LYNC-712 & 715 Series

Fanless 12.1”/15” Industrial Panel PC with Intel® Atom™ N2600 1.6GHz

User’s Manual

Version 1.0

P/N: 4012071200100P

2013.07

Revision History

Version	Time	Description
1.0	2013/07	Initial release

Copyright Notice

The information in this document is subject to change without prior notice in order to improve the reliability, design and function. It does not represent a commitment on the part of the manufacturer.

Under no circumstances will the manufacturer be liable for any direct, indirect, special, incidental, or consequential damages arising from the use or inability to use the product or documentation, even if advised of the possibility of such damages.

Declaration of Conformity

CE

The CE symbol on your product indicates that it is in compliance with the directives of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

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.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.

The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.

ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.

All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Important Safety Instructions

Read these safety instructions carefully

1. Read all cautions and warnings on the equipment.
2. Place this equipment on a reliable surface when installing. Dropping it or letting it fall may cause damage
3. Make sure the correct voltage is connected to the equipment.
4. For pluggable equipment, the socket outlet should be near the equipment and should be easily accessible.
5. Keep this equipment away from humidity.
6. The openings on the enclosure are for air convection and protect the equipment from overheating. DO NOT COVER THE OPENINGS.
7. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
8. Never pour any liquid into opening. This may cause fire or electrical shock.
9. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
10. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped or damaged.
    f. The equipment has obvious signs of breakage.
11. Keep this User's Manual for later reference.

Warning

The Box PC and its components contain very delicately Integrated Circuits (IC). To protect the Box PC and its components against damage caused by static electricity, you should always follow the precautions below when handling it:

1. Disconnect your Box PC from the power source when you want to work on the inside.
2. Use a grounded wrist strap when handling computer components.
3. Place components on a grounded antistatic pad or on the bag that came with the Box PC, whenever components are separated from the system.

Lithium Battery Replacement

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the trash can. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please consult the user's manual first at: ftp://ftp.arbor.com.tw/pub/manual

Please do not hesitate to call or e-mail our customer service when you still cannot find out the answer.

http://www.arbor.com.tw

E-mail:info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

This page is intentionally left blank.

Chapter 1

Introduction

1.1. The Computer

ARBOR's LYNC-712 & 715 is cost-effective industrial panel PC to feature light weight and slim form factor. The computer comes with rich I/O to meet the demand of the automation and manufacturing process required in modern factories. The system includes four serial ports, five USB ports, one DVI-I port and two LAN ports for wired data connection. The computer also supports one CFast card and features one 2.5" drive bay for extensive data storage. One PCI Express Mini-card is also built on the main board of the computer to enhance the system with Wi-Fi networking.

Product Highlights

- Fewer Cables, Fanless Design
- 12.1" (LYNC-712) or 15" (LYNC-715) 1024 x 768 XGA LCD Display w/ LED Backlight
- Die-casting Bezel, Completely Covered w/ Membrane
- Flush Front Panel, IP65-Compliant
- Brightness Control Button
- Outside-accessible Push-pull CFast Socket
- Outside-accessible USB port with rubber cover on the front bezel
- 2 x Isolated Serial Ports (RS-485), w/ Auto-flow Control
- 1 x MiniCard socket for WiFi module
- 2 x SMA Antenna Holes for Optional WiFi Function
- 9~36V Wide-Range DC Input with reverse protection

1.2. About this Manual

This manual is meant for the experienced users and integrators with hardware knowledge of personal computers. If you are not sure about the description in this manual, consult your vendor before further handling.

We recommend that you keep one copy of this manual for the quick reference for any necessary maintenance in the future. Thank you for choosing ARBOR products.

1.3. Specifications

System	
CPU	Intel® Atom™ N2600 1.6GHz processor
BIOS	AMI Flash BIOS
Chipset	Intel® NM10
Memory	Soldered onboard 2GB DDR3 SDRAM
Ethernet Controller	2 x Intel® 82583V GbE controllers
Watchdog Timer	1~255 levels reset
External I/O	
Serial Ports	4 x DB-9 connectors for COM1~4 (COM1 and COM2 are RS-232; COM3 and COM4 are RS-232/485 configurable)
USB Ports	4 x Type-A USB 2.0 ports (rear)
	1 x Type-A USB 2.0 port with rubber cover on front bezel
LAN Ports	2 x RJ-45 GbE ports
DVI	1 x DVI-I connector (DVI-D)
WiFi	2 x SMA antenna holes for optional WiFi function
Storage	
1st Device	1 x outside-accessible CFast socket
2nd Device	1 x 2.5” drive bay
Audio	
Speaker	2 x 1.5W speakers (optional)
Certification	
EMC / EMI	CE, FCC Class A
Environmental	
Operating Temp.	-20 ~ 55°C (-4 ~ 131°F)
Storage Temp.	-20 ~ 70°C (-40 ~ 158°F)
Operating Humidity	10 ~ 95% RH @ 55°C (non-condensing)
Vibration	5 ~ 500Hz, 2Grms X,Y, Z axis (with CF/SSD)
Shock	Operating 20G, 11ms X,Y, Z axis (with CF/SSD)
Expansion	
Expansion Bus	1 x Mini-card socket
Mechanical	

Chassis	Panel-mounting chassis, aluminum front bezel and AL steel chassis
Weight (Net)	LYNC-712: 2.2 Kg (without VESA bracket)
	LYNC-715: 3.4 Kg (without VESA bracket)
Dimensions (W x D x H)	LYNC-712: 325.86 x 44 x 258.86 mm (12.8" x 2.26" x 10.2")
	LYNC-715: 389.93 x 46.8 x 309.93 mm (15.4" x 2.37" x 12.2")
Mounting	Panel-mounting and VESA-75/100 mounting
LCD Display	
Size/Type	LYNC-712: 12.1" TFT LCD Panel
	LYNC-715: 15" TFT LCD Panel
Max. Resolution	1024 x 768, XGA
Max. Colors	16.2M
Luminance	LYNC-712: 500 cd/m²
	LYNC-715: 400 cd/m²
Touch Screen	5-wire Analog Resistive
View Angle (U/D/R/L)	LYNC-712: 80°/80°/70°/70°
	LYNC-715: 80°/80°/80°/80°
Button & Indicator	
Function Key	Brightness up/down, Screen on/off
LED Indicator	Power on LED
Power System	
Power Input	DC 9~36V
OS Support	
Windows	Windows XP Embedded / Windows 7 Embedded Windows Embedded Compact 7

1.4. Inside the Package

Upon opening the package, carefully inspect the contents. If any of the items is missing or appears damaged, contact your local dealer or distributor. The package should contain the following items:

LYNC-712 LYNC-715

1 x LYNC-712 or 715 industrial panel PC

1 x **Accessory Box** that contains the following items:

- driver CD
- user's manual
- screws/cable
- 3-pin plug for terminal block

1.5. Ordering Information

LYNC-712	12.1" Intel® Atom™ N2600 industrial panel PC
LYNC-715	15" Intel® Atom™ N2600 industrial panel PC

1.5.1. Optional Accessories

The following items are normally optional, but some vendors may include them in the standard package, or some vendors may not carry all the items.

PAC-P065W	65W AC/DC power adapter kit Power input: 100 ~ 240 VAC Power output: 19VDC, 3.4A	
VMB-712	LYNC-712 VESA-mount bracket kit Material: stainless steel VESA support: 75 x 75 mm / 100 x 100 mm	
VMB-715	LYNC-715 VESA-mount bracket kit Material: stainless steel VESA support: 75 x 75 mm / 100 x 100 mm	

1.5.2. Configure-to-Order Service

Make the computer more tailored to your needs by selecting one or more components from the list below to be fabricated to the computer.

SSD-25040	Intel® 2.5" 40GB SATAII SSD Kit	
WIFI-IN1350	Intel® Centrino® Advanced-N 6205 WiFi module w/ 20cm & 30cm internal wiring	
ANT-D11	1 x 2.4G/5G Dual-band WiFi antenna	
ADK-712	LYNC-71x Audio Kit	

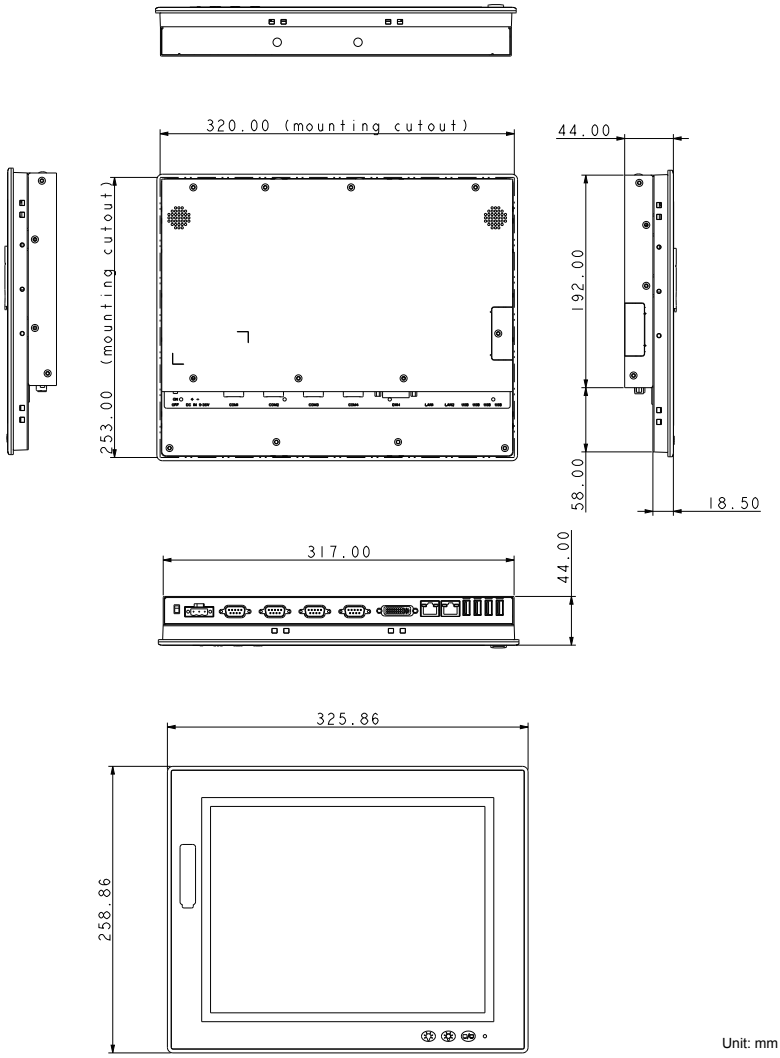
Chapter 2

Getting Started

2.1. Dimensions

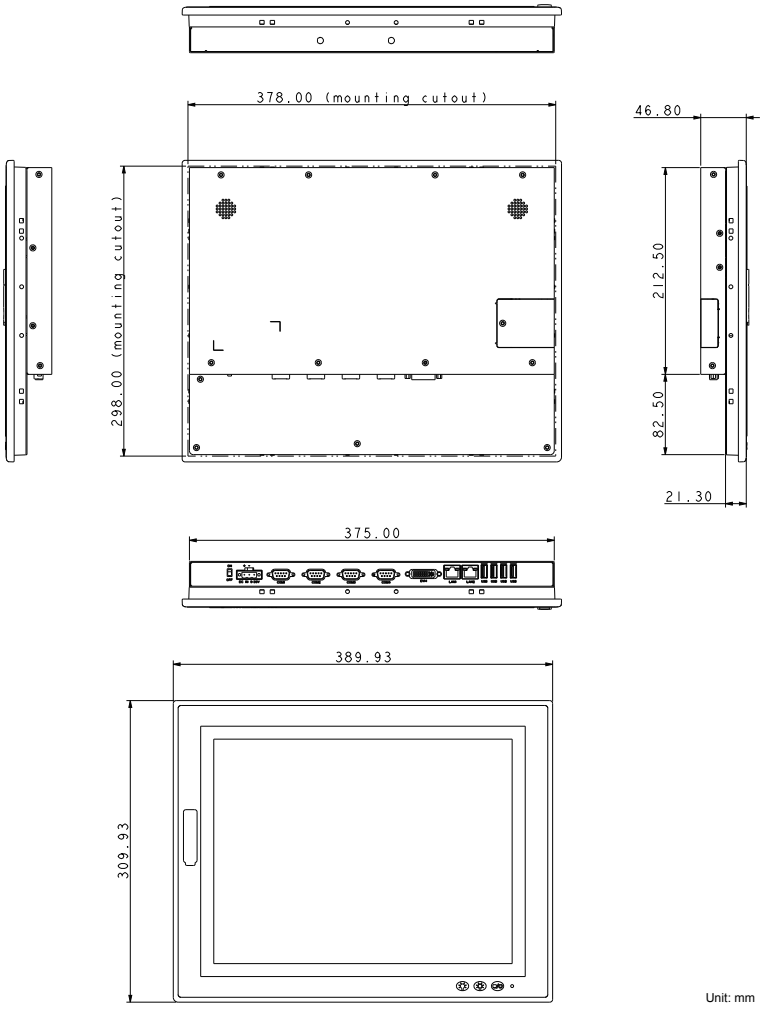
The following illustration shows the dimensions of the computer, with the measurements in width, depth, and height called out.

LYNC-712



Unit: mm

LYNC-715



Unit: mm

2.2. Tour the Computer

Take a look around the computer and find the external controls and connectors.

2.2.1. Front View

On the front side of the computer is a LCD display, a few function keys and one USB port recessed in the lower-right of the bezel.

LYNC-712

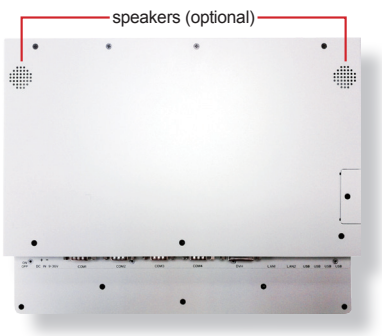
LYNC-715

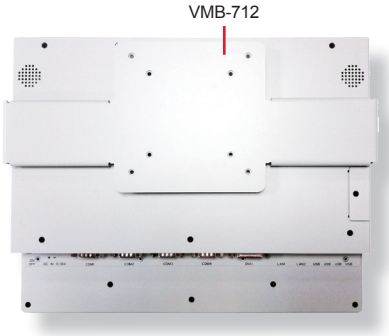
Use the function keys to launch the following actions from the computer:

Icon	Description
	Turns on/off the LCD display.
	Decreases LCD backlight.
	Increases LCD backlight.

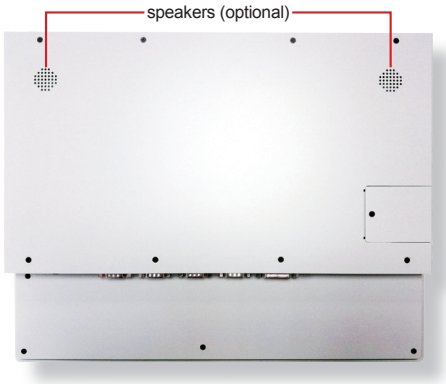
2.2.2. Rear View

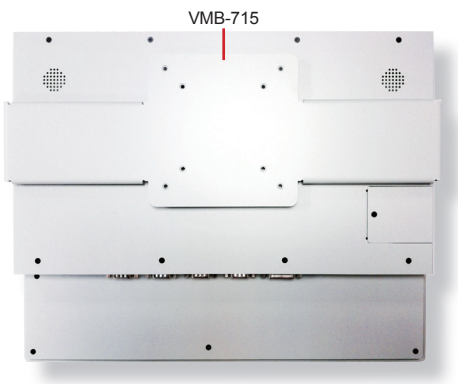
LYNC-712





LYNC-715

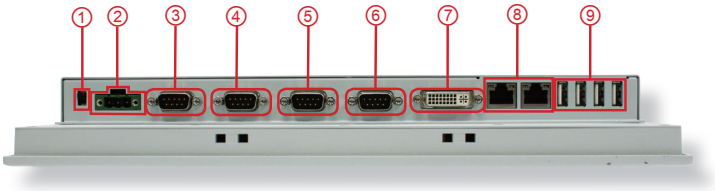




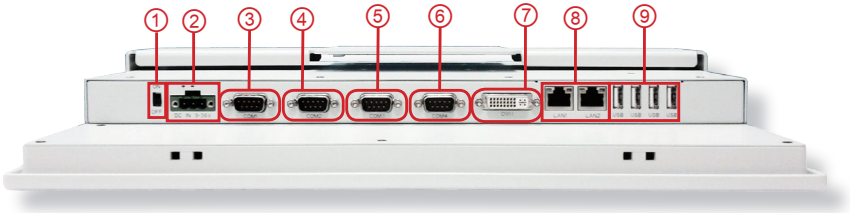
2.2.3. Bottom View

The bottom side of the computer is where the computer's I/O ports are.

LYNC-712



LYNC-715



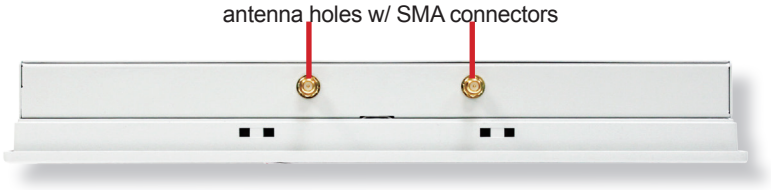
No.	Description	
①	Power switch	
②	DC-IN	
③	COM1	COM1 and COM2 are RS-232; COM3 and COM4 are RS-232/485 configurable.
④	COM2	
⑤	COM3	
⑥	COM4	
⑦	DVI port	
⑧	2 x LAN ports	
⑨	4 x USB ports	

2.2.4. Side View

LYNC-712

LYNC-715

2.2.5. Top View



2.3. Driver Installation Note

The computer supports the operating systems Windows 7 and Windows XP. Find the necessary device drivers on the CD that comes with your purchase. Always follow the sequence below to install all drivers to prevent errors:

Chipset→Graphics→Audio→LAN→touch

Windows XP

Device	Driver Path
Chipset	CHIPSET\Win7+WinXP\infinst_autol
Graphics	GRAPHIC\WIN XP\Utilities\SETUP
Audio	AUDIO\WinXP_ALC662\WDM_R267
LAN	ETHERNET\WinXP_82583V
touch*	Touch Panel\PenMount Windows Universal Driver V2.2.0.283.(for XP Embedded)\SETUP

Windows 7

Device	Driver Path
Chipset	CHIPSET\Win7+WinXP\infinst_autol
Graphics	GRAPHIC\win7_x86_8.0.1.0.1083\Setup
Audio	AUDIO\Windows 2000,XP,2003(32,64 bits)\WDM_R270
LAN	ETHERNET\Win7_82583V
touch*	Touch Panel\PenMount Windows Universal Driver V2.2.0.283.(Win7_32_64bit_WHQL)\SETUP

*Note: Refer to Appendix B: PenMount Utilities on page 67 for how to use touch panel.

Chapter 3

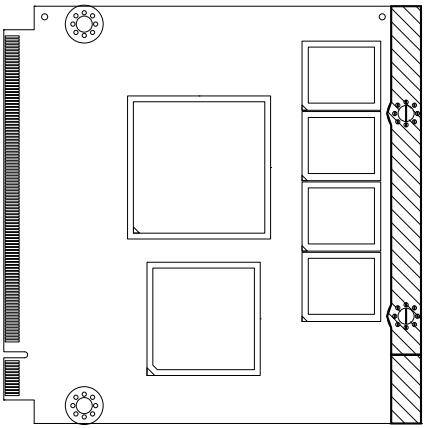
Engine of the Computer

3.1. Board Layout

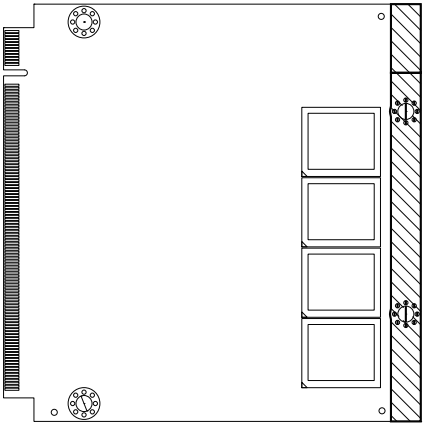
The engine of the computer is constructed by the CPU module EmQ-i2506, the carrier board PBQ-9012 and the optional daughterboard SCDB-141B.

3.1.1. CPU Module (EmQ-i2506)

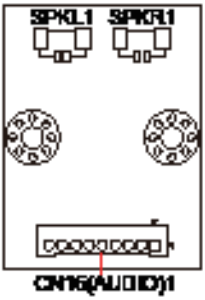
Top View



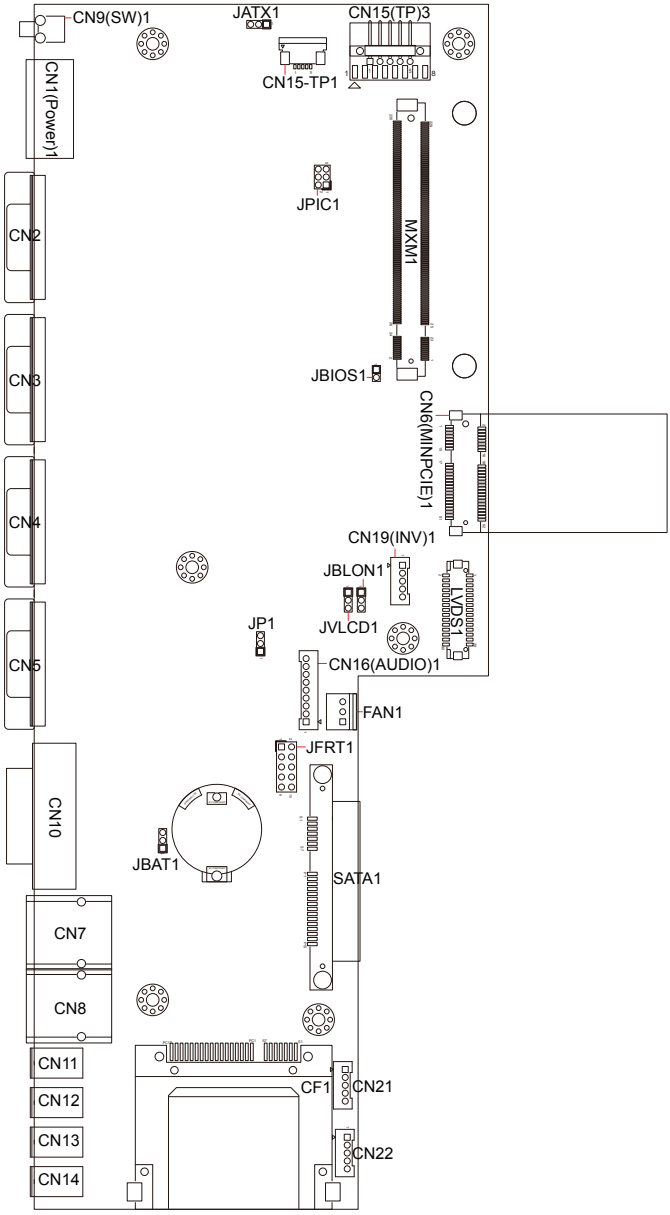
Bottom View



3.1.2. Daughterboard (SCDB-141B)



3.1.3. Carrier Board (PBQ-9012)



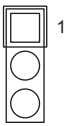
3.2. Jumpers and Connectors

This chapter will explicate each of the jumpers and connectors on the carrier board of the computer.

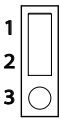
3.2.1. Jumpers

JATX1

Function: power supply mode setting
Jumper Type: 2.00mm-pitch 1x3-pin header



Setting:

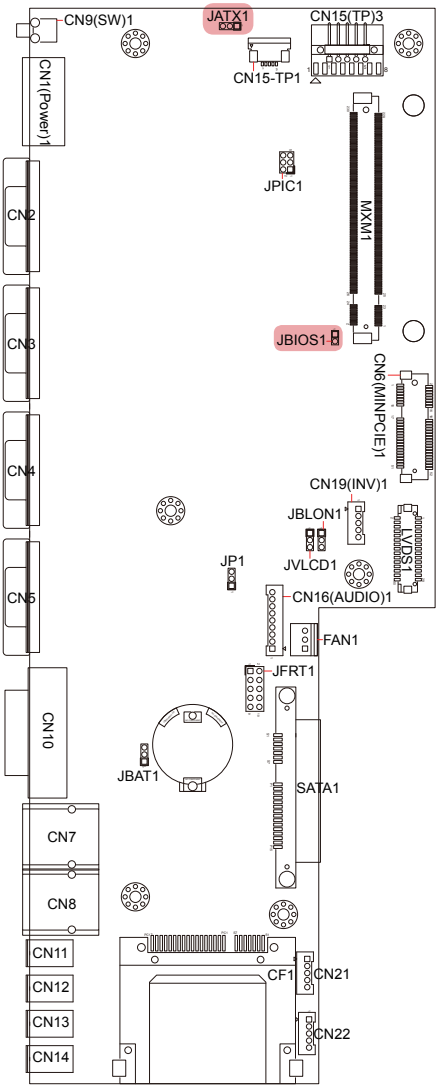
Pin	Description	Setting
1-2	AT	
2-3	ATX (default)	

JBIOS1

Function: BIOS selector
Jumper Type: 2.00mm-pitch 1x2-pin open type jumper

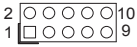
Setting:

Pin	Description	Setting
ON	Boot the computer from the carrier board's flash ROM BIOS. (default)	 The short-circuit-cap is used on both pins.
OFF	Boot the computer from the CPU board's flash ROM BIOS.	 The short-circuit-cap is removed.



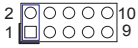
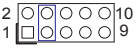
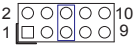
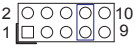
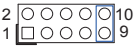
JFRT1

Function: front panel LED indication



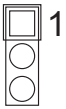
Jumper Type: 2.54mm-pitch 2x5-pin header

Setting:

Pin	Description	Setting
1-2	system reset	
3-4	power LED+	
5-6	HDD LED+	
7-8	speaker	
9-10	power button	

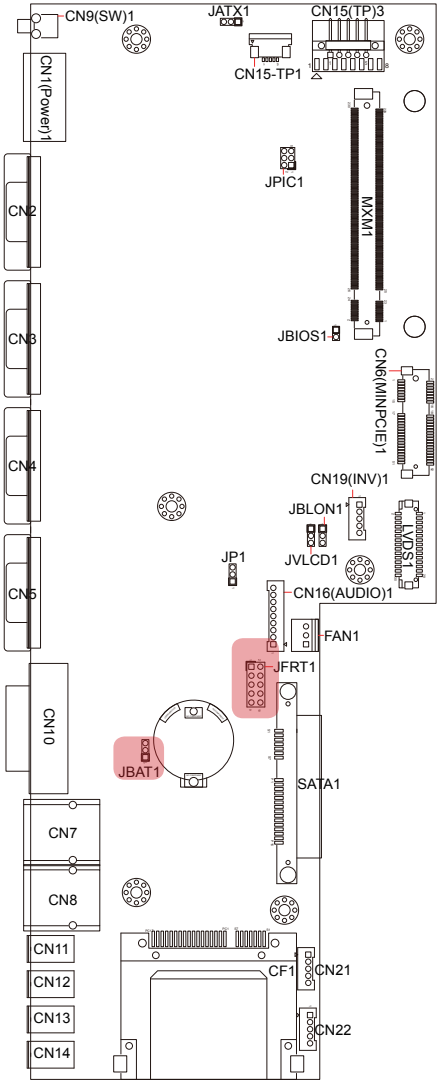
JBAT1

Function: COMS setting
Jumper Type: 2.00mm-pitch 1x3-pin header



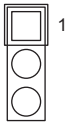
Setting:

Pin	Description	Setting
1-2	keep CMOS (default)	
2-3	clear CMOS	



JVLCD1

Function: LCD power selection
Jumper Type: 2.00mm-pitch 1x3-pin header

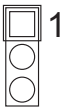


Setting:

Pin	Description	Setting
1-2	5V	
2-3	3.3V (default)	

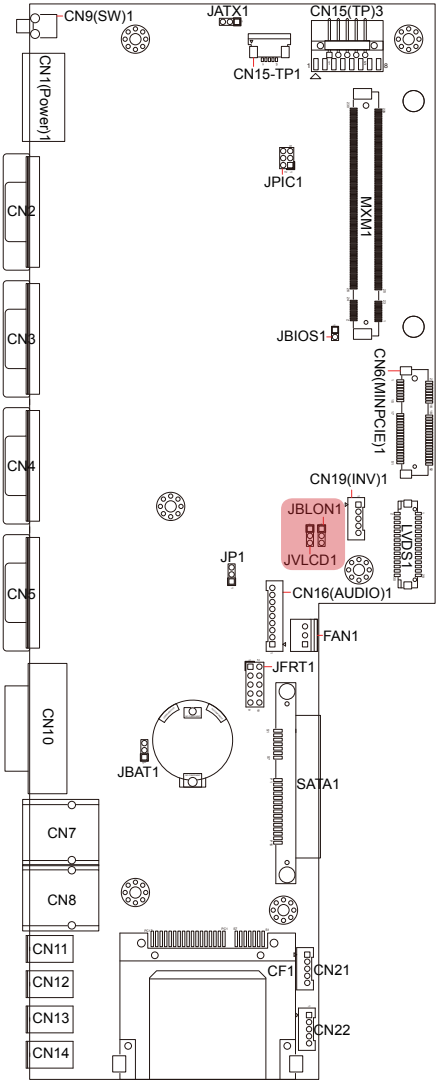
JBLON1

Function: LCD backlight activeness selection
Jumper Type: 2.00mm-pitch 1x3-pin header



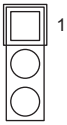
Setting:

Pin	Description	Setting
1-2	negative active	
2-3	positive active (default)	



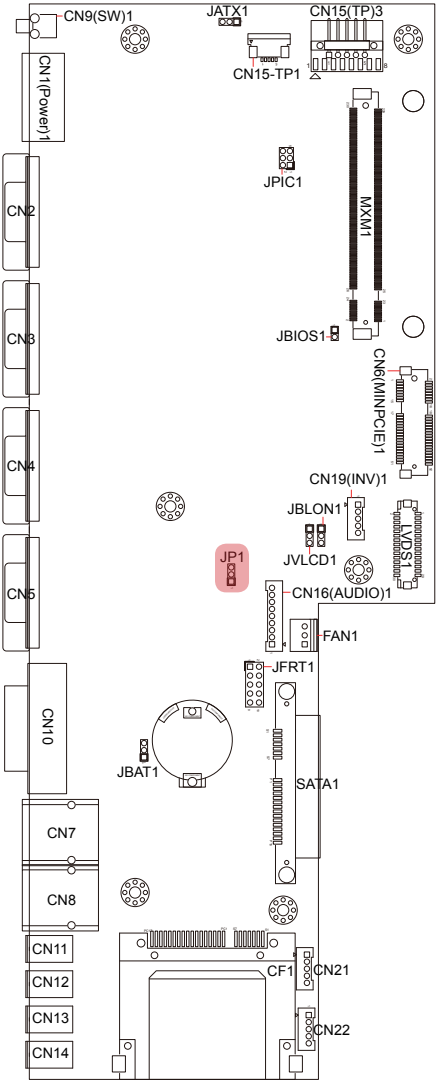
JP1

Function: COM1 function selection
Jumper Type: 2.00mm-pitch 1x3-pin header



Setting:

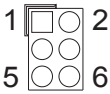
Pin	Description	Setting
1-2	for factory testing	
2-3	normal (default)	



3.2.2. Connectors

JPIC1

Function: PIC MCU update port
Connector Type: 2.00mm-pitch 2x3-pin header

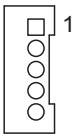


Setting:

Pin	Description	Pin	Description
1	PIC_TX	2	Clock
3	Data	4	GND
5	5V	6	Reset

CN19(INV)1

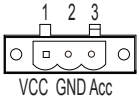
Function: inverter connector
Connector Type: 2.00mm-pitch 1x5-pin 4-wall wafer connector
Setting:



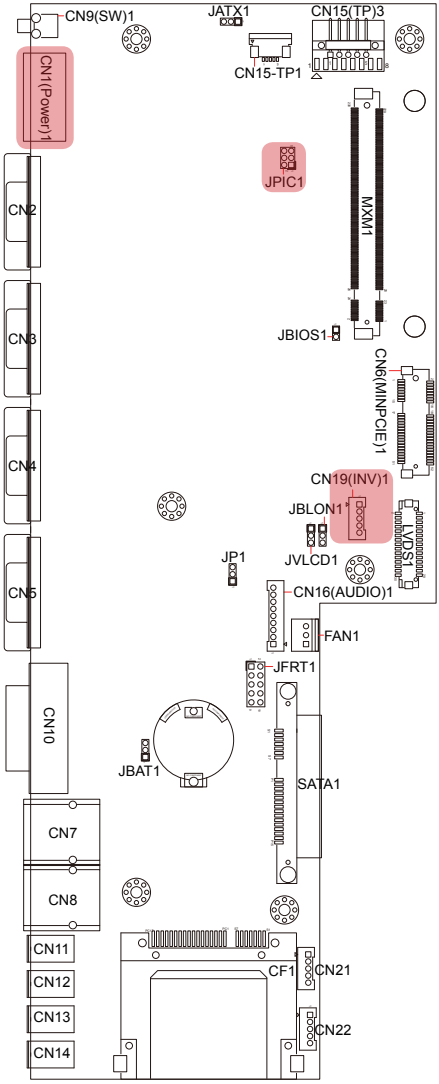
Pin	Description
1	+12V/+5V
2	GND
3	BL-ON
4	BL-Control
5	GND

CN1(Power)1

Function: power input
Connector Type: 5.00mm-pitch 3-pole male-type euro-style terminal block
Setting:



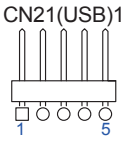
Pin	Description
1	VCC_IN 9~36V
2	GND
3	NC

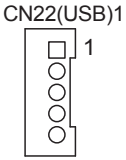


CN21 & CN22

Function: USB connectors
Connector Type: 2.54mm-pitch 1x5-pin header
Setting:

Pin	Description
1	5VCC
2	Data-
3	Data+
4	GND
5	GND



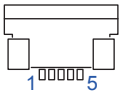


CN15-TP1

Function: membrane connector
Connector Type: 1.00mm-pitch 1x5-pin FPC downside connector

Setting:

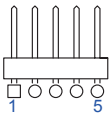
Pin	Description
1	Panel-PWM-
2	Panel-PWM+
3	Power SW
4	Power LED
5	GND

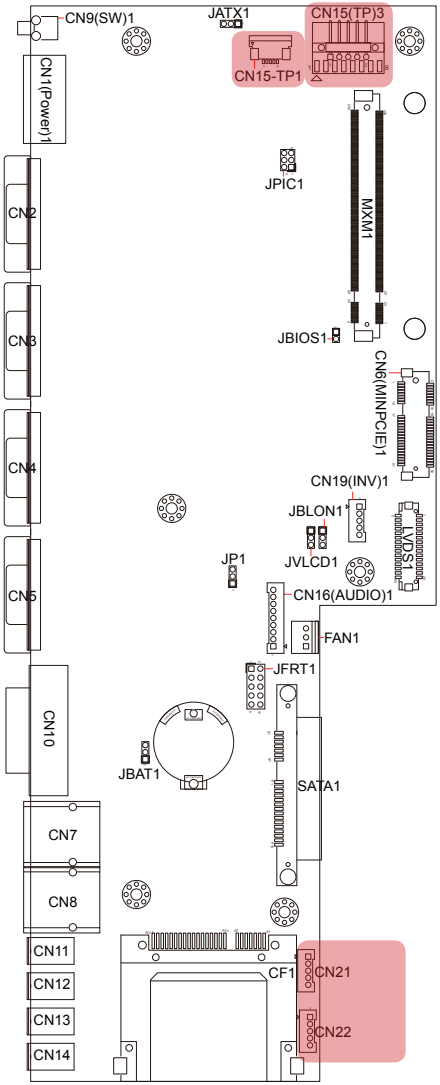


CN15(TP)3

Function: touch panel connector
Connector Type: 2.54mm-pitch 1x5-pin header
Setting:

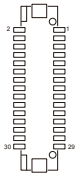
Pin	Description
1	Y+
2	X+
3	Sense
4	Y-
5	X-





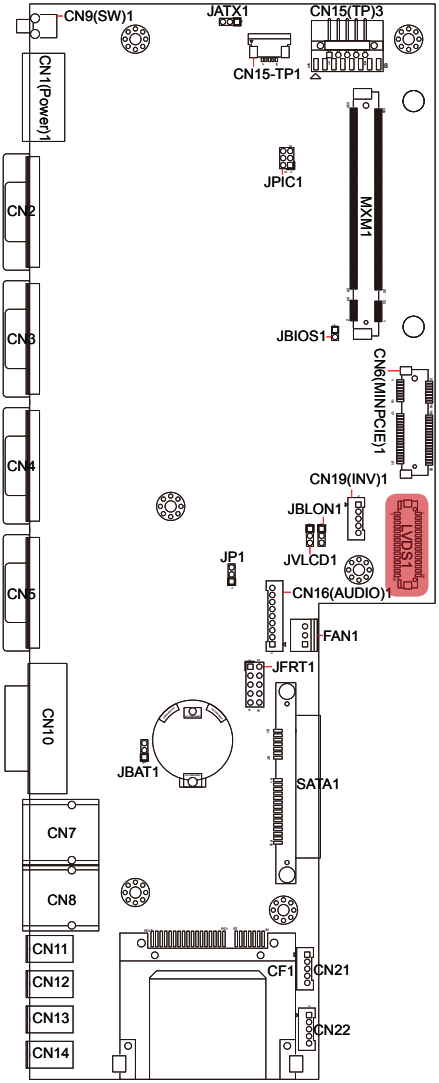
LVDS1

Function: LCD connector
Connector Type: DF-13-30DP-1.25V connector



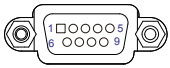
Setting:

Pin	Description	Pin	Description
2	VDD	1	VDD
4	TX2CLK+	3	TX1CLK+
6	TX2CLK-	5	TX1CLK-
8	GND	7	GND
10	TX2D0+	9	TX1D0+
12	TX2D0-	11	TX1D0-
14	GND	13	GND
16	TX2D1+	15	TX1D1+
18	TX2D1-	17	TX1D1-
20	GND	19	GND
22	TX2D2+	21	TX1D2+
24	TX2D2-	23	TX1D2-
26	GND	25	GND
28	TX2D3+	27	TX1D3+
30	TX2D3-	29	TX1D3-



CN2~CN5

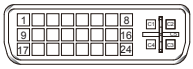
Function: COM1~4
Connector Type: 9-pin male-type DSUB connector
Setting:



Pin	Description	Pin	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	5V
5	GND		

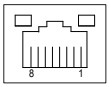
CN10

Function: DVI-I port (digital)
Connector Type: 29-pin DIP-type female connector



CN7~CN8

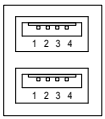
Function: RJ-45 Ethernet connectors
Connector Type: 10/100/1000Mbps Fast Ethernet
Setting:



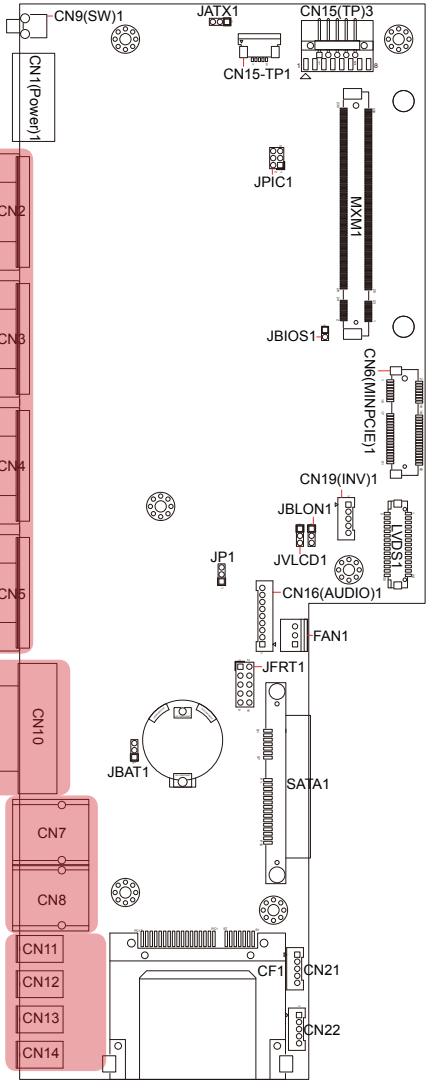
Pin	Description	Pin	Description
1	MDI0	5	MDI2
2	MDI0#	6	MDI2#
3	MDI1	7	MDI3
4	MDI1#	8	MDI3#

CN11~CN14

Function: USB2.0 ports
Connector Type: double stack USB2.0 type A connector
Setting:

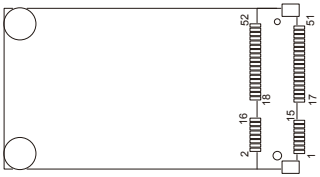


Pin	Description
1	5V
2	USB D-
3	USB D+
4	GND



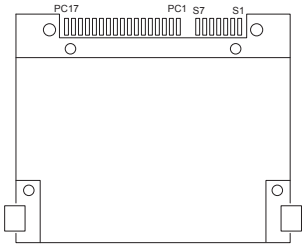
CN6(MINPCIE)1

Function: PCI Express MiniCard socket
Connector Type: onboard 0.8mm pitch 52-pin edge card connector



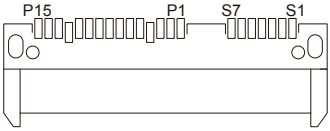
CF1

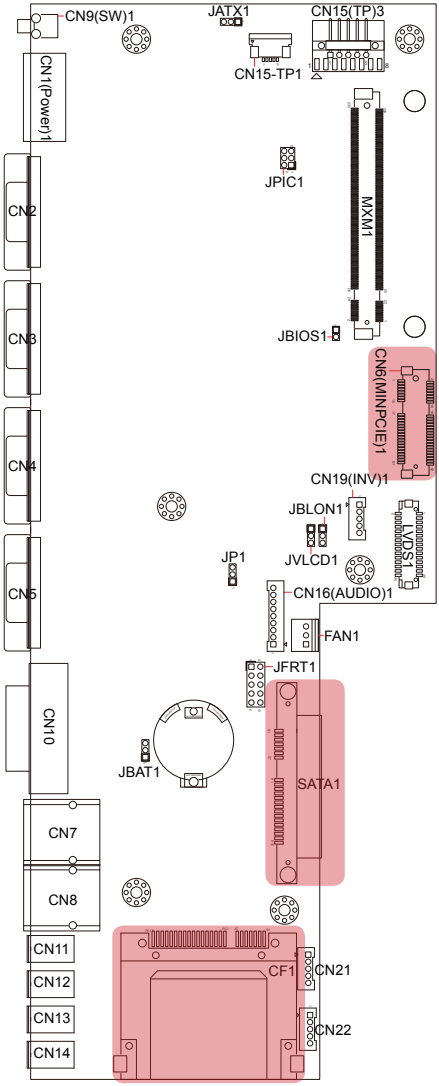
Function: CFast card Type I/II socket
Connector Type: 7+17-pin CFast card connector consisting of a SATA compatible 7-pin signal connector and a 17-pin power control connector.

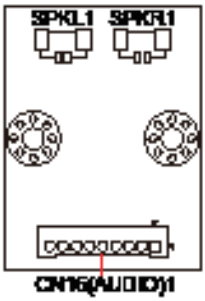


SATA1

Function: S-ATA1 connector
Connector Type: SATA port with data + power vertical connector (7+15pin)



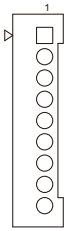




CN16(Audio)1

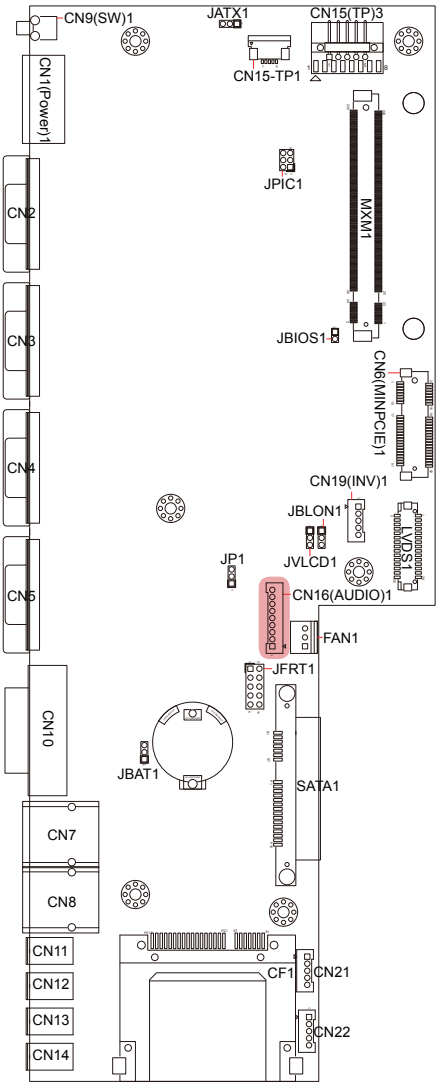
Function: audio connector
Connector Type: 2.00mm-pitch 1x9-pin 4-wall wafer connector
Setting:

Pin	Description
1	12VCC
2	3VCC
3	HDA_SYNC
4	HAD_SDOUT
5	GND
6	HDA_CLK
7	GND
8	HDA_RST#
9	HDA_SDIN0



SPKL1 or SPKR1

Function: left or right speaker connector



This page is intentionally left blank.

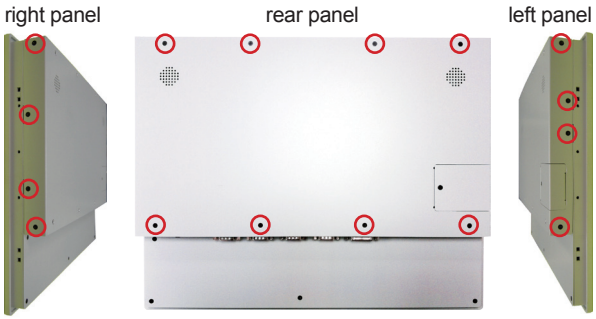
Chapter 4

Installation & Maintenance

4.1. Use Onboard Jumpers and Connectors

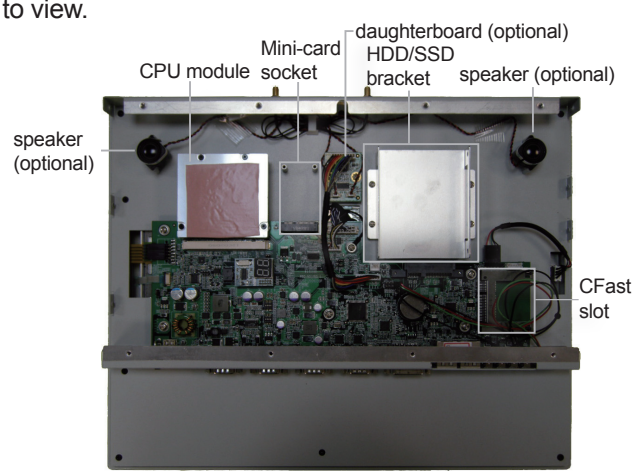
The computer's carrier board PBQ-9012 comes with some connectors to join some devices and also some jumpers to alter hardware configuration. Follow through the guide below to access these components inside the computer. Because LYNC-712 & 715 merely differ in size, the subsequent illustrations take LYNC-715 for instance.

1. Loosen and remove the 8 screws from the computer's rear panel. Then, loosen and remove the 4 screws from each of the left and right panel of the computer.



Remove the marked screws.

2. Dismount the rear cover from the computer. The inside of the computer comes to view.



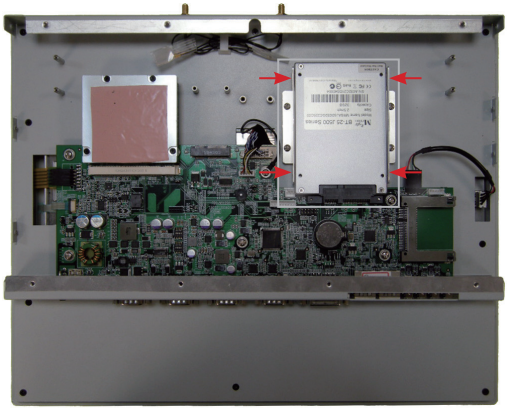
3. Adjust the jumpers or use the connectors on the carrier board as described in 3.2.1. Jumpers on page 18 and 3.2.2. Connectors on page 22. Be noted that the speakers and daughterboard are parts of ADK-712 module. Refer to 1.5.2. Configure-to-Order Service on page 6 for details.

4.2. Install Hardware

The following sections will guide you through the basic hardware installation for the computer. Remember to turn off the panel PC before installing/removing inner hardware.

4.2.1. Install SSD or HDD

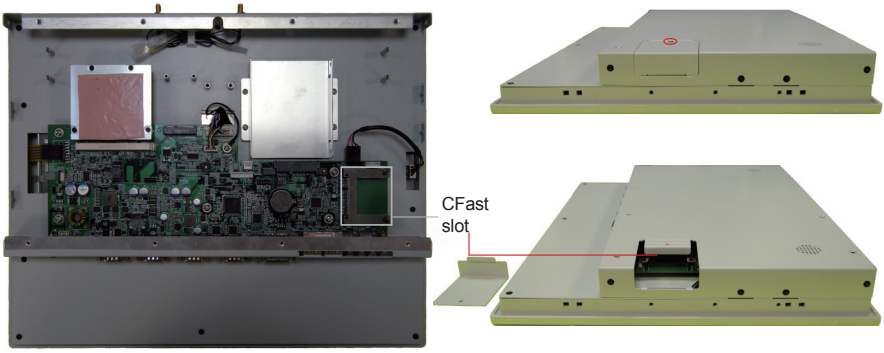
The computer supports a 2.5” HDD or SSD to work inside the computer. To install a 2.5” HDD or SSD to the computer, slide a 2.5” HDD or SSD storage device to the bracket. Fix them together by using four screws at the bracket’s both sides. See the illustration below.



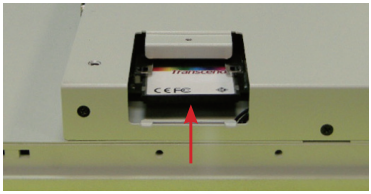
4.2.2. Install CFast Card

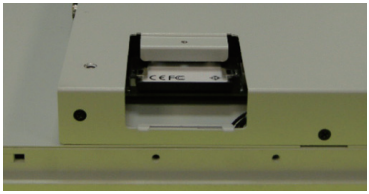
The computer comes with a CFast slot to power the computer with a CFast card. To install a CFast card to the computer:

1. Continued from the preceding section, locate the CFast slot on carrier board, or unscrew and take off the CFast slot door without the need to dismount rear panel.



2. Have a CFast card. Push the CFast card into the slot so the card can be clicked in place. Push again to have the card ejected.





3. Restore the CFast slot door to the computer.

4.2.3. Install Wi-Fi Module

The computer comes with one Mini-card socket to load the computer with a wireless module of PCI Express Mini-card form factor. The configure-to-order Wi-Fi module available with the computer is WIFI-IN1350:

WIFI-IN1350
Intel® Centrino® Advanced-N 6205 WiFi Module w/ 20cm & 30cm internal wiring

(See also 1.5.2. Configure-to-Order Service on page 6.)

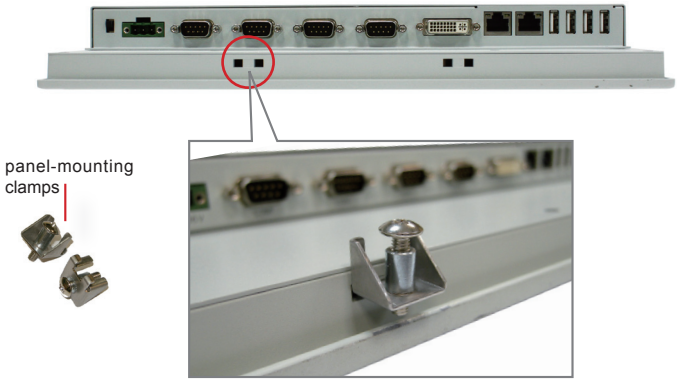
- If you have ordered the Wi-Fi module WIFI-IN1350, see Appendix A: WIFI-IN1350 Hardware/Software Installation to know how to install the hardware and software for the module.

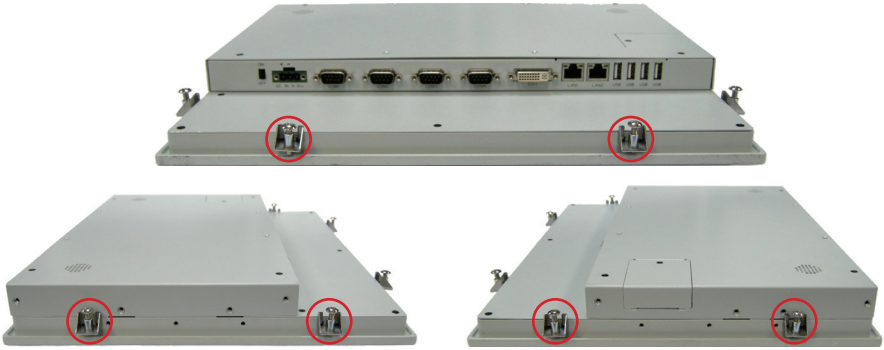
4.3. Mount the Computer

Integrate the computer to where it works by mounting it to a wall in the surroundings or to the rear of a display monitor. Similarly, the subsequent illustrations only take LYNC-715 for instance.

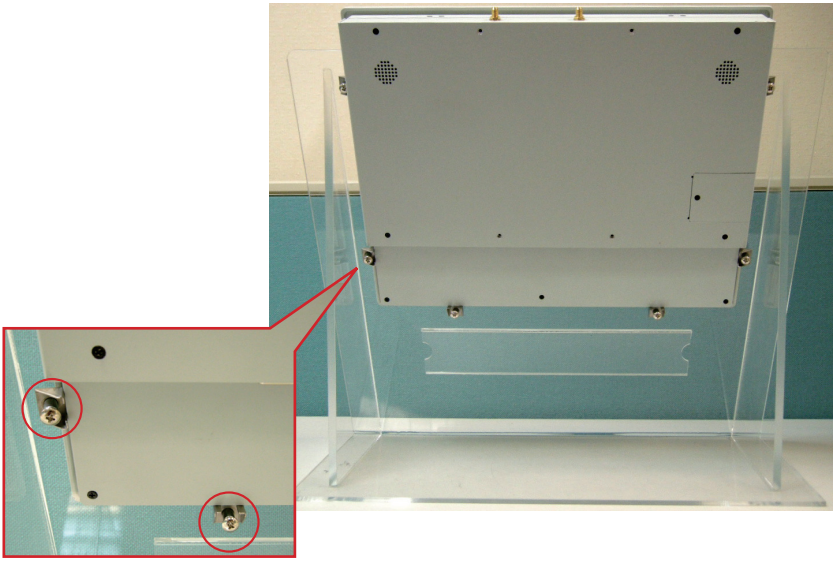
4.3.1. Panel Mounting

1. Have the panel-mounting clamps included in accessory pack. Put the clamps into holes around edges of the panel PC as below.





2. Put the panel PC into correct-sized frame on a wall or other devices, in this example — a transparent stand, and tightly screw panel-mounting clamps around edges.



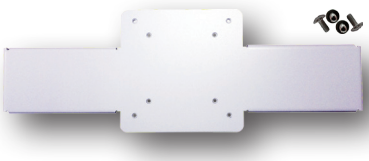
4.3.2. VESA Mounting

To support VESA-mounting, the computer needs a VESA bracket, which is available in 1.5.2. Configure-to-Order Service on page 6, to enable 75 x 75mm and 100 x 100mm VESA applications.

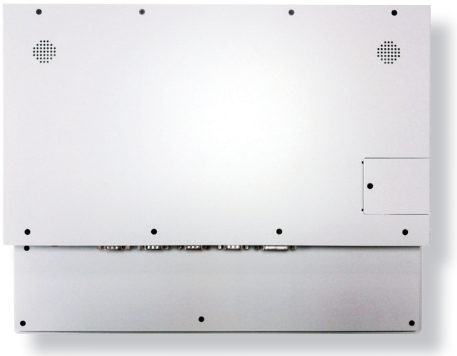
4.3.2.1. Install VESA Bracket

Follow the guide below to install the VESA bracket to the computer:

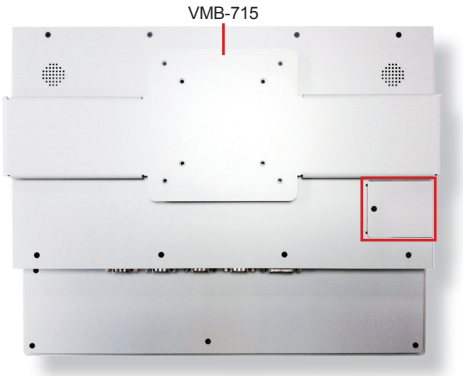
1. Have the VESA-mount bracket, VMB-715 in this case, and the four mounting screws that come with it.



2. Place the computer on a flat surface, with the rear facing up.



3. Place the VESA bracket onto the computer. Note that its installation direction should not block CFast card door.



4. Fix the VESA bracket to the computer by two screws at each the left and right side of the computer.

Use another two screws on the left side.

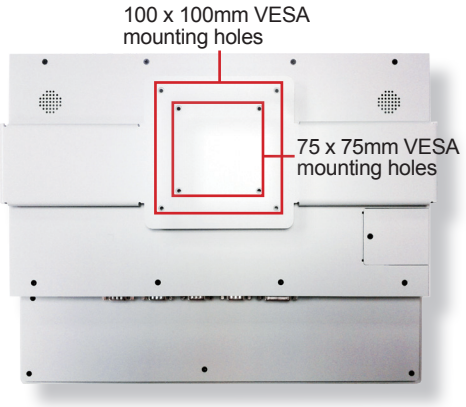
Use two screws on the right side.

4.3.2.2. Use VESA Arm

To integrate the computer to a VESA arm:

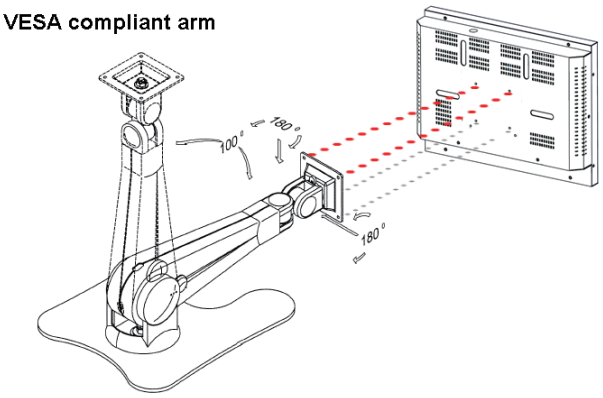
1. Install the VESA-mount bracket to the computer as described in previous section.

2. Find the VESA mounting holes on the bracket.



3. Attach the VESA arm to the rear of the computer by meeting the mounting holes on the VESA arm and VESA bracket.

4. Fix the assemblage with four screws.

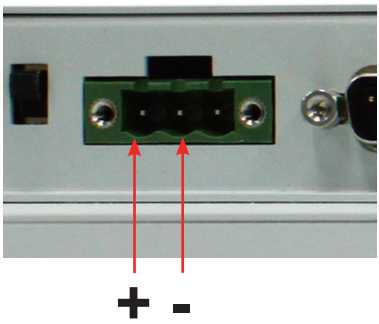


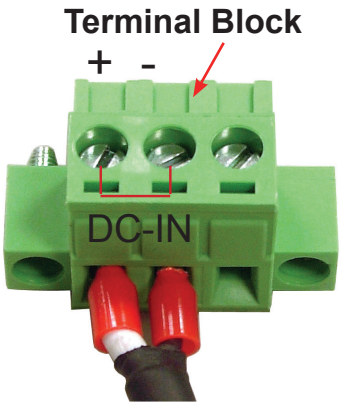
4.4. Wire DC-Input Power Source

> **Warning** Only trained and qualified personnel are allowed to install or replace this equipment.

Follow the instructions below to connect the computer to a DC-input power source:

1. Before wiring, make sure the power source is disconnected.
2. Find the terminal block in the accessory box.
3. Use the wire-stripping tool to strip a short insulation segment from the output wires of the DC power source.
4. Identify the positive and negative feed positions for the terminal block connection.
5. Insert the exposed wires into the terminal block plugs. Only wires with insulation should extend from the terminal block plugs. Note that the polarities between the wires and the terminal block plugs must be positive to positive and negative to negative.
6. Use a slotted screwdriver to tighten the captive screws. Plug the terminal block firmly, which wired, into the receptacle on the rear panel.



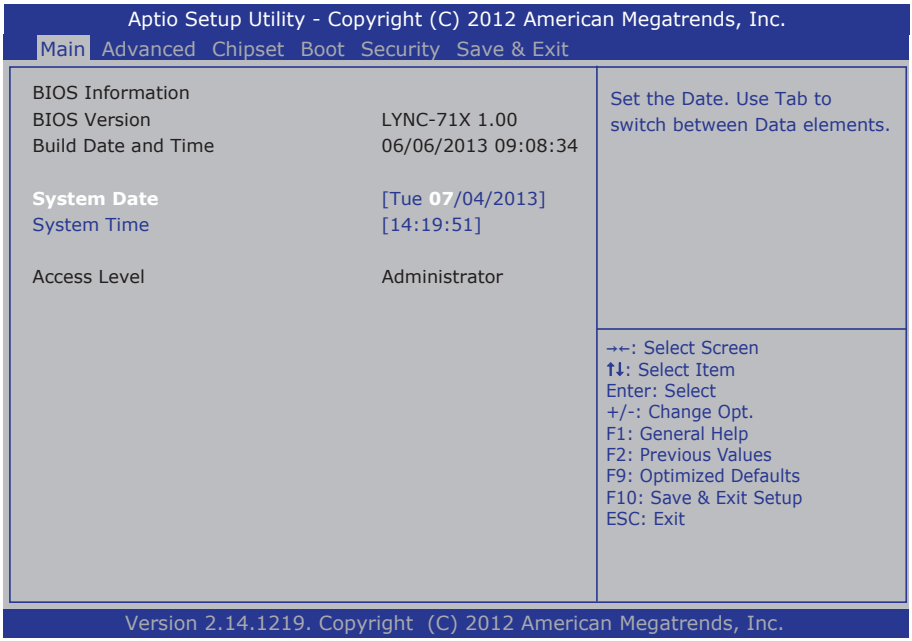


Chapter 5

BIOS

The BIOS Setup utility for the computer is featured by American Megatrends, Inc. to configure the system settings stored in the system's BIOS ROM. The BIOS is activated once the computer powers on.

To enter the BIOS Setup utility, continuously hit the "Delete" key upon powering on the computer.



The featured menus are:

Menu	Description
Main	See 5.1. Main on page 42.
Advanced	See 5.2. Advanced on page 43.
Chipset	See 5.3. Chipset on page 51.
Boot	See 5.4. Boot on page 54.
Security	See 5.5. Security on page 55.
Save & Exit	See 5.6. Save & Exit on page 56.

Key Commands

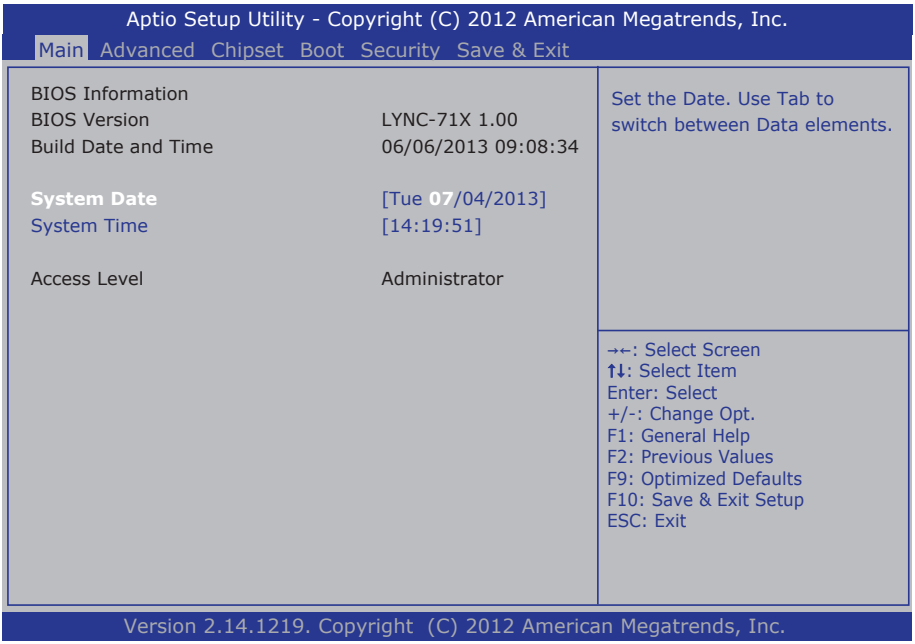
The BIOS Setup utility relies on a keyboard to receive user's instructions. Hit the following keys to navigate within the utility and use the utility.

Keystroke	Function
← →	Moves left/right between the top menus.
↓ ↑	Moves up/down between highlight items.
Enter	Selects an highlighted item/field.
Esc	► On the top menus Hit **ESc** to quit the utility without saving changes to CMOS. (The screen will prompt a message asking you to select **OK** or **Cancel** to return to the BIOS settings.) ► On the submenus Hit **ESC** to quit current screen and return to the top menu.
Page Up / +	Increases current value to the next higher value or switches between available options.
Page Down / -	Decreases current value to the next lower value or switches between available options.
F1	Opens the **Help** of the BIOS Setup utility.
F10	Exits the utility and saves the changes that have been made. (The screen then prompts a message asking you to select **Yes** or **No** to exit and save changes.)

Note: Pay attention to the "WARNING" that shows at the left pane onscreen when making any change to the BIOS settings.

5.1. Main

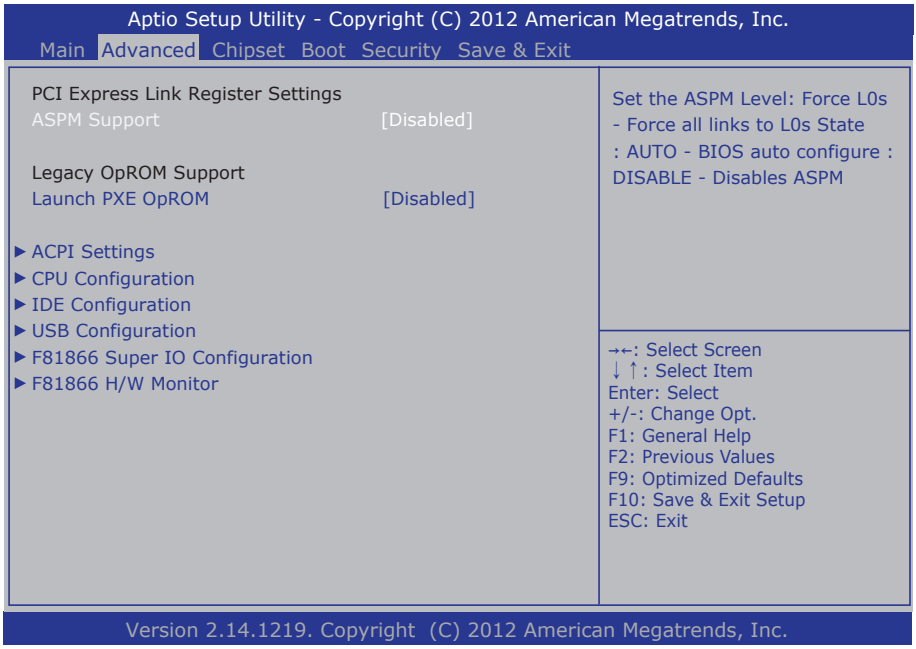
The **Main** menu features the settings of **System Date** and **System Time** and displays some BIOS info.



Info	Description
BIOS Version	Delivers the computer's BIOS version.
Build Date and Time	Delivers the date and time the BIOS Setup utility was made/updated.
System Date	Set the system date. Note that the 'Day' automatically changes when you set the date. ► The date format is: **Day:** Sun to Sat **Month:** 1 to 12 **Date:** 1 to 31 **Year:** 1998 to 2099
System Time	Set the system time. ► The time format is: **Hour:** 00 to 23 **Minute:** 00 to 59 **Second:** 00 to 59
Access Level	Delivers the level by which the BIOS Setup utility is being accessed at the moment. ► Only **Administrator** level is available on the computer.

5.2. Advanced

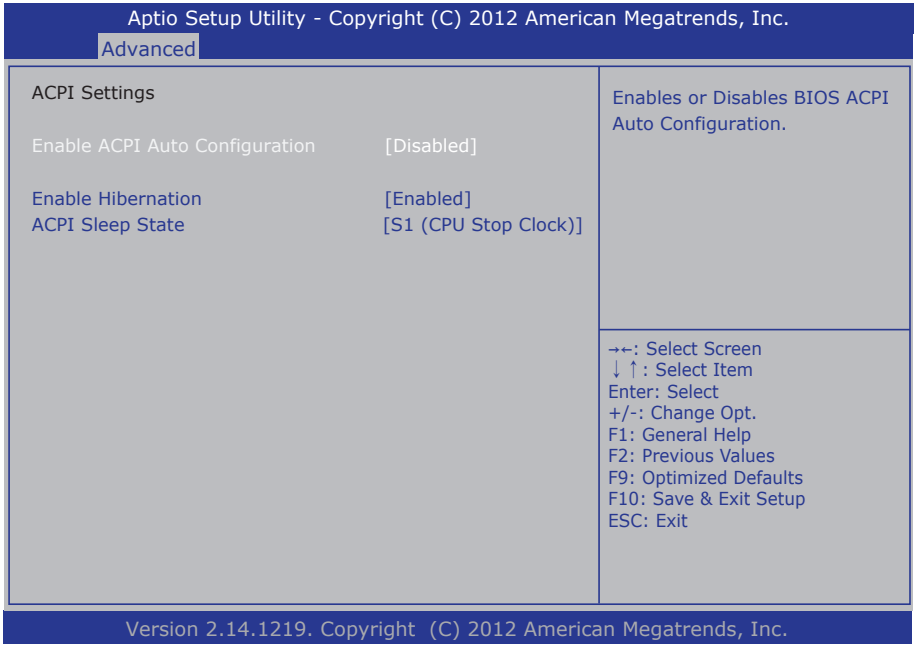
The **Advanced** menu configures the system's ACPI, CPU, IDE, USB and Super IO.



Setting	Description
ASPM Support	Set the ASPM Level: Force L0s - Force all links to L0s State : AUTO - BIOS auto configure : DISABLE - Disables ASPM ► Options: **Disabled** (default), **Auto**, **Force L0s**
Launch PXE OpROM	Enable or Disable Boot Option for Legacy Network Devices. ► Options: **Disabled** (default), **Enabled**
ACPI Settings	See 5.2.1. ACPI Settings on page 44.
CPU Configuration	See 5.2.2. CPU Configuration on page 45.
IDE Configuration	See 5.2.3. IDE Configuration on page 46.
USB Configuration	See 5.2.4. USB Configuration on page 47.
F81866 Super IO Configuration	See 5.2.5. F81866 Super IO Configuration on page 48.
F81866 H/W Monitor	See 5.2.6. F81866 H/W Monitor on page 50.

5.2.1. ACPI Settings

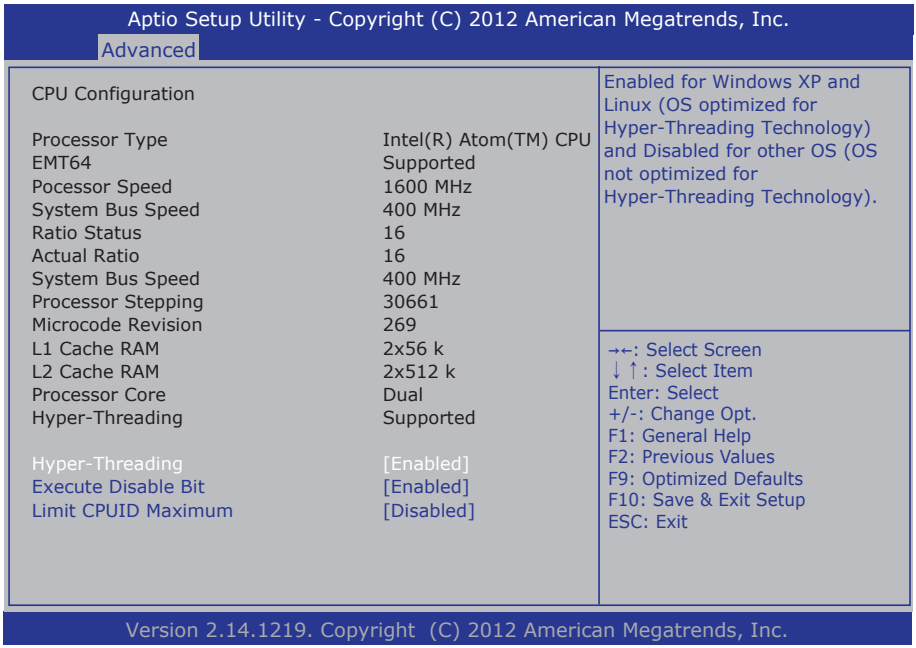
ACPI Settings configure the system's ACPI (Advanced Configuration and Power Interface). The featured settings are:



Setting	Description
Enable ACPI Auto Configuration	Enables or Disables BIOS ACPI Auto Configuration. ► Options: **Disabled** (default), **Enabled**
Enable Hibernation	Enables or Disables System ability to Hibernation (OS/S4 Sleep State). This option may be not effective with some OS. ► Options: **Disabled**, **Enabled** (default) ► This setting is only available when **Enable ACPI Auto Configuration** is disabled.
ACPI Sleep State	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed. ► Options: **Suspend Disabled** and **S1 (CPU Stop Clock)** (default) ► This setting is only available when **Enable ACPI Auto Configuration** is disabled.

5.2.2. CPU Configuration

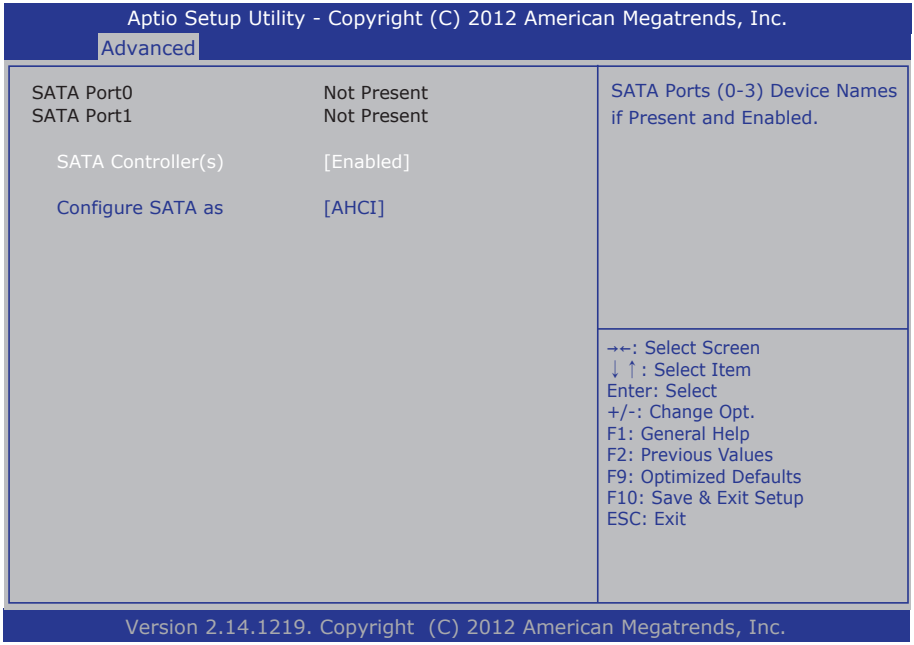
This submenu configures Intel® Hyper-Threading support and delivers the info about the CPU, including the CPU's model name, processor stepping, processor speed, microcode revision, the amount of processor cores, EMT64 support, and so on.



Setting	Description
Hyper-Threading	**Enabled** (default) for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and **Disabled** for other OS (OS not optimized for Hyper-Threading Technology).
Execute Disable Bit	XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.) ► Options: **Disabled**, **Enabled** (default)
Limit CPUID Maximum	Disabled for Windows XP ► Options: **Disabled** (default), **Enabled**

5.2.3. IDE Configuration

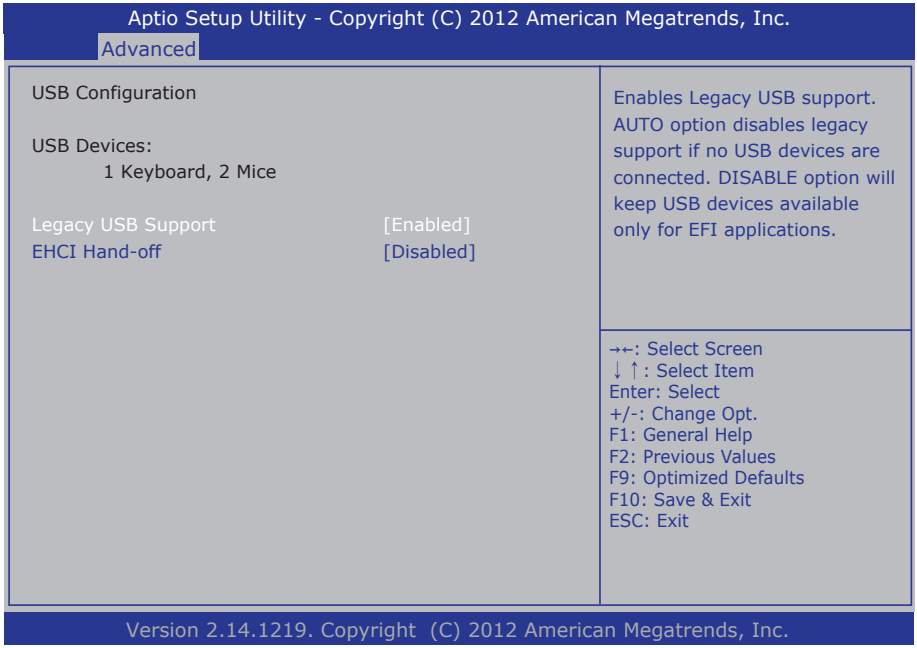
IDE Configuration delivers the computer's SATA status and configures SATA device(s).



Setting	Description
SATA Controller(s)	SATA Ports (0-3) Device Names if Present and Enabled. ► Options: **Disabled**, **Enabled** (default)
Configure SATA as	Select a configuration for SATA Controller. ► Options: **IDE**, **AHCI** (default)

5.2.4. USB Configuration

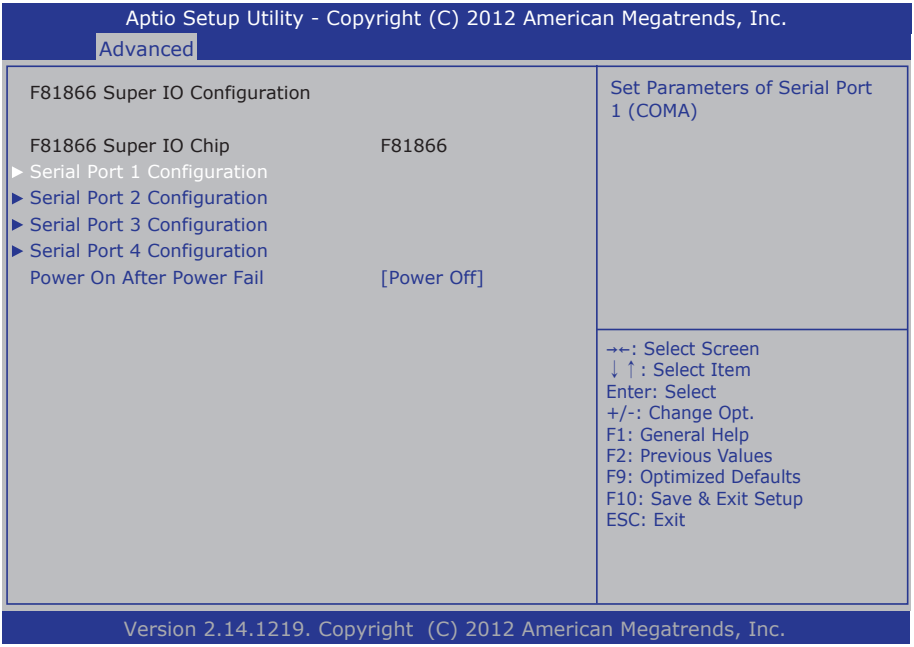
USB Configuration displays the status of USB connection and configures USB parameters.



Setting	Description
Legacy USB Support	**Enables** (default) 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	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver. ► Options: **Disabled** (default), **Enabled**

5.2.5. F81866 Super IO Configuration

This submenu configures the computer's Super IO chip, Fintek F81866, for the serial port 1~4.



Submenu / Setting	Description	
Serial Port 1 Configuration	**Setting**	**Description**
	Serial Port	**Enable** (default) or **Disable** Serial Port (COM)
	Change Settings	Select an optimal setting for Super IO device. ► Options: **IO=3F8h; IRQ=4;** (default) **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;** ► This setting is only available when the serial port is enabled.

Serial Port 2 Configuration

Setting	Description
Serial Port	**Enable** (default) or **Disable** Serial Port (COM)
Change Settings	Select an optimal setting for Super IO device. ► Options: **IO=2F8h; IRQ=3;** (default) **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;** ► This setting is only available when the serial port is enabled.

Serial Port 3 Configuration

Setting	Description
Serial Port	**Enable** (default) or **Disable** Serial Port (COM)
Change Settings	Select an optimal setting for Super IO device. ► Options: **IO=3E8h; IRQ=10;** (default) **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=2F0h; IRQ=3,4,5,6,7,10,11,12;** **IO=2E0h; IRQ=3,4,5,6,7,10,11,12;** ► This setting is only available when the serial port is enabled.
RS232/485	Select **RS232** (default)/**RS485** ► This setting is only available when the serial port is enabled.

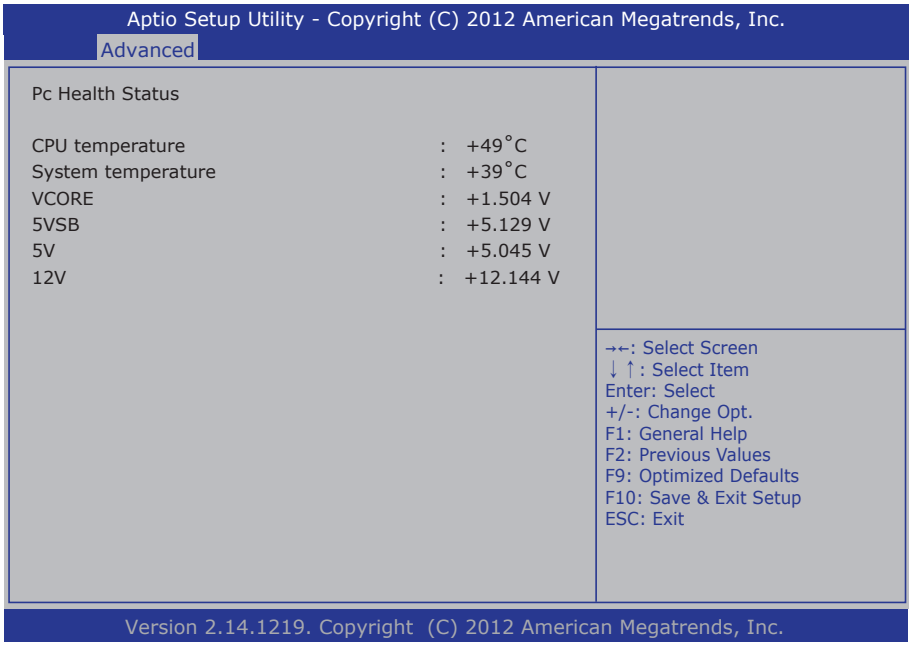
Serial Port 4 Configuration

Setting	Description
Serial Port	**Enable** (default) or **Disable** Serial Port (COM)
Change Settings	Select an optimal setting for Super IO device. ► Options: **IO=2E8h; IRQ=11;** (default) **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=2F0h; IRQ=3,4,5,6,7,10,11,12;** **IO=2E0h; IRQ=3,4,5,6,7,10,11,12;** ► This setting is only available when the serial port is enabled.
RS232/485	Select **RS232** (default)/**RS485** ► This setting is only available when the serial port is enabled.

Power On After Power Fail	Specify what state to go to when power is re-applied after a power failure. ► Options: **Power Off** (default), **Power On**

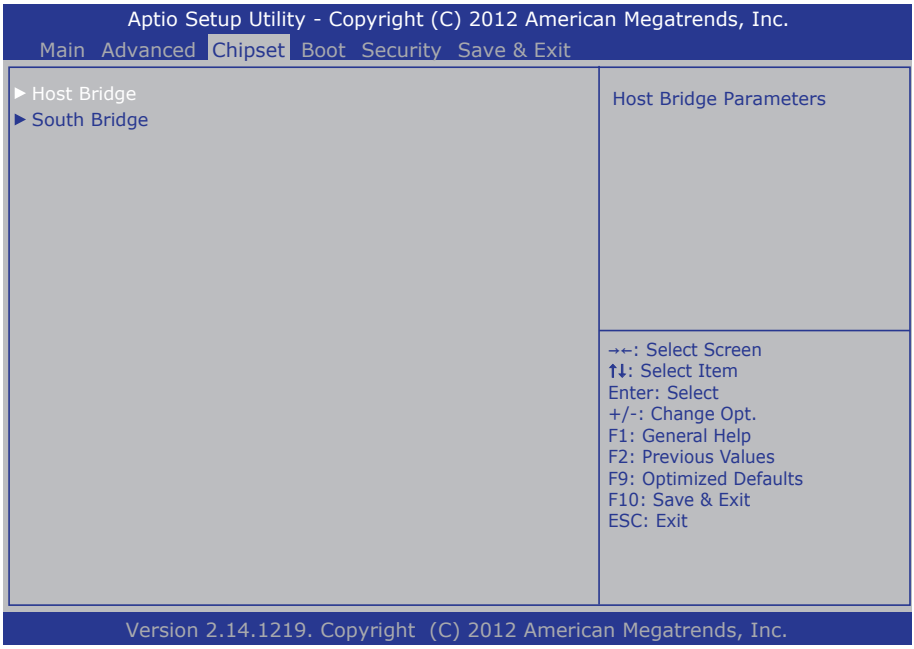
5.2.6. F81866 H/W Monitor

H/W Monitor monitors the CPU board's hardware status. Select **H/W Monitor** to run a report of the info including CPU/system temperatures and other voltage info.



5.3. Chipset

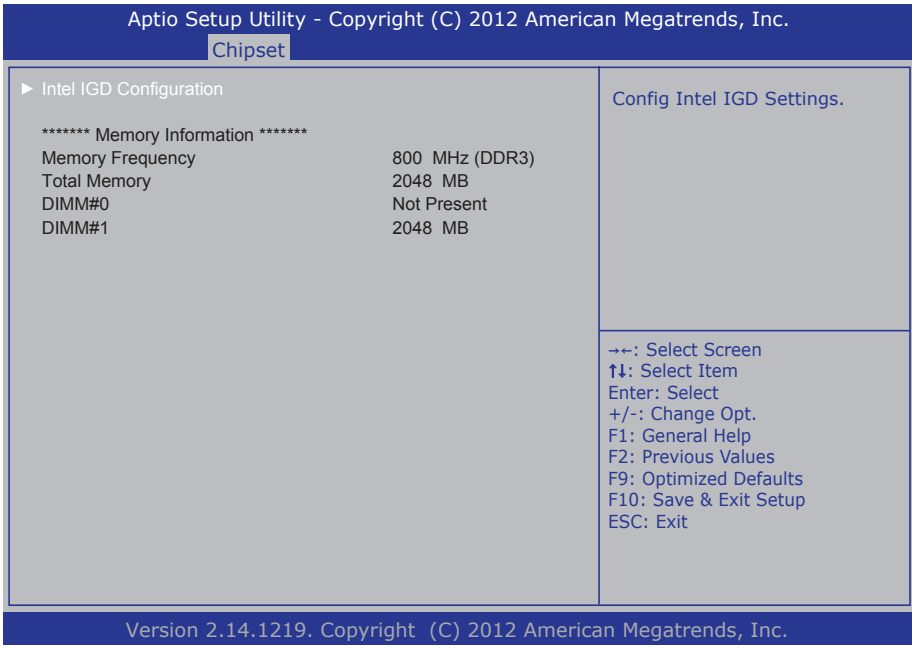
Use this **Chipset** menu to control the system's chipset features.



Submenu	Description
Host Bridge	Configures the system's north bridge. ▶ See 5.3.1. Host Bridge on page 52.
South Bridge	Configures the system's south bridge. ▶ See 5.3.2. South Bridge on page 53.

5.3.1. Host Bridge

This submenu shows the memory information such as memory frequency, total memory and the memory module(s) presence. This submenu also features one submenu - **Intel IGD Configuration** to configure Intel IGD (Internal Graphics Device).

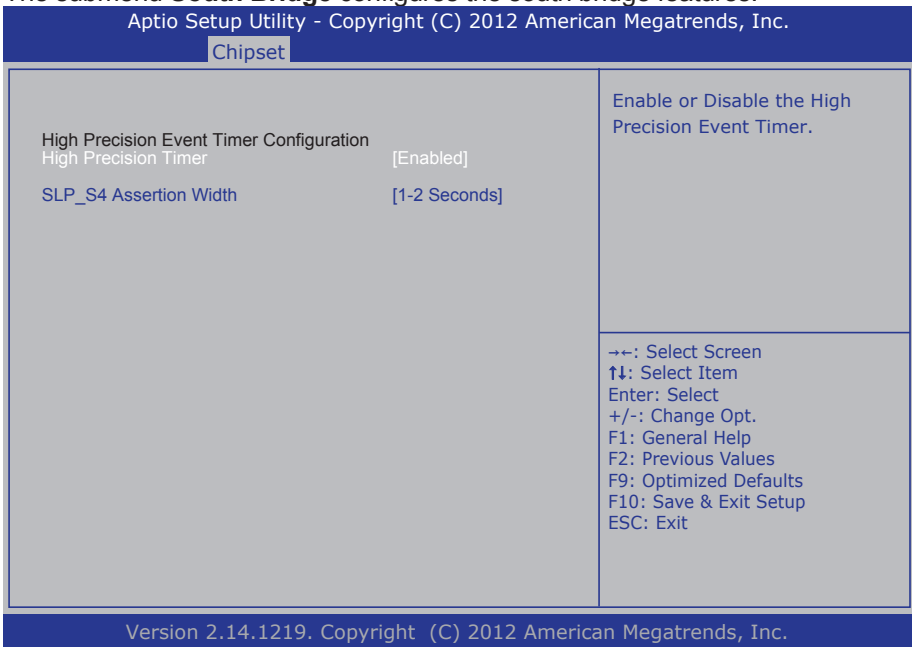


Submenu	Description
Intel IGD Configuration	Configures Intel IGD (internal graphics device) by the following settings:

Setting	Description
Auto Disable IGD	Auto disable IGD upon external GFX detected. ► Options: **Disabled** and **Enabled** (default).
IGFX - Boot Type	Sets the Video Device which will be activated during POST. This has no effect if external graphics present. ► Options: **LVDS** and **CRT / DVI + LVDS** (default).

5.3.2. South Bridge

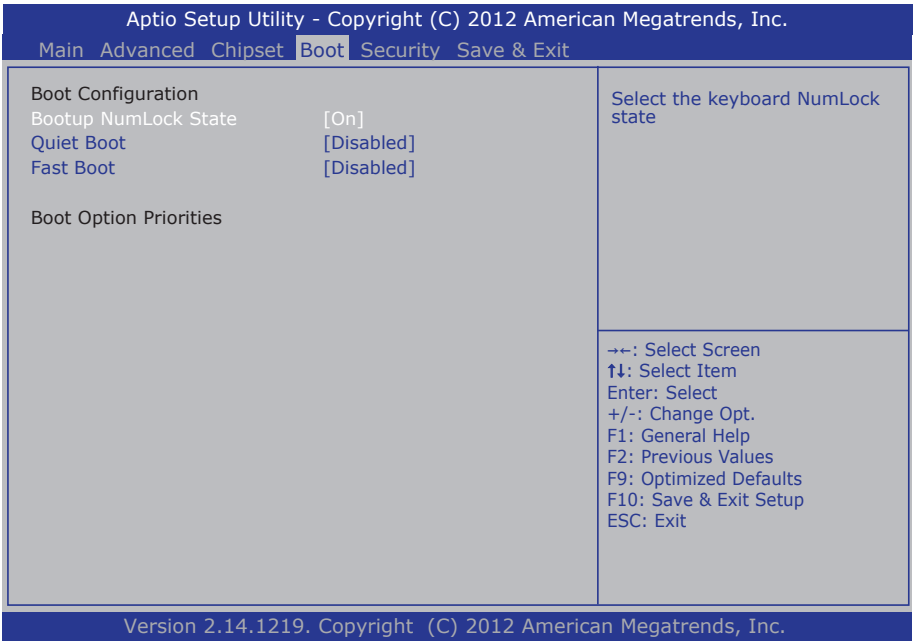
The submenu **South Bridge** configures the south bridge features:



Setting	Description
High Precision Timer	**Enable** (default) or **Disable** the High Precision Event Timer.
SLP_S4 Assertion Width	Select a minimum assertion width of the SLP_S4# signal ► Options: **1-2 Seconds** (default) **2-3 Seconds** **3-4 Seconds** **4-5 Seconds**

5.4. Boot

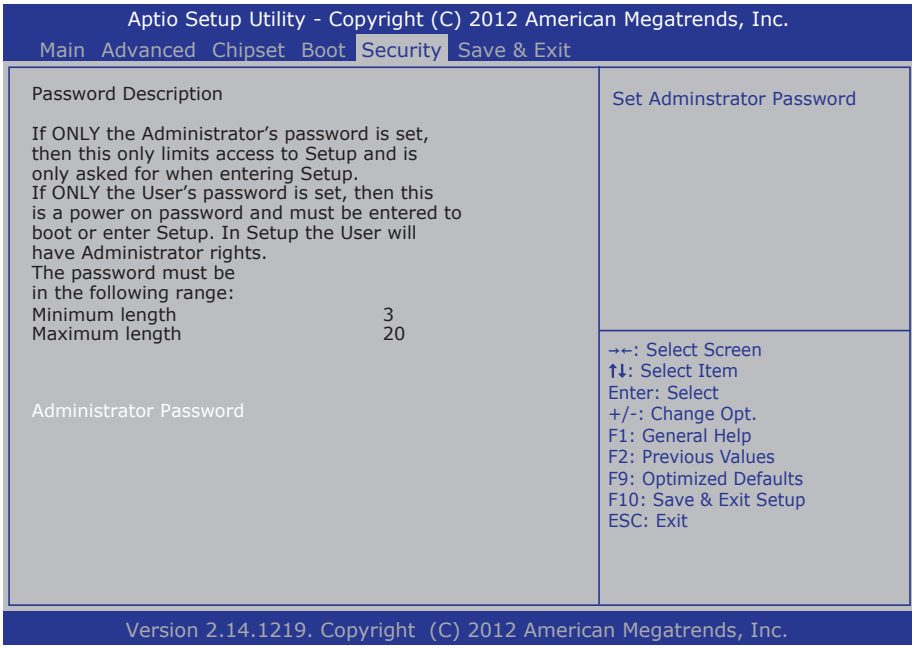
The **Boot** menu configures how to boot up the system by defining boot device priority.



Setting	Description
Bootup NumLock State	Select the keyboard NumLock state ► Options: **On** (default) and **Off**
Quiet Boot	**Enables** or **disables** (default) Quiet Boot option
Fast Boot	**Enables** or **disables** (default) boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

5.5. Security

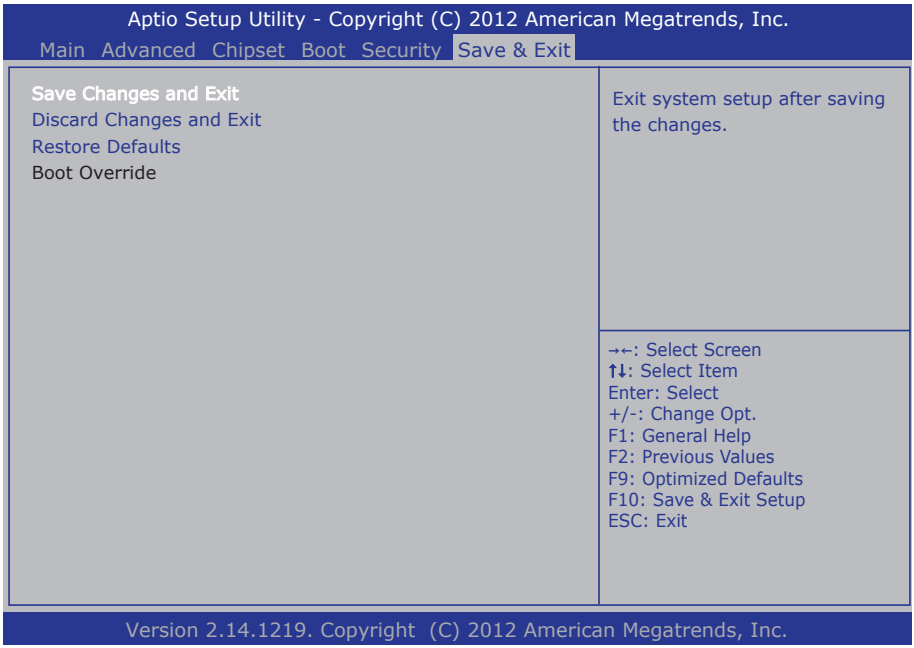
The **Security** menu sets up an administrator password to limit the access to the BIOS Setup utility. Users will be asked for such password each time he/she tries to access the BIOS Setup utility.



Setting	Description
Administrator Password	Sets up an administrator password. To set up an administrator password: 1. Select **Administrator Password**. An **Create New Password** dialog then opens on screen. 2. Enter your desired password that is no less than 3 characters and no more than 20 characters 3. Hit [Enter] key to submit. ► Once the administrator password is set up, this BIOS Setup utility is limited to access and will ask for the password each time any access is attempted.

5.6. Save & Exit

The **Save & Exit** menu features a handful of commands to launch actions from the BIOS Setup utility regarding saving changes, quitting the utility and recovering defaults.



Setting	Description
Save Changes and Exit	Exit system setup after saving the changes. ► Enter the item and then a dialog box pops up: **Save configuration and exit?**
Discard Changes and Exit	Exit system setup without saving any changes. ► Enter the item and then a dialog box pops up: **Quit without saving?**
Restore Defaults	Restore/Load Default values for all the setup options. ► Enter the item and then a dialog box pops up: **Load Optimized Defaults?**

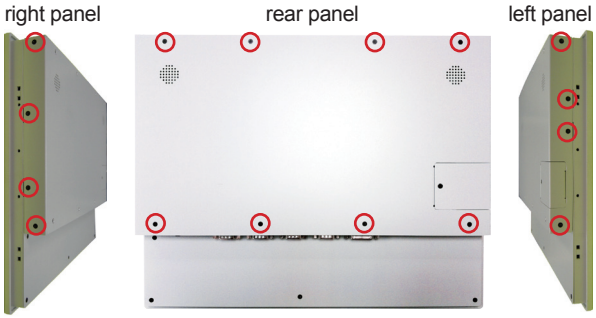
Appendices

Appendix A: WIFI-IN1350 Hardware/Software Installation

To use Wi-Fi, hardware-wise the computer needs a Wi-Fi module installed, and software-wise the computer needs the device driver and an application program. This appendix will guide you to install the Wi-Fi module WIFI-IN1350 and the device driver. (To have a copy of the device driver, please contact ARBOR customer service by the contact info described in Technical Support on page vi.)

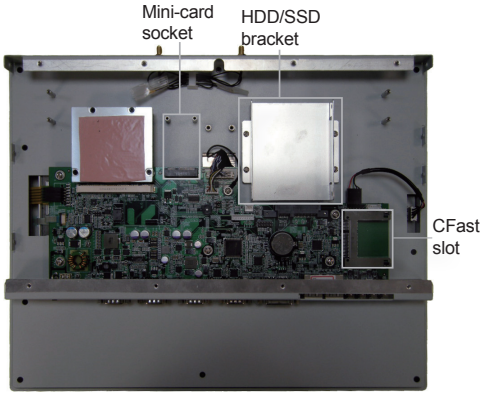
A.1. Install WIFI-IN1350

1. Loosen and remove the 8 screws from the computer's rear panel. Then, loosen and remove the 4 screws from each of the left and right panel of the computer.

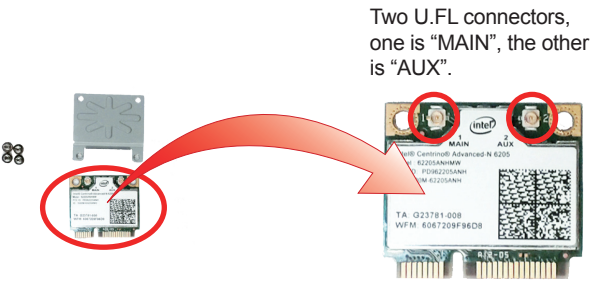


Remove the marked screws.

2. Dismount the rear cover from the computer. The inside of the computer comes to view.



3. Prepare the WIFI-IN1350 Wi-Fi module kit. The module is a half-size module of PCI Express Mini-card form factor, with two U.FL connectors, one is “MAIN“, and the other is “AUX“.

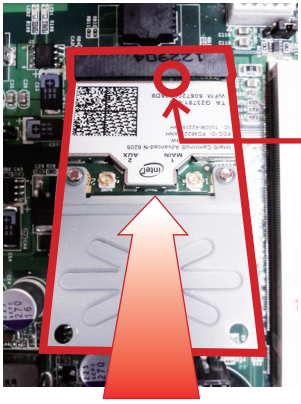


4. In order to make the half-size Wi-Fi module compatible with the Mini-card socket, extend the WiFi module with a “mini half bracket”. Join them together by using two screws.

Position the WiFi module and the “mini half bracket” exactly as shown.

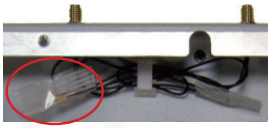
Join the WiFi module and the “mini half bracket” by using two screws.

5. Plug the WIFI-IN1350 into the Mini-card socket by a slanted angle. Fully plug the module, and note the notch on the Wi-Fi module should meet the break on the connector.

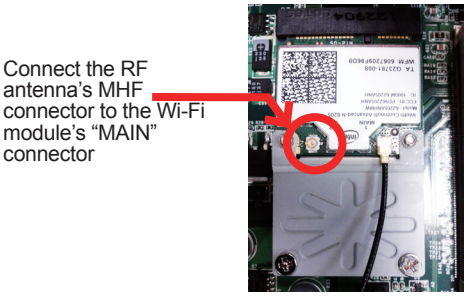


6. Press down the module and fix the module in place using two screws.

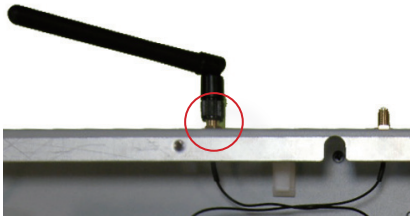
7. Tear off the tape from one of the RF cables.



8. Connect the RF antenna's MHF connector to the Wi-Fi module's "MAIN" connector.



9. Restore the rear panel to the computer. Have an external antenna. Screw and tightly fasten the antenna to the SMA connector. Swivel the antenna to an angle of best signals.



A.2. Install Device Driver & Application Program

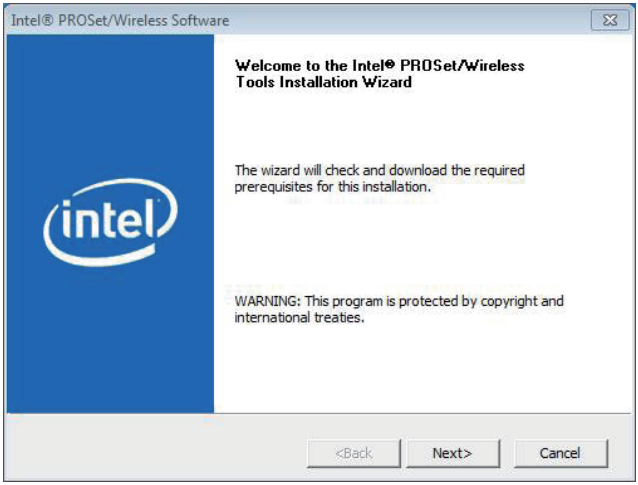
After all drivers are installed (as described in 2.3. Driver Installation Note on page 14), you can proceed to install the driver for the Wi-Fi module.

The device driver of WIFI-IN1350 will install the application program (the utility) as well. Follow the guide below to install WIFI-IN1350 driver:

1. Request a copy of the device driver from ARBOR customer service by the contact info as described in Technical Support on page vi.

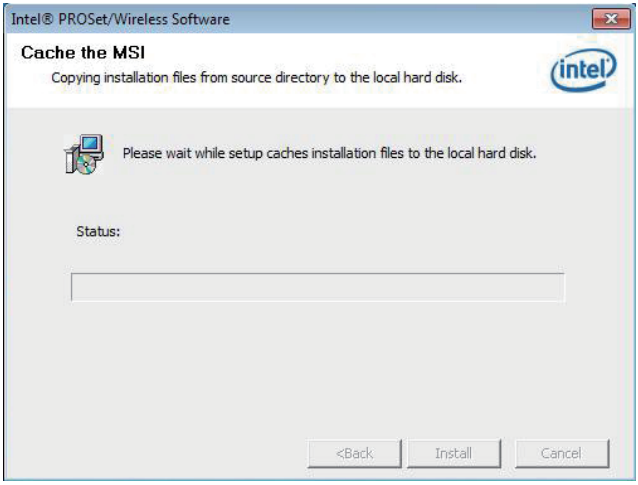
2. Run the executable file of the device driver, for example **Advanced-N 6205 WinXP_14.2.0.10_x32.exe**.

   The installer then opens.

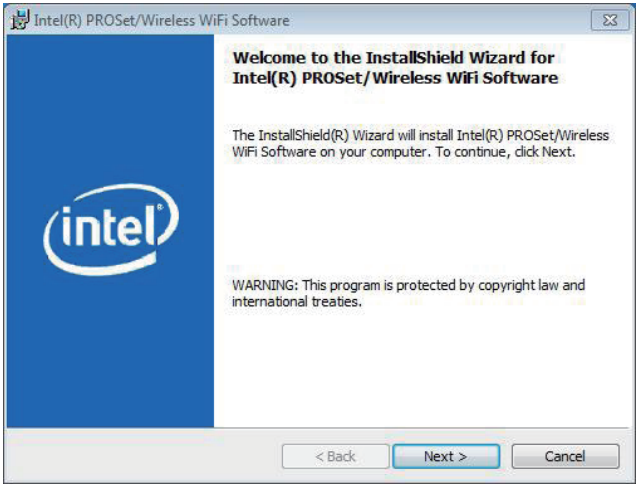


3. Click **Next>** button to proceed.

   The installer then starts to prepare for the setup.



4. When the preparation finishes, the installer prompts to install **Intel(R) PROSet/Wireless WiFi Softwar**e on the computer.

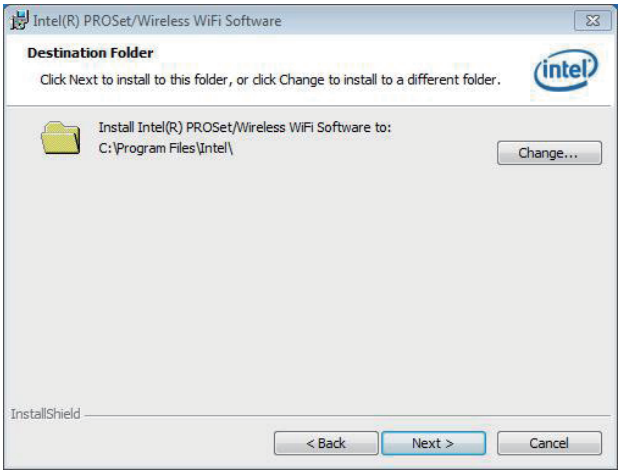


5. Click **Next>** button to proceed.

   The installer then prompts the license agreement.

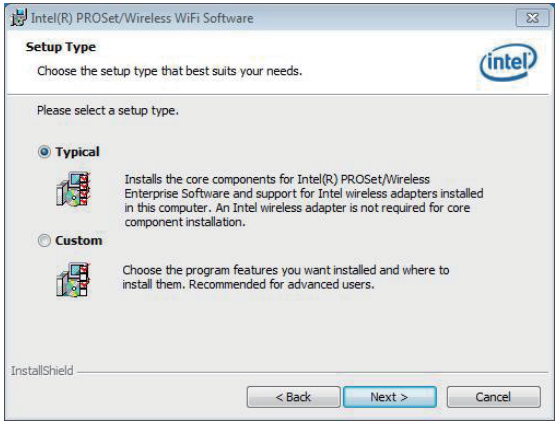
6. Select **I accept the terms in the license agreement** and click **Next>** button to proceed.

   The installer then asks where to install the software.

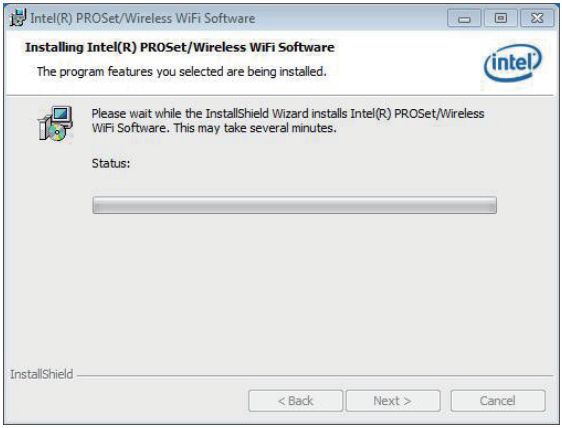


7. Click **Change...** button to browse for an alternate folder to install the software to, or simply click **Next>** button to install the software to the suggested folder.

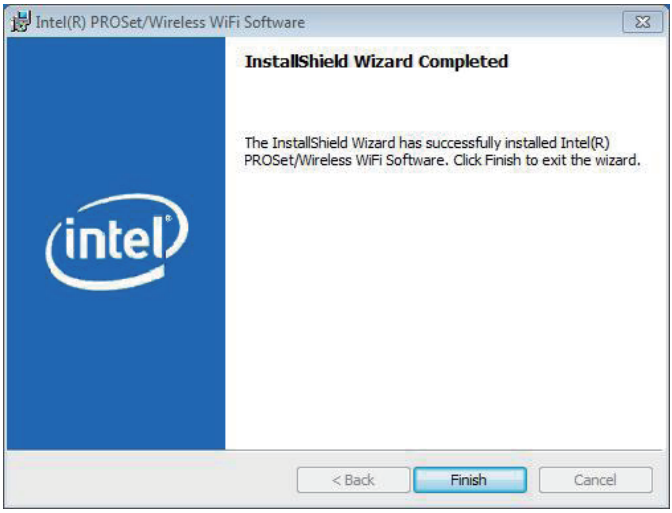
   The installer then opens a **Setup Type** selection.



8. Select **Typical** to install both the driver and the application program (recommended) or select **Custom** to choose the features to install. Then click **Next>** button to proceed.
   The software installation then starts, progresses and finishes.



9. Click **Finish** button to quit the software installation.

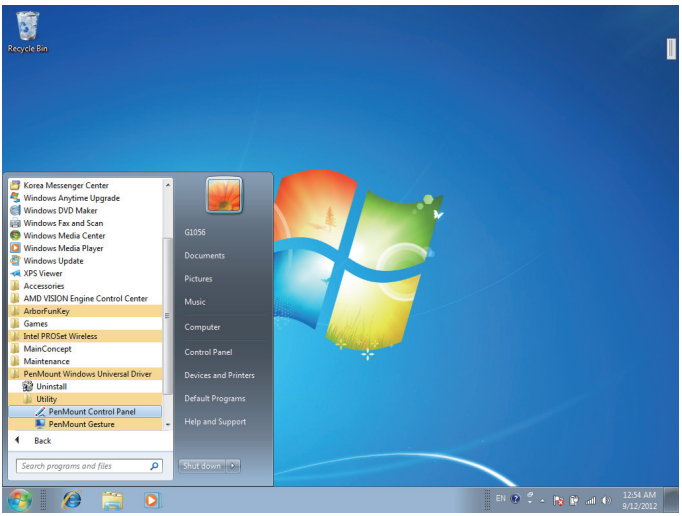


10. The computer's Wi-Fi feature is ready-to-use, see the document of the application program to know how to connect the computer to a Wi-Fi hotspot.

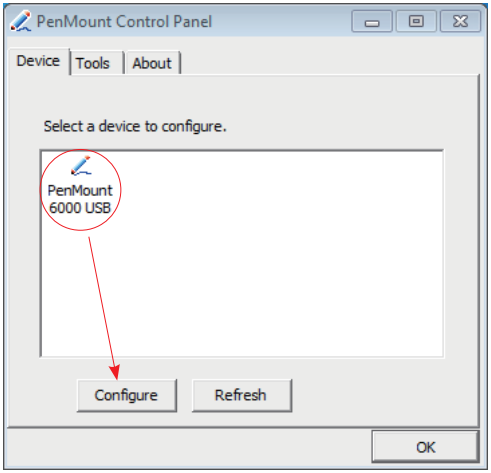
Appendix B: PenMount Utilities

B.1. PenMount Control Panel

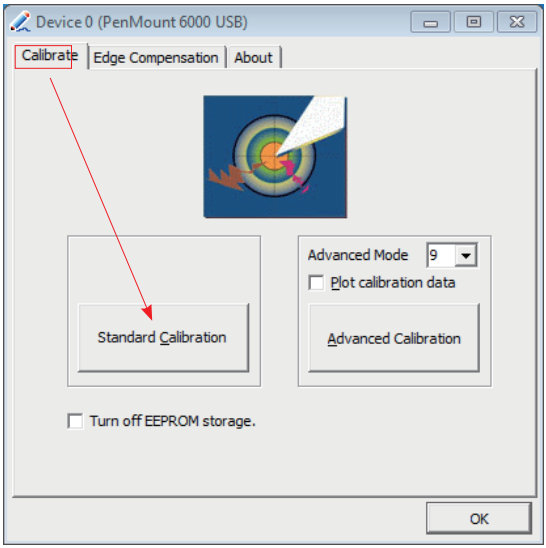
After everything is installed properly, there will be a touch screen application named ***PenMount Control Panel*** in ***All Programs***. Execute this application.



1. The program consists of 3 tabs. The left one is **Device**, in it, you can find how many devices are detected in your system. Select one device icon and tap **Configure,** or double tap the device icon for touch screen calibration.



2. And then another window with **Calibrate** tab will jump out.



Device Calibration Dialog

a. The Calibrate Tab

This function offers two ways to calibrate your touch screen. '**Standard Calibration**' adjusts most touch screens while '**Advanced Calibration**' adjusts aging touch screens.

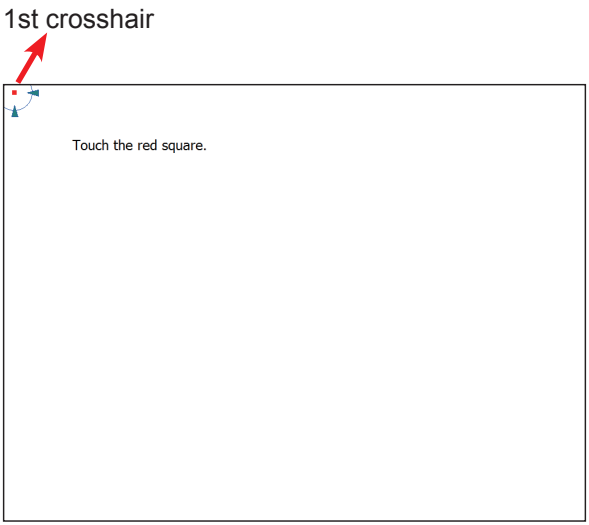
a.1 Standard Calibration

The Standard Calibration function lets you match the touch screen to your display so that the point you touch is accurately tracked on screen. Standard Calibration only requires four points for calibration and one point for confirmation. Under normal circumstance, Standard Calibration is all you need to perform an accurate calibration.

i. Please tap the Standard Calibration button to start calibration procedures.

ii. After that, the 1st crosshair will appear on white screen. Use your finger or stylus to touch the red center and hold down until the screen shows the message - "Lift off to proceed".

iii. The 2nd crosshair follows immediately. Do the process again. After the fifth red point calibration is complete, the program will jump out automatically, or you may press ESC key to quit it during calibration process. Alternatively, doing nothing for a while equates to pressing ESC.



a.2 Advanced Calibration

The Advanced Calibration function improves the accuracy of calibration by using more involved engineering calculations. Use this function only if you have tried the Standard Calibration and there is still a discrepancy in the way the touch screen maps to the display. You can choose 9, 16 or 25 points to calibrate, though we suggest that you first try 9 points, if it is still not tracking well then try 16 or 25 points. The more points you use for calibration, the greater the accuracy is. Errors in calibration may occur due to viewing angle, or individual skill, and there may be little difference in using 16 or 25 points. Note that a stylus is recommended for most accurate results.

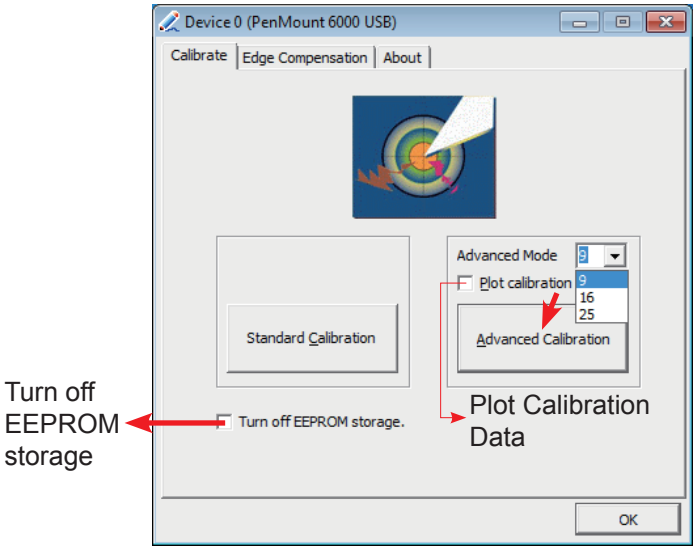
Plot Calibration Data

Check this function to have touch panel linearity comparison graph appear when you finish Advanced Calibration. The black lines reflect the ideal linearity assumed by PenMount's application program while the blue lines show the approximate linearity calculated by PenMount's application program as the result of user's execution of Advance Calibration.

Turn off EEPROM storage

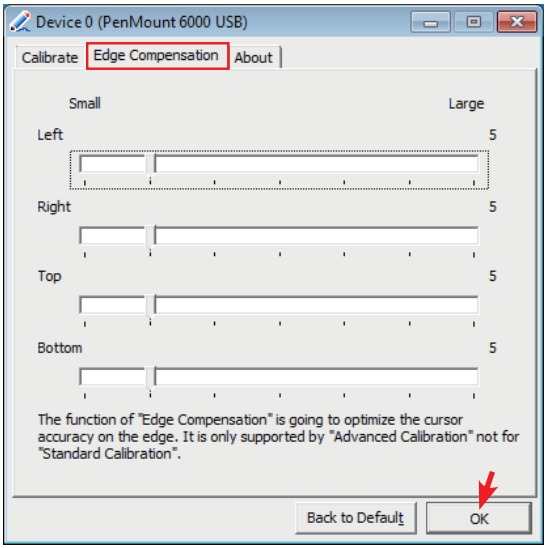
Tick this function to disable the write-in of calibration data in Controller.

Please tap the Advanced Calibration button to start calibration procedures and do the rest as explained in Standard Calibration.

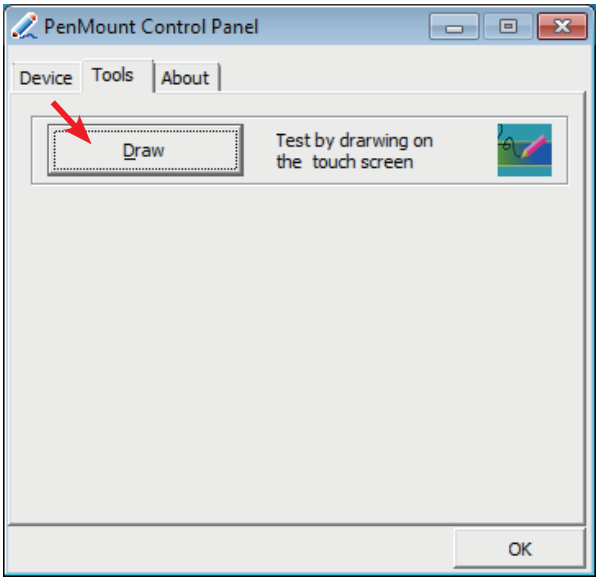


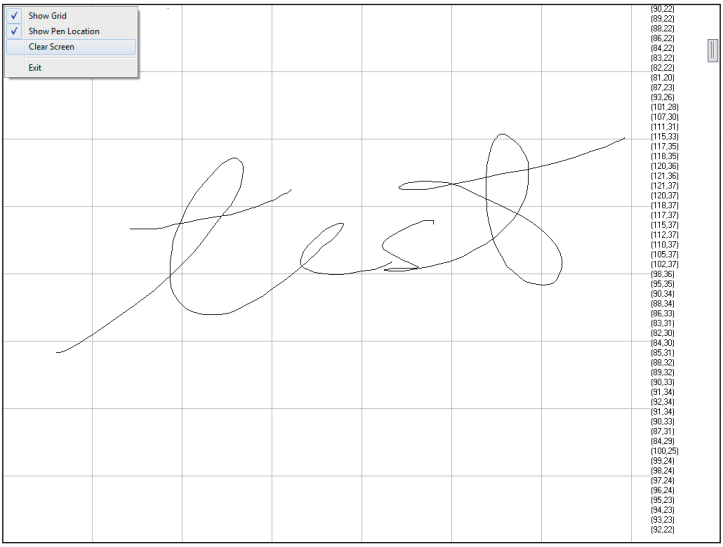
b. The Edge Compensation Tab

Under the same level where you calibrate your screen, you may find the tab. This tab is the edge compensation settings for the advanced calibration. You can adjust the settings from 0 to 30 for accommodating the difference of each touch panel.



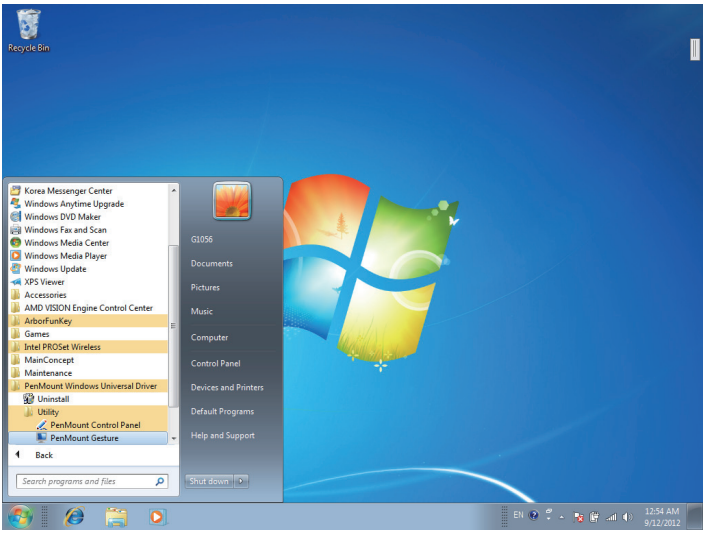
3. Press **OK** to close former window and back to upper level. As mentioned before, the program consists of 3 tabs, and the central one is **Tool**, switch to it.and click **Draw** to test PenMount touch screen operation.

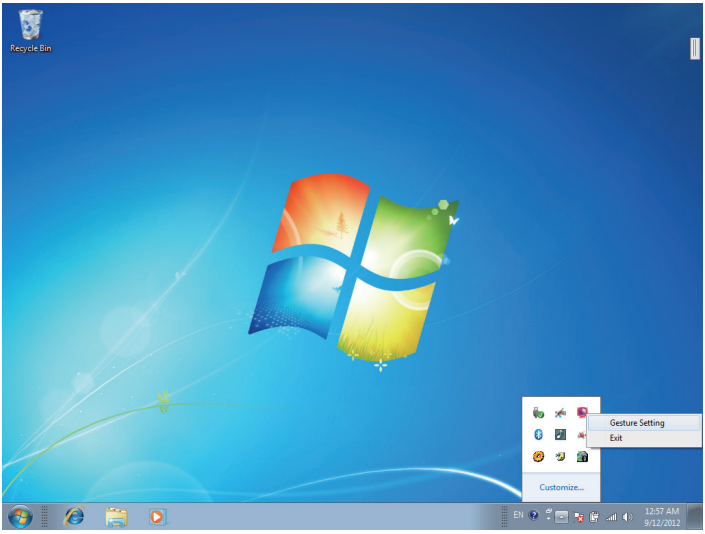




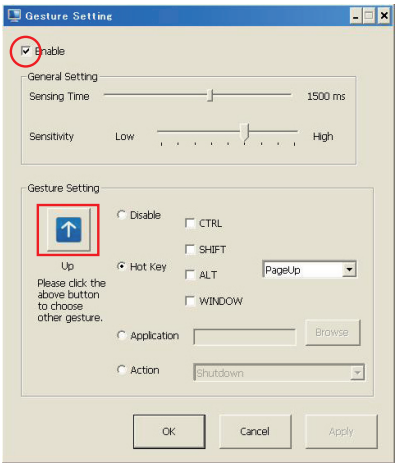
B.2. PenMount Gesture

1. Now that this tablet PC supports touchscreen function, you may take advantage of that to set hotkey or do other settings. Single-click a small icon like a monitor in system tray. If it's absent, you can recall it from ***All Programs***. The default setting is inactive, so you need to click "Gesture Setting" to start the program.

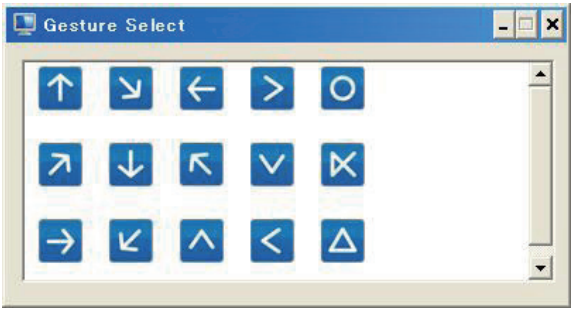




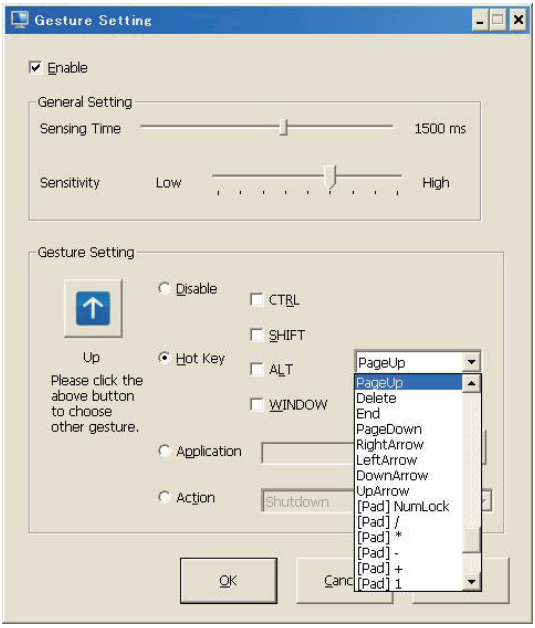
2. Check “Enable” and click the upward arrow in red square. You may also disable gesture function by canceling “Enable” box.

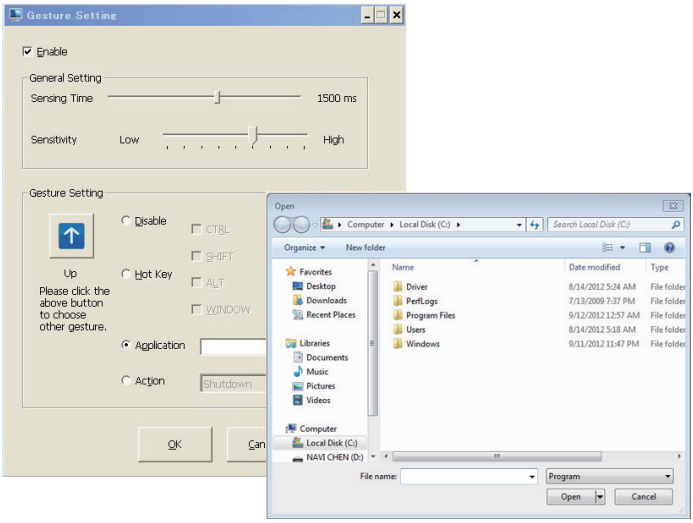


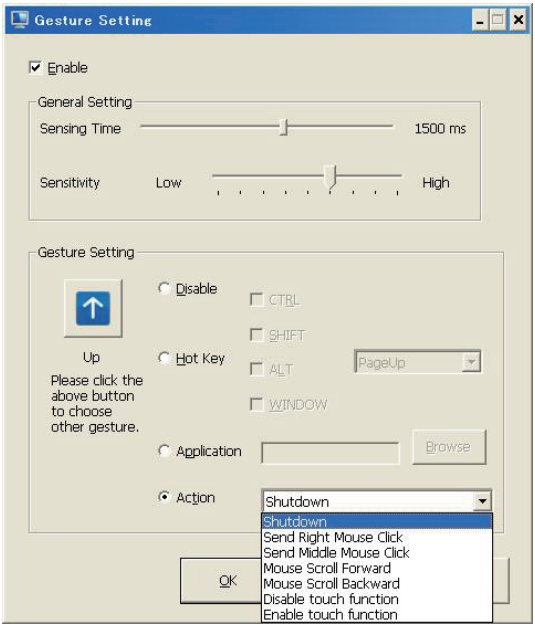
3. And then another ***Gesture Select*** window will pop up. Each mark in this menu represents your gesture on screen. For example, the upward arrow indicates that you move your finger across the touch screen from bottom to top. The rest are similar. You may use your gesture applied on the touchscreen to do further configuration. Select a gesture you would like to define.

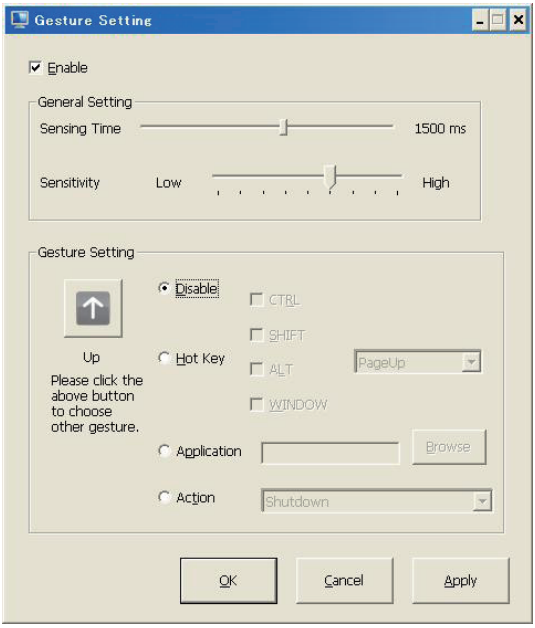


4. Then again, choose ***Hot Key***, ***Action*** or ***Application*** to set each gesture's corresponding function. You may disable respective gesture, too. And remember to press ***Apply*** after all.






Gesture Setting
Enable
General Setting
Sensing Time
1500 ms
Sensitivity
Low
High
Gesture Setting
Disable
CTRL
SHIFT
Up
Hot Key
ALT
PageUp
WINDOW
Please click the above button to choose other gesture.
Application
Browse
Action
Shutdown
Shutdown
Send Right Mouse Click
Send Middle Mouse Click
Mouse Scroll Forward
Mouse Scroll Backward
Disable touch function
Enable touch function
OK


Gesture Setting
Enable
General Setting
Sensing Time
1500 ms
Sensitivity
Low
High
Gesture Setting
Disable
CTRL
SHIFT
Up
Hot Key
ALT
PageUp
WINDOW
Please click the above button to choose other gesture.
Application
Browse
Action
Shutdown
OK
Cancel
Apply