
SWIS-5256

**Robust Vehicle Intel® Atom™ D525
Box PC**

User's Manual **Version 2.0**

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Declaration of Conformity

e1 Mark Compliant

CE Class B

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 WeLink. Please contact your local supplier for ordering information.

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class B

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.

This equipment has been tested and found to comply with the limits for a Class B 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 residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is

likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

WeLink Solutions, Inc. 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.

WeLink Solutions, Inc. 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%)).

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.

About This User's Manual

This User's Manual is intended for experienced users and integrators with hardware knowledge of personal computers. If you are not sure about any description in this User's Manual, please consult your vendor before further handling.

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.

Replacing the Lithium Battery

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 trashcan. 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.we-link.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.we-link.com.tw>
E-mail: info@we-link.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.

Ordering Information

SWIS-5256B	Vehicle BOX Barebone w/o memory & storage with 1 x PCIe x1 slot
SWIS-5258A	SWIS-5258 with HSUPA, GPS, WLAN
SWIS-5256B	Vehicle BOX Barebone w/o memory & storage with 1 x PCIe x1 slot, 1 x PCI slot
SWIS-5256A	SWIS-5256 with HSUPA, GPS, WLAN
SSD-25080	Intel® 2.5" 80GB SATAII SSD kit
WMK-5000	Wall-mount Kit
WLAN Mini-card Kit	802.11 b/g/n, 2db Ant., Cable 200mm, HALF
GPS Kit	9600 bps, 27db Ant., Cable 3M
HSUPA Kit	HSUPA, 2db Ant., Cable 250mm



Chapter 1

General Information

1.1 Introduction

The SWIS-5256 and SWIS-5258 series are targeted at many different application fields. By adopting it, you can pinpoint specific markets, such as in-vehicle, car infotainment, bus monitoring system, environment-critical and space-critical applications.

- **All-In-One Platform**
The CPU, DRAM and even software are integrated to provide a plug-and-play machine.
- **Compact-sized**
The kernel of SWIS-5256/SWIS-5258 is FMB-i2901, which is a compact form factor embedded board. The whole system consumes only a few space.
- **Fanless and Modular CPU Board**
By using a low power processor, the system does not have to rely on fans, which are often unreliable and cause dust to circulate inside the equipment. The modular design facilitates maintenance or possible upgrades on the CPU board. Modular Box PC can be easily modified to fit many different applications according to customers' requests.
- **Powerful Communication Capability**
The SWIS-5256/SWIS-5258 provides COM, LPT, Ethernet, USB, Mini Card slot, PCIe and Digital I/O expansion slot. SWIS-5256/SWIS-5258 supplies Wi-Fi, GSM/GPS/GPRS and 3.5G module. With the great connection capability, users can transmit data and information anywhere.
- **Numerous Display/Video Output**
Integrated with Intel® GMA3150 Graphics core, The SWIS-5256/SWIS-5258 improves graphics and 3D rendering performance and supports numerous display/video output options includes VGA and LVDS.
- **Power Supply and Well-Designed Power Protection**
The SWIS-5256/SWIS-5258 can keep standby path loss less than 30 μ A, and its wide range DC power input (6~32V) enables it to conquer unstable power supply and noise.
- **Smarter Ignition Power On/Off**
The SWIS-5256/SWIS-5258 series can automatically save last setting of power on/off procedure as well as offers low voltage protection mechanism.
- **Advanced Storage Solution**
SWIS-5256/SWIS-5258 comes with Compact Flash slot, which offers a better, faster and more cost-effective expansibility for various applications.
- **Trustworthy**
The onboard Watchdog Timer can invoke an NMI or system RESET when your application loses control over the system.

1.2 Packing List

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

Standard:



1 x SWIS-5256A/B or SWIS-5258A/B Box PC



1 x Accessory Box
(Driver CD Include User's Manual/Screws/
Cable/3-pin plug for terminal block)

Options:

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



Intel® 2.5" 80GB SATAII SSD Kit



Wall-mount Kit



GPS Kit



WiFi Kit



3G Kit

1.3 The Installation Paths of CD Driver

Windows XP

Driver	Path
CHIPSET	\\CHIPSET\\intel
VGA	\\VGA\\GRAPHICS\\Winxp_6.14.10.5182
LAN	\\LAN\\ETHERNET\\INTEL
AUDIO	\\Audio\\REALTEK_HD\\WDM_R235
WLAN	\\WLAN\\Atheros\\XP_Vista_Win7_V9.2.0.310
3G	\\3G\\Gobi3000_Build2810\\Drivers
SD card	\\SD card\\GL2400

Windows 7

Driver	Path
CHIPSET	\\CHIPSET\\intel
VGA	\\VGA\\GRAPHICS
LAN	\\LAN\\ETHERNET\\INTEL
AUDIO	\\Audio\\REALTEK_HD\\WDM_R252
WLAN	\\WLAN\\Atheros\\XP_Vista_Win7_V9.2.0.310
3G	\\3G\\Gobi3000_Build2810\\Drivers

Note: SD card driver is default in Windows 7.

1.4 Specifications

System Kernel	
Processor	Soldered onboard Intel® Atom™ D525 1.8GHz CPU
BIOS	AMI Flash BIOS
Chipset	Intel® Atom™ D525 + ICH8M
Graphics	Integrated Intel® GMA3150
System Memory	2 x 204-pin Dual-channels DDR3 SO-DIMM Sockets up to 4GB at 800MHz
Storage	2 x Serial ATA ports with 300MB/s HDD transfer rate

General Information

Expansion Bus	1 x PCIe x1 slot
	1 x PCI slot (SWIS-5356 only)
	2 x Mini-card slot
	1 x Mini-card slot interconnect with SIM card socket for HSUPA module, SIM card socket is outside accessible
Ethernet Controller	1 x Intel® 82583V Gigabit Ethernet controllers
Watchdog Timer	1 ~ 255 levels reset
I/O Ports	
Serial Port	2 x RS-232 and 2 x RS-232/422/485 ports
USB Port	6 x USB2.0 ports (2 x lockable connectors for four USB 2.0 ports)
LAN Port	1 x RJ-45
Video Port	2 x DB-15 female connectors for Analog RGB (Clone mode)
	1 x DB-26 female connector for single channel 18/24-bit LVDS output
DIO	1 x 16-bit digital I/O (8 in/8 out)
	1 x DB-26 male connector for 8-in/ 8-out isolated I/O and +12/+5V power output (rating 1A, PTC FUSE 2~2.5A)
Antenna	4 x SMA-Female connectors with cap for external antennas, two for WiFi, one for mobile wireless (HSUPA), one for GPS supported on SWIS-5256A/ SWIS-5258A.
Audio	Mic-in/Line-out (6W pre-amplified)
Expansion Bus	1 x PCIe x1 slot, 1 x PCI slot
	1 x Mini-card slot
	1 x Mini-card slot interconnect with SIM card socket for HSUPA module, SIM card socket is outside accessible
Storage	

HDD/SSD	1 x 2.5" SATA drive bay for SWIS-5258 Series 2 x 2.5" SATA drive bay for SWIS-5256 Series
CF	1 x CF socket (outside accessible)
SD	1 x SD socket (outside accessible)
Safety	
FCC	Class B certified
CE	Certified
e1	e1 Mark compliant
Environment	
Operating Temp.	-25 ~ 55°C (-13 ~ 131°F), ambient w/ air flow
Storage Temp.	-40 ~ 85°C (-40 ~ 185°F)
Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
Vibration / Shock & Crash	EN50155-T1 and EN61373:1999 Class B standard
Mechanical	
Construction	Aluminum alloy
Mounting	Wall mounting
Weight	SWIS-5258: 3.76 kg(8.27lb); SWIS-5256: 4.06 kg (8.94lb)
Dimensions (W x D x H)	SWIS-5258: 254 x 195 x 80 mm (10" x 7.68" x 3.15") SWIS-5256: 254 x 195 x 100 mm (10" x 7.68" x 3.94")

1.5 Power Information

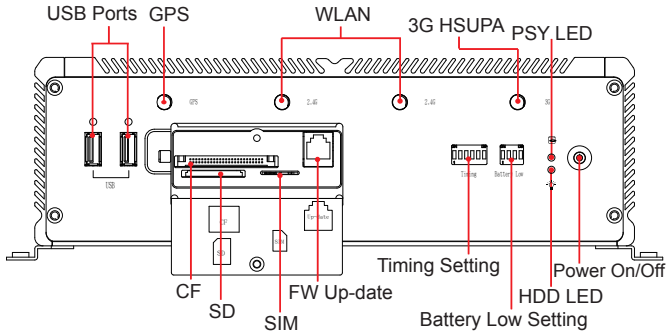
Power Input	DC input 6~32V w/ 3-pin terminal block
Power Output	2 x 1-pin lockable jack for 12V/1A power output
FUSE	1 x FUSE receptacle w/ cover (outside accessible)
Power Consumption	TBD

1.6 Locating Controls and Connectors

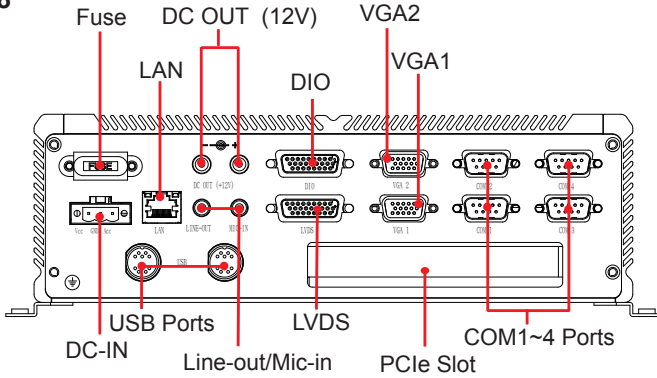
Both SWIS-5258 and SWIS-5256 have the same I/O ports and connectors at the front panel.

Please take a moment to identify those controls and connectors shown in the following figures.

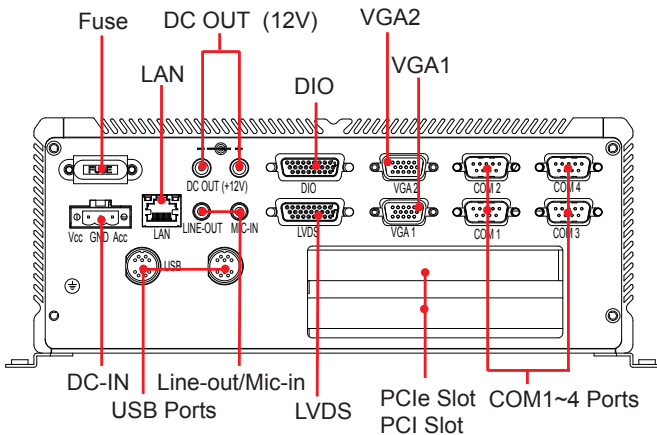
Front Panel



**Rear Panel
SWIS-5258**



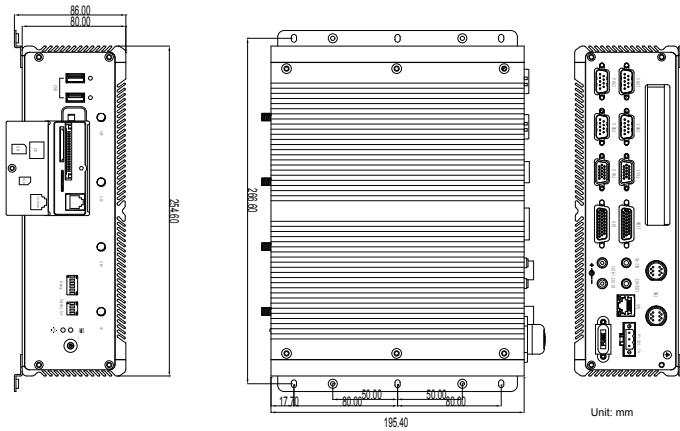
SWIS-5256



1.7 Dimensions

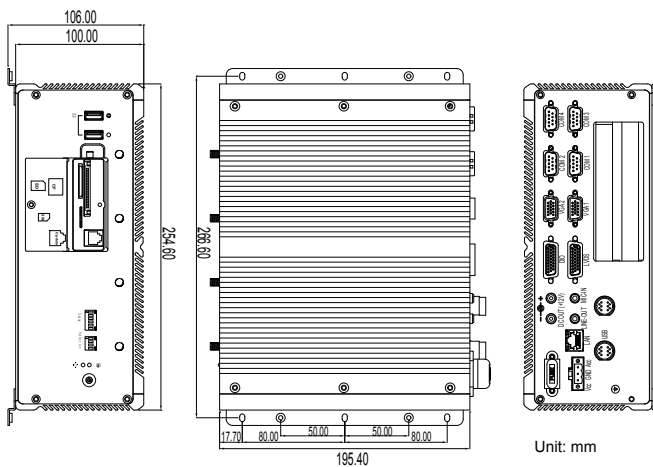
SWIS-5258

- Dimension (W x D x H): 254 x 195 x 80 mm (10" x 7.68" x 3.15")



SWIS-5256

- Dimension (W x D x H): 254 x 195 x 100 mm (10" x 7.68" x 3.94")



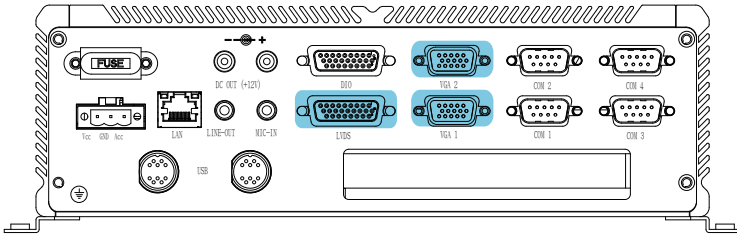
1.8 Connecting Peripherals

The user can use the I/O interfaces located at the rear side of the chassis to connect to external peripheral devices, such as a mouse, a keyboard, a monitor, serial devices, etc. Before connection, make sure that the computer and the peripheral devices are turned off.

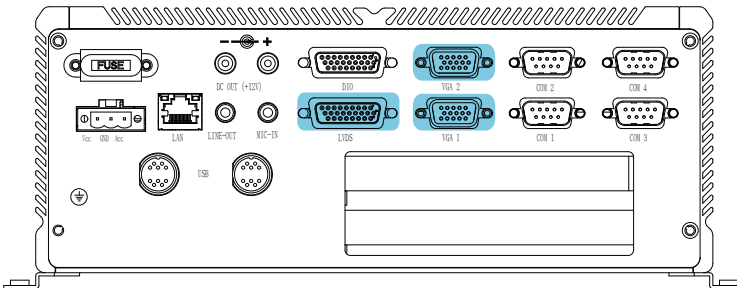
1.8.1 VGA/LVDS Video Outputs

Both SWIS-5258 and SWIS-5256 are equipped with three video outputs—two 15-pin VGA, one 26-pin single channel 18/24-bit LVDS at the rear side of the chassis for multiple display connections.

SWIS-5258



SWIS-5256



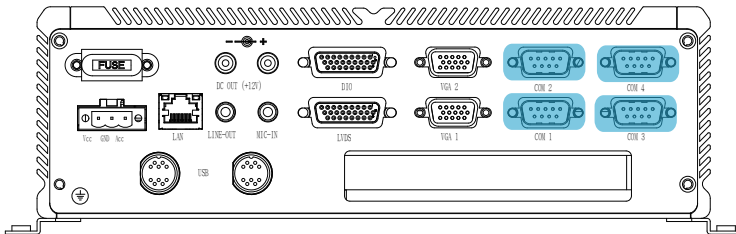
1.8.2 Serial Ports (COM1 ~4)

Both SWIS-5258 and SWIS-5256 provides four serial ports. Two ports supports RS-232; in addition, the other two ports supports RS-232/422/485 selectable.

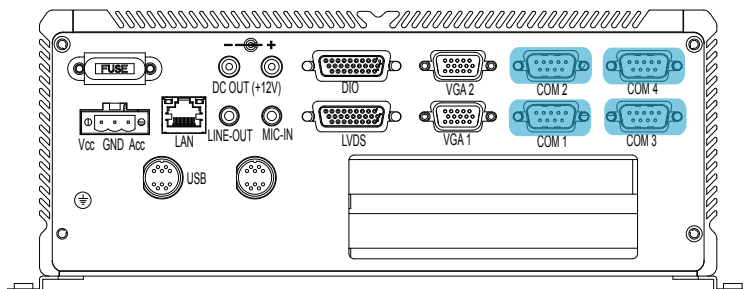
To connect to any serial device, follow the steps below:

1. Turn off the BOX PC system and the serial devices.
2. Attach the interface cable of the serial device to the serial connector. Be sure to fasten the retaining screws.
3. Turn on the computer and the attached serial devices.
4. Refer to the serial device's manual for instructions to configure the operation environment to recognize the new attached devices.
5. If the serial device needs specified IRQ or address, you may need to run the CMOS setup to change the hardware device setup.

SWIS-5258



FSWIS-5256

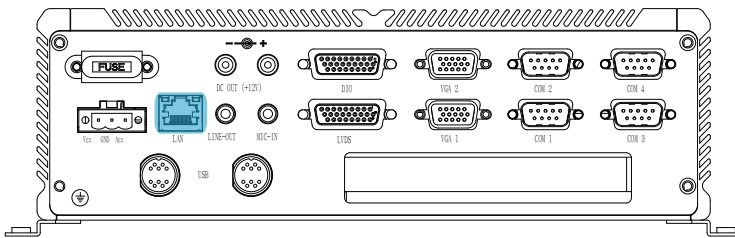


1.8.3 LAN Ports

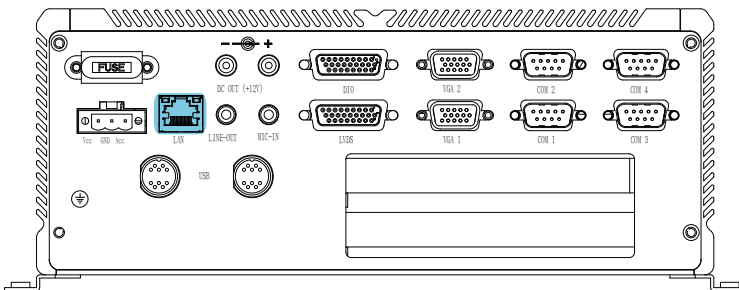
Both SWIS-5258 & SWIS-5256 provide one Intel® 82583V/82574 10/100/1000 Base-T Ethernet (RJ-45) interface. For network connection, follow the instructions below:

1. Turn off the BOX PC system and the Ethernet hubs.
2. Plug in one end of cable of a 10/100/1000Base-T hub to the system's RJ-45 jack.

SWIS-5258



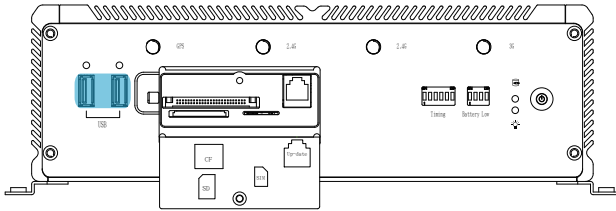
SWIS-5256



1.8.4 USB Ports

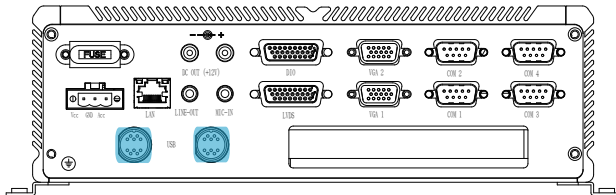
Both SWIS-5258 & SWIS-5256 have two USB ports on the front panel and four USB ports (via 2 waterproof LTE connectors) on the rear panel to connect to external USB devices. USB ports and devices are hot-pluggable. Therefore, any USB device can be connected at all time without turning off your system.

Front Panel

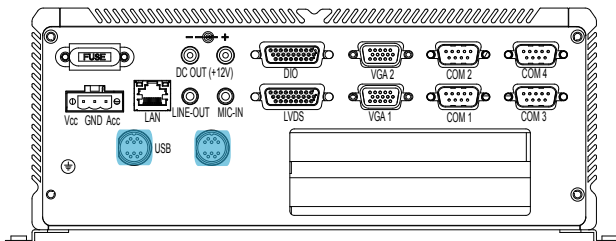


Rear Panel

SWIS-5258



SWIS-5256

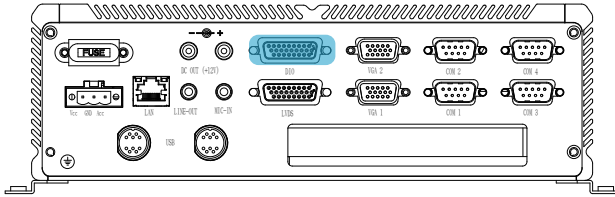


Note that for many of these devices, you will first have to install proper device drivers before they can be recognized by the system.

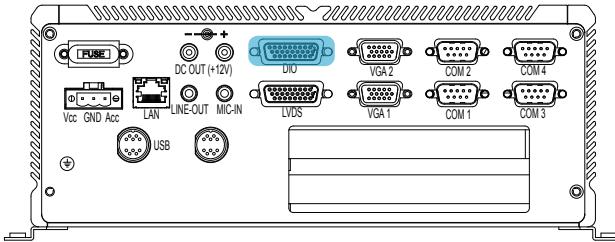
1.8.5 DIO Port

Both SWIS-5258 and SWIS-5256 have one 16-pin programmable Digital I/O port located at the rear panel.

SWIS-5258



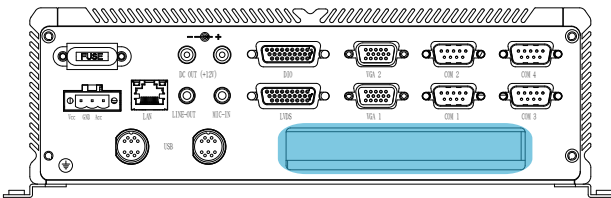
SWIS-5256



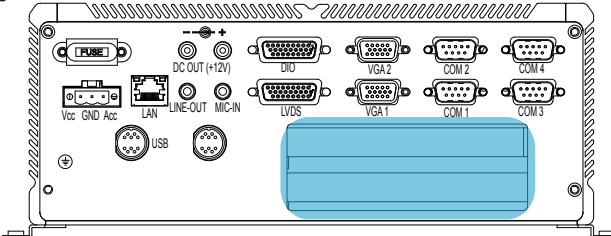
1.8.6 Expansion PCIe Slots

SWIS-5256 only has one PCIe x1 slot located at the rear panel while SWIS-5258 provides one PCIe x1 slot and PCI slot.

SWIS-5258



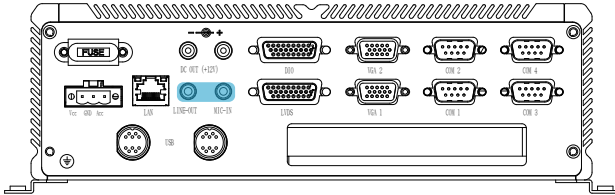
SWIS-5356



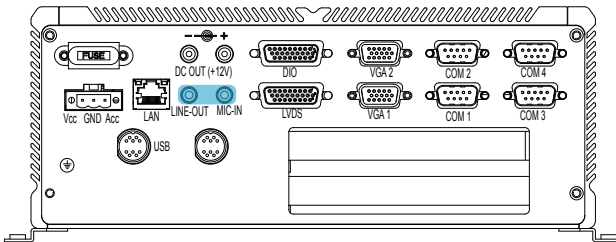
1.8.7 Audio Line-out/Mic-in

Two audio jacks for Line-out and Mic-in located at the rear panel.

SWIS-5258



SWIS-5256

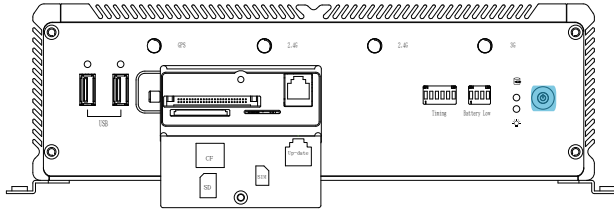


Note: Make sure you don't plug Mic-in/Line-out in the wrong jack. But if you're not careful, plugging in the wrong jack for a long time could burn the OP amplifier.

1.8.8 DC Power Input and Power ON/OFF Button

For DC power input, the computer is equipped with a 3-pin terminal block receptacle on the rear panel. The Power ON/OFF button located on the front panel is used to power ON/OFF the computer. See the figures below.

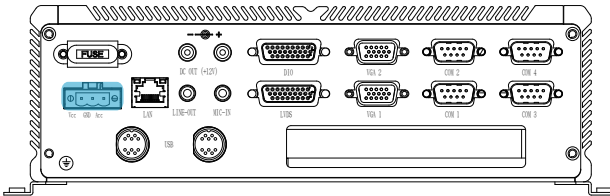
Front Panel



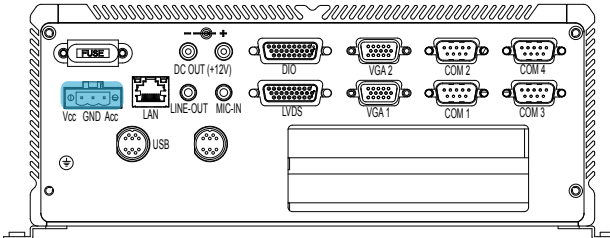
Note: The power on/off button can be enabled or disabled by DIP SW.

Rear Panel

SWIS-5258



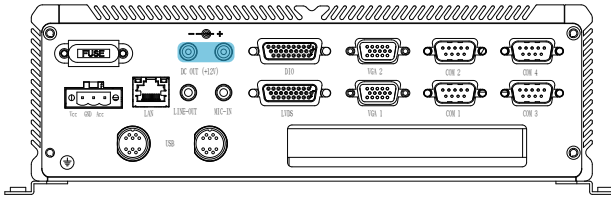
SWIS-5256



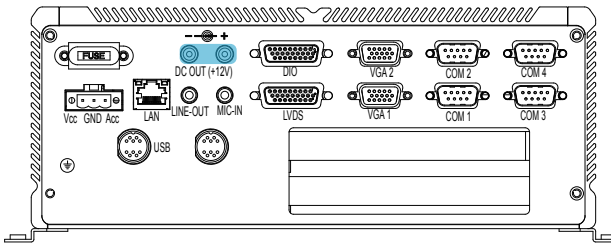
1.8.9 DC Output (12V)

Both SWIS-5258 & SWIS-5256 have two 12V/1A power output on back panel.

SWIS-5256



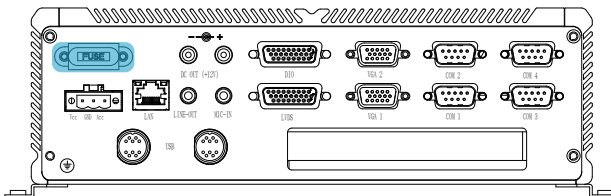
SWIS-5256



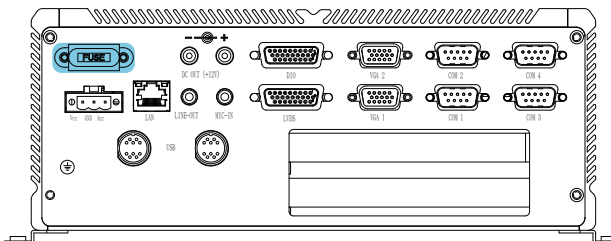
1.8.10 FUSE

Both SWIS-5258 & SWIS-5256 have one FUSE receptacle w/ cover (outside accessible) on back panel.

SWIS-5256



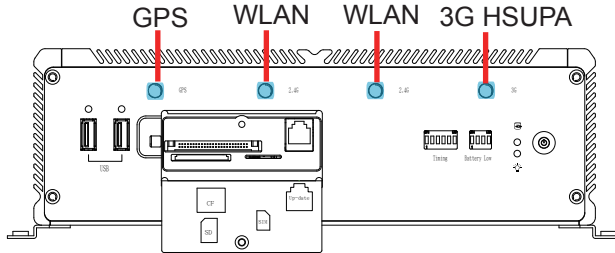
SWIS-5256



1.8.11 HSUPA, GPS, WLAN (optional)

Both SWIS-5256 & SWIS-5258 have four SMA type connectors on front panel used to connect external antennas. For SWIS-5256A and SWIS-5258A, we provide HSUPA, GPS, WLAN module.

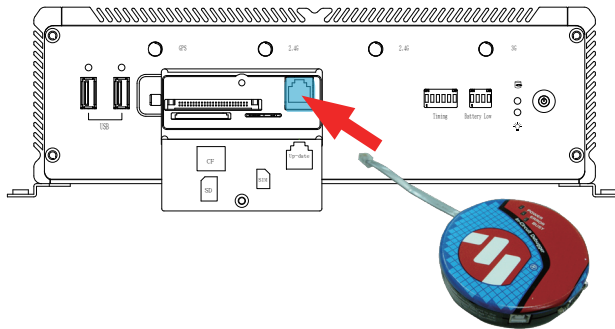
Front Panel



1.8.12 Update Slot

For in-circuit debugging, both SWIS-5256 & SWIS-5258 have one FW update port on front panel.

Front Panel



in-circuit debugging port

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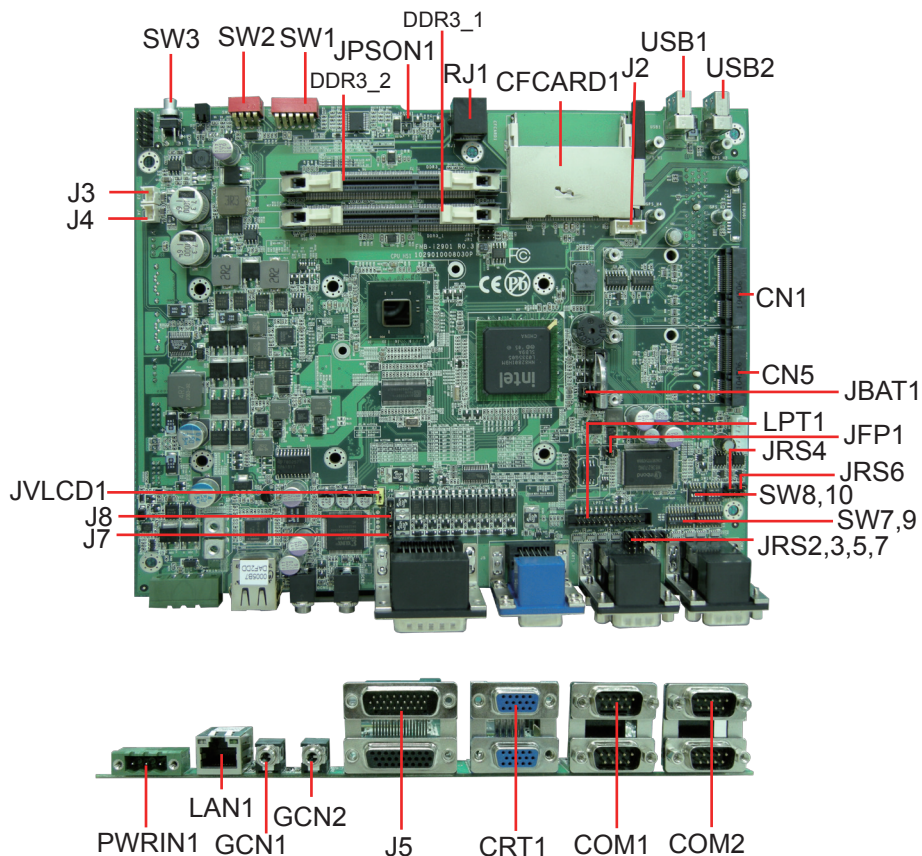
Chapter 2

The Engine of SWIS-5256

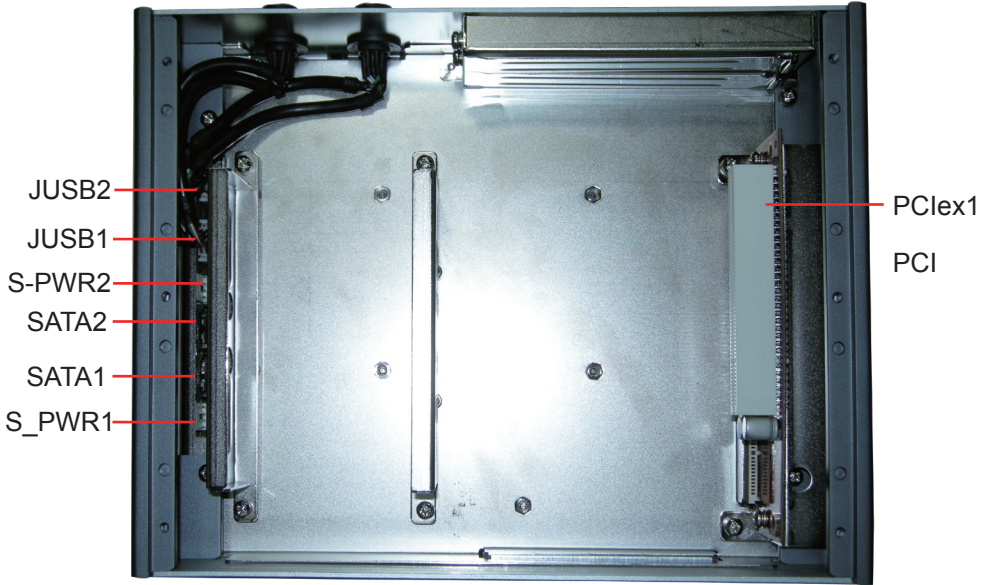
2.1 Board Layout

The engine of SWIS-5256 / SWIS-5258 is constructed by the combination of one PCBA board. Such a combination makes system customization feasible.

Main Board Top View



SWIS-5256 Bottom View



2.2 Jumpers and Connectors

2.2.1 Jumpers & Connectors List







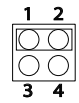
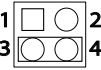

Jumpers

Label	Function
JBAT1	Clear CMOS Setup
JPSON1	Motherboard Power Switch
JVLCD1	LCD Power Switch
J3, 4	DC Out Connector +12V
J5	Stacked LVDS/GPIO Connector
J7, J8	Digital IO Power Mode Selection
JRS2, 3, 5, 7	COM1~4 RS-232 Ring In/12V Setup
JRS4, 6	COM3, 4 RS-232/422/485 Selection
SW8, 10	COM3,4 RS-232/422/485 Dip Switch
SW7, 9	COM3,4 RS-232/422&485 Dip Switch
JFP1	CF Card Mode Setup/Reset Button

Connectors




Label	Function
PWRIN1	Car DC Power Input
LAN1	Ethernet Connector
COM1~4	COM1, 2: RS-232 COM3, 4: RS-232/RS-422/RS-485
GCN1/2	Line-out/Mic-in Connector
CRT1	Stacked CRT Display Connector
SW1	Timing Switch Setup
SW2	Battery Switch Setup
SW3	Power ON/OFF Button
CFCARD1	CF Socket
DDR3_1, DDR3_2	204-pin dual-channel DDR3 SO-DIMM Slot
PCIE1	PCIe x1 Interface Slot
PCI1	PCI Slot
J2	GPS Module Connector
CN1	PCIe Mini Card 1 (WiFi Module)
CN5	PCIe Mini Card 2 (3.5G Mobile Module)
SD1	SD Card Reader
SIM1	SIM Card Connector
LPT	Parallel Port
S_PWR1, S_PWR2	SATA HDD/SSD Power Connector
USB1, 2	USB Connectors
SATA1, 2	Serial ATA Connectors
RJ1	Micro Controller Firmware Update Connector
JUSB1, 2	Water Proof USB Connectors

2.2.2 Jumper Setting

Label	Function	Jumper Settings
JBAT1	CMOS Setup	1-2: Keep CMOS (default) 
		2-3: Clear CMOS 
JVLCD1	LCD Power setup	1-2: +5V 
		2-3: +3.3V (default) 
J7, J8	Digital IO Power Setup	1-2: System 12V (default) 
		2-3: External Power 
JRS2, JRS3, JRS5, JRS7	COM1~4 RS-232 Ring In Setup	1-2: Ring In (default) 
		3-4: 12V 
JFP1	CF Card Mode Setup *CF don't support hot-plugging	3-4: CF SEL Short Master (default) 
	Reset Button	1-2: Reset System

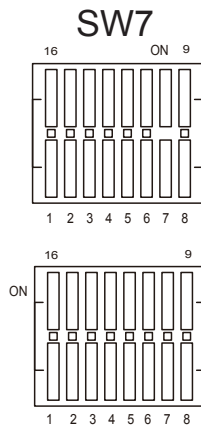
JRS4: COM3 RS-232/422/485 Selection

COM3 can be configured to operate in RS-232, RS-422 or RS-485 mode. Connector type: 2.00mm pitch 2x3-pin headers.

Mode	RS-232 (Default)	RS-422	RS-485
1-2	ON	OFF	OFF
3-4	OFF	ON	OFF
5-6	OFF	OFF	ON
			

SW7, 9 (COM3,4 RS-232/422/485 Mode Selection)




Pin	Mode	RS-232	RS-422/485
1-16		ON	OFF
2-15		ON	OFF
3-14		ON	OFF
4-13		ON	OFF
5-12		ON	OFF
6-11		ON	OFF
7-10		ON	OFF
8-9		ON	OFF



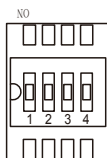
SW9

JRS6: COM4 RS-232/422/485 Selection

COM4 can be configured to operate in RS-232, RS-422 or RS-485 mode.
Connector type: 2.00mm pitch 2x3-pin headers.

Mode	RS-232 (Default)	RS-422	RS-485
1-2	ON	OFF	OFF
3-4	OFF	ON	OFF
5-6	OFF	OFF	ON
			

SW8, 10 (COM3, 4 RS-232/422/485 Mode Selection)



Mode	RS-232	RS-422	RS-485
Pin			
1-8	OFF	ON	OFF
2-7	OFF	ON	ON
3-6	OFF	ON	OFF
4-5	OFF	ON	ON

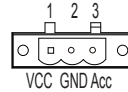
2.2.3 Pin Assignments for Connectors

PWRIN1 (Car DC Power Input)

Power Input Terminal Block Receptacle

Connector type: 3-pin terminal block

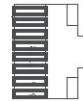
Pin	Description
1	VCC 6~32V
2	GND
3	ACC (ignition signal)



LAN1 (LAN Ports)

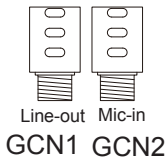
RJ-45 Connector with LED

Pin	Description	Pin	Description
1	MDI0+	8	MDI2-
2	MDI0-	9	MDI3+
3	MDI1+	10	MDI3-
4	MDI1-	11	LED Power
5	1.9V	12	ACT#
6	1.9V	13	1000#
7	MDI2+	14	100#



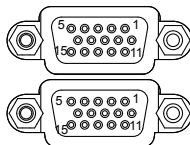
GCN1/2 (Audio Jack)

3.5mm phone jack



CRT1 (CRT Display Connector)

Three-row/15-pin VGA Connector/
Stacked Female Type DSUB15 connector



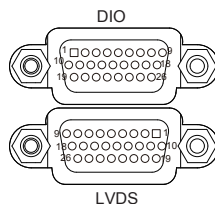
Pin	Description	Pin	Description	Pin	Description
1	RED	6	GND	11	N/C
2	GREEN	7	GND	12	DATA
3	BLUE	8	GND	13	HSYNC
4	N/C	9	VCC	14	VSYNC
5	GND	10	GND	15	DATACLK

J5 (LVDS+DIO Connector)

LVDS

Connector type: DB-26 female type connector

Pin	Description	Pin	Description
1	VCC	2	TX0CLK+
3	TX0CLK-	4	TX0+0
5	TX0-0	6	TX0+1
7	TX0-1	8	TX0+2
9	TX0-2	10	VCC
11	TX0+3	12	TX0-3
13	TX1CLK+	14	TX1CLK-
15	TX1+0	16	TX1-0
17	TX1+1	18	TX1-1
19	TX1+2	20	TX1-2
21	TX1+3	22	TX1-3
23	Inverter_Power	24	BLON
25	BKLT-CTL	26	GND



DIO

Connector type: DB-26 male type connector

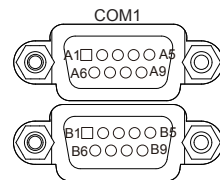
Pin	Description	Pin	Description
1	in1	2	in2
3	in3	4	in4
5	in5	6	in6
7	in7	8	in8
9	out1	10	out2
11	out3	12	out4
13	out5	14	out6
15	out7	16	out8
17	GND	18	GND
19	EXT_VSS	20	EXT_VSS
21	EXT_VDD	22	EXT_VDD
23	DIO_5V	24	DIO_5V
25	DIO_12V	26	DIO_12V

COM1/2

Stacked Male Type DSUB9 Connector
serial port 1 ~ 4

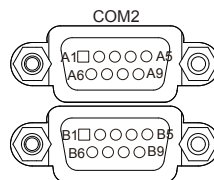
COM1

	Pin	Desc.	Pin	Desc.
COM2 (RS-232)	A1	DCD	A2	RXD
	A3	TXD	A4	DTR
	A5	GND	A6	DSR
	A7	RTS	A8	CTS
	A9	RI		
COM1 (RS-232)	B1	DCD	B2	RXD
	B3	TXD	B4	DTR
	B5	GND	B6	DSR
	B7	RTS	B8	CTS
	B9	RI		



COM2

	Pin	Desc.	Pin	Desc.
COM4 (RS-232/422/485)	A1	DCD	A2	RXD
	A3	TXD	A4	DTR
	A5	GND	A6	DSR
	A7	RTS	A8	CTS
	A9	RI		
COM3 (RS-232/422/485)	B1	DCD	B2	RXD
	B3	TXD	B4	DTR
	B5	GND	B6	DSR
	B7	RTS	B8	CTS
	B9	RI		



SW1: System On/Off Timing Setting Jumper

Pin	DIP SW Auto car key on detection	Description
1	On, Off (default)	Power ON
2	On, Off (default)	Power OFF
3 & 4	On, Off (default)	Power on waiting time--setup timing (00-4s)(01-8s)(10-12s)(11-16s)
5 & 6	On, Off (default)	Power off waiting time--setup timing (00-30s)(01-45s)(10-60s)(11-90s)



SW2: Battery Low Setting Jumper

Pin	Battery Low	Description
1	On, Off (default)	for BUS Battery (24V)
2	On (default), Off	for CAR Battery (12V)
3	On, Off (default)	for normally used (9V above)
4	On, Off (default)	for car engine ignited detection



LPT1 (Parallel Port)

On-board Parallel Port Connector

Connector type: 2.00mm pitch

2 x13-pin box header

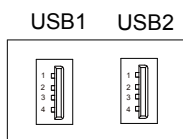


Pin	Description	Pin	Description
1	XP_STB#	14	P_AFD#
2	XP_D0	15	P_ERR#
3	XP_D1	16	P_INIT#
4	XP_D2	17	P_SLIN#
5	XP_D3	18	GND
6	XP_D4	19	GND
7	XP_D5	20	GND
8	XP_D6	21	GND
9	XP_D7	22	GND
10	P_ACK#	23	GND
11	P_BUSY	24	GND
12	P_PE	25	GND
13	P_SLCT	26	GND

USB1/2 (USB Ports)

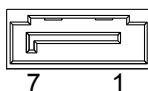
Front Panel type A connectors

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

**SATA1/2 (Serial ATA Connectors)**

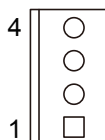
On-board Serial ATA Connector

Pin	Description
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

**CFCARD1 (CF Socket)****S_PWR1/2 (SATA HDD/SSD Power Connectors)**

Onboard SATA HDD/SSD Power Connector

Pin	Description
1	SATA_PWR
2	GND
3	GND
4	12V





Chapter 3

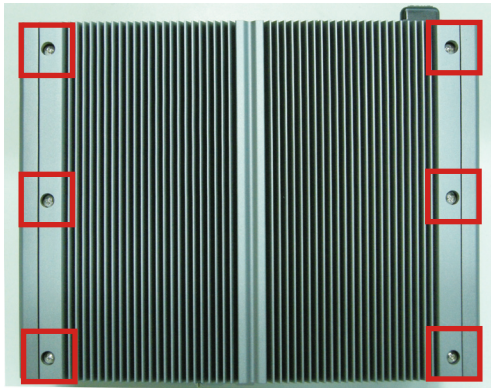
Installation and Maintenance

3.1 Memory Module Installation

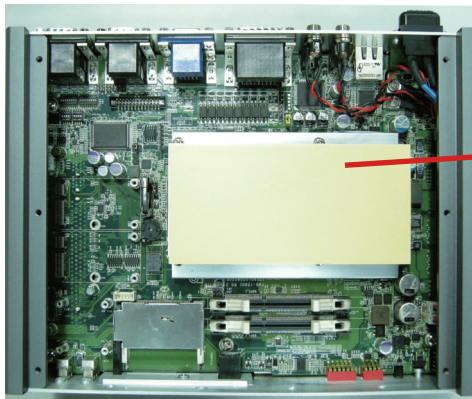
SWIS-5256 /SWIS-5258 is designed to be modular, slim and lightweight for easier maintenance. The following sections describe simple hardware installations.

3.1.1 Removing Top Cover

1. Locate the six screws which secure the top cover.



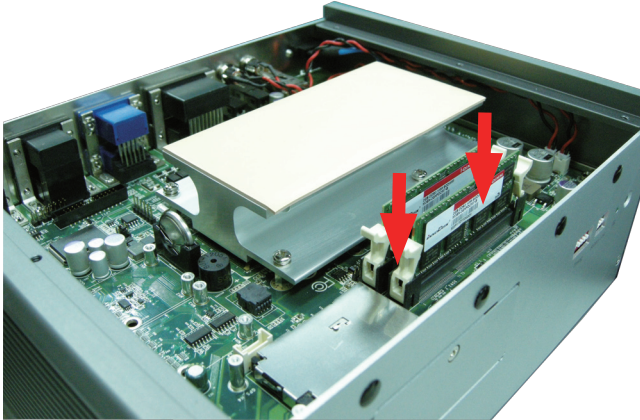
2. Use a screwdriver to remove the top cover screws. First unscrew the four screws in each corner, and then the two screws in the middle of the two sides. Keep the screws safely for later use.
3. Lightly pull the top cover upwards.



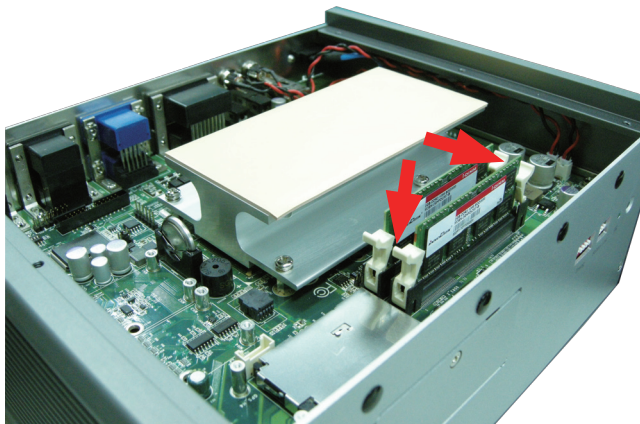
Thermal Lump
of PCH & CPU

3.1.2 Installing Memory Module

1. Locate the 204-pin SO-DIMM slots and press down clips at sides.
2. Align the SO-DIMM on the slot and let the notch on the SO-DIMM meet the break on the slot.
3. Hold the SO-DIMM with both hands, and gently insert the SO-DIMM into the slot until the clips of the SO-DIMM slot lock the memory module in place.



4. To remove the memory module, just press down the clips of the SO-DIMM slot with your hands. And then the memory module will be lifted up for removing.

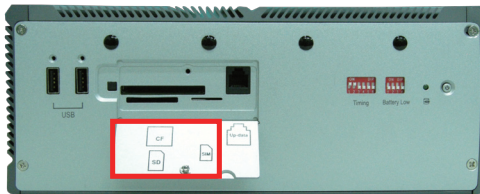


3.2 How to Access CF/SIM/SD Card

1. Make sure you have turned off the power before inserting or ejecting the CFcard (if your OS is installed on CFcard).
2. Locate the CF card door on the front panel.
3. Use a crosshead screwdriver (#1 tip) to remove the screw that secures the CF card door. Pull down the door.



4. Insert your CF/SIM/SD card into the slot according to the illustration close to the correct card holder.



5. After inserting the CF/SIM/SD card, close the card door and screw it on clockwise.

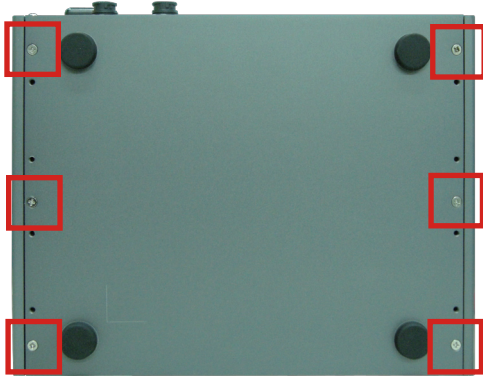


6. To remove the CF/SIM/SD card, follow steps 1, 2 and 3 above. And then press the ejection button inwards to pop up the CF card. Push SIM/SD card inwards to pop it out from the corresponding slot.

3.3 Hard Disk Drive and PCIe Card Installation

3.3.1 Removing Bottom Cover

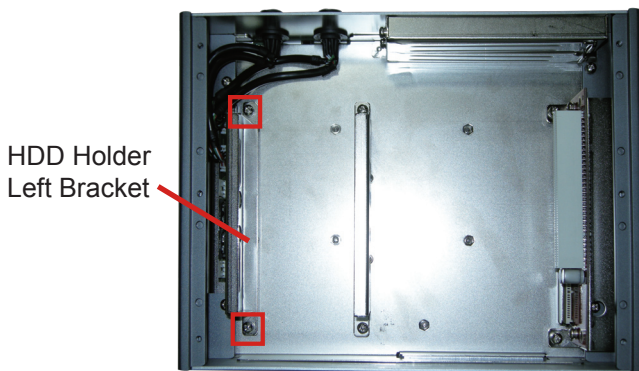
1. Place the Box PC upside down.



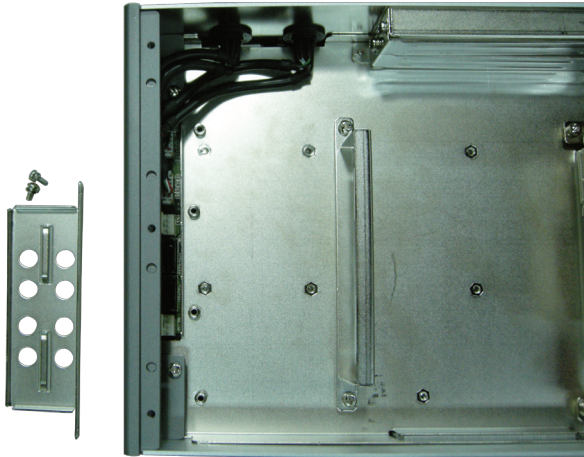
2. Use screwdriver to remove the bottom cover screws and keep them safely for later use.

3.3.2 Installing Hard Disk Drive

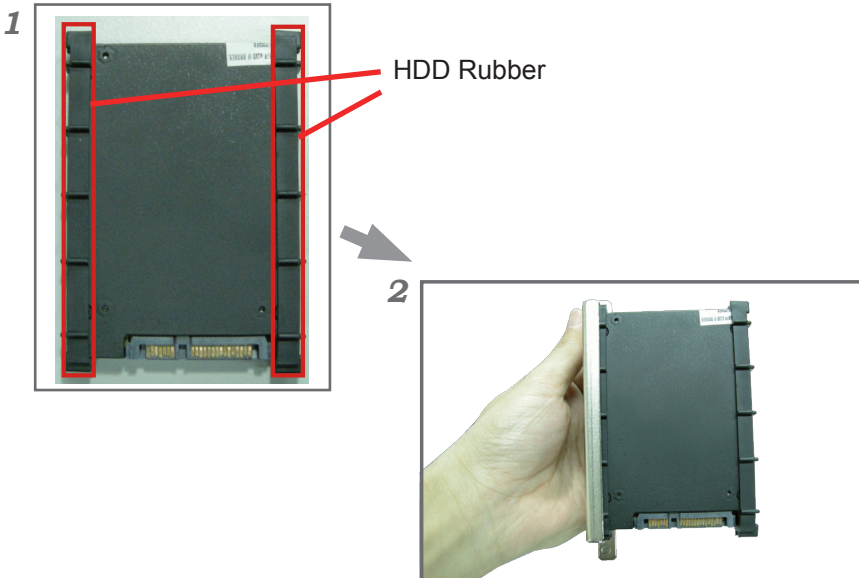
1. Remove the Bottom Cover.
2. Locate the two screws securing the HDD Holder Left Bracket to the main unit.



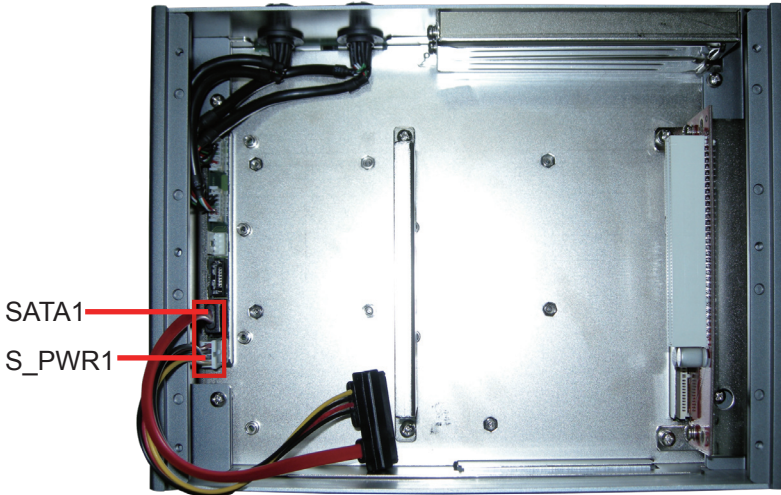
3. Unscrew the screws and remove the HDD Holder Left Bracket. Keep the screws safely for later use.



4. Put the HDD into the HDD Rubber and Insert HDD into HDD Holder Bracket.

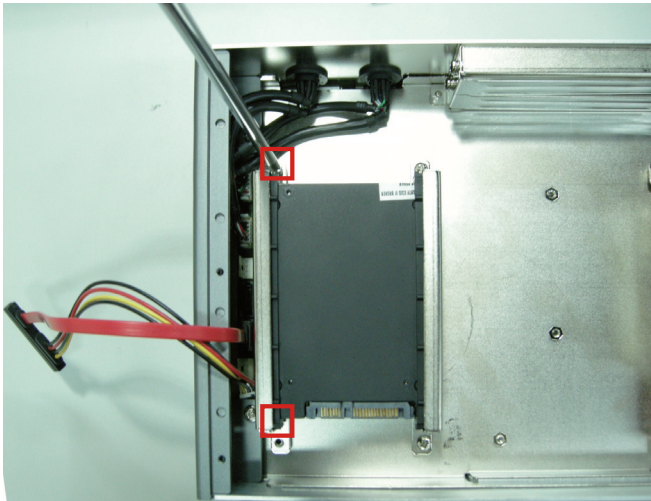


5. Insert HDD adapter into the SATA1 and S_PWR1 or SATA2 and S-PWR2 connectors.

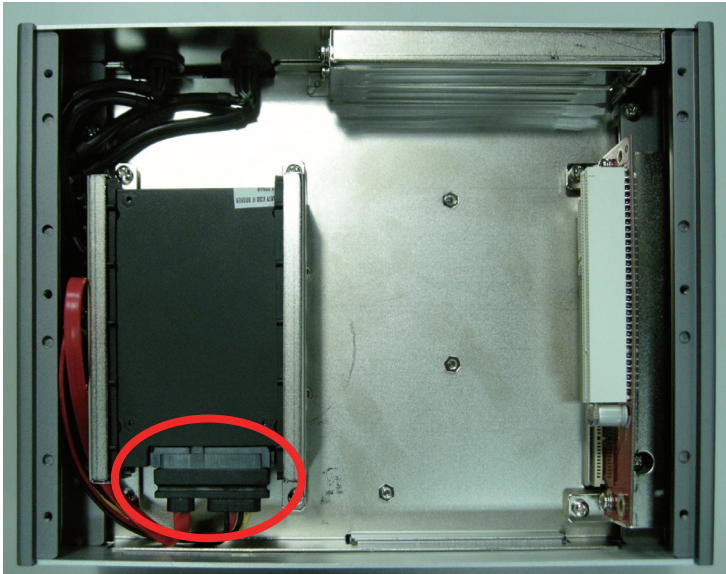


6. Locate the two screws securing the HDD Holder Left Bracket to the main unit.

7. Screw the HDD Holder Left Bracket onto the Main Unit.

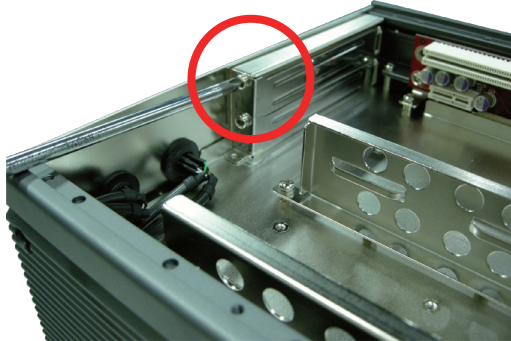


8. Plug HDD adapter into the HDD connector.

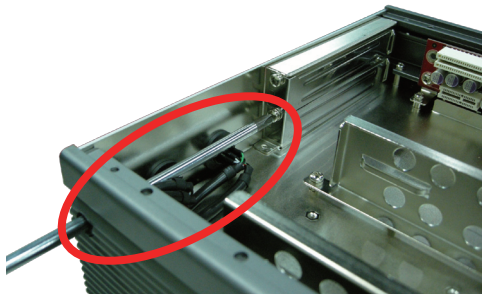
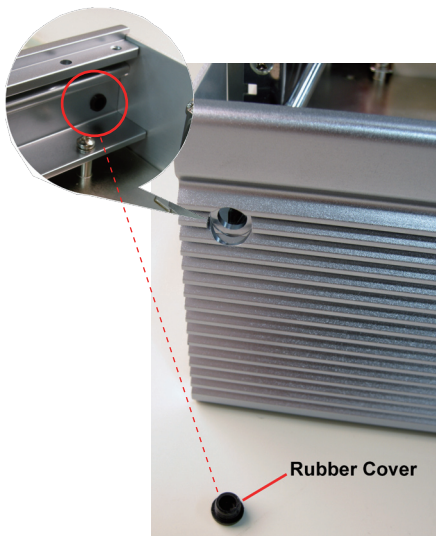


3.3.3 Installing PCIe Card

1. Use a crosshead screwdriver to loose the screws that secure the expansion slot bracket. So that you can install a PCIe card to this expansion slot.

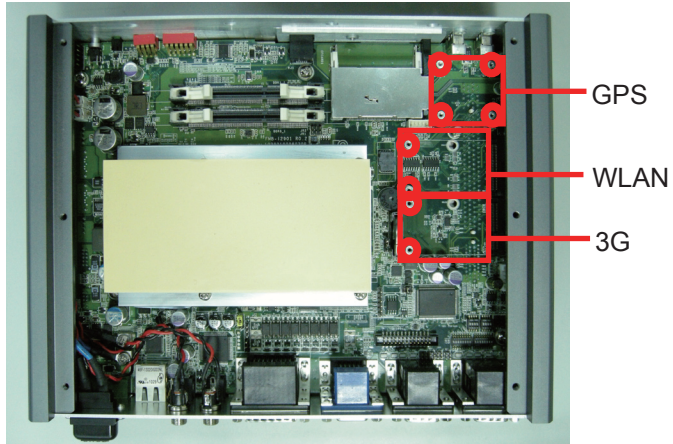


2. If you want to install the PCIe card onto the lower slot, please push the rubber cover out of the unit and, through the hole, use the screwdriver to loose the screw securing the lower expansion slot bracket.

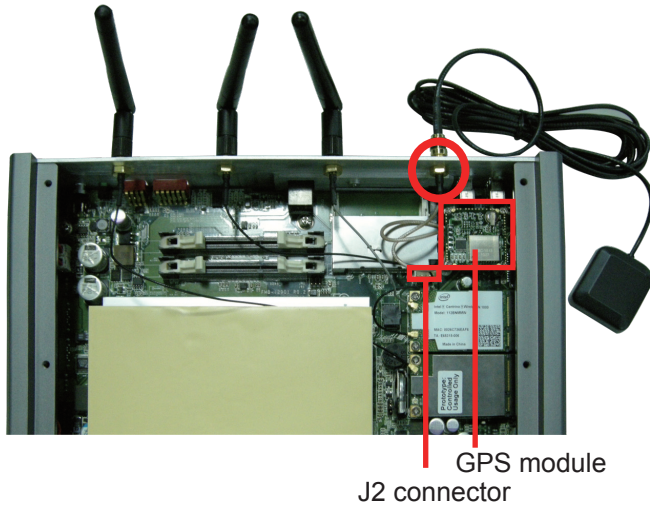


3.4 Installing GPS, WLAN, 3G Modules (Optional)

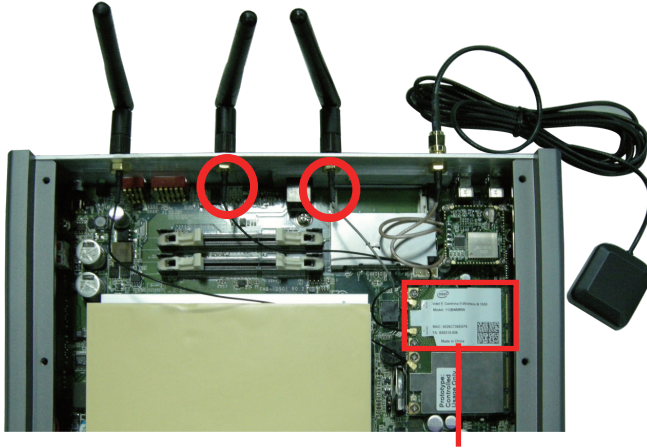
1. Locate the four columns on the mainboard to secure the GPS card. And then screw the GPS card onto the mainboard.



2. Connect the two cables on GPS card to the main unit; one to the J2 connector on mainboard, and the other to the GPS connector on front panel.

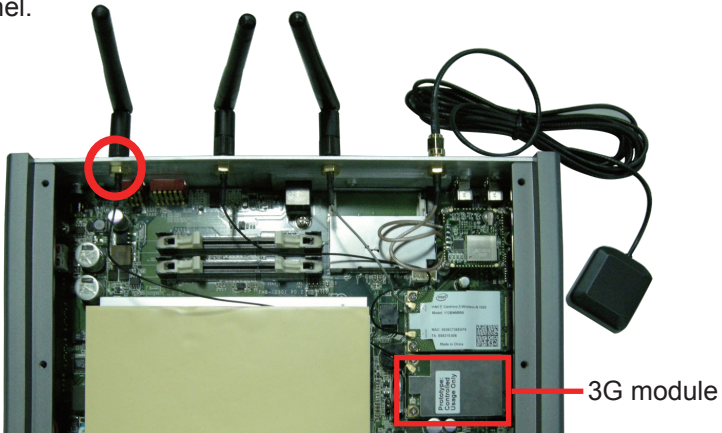


3. Locate the two columns on the mainboard to secure the WLAN card. And then screw the WLAN card onto the mainboard.
4. Connect the two cables on WLAN card to the WLAN connectors on front panel.



WLAN module

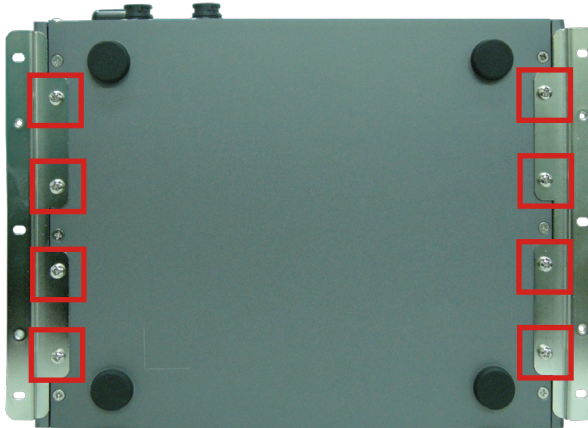
5. Locate the two columns on the mainboard to secure the 3G card. And then screw the 3G card onto the mainboard.
6. Connect the cable (MAIN, not AUX) on 3G card to the 3G connectors on front panel.



3G module

3.5 Wall Mounting (Optional)

1. Place the main unit upside down on a flat surface and locate the 8 screw holes on the bottom cover.
2. Place the wall-mount brackets horizontally along with bottom cover so that the screw holes are aligned with the corresponding ones on the bottom cover.
3. Secure the brackets to the main unit with the corresponding screws.

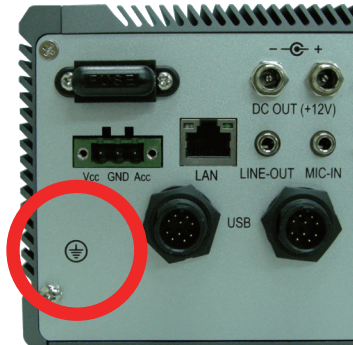


3.6 Grounding the Box PC

Follow the instructions below to ground the box PC onto the ground. Make sure of following any grounding requirements in your place.



Warning Whenever installing the unit, the ground connection must always be made first of all and disconnected lastly.



1. As the figure illustrates above, remove the ground screw located on the bottom-left of the rear panel.
2. Attach the ground wire to the rear panel with the screw.

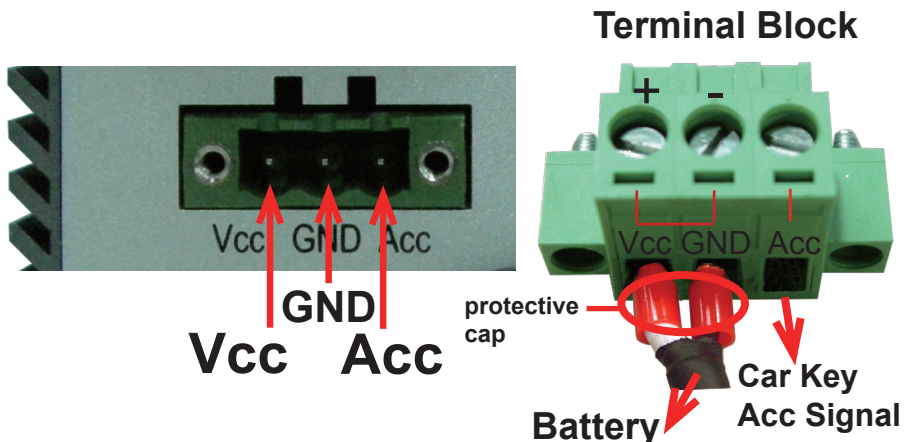
3.7 Wiring the DC-Input Power Source



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

Follow the instructions below for connecting the box PC to a DC-input power source.

1. Before wiring up, make sure the power source is disconnected.
2. Locate the terminal block packaged in the accessory box with your computer.
3. Using the wire-stripping tool to strip a short piece of insulation from the output wires of the DC power source. The wire gauge must be in the range between 14-16 AWG.
4. Identify the positive and negative feed positions for the terminal block connection. Read the symbols printed on the rear panel indicating the polarities and DC-input power range in voltage.
5. Insert the stripped wires into the terminal block plugs. Only wires with insulation part can be exposed in air. 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, which is wired, into the receptacle on the rear panel firmly.



Chapter 4

Driver & AP

4.1 Preliminary work

After everything mentioned before is settled down, and now, you need to install the necessary drivers and the application so that the box PC's functions can operate normally. The following instructions take Windows 7 as the exemplary OS. Different OS may vary slightly, but in the main, they are almost the same. Be assured that appropriate installation process is as below:

CHIPSET→**VGA**→**AUDIO**→**LAN**→**WLAN**→**3G**→**SD card (default in Windows 7)**

Please **Follow This Procedure** to install all necessary units in most cases, or you may encounter errors.

Also, the correct driver & AP paths for Windows 7 & Windows XP are listed below. You should follow the suggested paths to proceed with installation.

Windows XP

Driver & AP	Path
CHIPSET	\CHIPSET\intel
VGA	\VGA\GRAPHICS\Winxp_6.14.10.5182
AUDIO	\LAN\ETHERNET\INTEL
LAN	\Audio\REALTEK_HD\WDM_R235
WLAN	\WLAN\Atheros\XP_Vista_Win7_V9.2.0.310
3G	\3G\Gobi3000_Build2810\Drivers
SD card	\SD card\GL2400

Windows 7

Driver & AP	Path
CHIPSET	\CHIPSET\intel
VGA	\VGA\GRAPHICS
AUDIO	\LAN\ETHERNET\INTEL
LAN	\Audio\REALTEK_HD\WDM_R252
WLAN	\WLAN\Atheros\XP_Vista_Win7_V9.2.0.310
3G	\3G\Gobi3000_Build2810\Drivers

Note:

SD card is already covered in Windows 7.

4.2 Drivers

4.2.1 CHIPSET

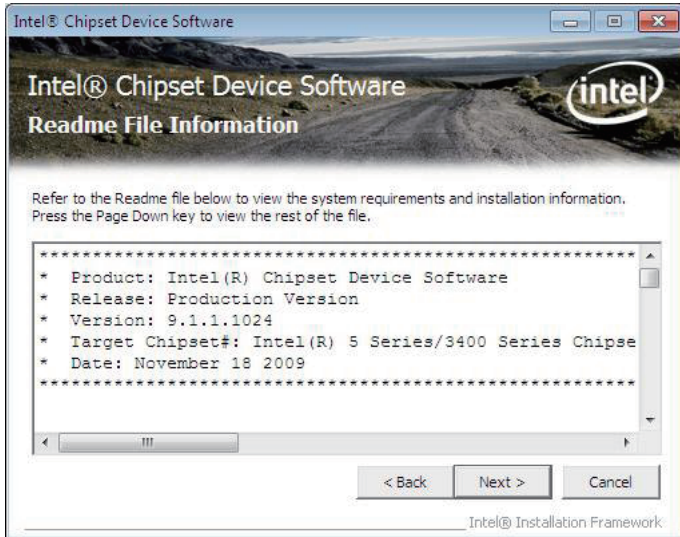
1. Open “Setup.exe” in the suggested path (\CHIPSET\intel).



2. Click “Next >”.



3. Chose “Yes”.



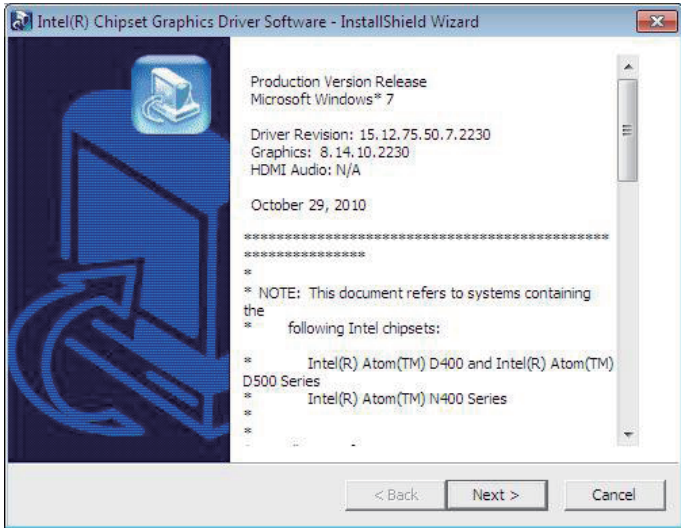
4. Click "Next >".



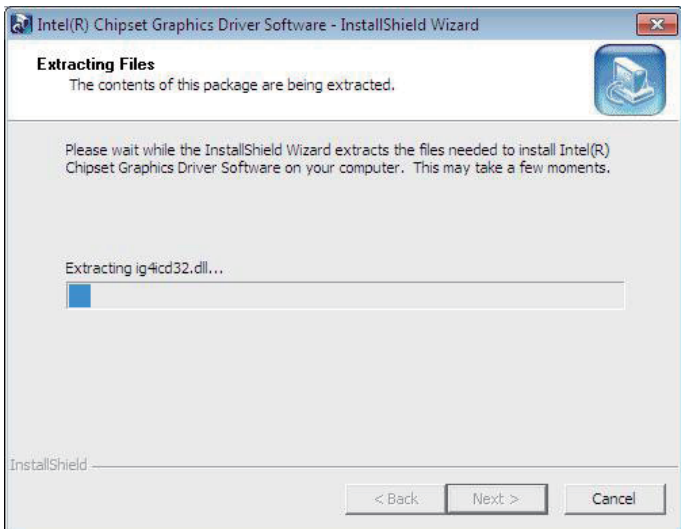
5. Click "Finish".

4.2.2 VGA

1. Open “Intel GMA3150 (Win7).exe” in the suggested path (\\VGA\ GRAPHICS).



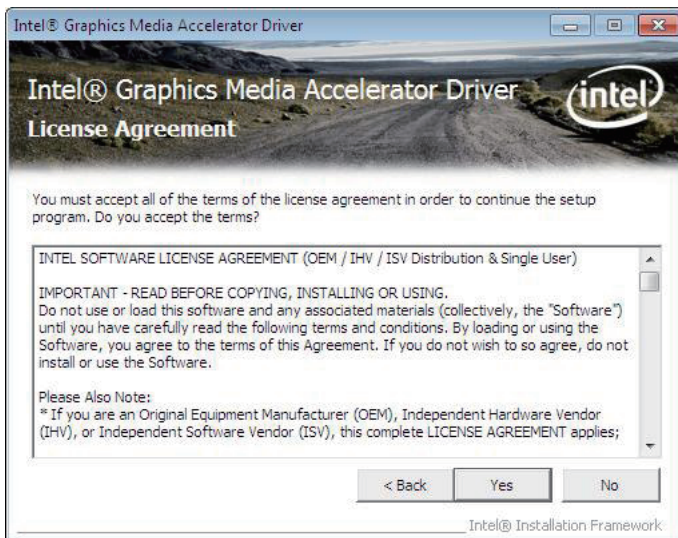
2. Click “Next >”.



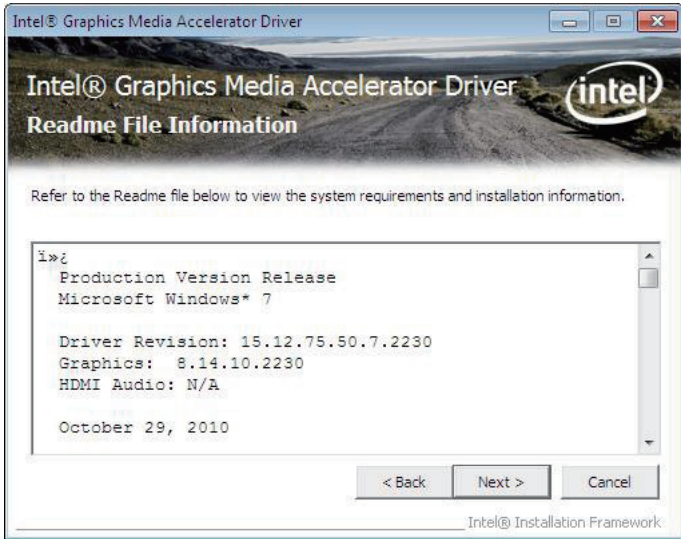
3. Wait for extracting files.



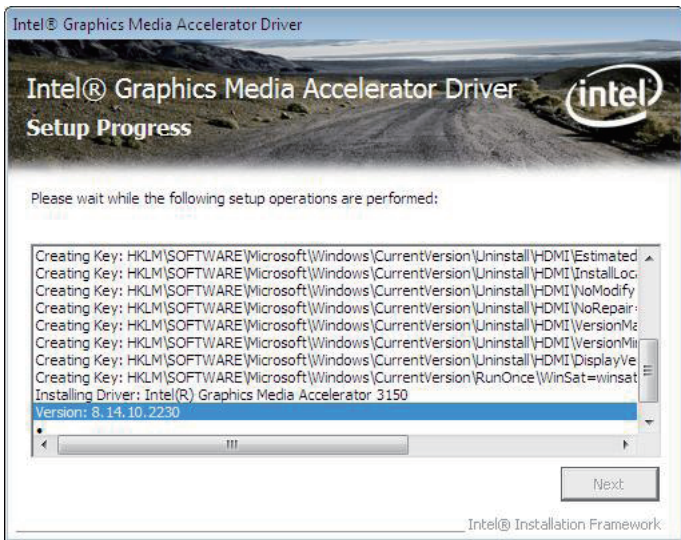
4. Click "Next >".



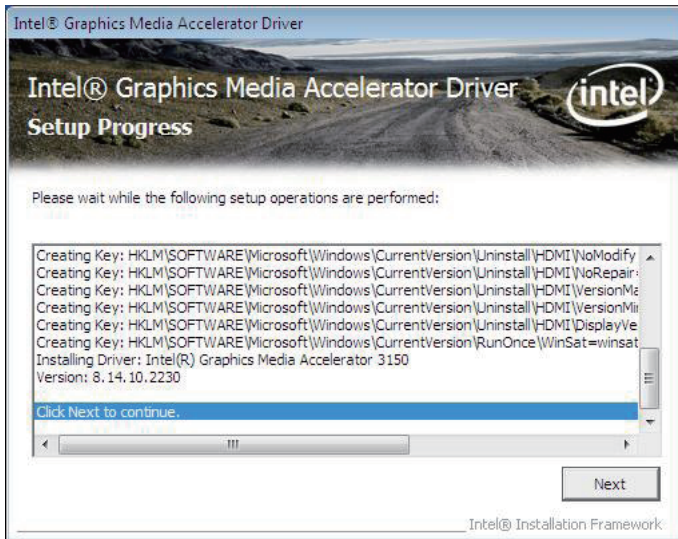
5. Click "Yes".



6. Click "Next >".



7. Wait for the process.



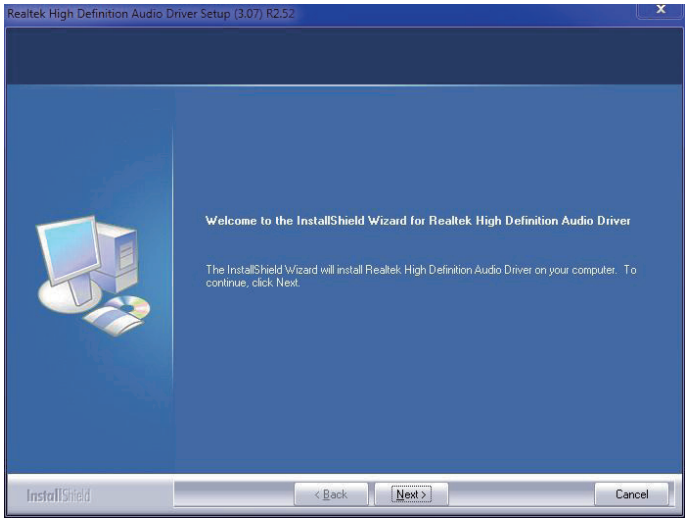
8. Click “Next”.



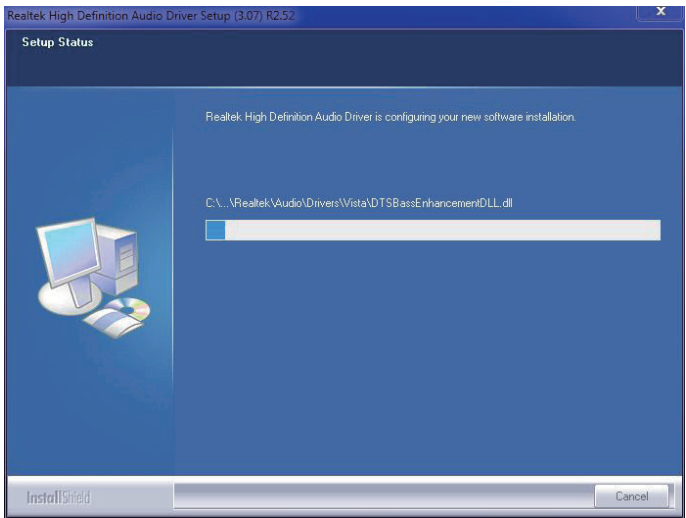
9. Choose “Yes, I want to restart the computer now.” and click “Finish” to complete installation.

4.2.3 Audio

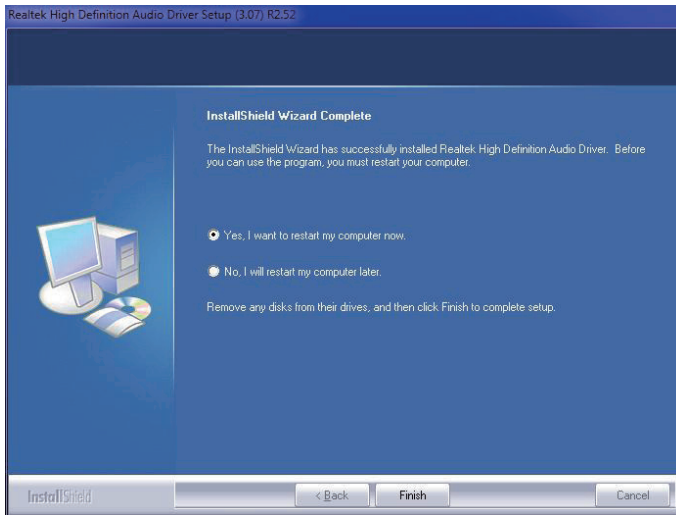
1. Open “Setup.exe” in the suggested path (\\Audio\\REALTEK_HD\\WDM_R252).



2. Click “Next”.



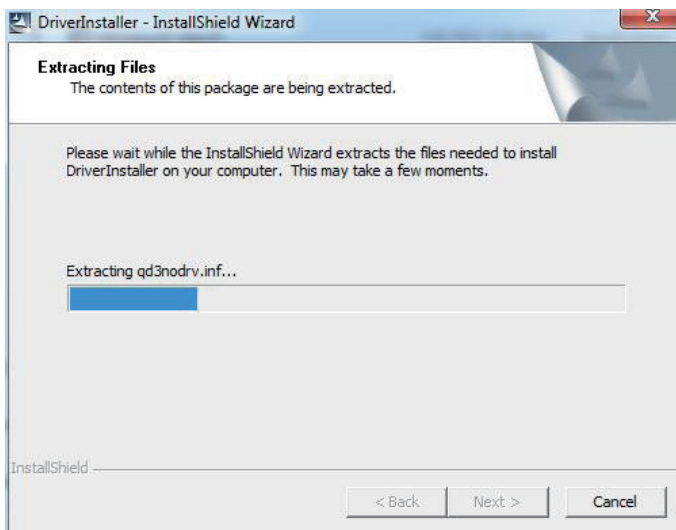
3. Wait for the process.



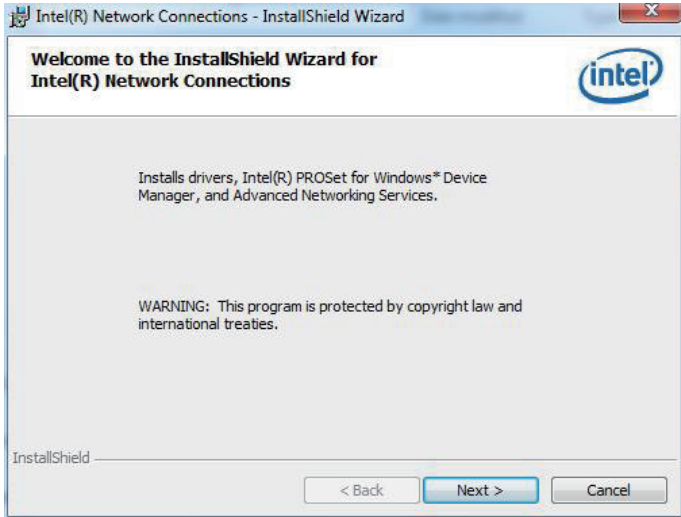
4. Click “Yes, I want to restart my computer now” to complete the installation.

4.2.4 LAN

1. Open “PROWin32(Win7).exe” in the suggested path (\\LAN\ETHERNET\INTEL).



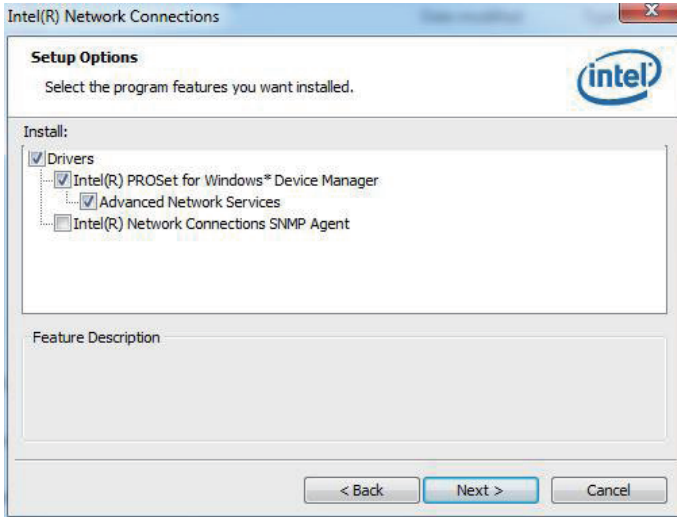
2. Wait for extracting files.



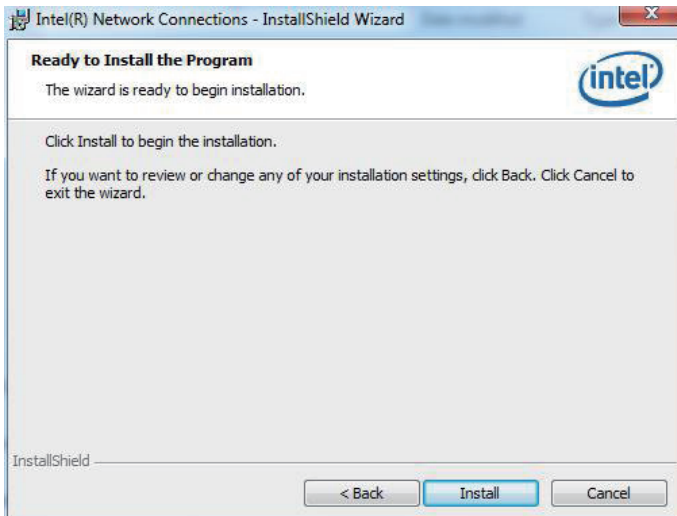
3. Click “Next >”.



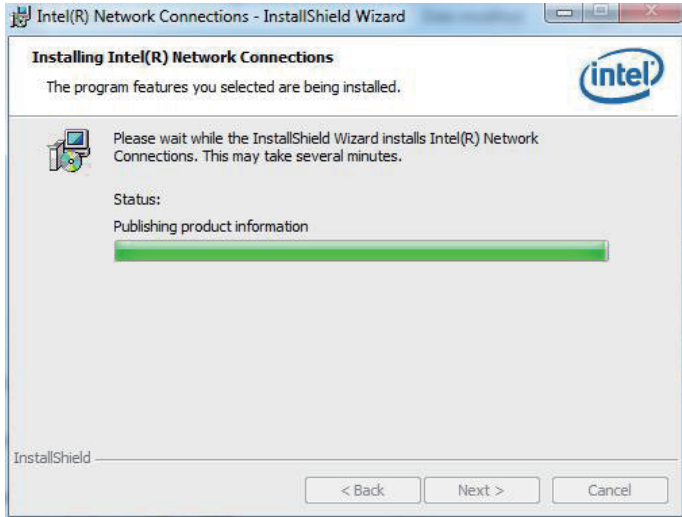
4. Choose “I accept the terms in the license agreement” and click “Next >”.



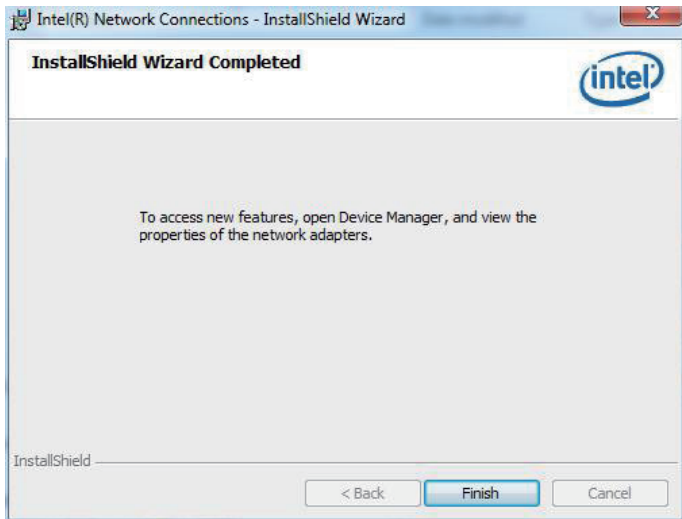
5. Click "Next >".



6. Click "Install".



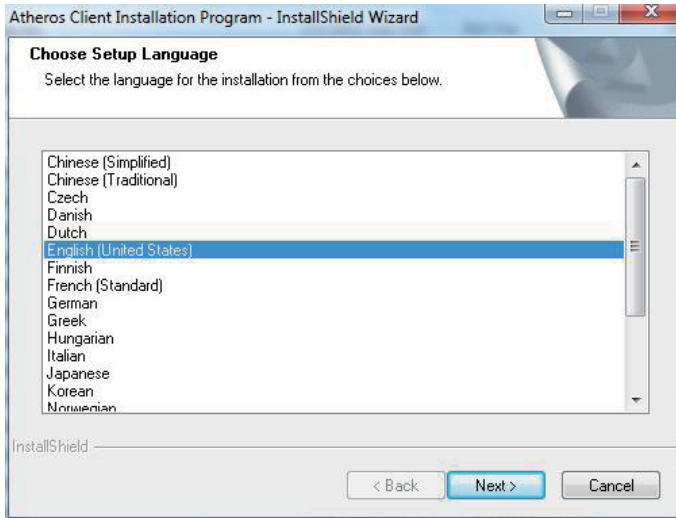
7. Wait for the process.



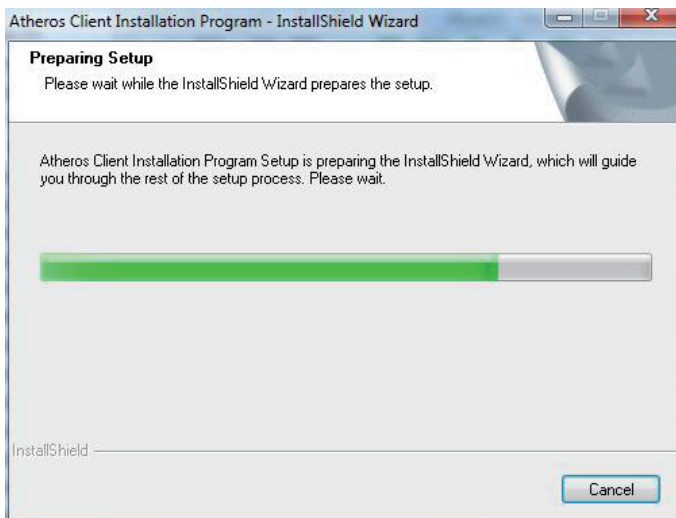
8. Click "Finish".

4.2.5 WLAN

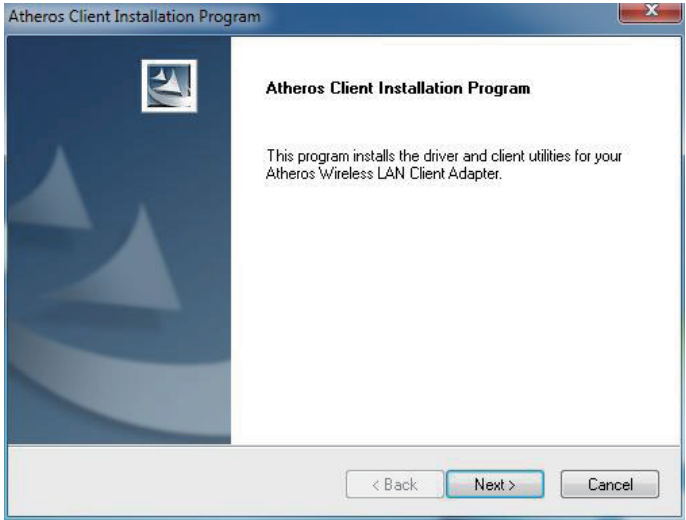
1. Open "Setup.exe" in the suggested path (\\Atheros\XP_Vista_Win7_V9.2.0.310).



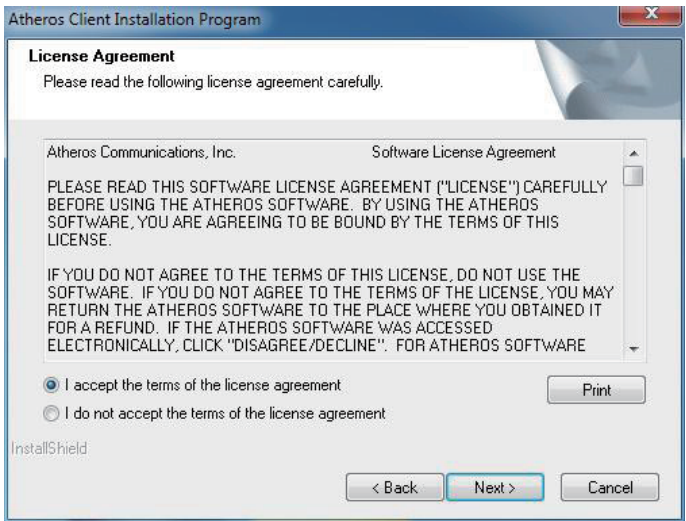
2. Select preferred language.



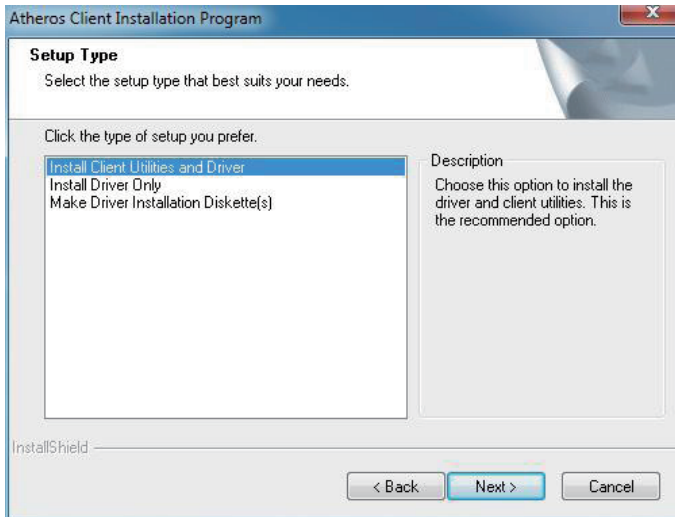
3. Wait for the process.



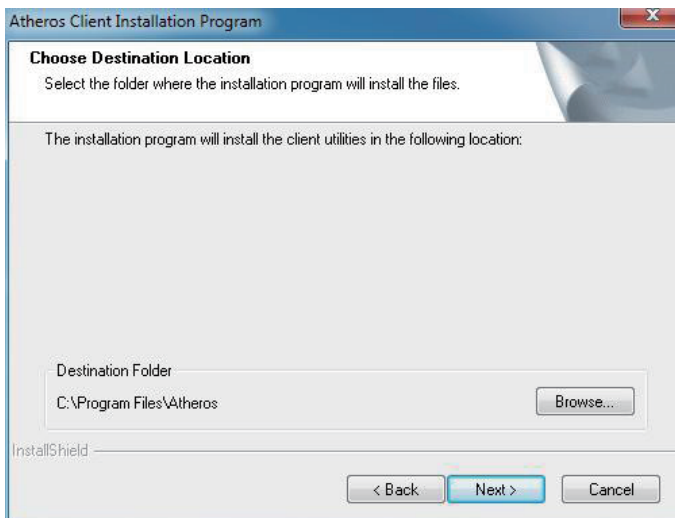
4. Click “Next >”.



5. Choose “I accept the terms of the license agreement” and click “Next >”.



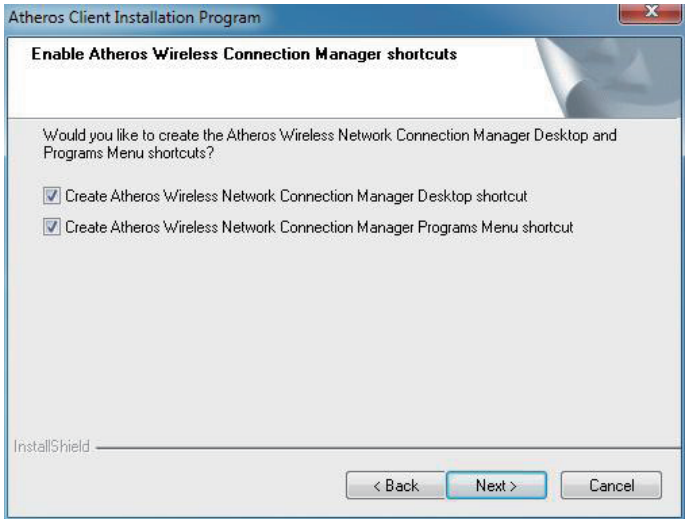
6. Select preferred type and Click “Next >”.



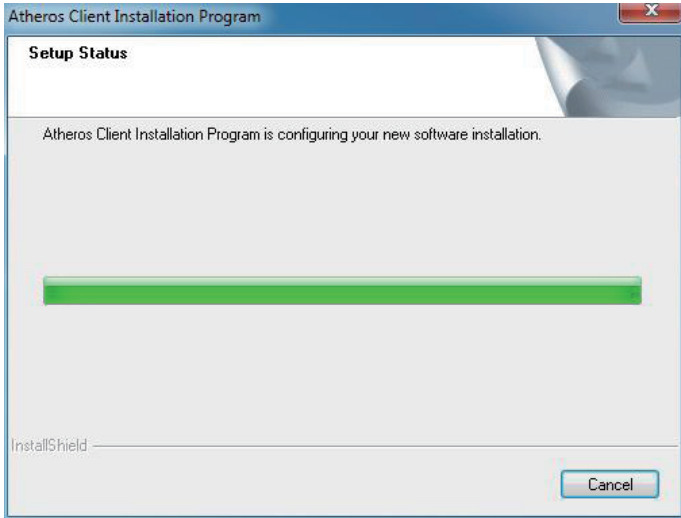
7. Click “Next >”.



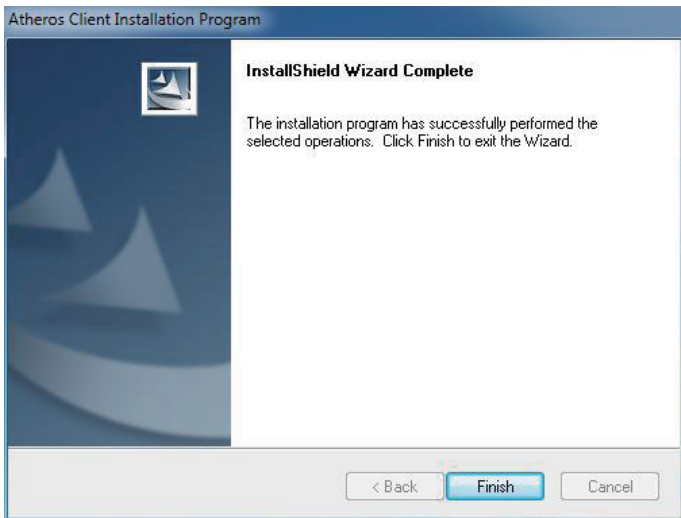
8. Click "Next >".



9. Click "Next >" to create shortcuts.



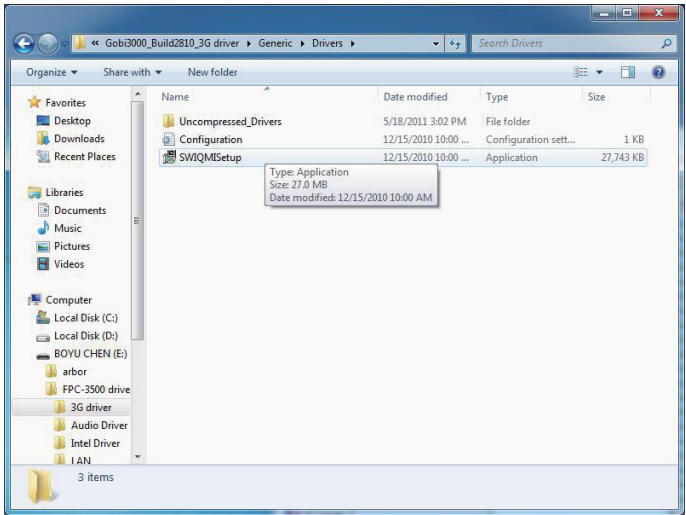
10. Wait for the process.



11. Click "Finish" to complete all process.

4.2.6 3G Driver

Execute “SWIQMSetup.exe” in the suggested path (\3G\Gobi3000_Build2810\Drivers).



4.2.7 Application

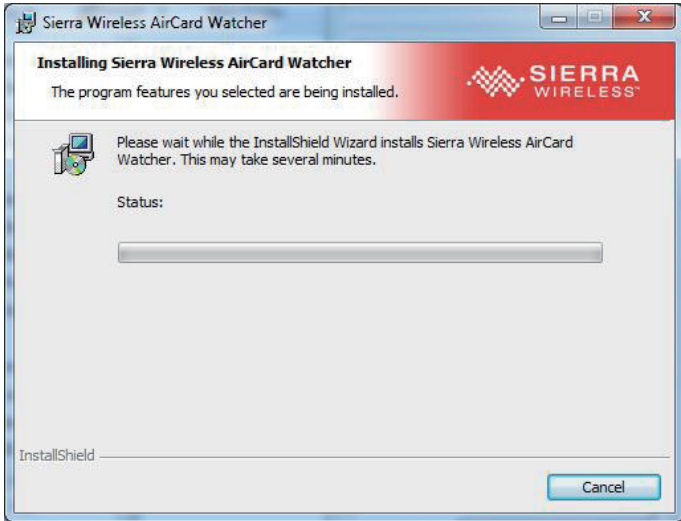
A 3G application named AirCard Watcher is contained in this driver CD, too. You may also install your own 3G application and skip this section directly. AirCard Watcher is an intuitive software that easily connects you to the Internet and keeps you well-informed of your connection status. To use this program, you must install 3G module first of all. Please execute “Watcher_Generic.msi” in the suggested path: \3G\Gobi3000_Build2810_AP\AP\GOBI3K Watcher\Watcher_GobiAnywhere_B2964



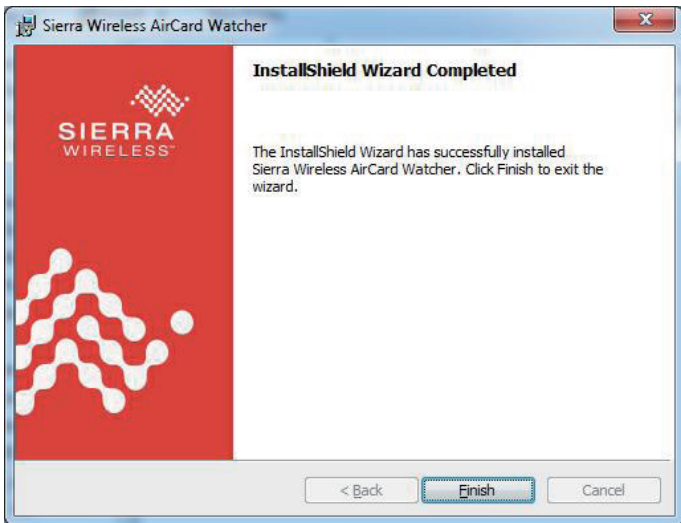
1. Click “Next”.



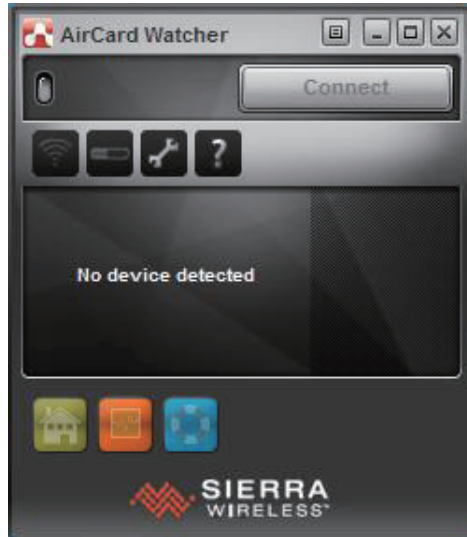
2. Choose “I accept the terms in the license agreement” and click “Next”.



3. Wait for the process.



4. Click "Finish" to complete all process.



5. Click the shortcut (Air-Card Watcher) on desktop to open up the application.



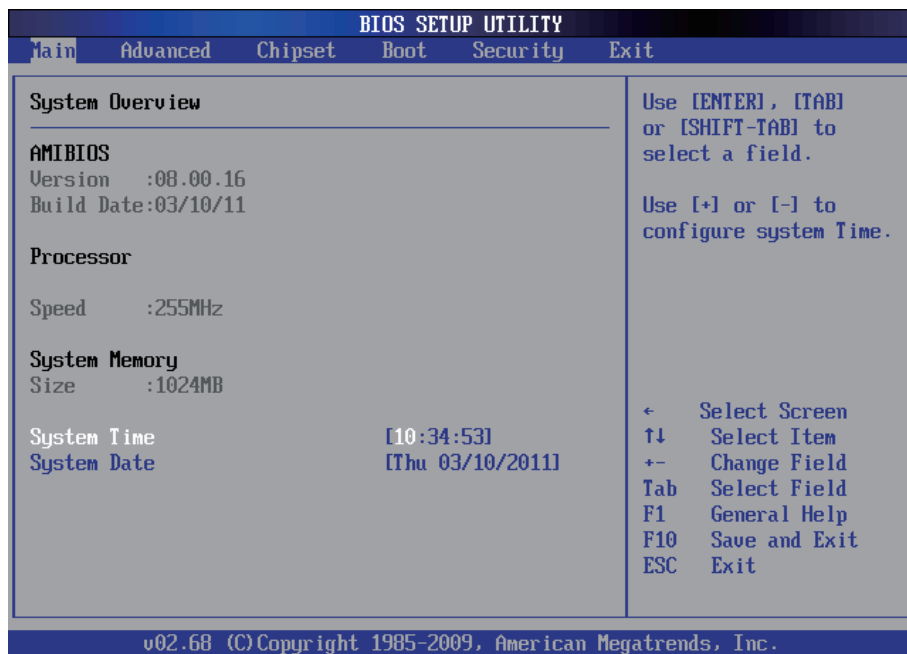
Chapter 5

BIOS

5.1 BIOS Main Setup

The AMI BIOS provides a setup utility program for specifying the system configurations and settings which are stored in the BIOS ROM of the system. When you turn on the computer, the AMI BIOS is immediately activated. After you enter the setup utility, use the left/right arrow keys to highlight a particular configuration screen from the top menu bar or use the down arrow key to access and configure the information below.

NOTE: In order to increase system stability and performance, our engineering staff are constantly improving the BIOS menu. The BIOS setup screens and descriptions illustrated in this manual are for your reference only, and may not completely match what you see on your screen.



System Overview

Display the BIOS, processor and system memory information.

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 : 1999 to 2099

System Time

Set the system time.

The time format is: **Hour** : 00 to 23
 Minute : 00 to 59
 Second : 00 to 59

5.2 Advanced Settings

The screenshot shows the BIOS Setup Utility interface. At the top, the title bar reads "BIOS SETUP UTILITY". Below it, a navigation bar contains the following tabs: "Main", "Advanced" (which is currently selected), "Chipset", "Boot", "Security", and "Exit". The main display area is divided into two columns. The left column is titled "Advanced Settings" and contains a warning message: "WARNING: Setting wrong values in below sections may cause system to malfunction." Below the warning, there is a list of menu items, each preceded by a right-pointing arrow: "CPU Configuration", "IDE Configuration", "SuperIO Configuration", "Hardware Health Configuration", "ACPI Configuration", and "USB Configuration". The right column is titled "Configure CPU." and contains a list of keyboard shortcuts: "← Select Screen", "↑↓ Select Item", "Enter Go to Sub Screen", "F1 General Help", "F10 Save and Exit", and "ESC Exit". At the bottom of the screen, a footer bar displays the text "v02.68 (C) Copyright 1985-2009, American Megatrends, Inc."

CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.

IDE Configuration

This section is used to configure the IDE drives.

Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.

Hardware Health Configuration

This section is used to configure the hardware monitoring events, such as temperature, fan speed and voltages.

ACPI Configuration

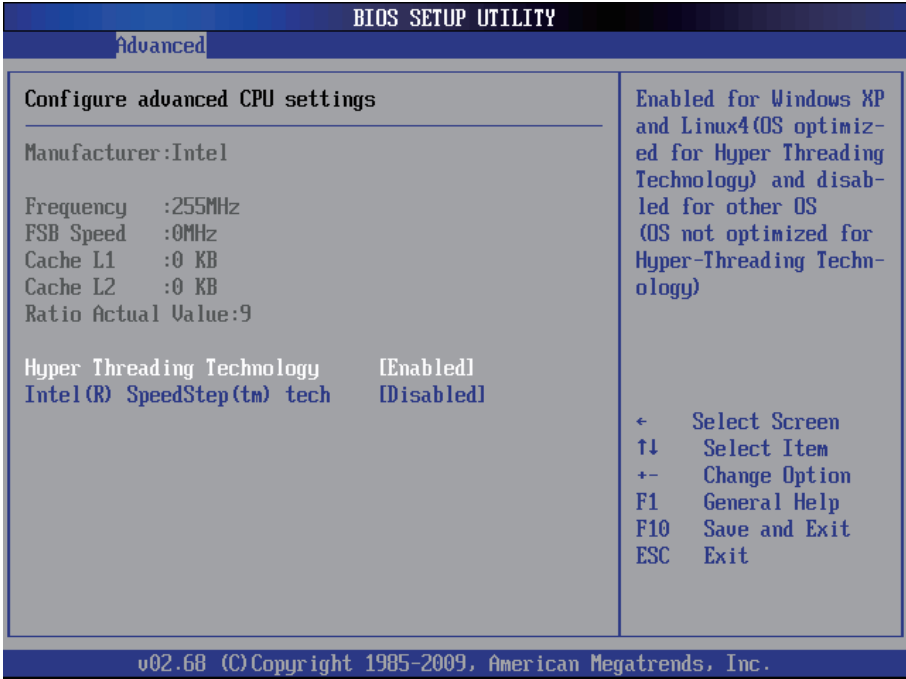
Enable/disable the Advanced Configuration and Power Interface (ACPI).

USB Configuration

Configure the USB devices.

5.2.1 CPU Configuration

The CPU Configuration setup screen varies depending on the installed processor.



Hyper-threading

This item is used to enable or disable the processor’s Hyper-threading feature.

Enabled for Windows XP and Linux (OS optimized for Hyper-threading Technology) and disabled for other OS (OS not optimized for Hyper-threading Technology).

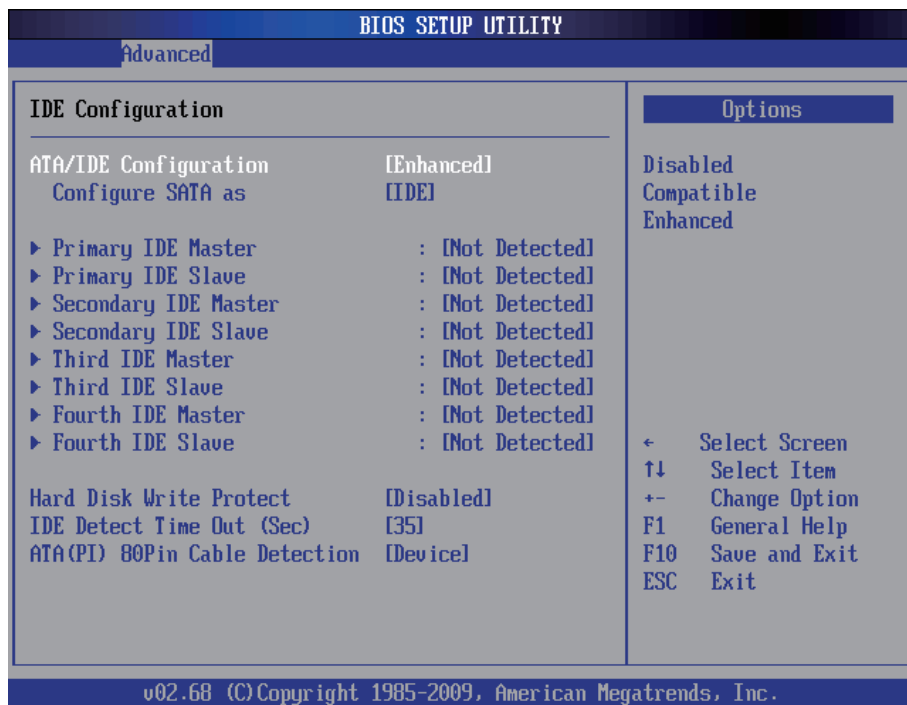
When disabled, only one thread per enabled core is enabled.

Intel(R) SpeedStep(tm) tech

This item allows you to enable SpeedStep technology for better power saving.

The choice: Enabled (Default) / Disabled

5.2.2 IDE Configuration



ATA/IDE Configuration

Enable - Enable IDE configuration.

Disabled - Disable IDE configuration.

Configure SATA as IDE

This BIOS feature controls the SATA controller's operating mode.

There are two available modes - IDE and RAID. When set to:

RAID - the SATA controller **enables** its RAID and AHCI functions when the computer boots up.

IDE - the SATA controller **disables** its RAID and AHCI functions when the computer boots up.

Primary/Secondary/Third/Fourth IDE Master/Slave

Select one of the hard disk drives to configure it. Press <Enter> to access its the sub menu.

5.2.3 Super IO Configuration

BIOS SETUP UTILITY	
Advanced	
Configure Win627UHG Super IO Chipset	
Serial Port1 Address	[3F8]
Serial Port1 IRQ	[4]
Serial Port2 Address	[2F8]
Serial Port2 IRQ	[3]
Serial Port3 Address	[3E8]
Serial Port3 IRQ	[10]
Serial Port4 Address	[2E8]
Serial Port4 IRQ	[10]
Serial Port5 Address	[3E0]
Serial Port5 IRQ	[11]
Parallel Port Address	[Disabled]
Allows BIOS to Select Serial Port1 Base Addresses.	
← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.	

Serial Port1~5 Address

Select an address and corresponding interrupt for the first serial port.

Serial Port1~5 IRQ

Select an interrupt for the serial port.

Parallel Port Address

Select an address for the parallel port.

The choice:

- 3BC
- 378
- 278
- Disabled

5.2.4 Hardware Health Configuration

The screenshot shows the BIOS Setup Utility interface. At the top, it says "BIOS SETUP UTILITY" and "Advanced" is selected. The main section is titled "Hardware Health Configuration" and displays the following data:

System Temperature	:31°C/87°F
CPU Temperature	:115°C/239°F
<hr/>	
Vcore	:1.032 V
5V	:5.0100 V
DDR3 Vcc	:1.472 V
1.5V	:1.560 V
3.3V	:3.296 V

Navigation instructions are listed on the right side of the screen:

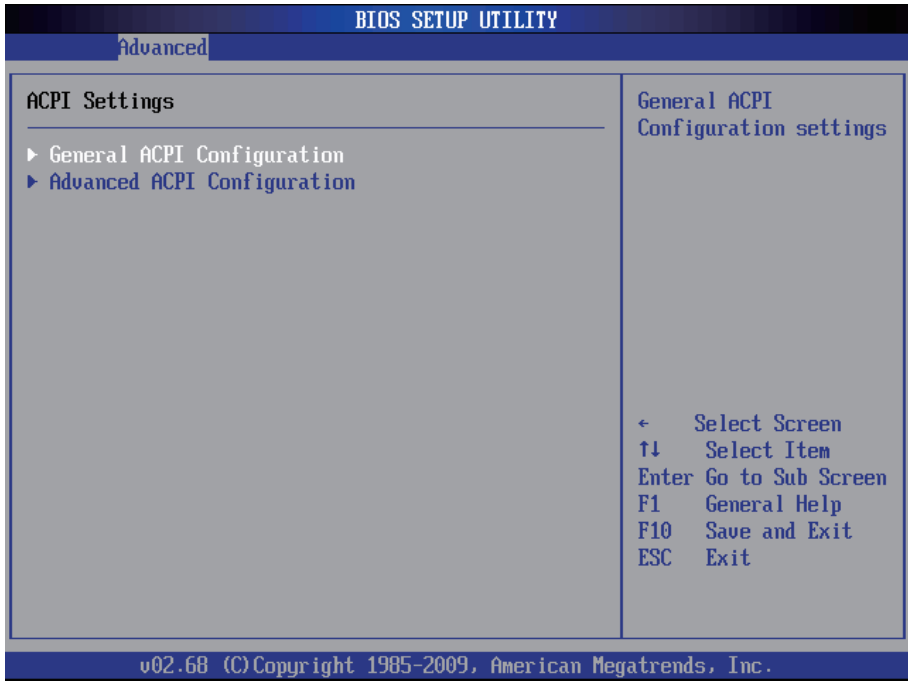
- ← Select Screen
- ↑↓ Select Item
- F1 General Help
- F10 Save and Exit
- ESC Exit

At the bottom of the screen, the version and copyright information are displayed: v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.

Hardware Health Configuration

The hardware menu shows the operating temperature, fan speeds and system voltages.

5.2.5 ACPI Configuration



General ACPI Configuration

Use this section to configure general ACPI options.

Advanced ACPI Configuration

Use this section to configure additional ACPI options.

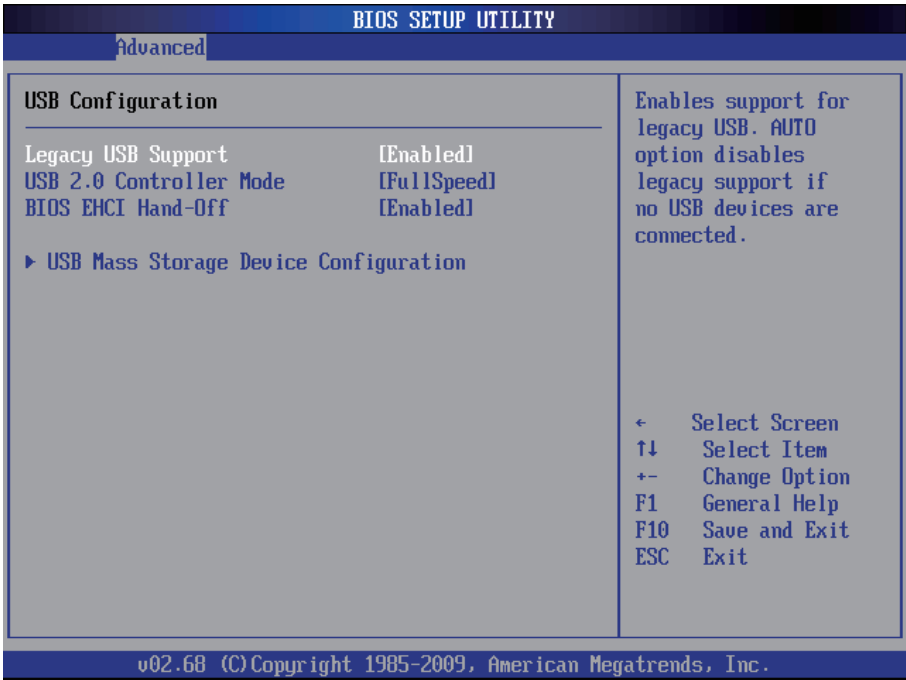
General ACPI Configuration

BIOS SETUP UTILITY	
Advanced	
General ACPI Configuration	Select the ACPI state used for System Suspend.
Suspend mode [S1 (POS)]	
	← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.	

Suspend Mode

Use this item to select the ACPI state used for system suspend.

5.2.6 USB Configuration



Legacy USB Support

Enabled option supports for legacy USB. Auto option disables legacy support if no USB devices are connected.

The choice: Enabled (Default); Auto; Disabled

USB 2.0 Controller Mode

Configures the USB 2.0 controller in High Speed (480Mbps) or Full Speed (12MBPS).

EHCI Hand-Off

Allow you to enable support for operating systems without an EHCI hand-off feature. Do not disable the BIOS EHCI Hand-Off option if you are running a Windows® operating system with USB device.

The choice: Enabled (Default); Disabled

USB Mass Storage Device Configuration

This item displays information when USB devices are detected.

BIOS SETUP UTILITY	
Advanced	
USB Mass Storage Device Configuration	
USB Mass Storage Reset Delay	[20 Sec]
Device #1	FNK USB CARD READER2.33*
Emulation Type	[Auto]
Device #2	Generic STORAGE DEVICE
Emulation Type	[Auto]
Number of seconds POST waits for the USB mass storage device after start unit command.	
← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.	

USB Mass Storage Reset Delay

This item allows you to select second number POST waits for the USB mass storage device after starting unit command.

Default setting: 20 Sec

5.3 Chipset Settings

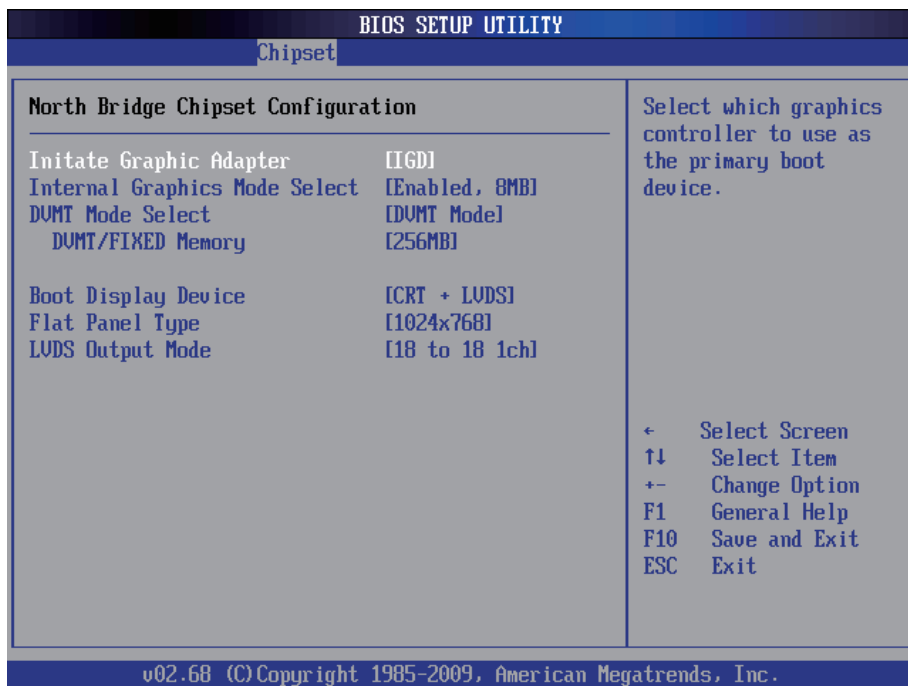
This submenu allows you to configure the specific features of the chipset installed on your system. The chipset manages bus speed and the access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.



Notice:

Beware of that inappropriate setting values in items of this menu may cause system malfunction.

5.3.1 North Bridge Chipset Configuration



Initiate Graphic Adapter

This item allows you to select which graphics controller to use as the primary boot device.

Internal Graphics Mode Select

Select the amount of system memory used by the Internal graphics device.

DVMT Mode Select

Use the DVMT Mode Select option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

Fixed Mode: A fixed portion of graphics memory is reserved as graphics memory.

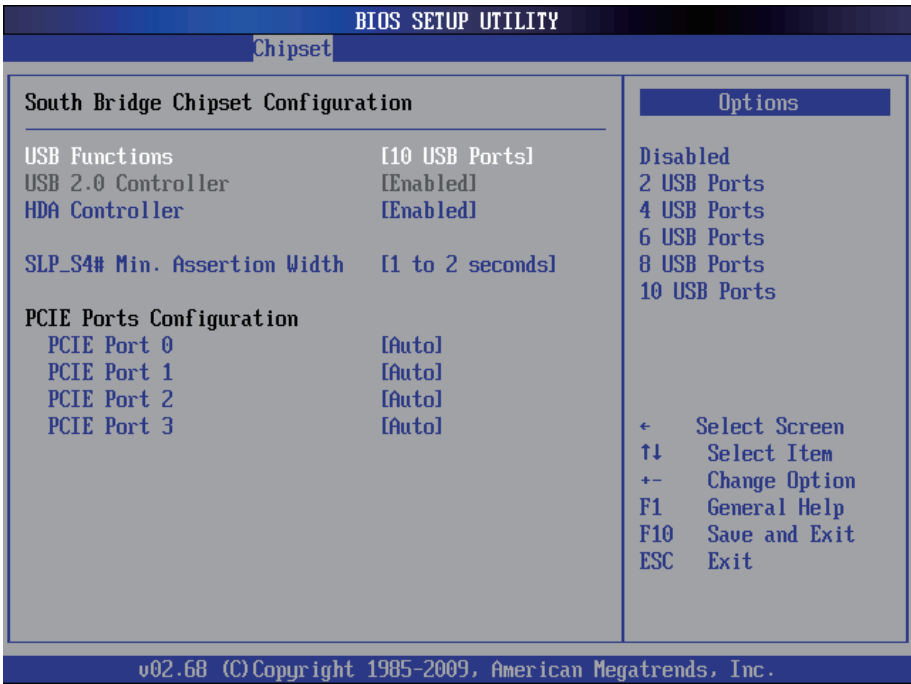
DVMT Mode (Default): Graphics memory is dynamically allocated according to the system and graphics needs.

Boot Display Device

Select the boot display device.

The choice: CRT, LVDS, CRT+LVDS

5.3.2 South Bridge Chipset Configuration



USB Functions

This item allows you to active USB ports.

The choice: Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports, 8 USB Ports, 10 USB Ports

USB2.0 Controller

Use the option to enable or disable the USB 2.0 controller.

HDA Controller

This item allows you to select the chipset family to support High Definition Audio Controller.

The choice: Enabled, Disabled.

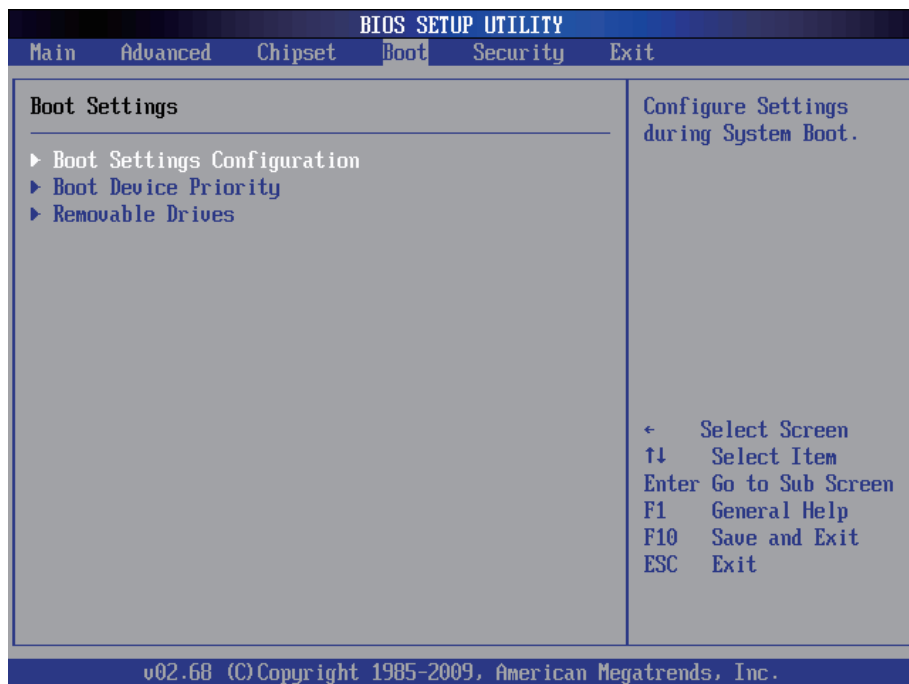
SLP_S4# Min. Assertion Width

The item allows you to select the assertion width of SLP_S4#.

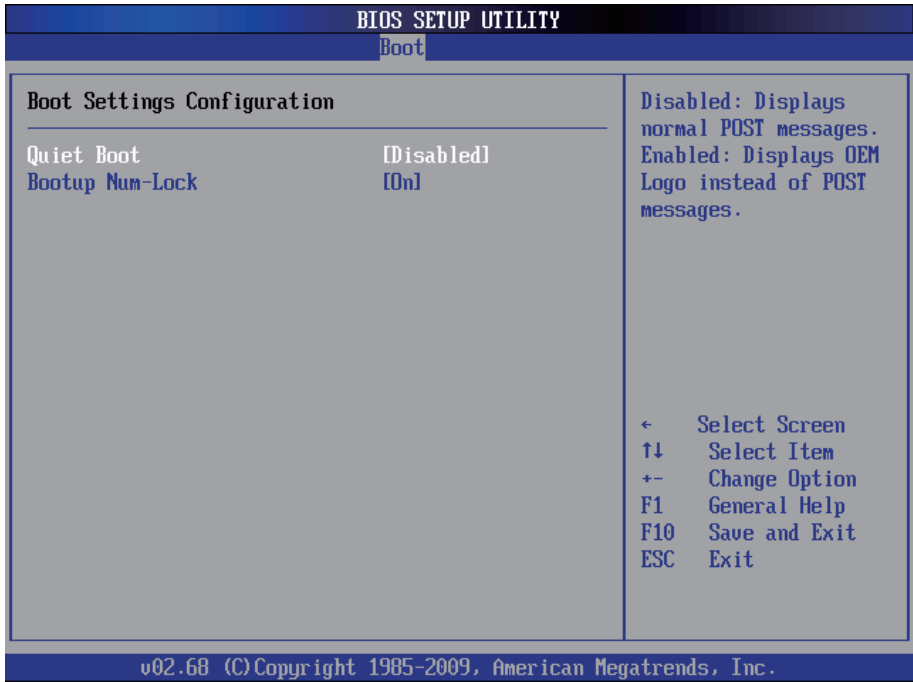
The choice: 4 to 5 seconds, 3 to 4 seconds, 2 to 3 seconds, 1 to 2 seconds

5.4 Boot Settings

The Boot menu items allow you to change the system boot options.



5.4.1 Boot Settings Configuration



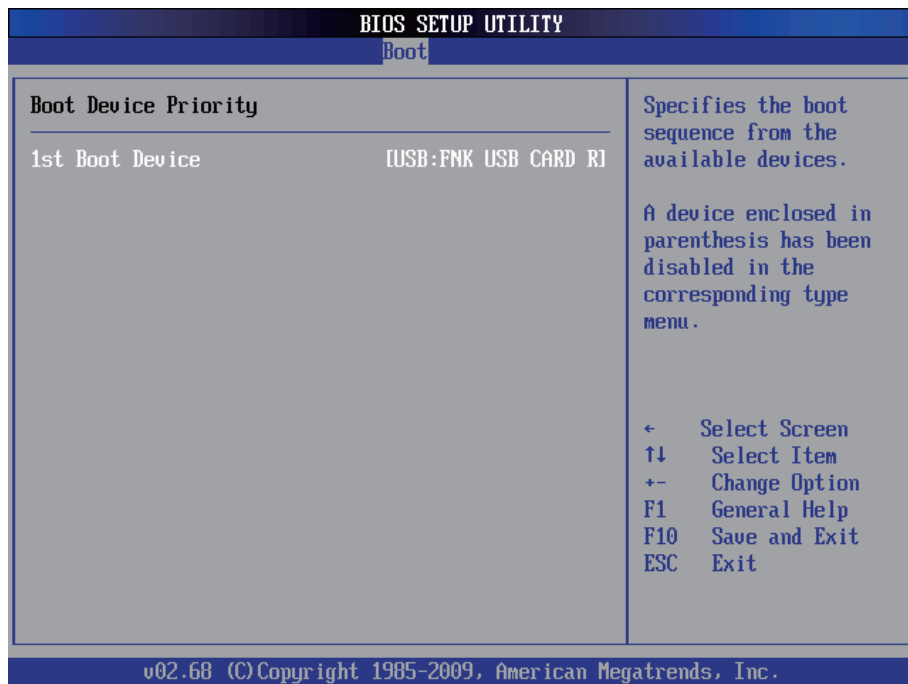
Quiet Boot

This allows you to select the screen display when the system boots.

Bootup Num-Lock

Set this value to allow the Number Lock setting to be modified during boot up.
 The choice: ON (Default) / OFF

5.4.2 Boot Device Priority



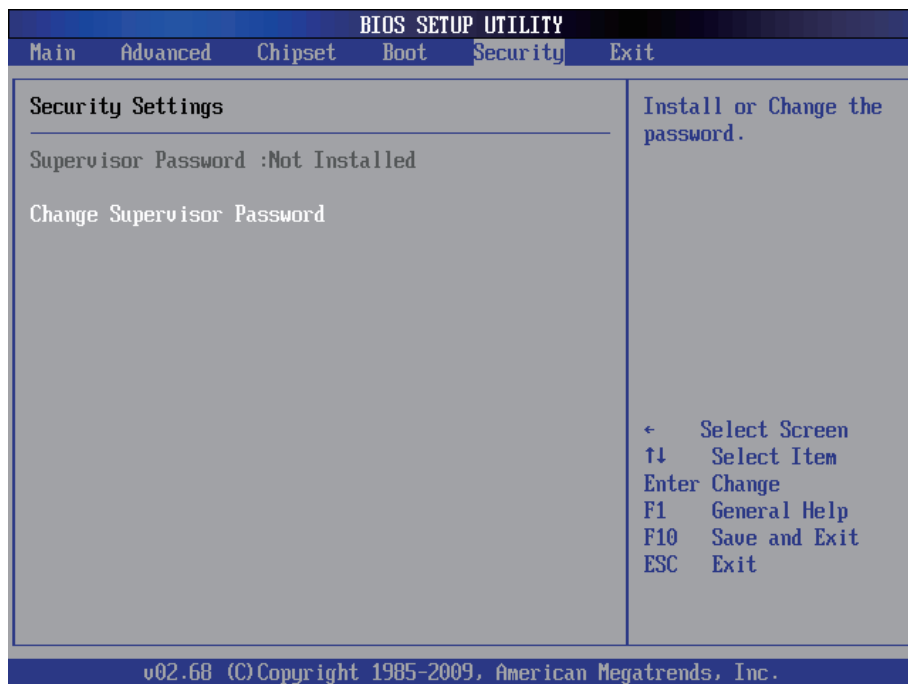
Press Enter and it shows Bootable add-in devices. Items in this sub-menu specify the boot sequence from the available devices.

5.4.3 Removable Drives

BIOS SETUP UTILITY	
Boot	
Removable Drives	Specifies the boot sequence from the available devices.
1st Drive	[USB:FNK USB CARD R]
2nd Drive	[USB:Generic STORAGE]
	← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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The BIOS will attempt to arrange the removable drive boot sequence automatically. Press Enter and it shows Bootable and Removable drives.

5.5 Security



Change Supervisor Password

This item allows you to install or change supervisor password.

ENTER PASSWORD

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <ESC> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You can determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If it’s set to “Setup”, prompting only occurs when trying to enter Setup.

5.6 Save & Exit

BIOS SETUP UTILITY					
Main	Advanced	Chipset	Boot	Security	Exit
Exit Options		Exit system setup after saving the changes.			
Save Changes and Exit		F10 key can be used for this operation.			
Discard Changes and Exit					
Load Optimal Defaults					
		← Select Screen			
		↑↓ Select Item			
		Enter Go to Sub Screen			
		F1 General Help			
		F10 Save and Exit			
		ESC Exit			
v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.					

Save Changes and Exit

Pressing <Enter> on this item and it asks for confirmation:

Save configuration changes and exit setup?

Pressing <OK> stores the selection made in the menus in CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values, the system is restarted again.

Discard Changes and Exit

Exit system setup without saving any changes.

<ESC> key can be used for this operation.

Load Optimal Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message:

Load Optimal Defaults?
[OK] [Cancel]

Pressing [OK] loads the BIOS Optimal Default values for all the setup questions.

<F9> key can be used for this operation.



Appendix

Appendix A: I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device.

The following table lists the I/O port addresses used.

Address	Device Description
00000000 - 00000CF7	PCI bus
00000000 - 00000CF7	Direct memory access controller
00000010 - 0000001F	Motherboard resources
00000020 - 00000021	Programmable interrupt controller
00000022 - 0000003F	Motherboard resources
00000040 - 00000043	System Timer
00000044 - 0000005F	Motherboard resources
00000060 - 00000060	Motherboard resources
00000061 - 00000061	System speaker
00000062 - 00000063	Motherboard resources
00000064 - 00000064	Motherboard resources
00000065 - 0000006F	Motherboard resources
00000070 - 00000071	System CMOS/real time clock
00000072 - 0000007F	Motherboard resources
00000080 - 00000080	Motherboard resources
00000081 - 00000083	Direct memory access controller
00000084 - 00000086	Motherboard resources
00000087 - 00000087	Direct memory access controller
00000088 - 00000088	Motherboard resources
00000089 - 0000008B	Direct memory access controller
0000008C - 0000008E	Motherboard resources
0000008F - 0000008F	Direct memory access controller
00000090 - 0000009F	Motherboard resources
000000A0 - 000000A1	Programmable interrupt controller
000000A2 - 000000BF	Motherboard resources
000000C0 - 000000DF	Direct memory access controller

Appendix

000000E0 - 000000EF	Motherboard resources
000000F0 - 000000FF	Numeric data processor
000001F0 - 000001F7	Primary IDE
00000274 - 00000277	ISAPNP Read Data Port
00000279 - 00000279	ISAPNP Read Data Port
000002E8 - 000002EF	Communications Port (COM4)
000002F8 - 000002FF	Communications Port (COM2)
000003B0 - 000003BB	VgaSave
000003C0 - 000003DF	VgaSave
000003E0 - 000003E7	Communications Port (COM5)
000003E8 - 000003EF	Communications Port (COM3)
000003F6 - 000003F6	Primary IDE
000003F8 - 000003FF	Communications Port (COM1)
00000400 - 0000041F	Intel(R) ICH8 Family SMBus Controller - 283E
000004D0 - 000004D1	Motherboard resources
00000500 - 0000053F	Motherboard resources
00000800 - 0000087F	Motherboard resources
00000A00 - 00000A0F	Motherboard resources
00000A10 - 00000A1F	Motherboard resources
00000A79 - 00000A79	ISAPNP Read Data Port
00000D00 - 0000FFFF	PCI bus
0000C080 - 0000C087	Intel(R) HD Graphics (VGA compatible)
0000C400 - 0000C41F	Intel(R) ICH8 Family USB Universal Host Controller - 2835
0000C480 - 0000C49F	Intel(R) ICH8 Family USB Universal Host Controller - 2834
0000C800 - 0000C81F	Intel(R) ICH8 Family USB Universal Host Controller - 2832
0000C880 - 0000C89F	Intel(R) ICH8 Family USB Universal Host Controller - 2831
0000CC00 - 0000CC1F	Intel(R) ICH8 Family USB Universal Host Controller - 2830

0000D080 - 0000D08F	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0000D400 - 0000D40F	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0000D480 - 0000D483	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0000D800 - 0000D807	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0000D880 - 0000D883	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0000DC00 - 0000DC07	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0000E000 - 0000EFFF	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
0000FFA0 - 0000FFAF	Intel(R) ICH8M Ultra ATA Storage Controllers - 2850

Appendix B: Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ 0	System Timer
IRQ 3	Communications Port (COM2)
IRQ 4	Communications Port (COM1)
IRQ 5	Intel(R) ICH8 Family SMBus Controller - 283E
IRQ 8	System CMOS/real time clock
IRQ 9	Microsoft ACPI-Compliant System
IRQ 10	Communications Port (COM3)
IRQ 10	Communications Port (COM4)
IRQ 11	Communications Port (COM5)
IRQ 13	Numeric data processor
IRQ 14	Primary IDE
IRQ 15	Intel(R) HD Graphics (VGA compatible)

IRQ 16	Intel(R) ICH8 Family USB Universal Host Controller - 2834
IRQ 18	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
IRQ 18	Intel(R) ICH8 Family USB Universal Host Controller - 2832
IRQ 18	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
IRQ 19	Intel(R) ICH8 Family USB Universal Host Controller - 2831
IRQ 21	Intel(R) ICH8 Family USB Universal Host Controller - 2835
IRQ 21	Microsoft UAA Bus Driver for High Definition Audio
IRQ 22	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
IRQ 23	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2830
IRQ 23	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836

Appendix C: Memory Mapping

Address	Device Description
F0000000 - FED8FFFF	PCI bus
FE900000- FE97FFFF	Intel(R) HD Graphics (VGA compatible)
D0000000 - DFFFFFFF	Intel(R) HD Graphics (VGA compatible)
FE800000 - FE8FFFFF	Intel(R) HD Graphics (VGA compatible)
FE780000 - FE7FFFFF	Intel(R) HD Graphics
FE9FF400 -FE9FF7FF	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
FE9F8000 - FE9FBFFF	Microsoft UAA Bus Driver for High Definition Audio
FEA00000 - FEBFFFFF	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
FE9FF800 - FE9FFBFF	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836
FED1C000 - FED1FFFF	Motherboard resources
FED20000 - FED3FFFF	Motherboard resources
FED40000 - FED8FFFF	Motherboard resources
FED00000 - FED003FF	High Precision Event Timer

FFB00000 - FFBFFFFFF	Intel(R) 82802 Firmware Hub Device
FFC00000 - FFEFFFFFF	Motherboard resources
FEC00000 - FEC00FFF	Motherboard resources
FEE00000 - FEE00FFF	Motherboard resources
FE9FFC00 - FE9FFCFF	Intel(R) ICH8 Family SMBus Controller - 283E
FED14000 - FED19FFF	System board
FED90000 - FED93FFF	System board
FED90000 - FED93FFF	System board
E0000000 - EFFFFFFF	Motherboard resources
0000 - 9FFFF	System board
A0000 - BFFFF	PCI bus
A0000 - BFFFF	VgaSave
C0000 - CFFFF	System board
D0000 - DFFFF	PCI bus
E0000 - FFFFF	System board
100000 - 3F6FFFFF	System board
3F700000 - DFFFFFFF	PCI bus

Appendix D: Digital I/O Setting

Digital I/O can read from or write to a line or an entire digital port, which is a collection of lines. This mechanism can be used to meet user's various applications such as industrial automation, customized circuit, and laboratory testing. The source code below written in C is the applicable sample for programming.

Source Code in C

```
/*----- Include Header Area -----*/
#include "math.h"
#include "stdio.h"
#include "dos.h"

void main(void){

    int SMB_PORT_AD = 0x400;
    int SMB_DEVICE_ADD = 0x6E; /*75111R's Add=6eh */

    //programming DIO as output
    //0:input 1:Output

    /*      Index 10, GPIO1x Output pin control */
    SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x10,0xff);
    delay(10);
    /*      Index 20, GPIO2x Output pin control */
    SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x20,0xff);
    delay(10);

    /*      Index 40, GPIO3x Output pin control */
    SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x40,0xff);
    delay(10);

    //programming DIO default LOW

    /*      Index 11, GPIO1x Output Data value */
    SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x11,0x00);
    delay(10);

    /*      Index 21, GPIO2x Output Data value */
    SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x21,0x00);
```

```
    delay(10);
    /*      Index 41, GPIO3x Output Data value */
    SMB_Byte_WRITE(SMB_PORT_AD,SMB_DEVICE_ADD,0x41,0x00);
    delay(10);
}
//-----
unsigned char SMB_Byte_READ (int SMPORT, int DeviceID, int REG_IN-
DEX)
{
    unsigned char SMB_R;
    outportb(SMPORT+02, 0x00); /* clear */
    outportb(SMPORT+00, 0xff); /* clear */
    delay(10);
    outportb(SMPORT+04, DeviceID+1); /* clear */
    outportb(SMPORT+03, REG_INDEX); /* clear */
    outportb(SMPORT+02, 0x48); /* read_byte */
    delay(10);
    SMB_R= inportb(SMPORT+05);
    return SMB_R;
}

void SMB_Byte_WRITE(int SMPORT, int DeviceID, int REG_INDEX, int
REG_DATA)

{
    outportb(SMPORT+02, 0x00); /* clear */
    outportb(SMPORT+00, 0xff); /* clear */
    delay(10);
    outportb(SMPORT+04, DeviceID); /* clear */
    outportb(SMPORT+03, REG_INDEX); /* clear */
    outportb(SMPORT+05, REG_DATA); /* read_byte */
    outportb(SMPORT+02, 0x48); /* read_byte */
    delay(10);
}
```

Appendix E: Watchdog Timer (WDT) Setting

WDT is widely applied to industry computers to monitor activities of CPU. The programmed application triggers WDT with adequate timer setting depending on its requirement. Before WDT counts down to zero, the functional system will reset the counter. In case the WDT counter is not reset by an abnormal system, it will counts down to zero and then reset the system automatically.

This computer supports the watchdog timer up to 255 levels for users for software programming. Below please take the source code written in C for a WDT application example.

Source Code in C

```

/*----- Include Header Area -----*/
#include "math.h"
#include "stdio.h"
#include "dos.h"

/**----- index port 0x2e -----*/
void main()
{
    outportb(0x2e, 0x87);          /* initial IO port */
    outportb(0x2e, 0x87);        /* Enter SuperIO config mode */

    outportb(0x2e, 0x07);        /* point to logical device */
    outportb(0x2e+1, 0x08);      /* select logical device 8 */
    outportb(0x2e, 0x30);
    tmpVal=inportb(0x2e+1);
    tmpVal= tmpVal|0x01;
    outportb(0x2e+1, tmpVal);    //Enable WDTO function
    outportb(0x2e, 0xf5);        /* select offset f5h */
    outportb(0x2e+1, 0x02);      /* set bit1 = 1 to WDTO low pulse to
KBRST# */
    outportb(0x2e, 0xf6);        /* select offset f6h */
    outportb(0x2e+1, 0x05);      /* update offset f6h to 0ah :10sec */

    outportb(0x2e, 0xAA);        /* stop program W83627UHG, Exit */
}

```