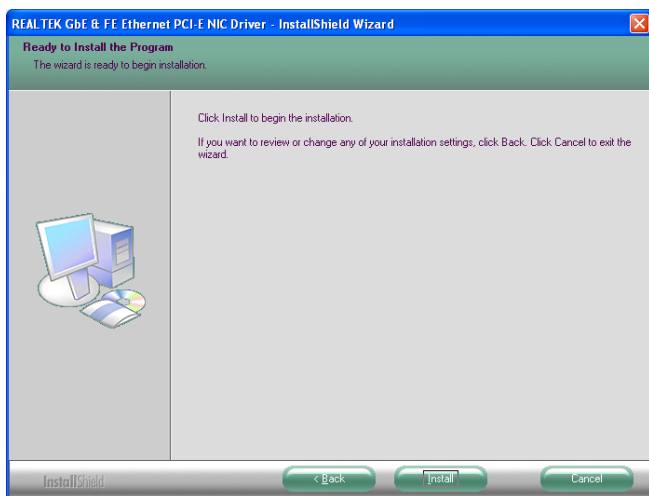
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.



Step 3. Click **Finish** to complete setup.



Step 1. Click **Next** to Install.



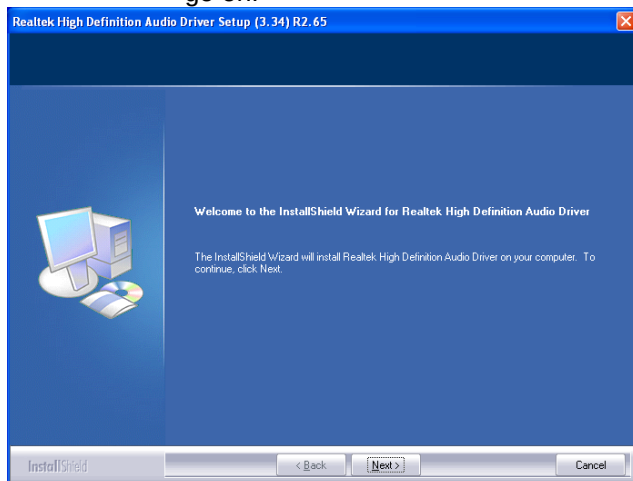
Step 2. Click **Install** to begin the installation.

4.4 Install Audio Driver (For Realtek ALC661 HD Audio)

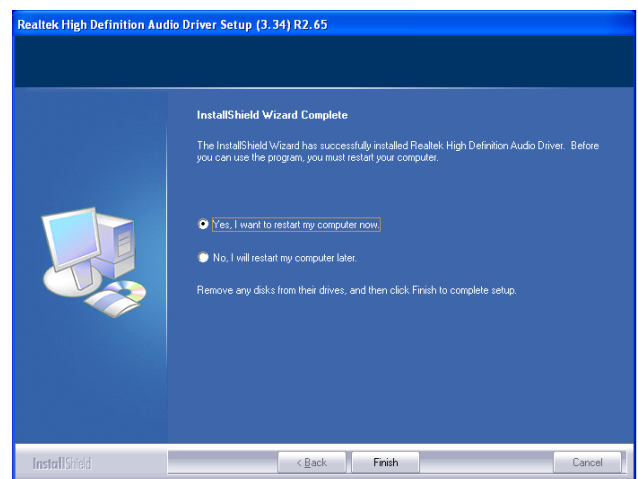
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to
\\Driver_Audio\\Realtek\\ALC661\\EMX-PNVB_Audio.



Note: The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.

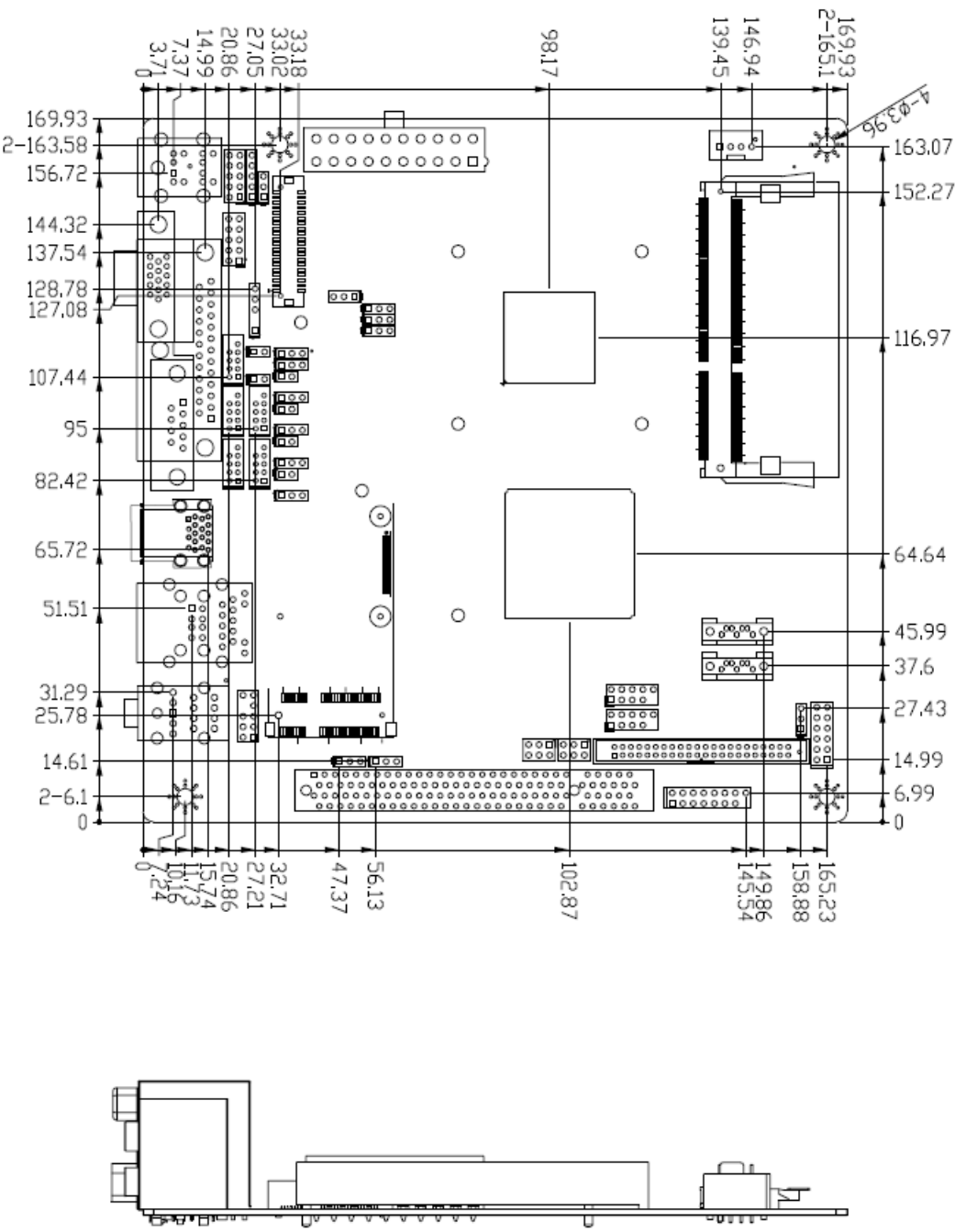


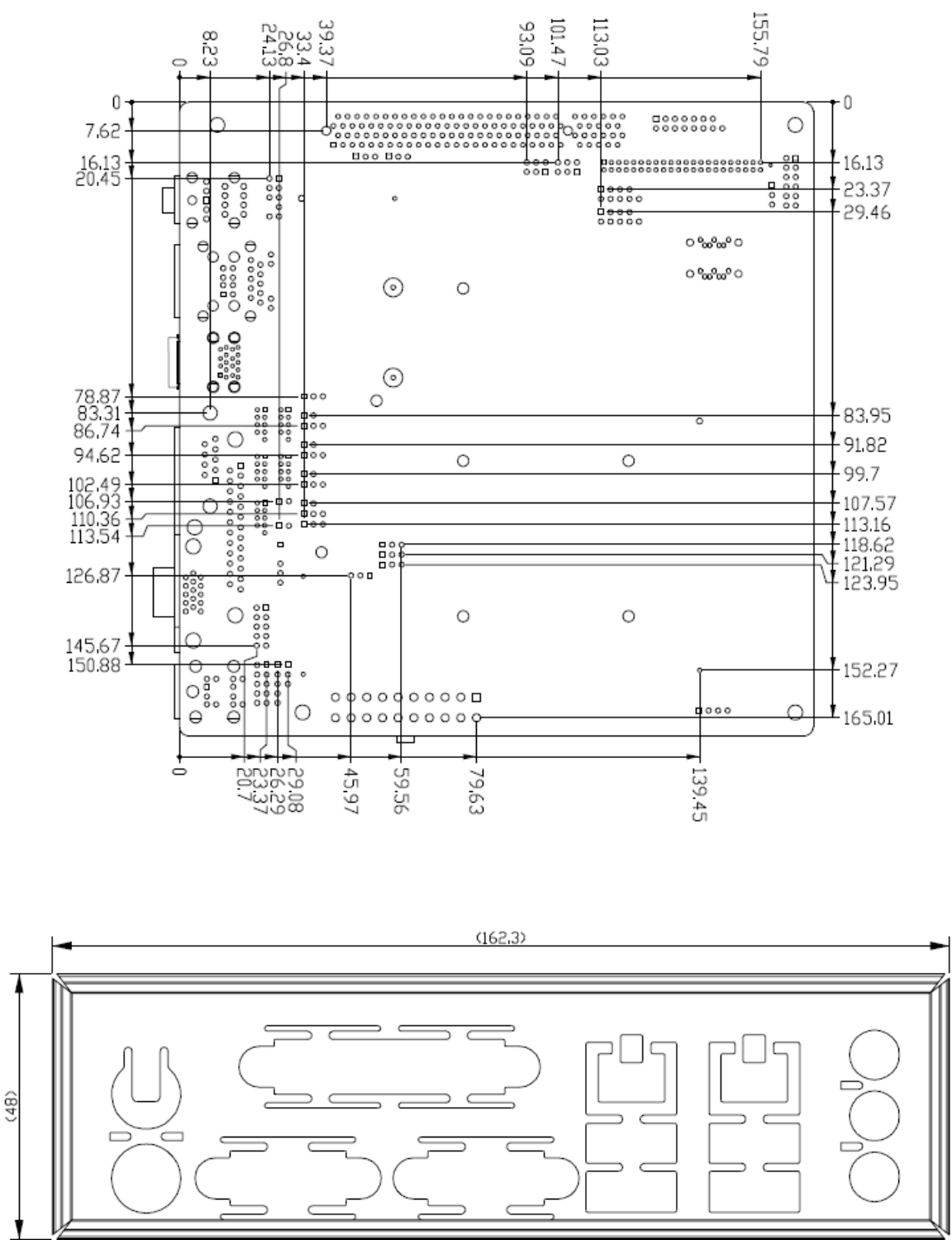
Step1. Click **Next** to Install..



Step 2. Select **Finish** to complete Installation.

5. Mechanical Drawing





Unit: mm

