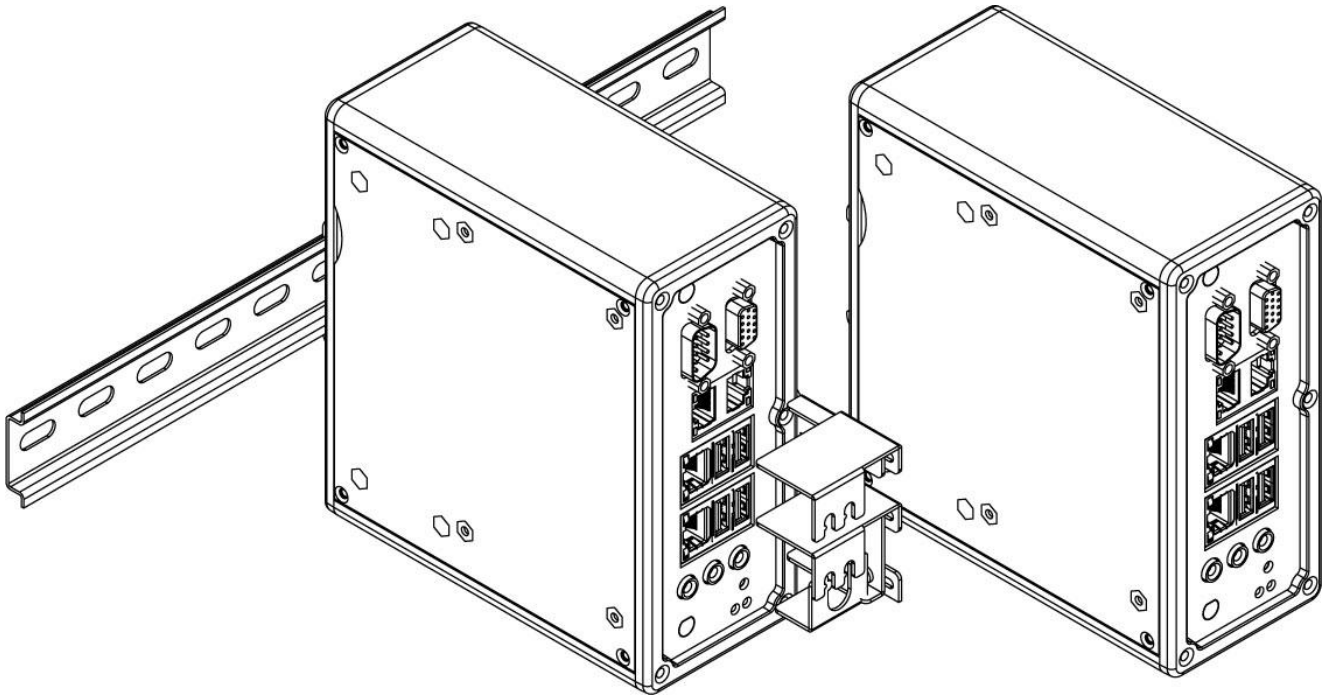
DIN Rail Box PC

IBDRW100/ IBDRW100-EX

Intel® Celeron® Bay Trail-M N2930



aws qualified device internet of things

User Manual

Version 4.0
Document Part No. 917111171001

Please read this instructions carefully before using this product, and save this manual for future use.

Contents

Preface

Copyright Notice

Trademark Acknowledgement

Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

Warranty

Our warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W16Axxxxxxxx means October of year 2016.

Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.

Note:
A note is used to emphasize helpful information

Important:
An important note indicates information that is important for you to know.

Caution/ Attention
A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.
Une alerte d'attention indique un dommage possible à l'équipement et explique comment éviter le problème potentiel.

Warning!/ Avertissement!
An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.
Un Avertissement de Choc Électrique indique le potentiel de chocs sur des emplacements électriques et comment éviter ces problèmes.

Alternating Current Mise à le terre !
The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.
Le symbole de Mise à Terre indique le risqué potential de choc électrique grave à la terre incorrecte.

Safety Information

Warning!/ Avertissement!
Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on.
Sensitive electronic components can be damaged by sudden power surges.
Only experienced electronics personnel should open the PC chassis.
Toujours débrancher le cordon d'alimentation du chassis lorsque vous travaillez sur celui-ci. Ne pas brancher de connections lorsque l'alimentation est présente. Des composantes électroniques sensibles peuvent être endommagées par des sauts d'alimentation. Seulement du personnel expérimenté devrait ouvrir ces chassis.

Caution/ Attention
Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges.
As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.
Toujours verifier votre mise à la terre afin d'éliminer toute charge statique avant de toucher la carte CPU. Les équipements électroniques moderns sont très sensibles aux décharges d'électricité statique. Toujours utiliser un bracelet de mise à la terre comme précaution. Placer toutes les composantes électroniques sur une surface conçue pour dissiper les charge, ou dans un sac anti-statique lorsqu'elles ne sont pas dans le chassis.

Safety Precautions

For your safety carefully read all the safety instructions before using the device. Keep this user manual for future reference.

- Always disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection and to protect the equipment from overheating.

Caution/Attention

Do not cover the openings!

- Before connecting the equipment to the power outlet make sure the voltage of the power source is correct.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.
- Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- All cautions and warnings on the equipment should be noted.

Caution/Attention

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

General Guideline

It is recommended to reboot the device when some functions are defect or inactive. If it still can't solve the problems please contact your dealer or agent.

Special Conditions of Use

Winmate IBDRW100-Ex is to be installed in an ATEX certified IP54 (as defined in EN 60079-0 and EN 60079-15) enclosure and may be accessible only by the use of a tool. Provision shall be made to prevent the rated voltage being exceeded by the transient disturbances of more than 140% of the peak rated voltage.

Chapter 1: Introduction

1.1 Product Description

Winmate IBDRW100 is a DIN-rail mounted Fanless Box PC, which provides several serial communication ports. With a compact size and small form factor as well as front accessible I/Os, The IBDRW100 is very convenient for wiring and DIN-rail installation in the control cabinet. The wide operation temperature and Industrial serial port design makes this unit a perfect communication even in harsh and critical location. IBDRW100-EX is ATEX and Class 1 Division 2 certified DIN Rail Box pc for hazardous location deployment and for ATEX certified Box PC requires special enclosure box. The IBDRW100 / IBDRW100-EX are certified to support the ecosystem of AWS IoT Greengrass giving customers more options for software integration for IoT applications.

1.2 Hardware Specification

1.2.1 System Specification

Processor	: Intel ®Celeron ® Bay Trail-M
System Chipset	: Bay Trail SoC Chipset
System Memory	: 1 x DDR3L 1333MHz SO-DIMM 4 GB (max 8 GB)
Controller	: 4 x Intel ®I210 GbE LAN
USB	: 1 x USB 3.0
	: 3 x USB 2.0 (external)
	: 2 x USB 2.0 by pin-header (internal)
Storage	: Default 32GB mSATA SSD (Optional 64 GB to 256 GB)

Second Storage (Optional): 2.5” SSD 64~512GB

1.2.2 Mechanical and Power

Dimensions	: 85.5 x 152 x 139 mm (L x W x H)
Construction	: Aluminum Housing
Power Input	: 9-36V DC IN (isolation) Power Source
Range	: 20W max.
Mounting	: DIN Rail

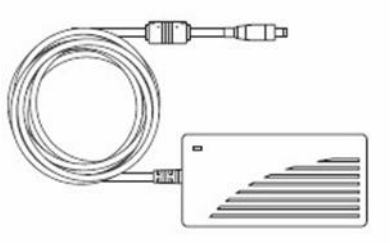
1.2.3 I/O Connectors

Front Side I/O : 1 x Power ON/OFF button with LED indicator
1 x Line Out, Line In, Mic In 4 x RJ-45 (Giga LAN) (1 LAN disabled if WLAN module added)
1 x RS232 default (422/485 as optional)
1 x VGA
1 x USB3.0, 3 x USB2.0
1 x DC Power Terminal Block
1 x Isolated RS422 default (RS485 as optional)
1 x 20 pins terminal block DIDO

1.2.4 Environment Considerations

Operating Temperature	: -20 to 60 deg. C
Operating Humidity	: 5% to 95% (non-condensing)
Anti-Vibration	: 5Hz – 500Hz / 1 Grms / 3 Axis

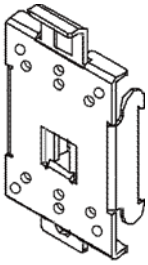
1.3 Packing List



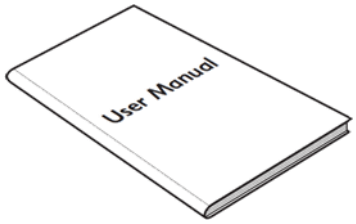
- **AC to DC 12V 36W Power Adapter**

- **Terminal Block 3 pin to 2.5Ø female adapter cable**

- **DC Power Cable**

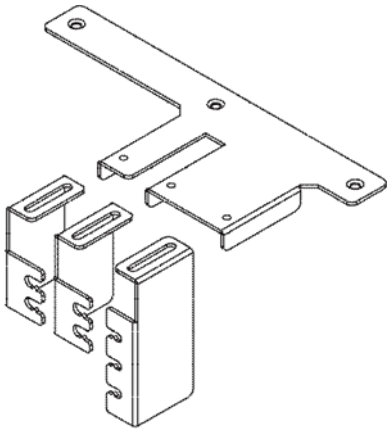


- **DIN Rail Mounting Clip**

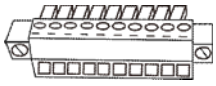


- **User Manual**

- **Driver CD**



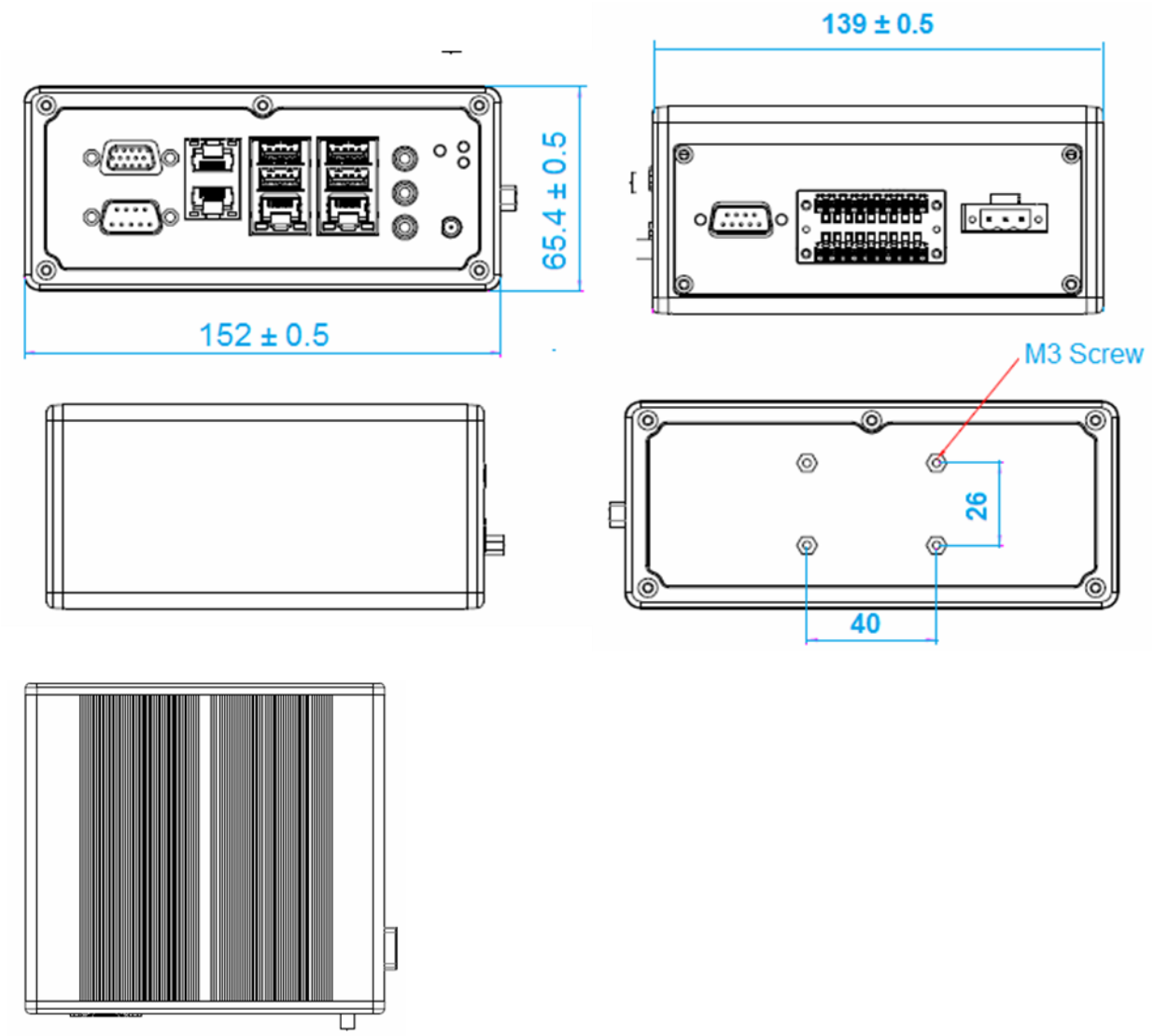
- **Cable Arm Bracket (only for IBDRW100-EX)**



- **Terminal Block 10 pin female connector**

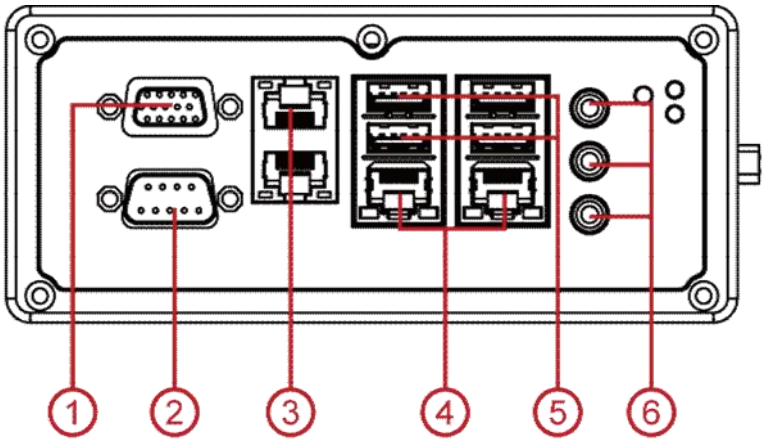
1.4 Chassis Dimensions

Unit: mm



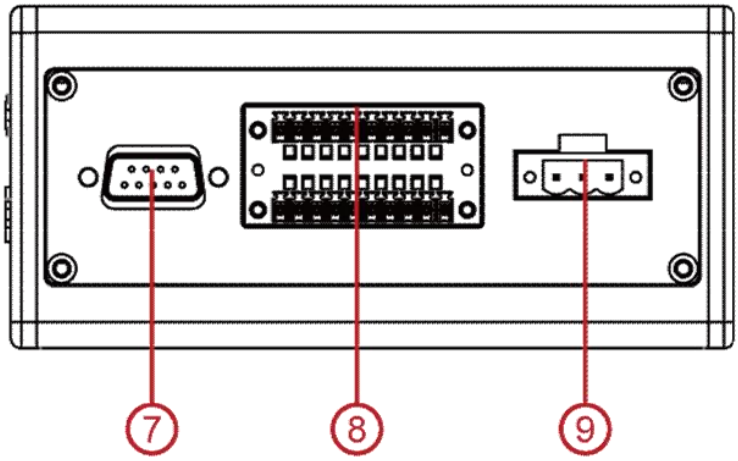
1.5 Description of Parts

Front



1. VGA
2. RS232/422/485
3. LAN *(1 LAN disabled if WLAN module added)*
4. LAN
5. USB
6. Audio Jack

Rear



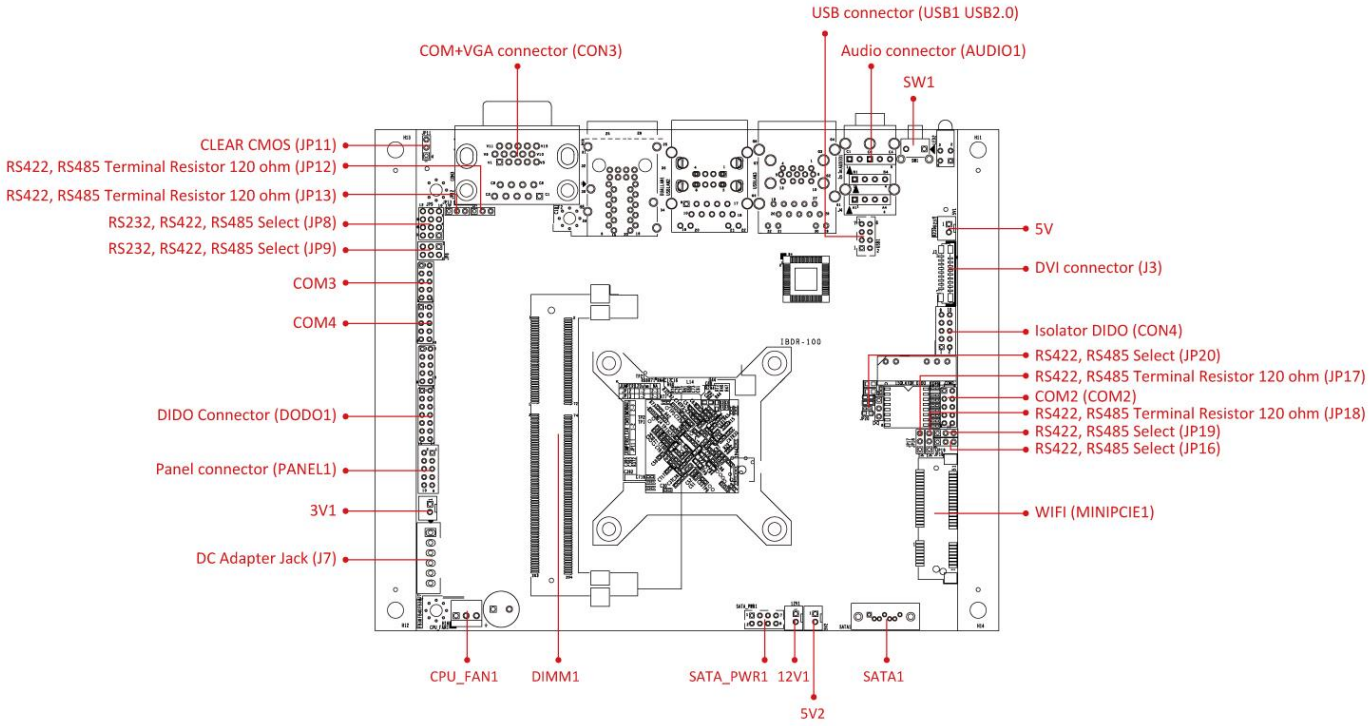
7. Isolated RS422 default (RS485 as optional)
8. DIDO
9. Power terminal Block (9-36V DC IN)

Chapter 2: Hardware Installation

2.1 Motherboard Connectors Description

The following figures show the connectors on Winmate IBDRW and the following sections give you detailed information about function of each peripheral.

The figure below shows motherboard connector locations:

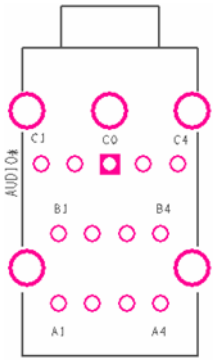


The table below shows each of Motherboard connectors and its functions.

Item	Description
Connectors	
AUDIO1	Audio connector
COM2	RS422, RS485
CON3	COM+VGA connector
CON4	Isolator DIDO
DIDO1	Digital Input/ Output connector
DUALLAN1	DUAL LAN connector
J3	DVI connector
J7	DC Adapter Jack
MINIPCIE1 Full and Half Card	Mini PCIE x1 Connector
PANEL1	Panel connector
SSD1 Full Card	SSD1 Mini PCIE x1 connector
USBLAN2	USB2.0 + LAN connector
USBLAN3	USB2.0 + USB3.0 + LAN connector
USB1 USB2.0	USB connector
Jumpers	
JP11	CLEAR CMOS
JP12,JP13, JP17, JP18	RS422, RS485 Terminal Resistor 120 ohm
JP16, JP19, JP20	RS422, RS485 Select
JP8, JP9	RS232, RS422, RS485 Select

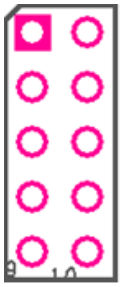
2.2 Connector Pin Assignment

2.2.1 Audio (AUDIO1)



Pin	Signal Name	Pin	Signal Name
A1	Line1_L	C1	MIC1_L
A2	SW_C	C2	SW_B
A3	AUGND	C3	AUGND
A4	LINE1_R	C4	MIC1_R
B1	AZ_FOUT_L	G1	AUGND
B2	LINE2_JD	G2	AUGND
B3	AUGND	G3	AUGND
B4	AZ_FOUT_R	G4	AUGND
C0	AUGND	A1	LINE1_L
		A2	SW_C

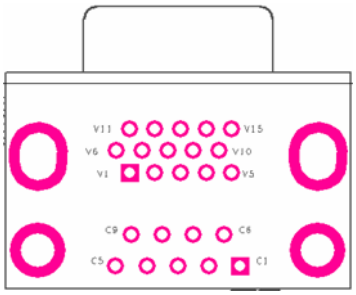
2.2.2 RS422, RS485 (COM2)



Pin	Signal Name	Pin	Signal Name
1	ISO_485TXRX-	6	NA
2	NA	7	ISO_422RX-
3	ISO_485TXRX+	8	NA
4	NA	9	ISOGND
5	ISO_422RX+	10	ISOGND

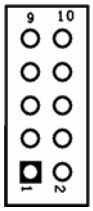
2.2.3 COM1 + VGA (CON3)

RS422/485



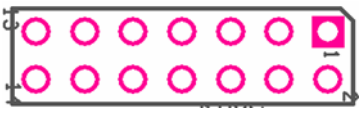
Pin	Signal Name	Pin	Signal Name
C1	DCD4/485TXRX-	V2	G_FILTER
C2	SRD4/485TXRX+	V3	B_FILTER
C3	STD4/422RX+	V4	NA
C4	DTR4/422RX-	V5	GND
C5	GND	V6	GND
C6	NDSR1	V7	GND
C7	NRTS1	V8	GND
C8	NCTS1	V9	VGA_5V
C9	NRI1	V10	GND
V1	R_FILTER		

2.2.4 Isolator DIDO (CON4)



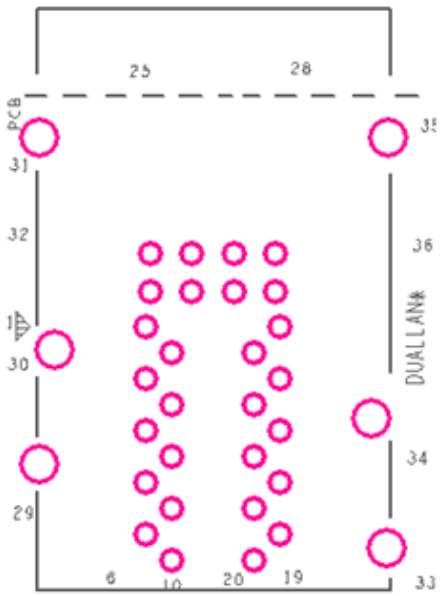
Pin	Signal Name	Pin	Signal Name
1	ISO5V	6	DO2_GPIO
2	ISOGND	7	DI3_GPIO
3	DI1_GPIO	8	DO3_GPIO
4	DO1_GPIO	9	DI4_GPIO
5	DI2_GPIO	10	DO4_GPIO

2.2.5 DIDO (DIDO1)



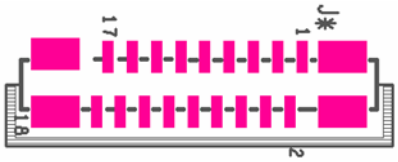
Pin	Signal Name	Pin	Signal Name
1	GND	8	DINT1
2	DIO_5V	9	DINT2
3	DOUT3	10	DINT0
4	DOUT1	11	GPIO53_IN0
5	DOUT2	12	GPIO56_OUT0
6	DOUT0	13	GPIO54_IN1
7	DINT3	14	GPIO57_OUT1

2.2.6 Dual LAN (DUALLAN1)



Pin	Signal Name	Pin	Signal Name
1	LAN3_MDI0_IN+	19	NA
2	LAN3_MDI0_IN-	20	GND
3	LAN3_MDI1_IN+	21	LAN3_100_10_G
4	LAN3_MDI1_IN-	22	LAN3_1000_O
5	LAN3_MDI2_IN+	23	LAN3_ACTIVE_Y
6	LAN3_MDI2_IN-	24	LAN3_VDD33
7	LAN3_MDI3_IN+	25	LAN4_100_10_G
8	LAN3_MDI3_IN-	26	LAN4_1000_O
9	NA	27	LAN4_ACTIVE_Y
10	GND	28	LAN4_VDD33
11	LAN4_MDI0_IN+	29	LAN_GND
12	LAN4_MDI0_IN-	30	LAN_GND
13	LAN4_MDI1_IN+	31	LAN_GND
14	LAN4_MDI1_IN-	32	NA
15	LAN4_MDI2_IN+	33	LAN_GND
16	LAN4_MDI2_IN-	34	LAN_GND
17	LAN4_MDI3_IN+	35	LAN_GND
18	LAN4_MDI3_IN-	36	NA

2.2.7 DVI Connector(J3)

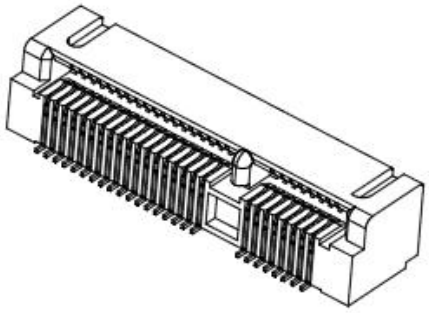


Pin	Signal Name	Pin	Signal Name
1	GND	10	GND
2	HDMIB_TMDS0-	11	HDMIB_TMDS2 -
3	HDMIB_TMDS0+	12	HDMIB_TMDS2 +
4	GND	13	GND
5	HDMI_DDC_CLK	14	HDMIB_CLK +
6	HDMI_DDC_DATA	15	HDMIB_CLK -
7	GND	16	HDMI_HPD1
8	HDMIB_TMDS1-	17	+V5S
9	HDMIB_TMDS1+	18	+V5S

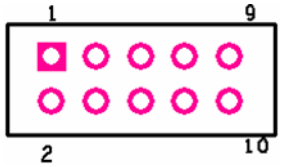
2.2.8 DC Adapter Jack (J7)

Pin	Signal Name
1	Adapter DC
2	GND
3	GND
4	GND
5	Adapter DC
6	Adapter DC

2.2.9 Mini PCIE x1 Connector (MINIPCIE1 Full and Half Card)

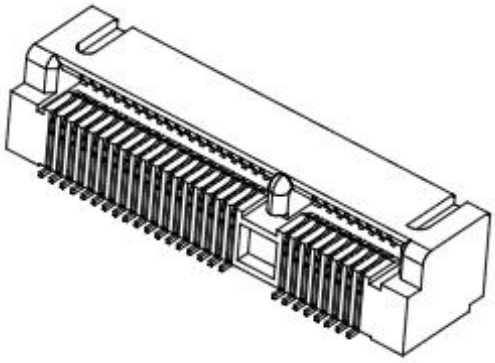


2.2.10 Panel1 (PANEL1)

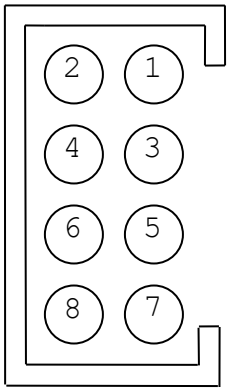


Pin	Signal Name	Pin	Signal Name
1	+V5S	2	+V3.3S
3	GND	4	SATA_LED#
5	PWRBTN#	6	GND
7	GND	8	FP_RST_N
9	NA	10	+V5A

2.2.11 SSD1 Mini PCIE x1 Connector (SSD1 Full Card)

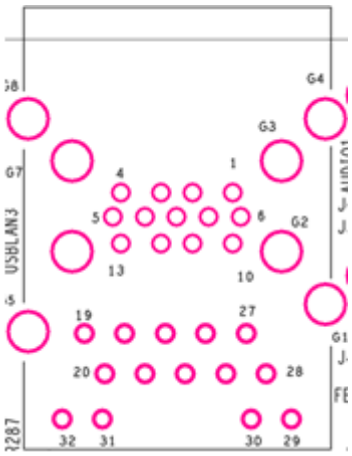


2.2.12 USB1 USB2.0



Pin	Signal Name	Pin	Signal Name
2	USBVCC	1	USBVCC
4	USB_P-	3	USB_P-
6	USB_P+	5	USB_P+
8	GND	7	GND

2.2.13 USB 2.0 + USB3.0 + LAN Connector (USBLAN3)



Pin	Signal Name	Pin	Signal Name
1	+5VUSB3.0	20	LAN1_MDI0_IN+
2	U2DN0	21	LAN1_MDI0_IN-
3	U2DP0	22	LAN1_MDI1_IN+
4	UGND	23	LAN1_MDI1_IN-
5	U3RXDN1	24	LAN1_MDI2_IN+
6	U3RXDP1	25	LAN1_MDI2_IN-
7	UGND	26	LAN1_MDI3_IN+
8	U3TXDN1	27	LAN1_MDI3_IN-
9	U3TXDP1	28	LAN1_DGND
10	+5VUSB3.0	29	LAN1_VDD33
11	U2DN1	30	LAN1_ACTIVE_Y
12	U2DP1	31	LAN1_1000_O
13	UGND	32	LAN1_100_10_G
19	N89607501		

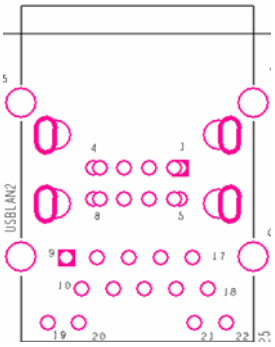
2.2.14 Clear CMOS (JP11)

1-2 : Clear CMOS
2-3 : Normal

2.2.15 RS422, RS485 Terminal Resistor (JP12,JP13, JP17, JP18)

1-2 : 120 ohm

2.2.16 USB 2.0 + LAN Connector (USBLAN2)



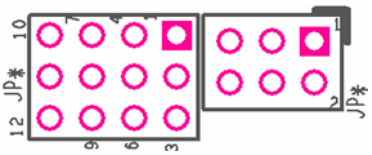
Pin	Signal Name	Pin	Signal Name
1	USB5V	12	TX2+
2	USB-	13	TX2-
3	USB+	14	TX3+
4	GND	15	TX3-
5	USB5V	16	TX4+
6	USB-	17	TX4-
7	USB+	18	DGND
8	GND	19	LEDGND
9	NA	20	YLED
10	TX1+	21	OLED
11	TX1-	22	GLED

2.2.17 RS422, RS485 Select (JP16, JP19, JP20)

1-2 : RS485

2-3 : RS422

2.2.18 RS232, RS422, RS485 Select (JP8, JP9)



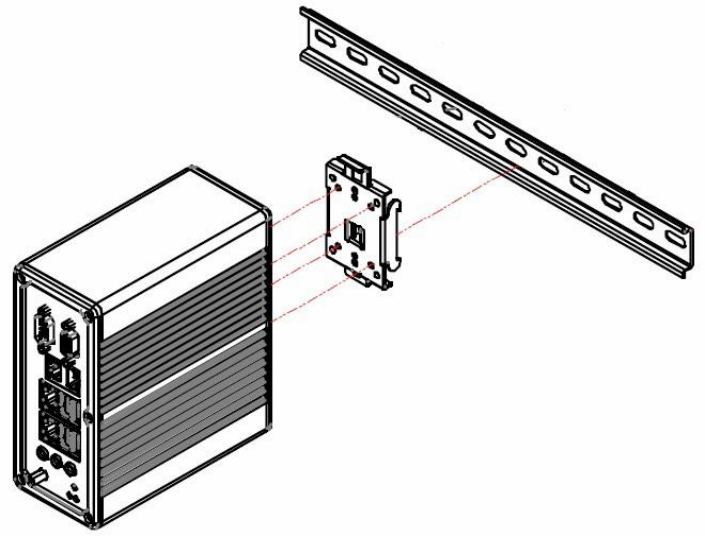
Jumper	RS232	RS422	RS485
JP8 (2x3)	1-2	3-4	5-6
JP9 (3x4)	1-2	2-3	2-3
	4-5	5-6	5-6
	7-8	8-9	8-9
	10-11	11-12	11-12

Chapter 3: Initial Setup

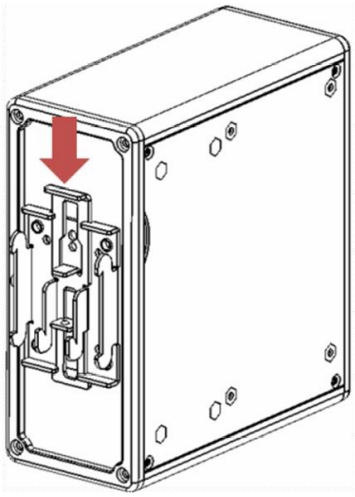
3.1 DIN Rail Mounting Setup

Please follow these steps to mount the IBDRW hook kit on a DIN rail

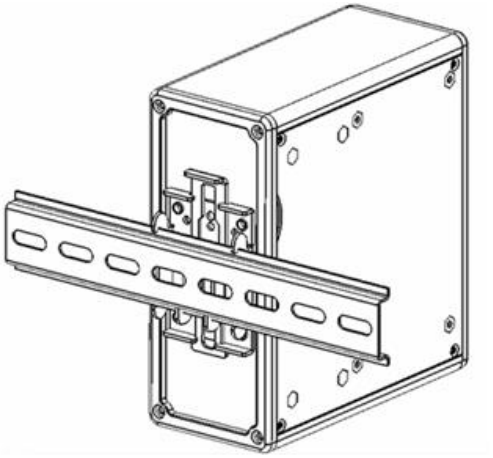
1. Screw the provided DIN-rail Kit on the rear side of the box as the diagram shown below.
2. Please make sure the stiff metal handle part is located on the top



3. Press the stiff metal handle downward and insert the hook into the DIN-rail

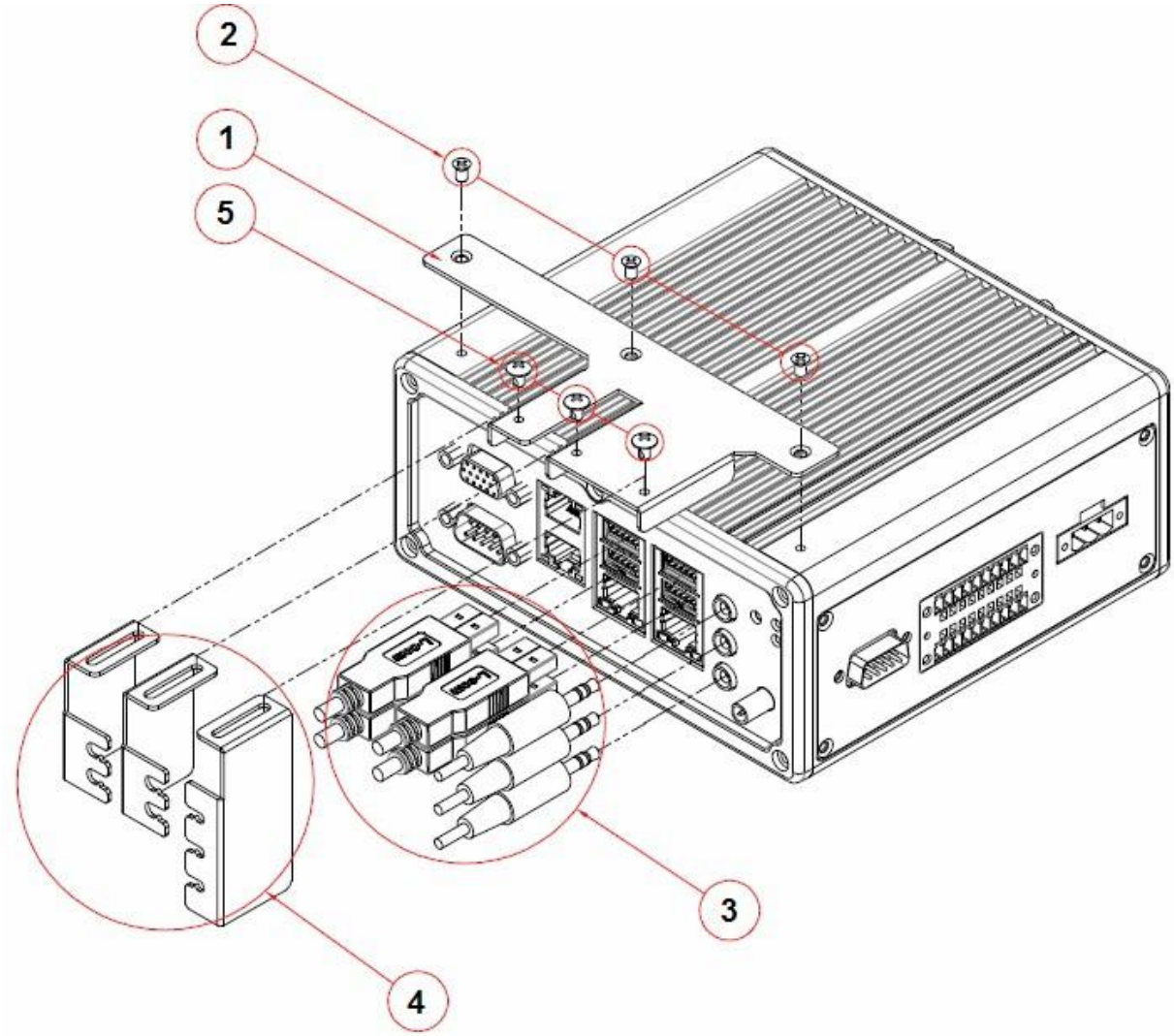


4. Release the handle so it can snap into place as shown below



3.2 Cable ARM Bracket Installation (Optional for IBDRW100-EX)

In hazardous locations, sparks caused by the movement from a cable and connector which is even slightly loose could lead to a disaster and to prevent this, cable arm bracket can be use to secure some LAN, USB and Audio connectors. Follow these steps to complete the installation

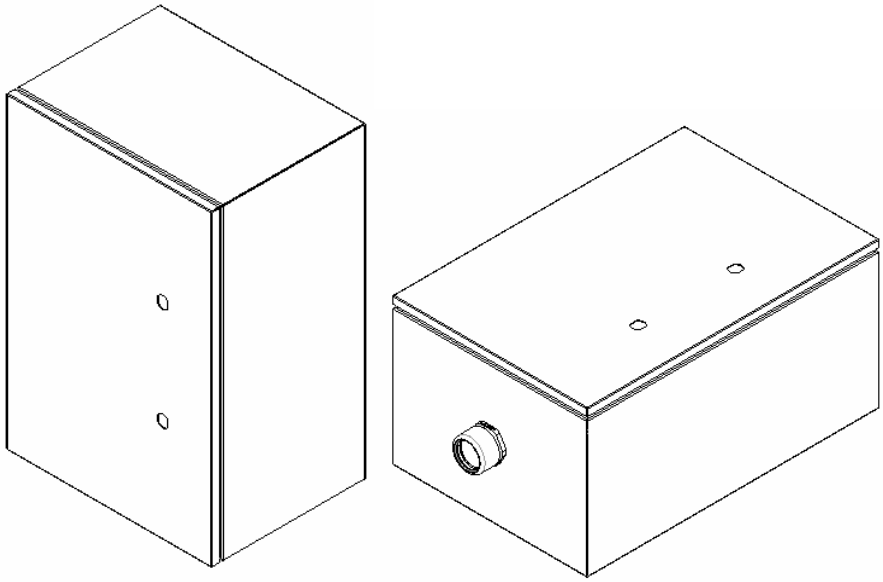


5. Find the cable arm bracket in the package, including the plate, bracket / holder, and screws
6. Install the plate on the top of the box and screw it tightly
7. Plug all the necessary cables into the connectors
8. Place the cable arm bracket according to the picture and then attach the bracket / holders to the plate and then screw it for securing the installed cables

3.3 Enclosure for IBDRW100-EX

User may also include secure mounting (hence the DIN Rail design) or mounting in specially designed enclosure boxes. The pictures below show an IP54-spec enclosure box Winmate uses for the IBDRW100-EX to meet ATEX and C1D2 certification. This enclosure box is designed for ATEX (increased safety) protection are ideal for deployment in hazardous location including

- Chemical and Petrochemical Industries
- Offshore energy
- Pharmaceutical industry
- Grain handling and processing



Caution/ Attention

- Make sure the specific mounting position for the Enclosure
- Please ensure that the surface of the wall / skid is flat to avoid distortion of the enclosure
- Not to exceed maximal temperature
- All the cables must be made with a particular care
- When connecting the cables, please ensure the incoming cables/ wires are isolated from all sources of power.
- Follow the instruction when installing the enclosure box

Follow these steps before installing the IBDRW100-EX inside the enclosure box:

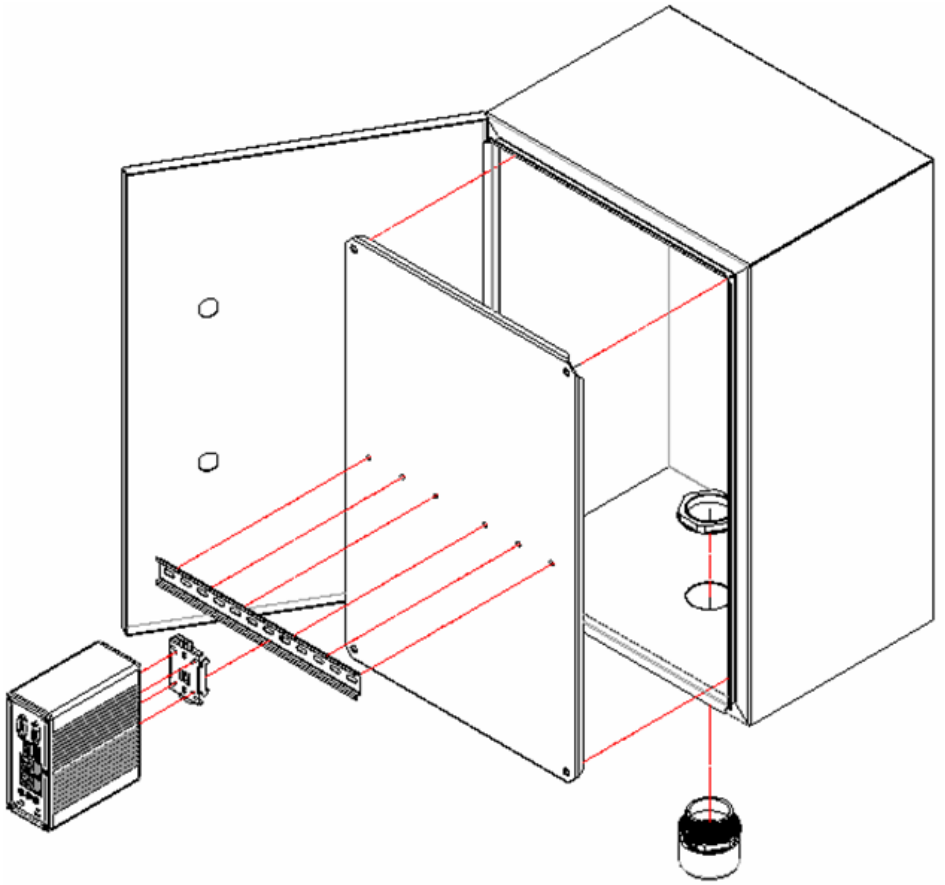
1. Please check if the unit has been correctly installed without any damage
2. Please check if the wiring and screws have been properly tightened
3. Please check if the cable gland has been tightened

Follow these steps when maintaining the enclosure box:

1. Prevent and avoid any formation of dusts, please clean it with a cloth
2. Please check if there is any damage on the surface of the box
3. Please check the tightness of the connections / wires

Follow these steps to install the IBDRW100-EX inside of the enclosure box:

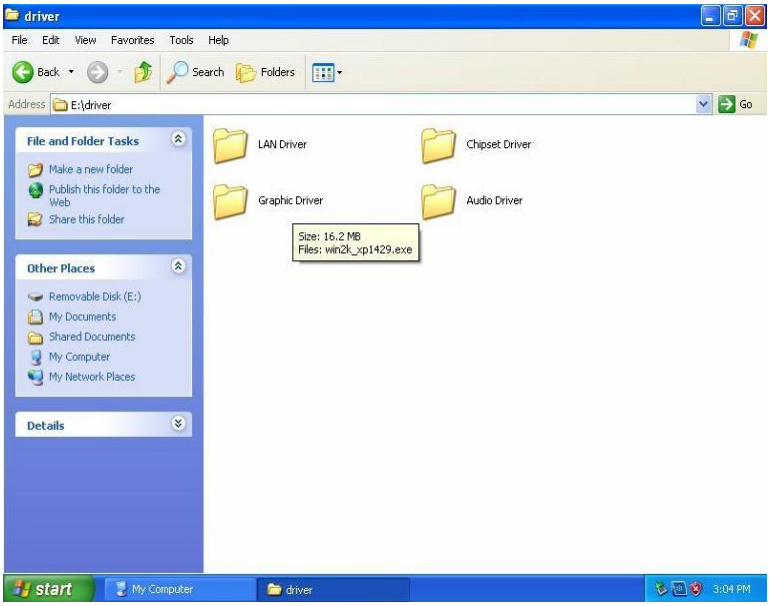
1. Attached DIN Rail adapter to the IBDRW100-EX Box PC using the screws provided
2. Mount the DIN rail inside of the enclosure Box
3. Press the stiff metal handle from (DIN Rail adapter) downward and insert the hook into the DIN-rail
4. Mount the Enclosure Box to a Wall / Skid, all the surface need to be flat to avoid any distortion of the enclosure
5. Use the proper dimensions for drilling the holes to mount the enclosure box to a wall.



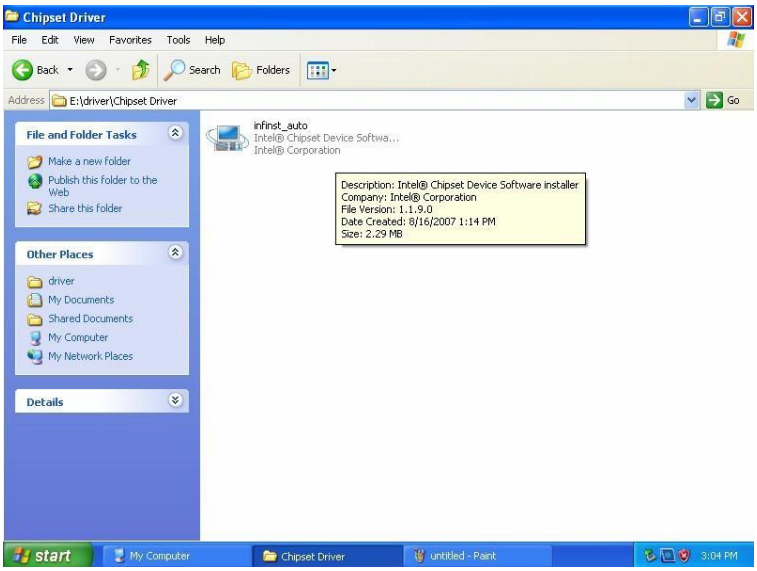
Chapter 4: Driver Installation

4.1 Chipset Driver Installation

Step 1. Insert the CD that comes with the motherboard. Open the file document “Chipset Driver”.

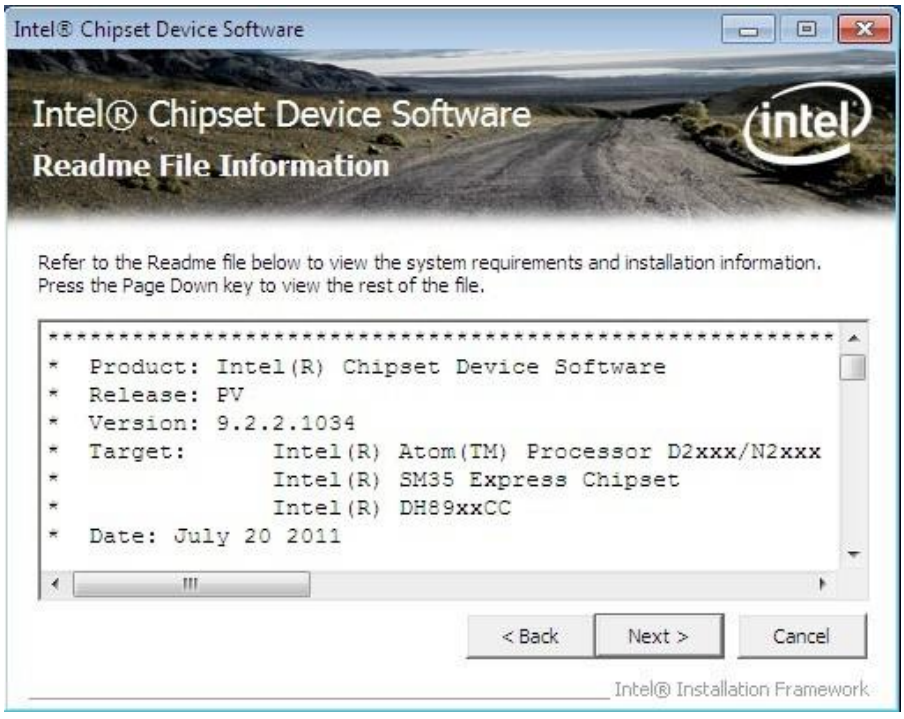


Step 2. Click on “infinst_auto.exe“ to install driver.



Step 3. Click on “Yes “ to agree License

Step 4. Click on “Next“ to install driver.



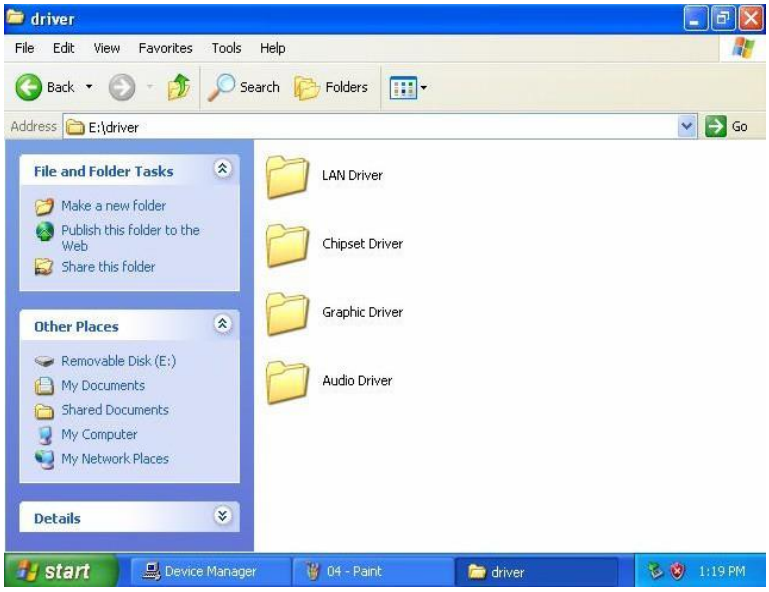
Step 5. Click on “Next“ to install driver.

Step 7. Click on “Yes, I want to restart this computer now“ to go on.

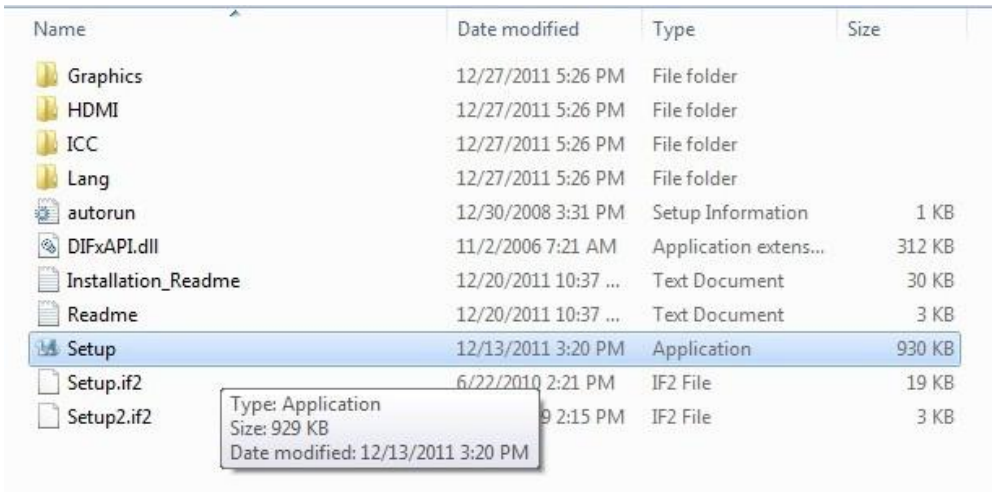
4.2 Graphic Driver Installation

IB32 Motherboard is equipped with Intel SoC Integrated Device. The Intel Graphic Drivers should be installed first, and it will enable “Video Controller (VGA compatible). Follow the instructions below to complete the installation. You will quickly complete the installation.

Step 1. Insert the CD that comes with the Motherboard. Open the file document “Graphic Driver “.



Step 2. Click on “setup” to execute the setup.

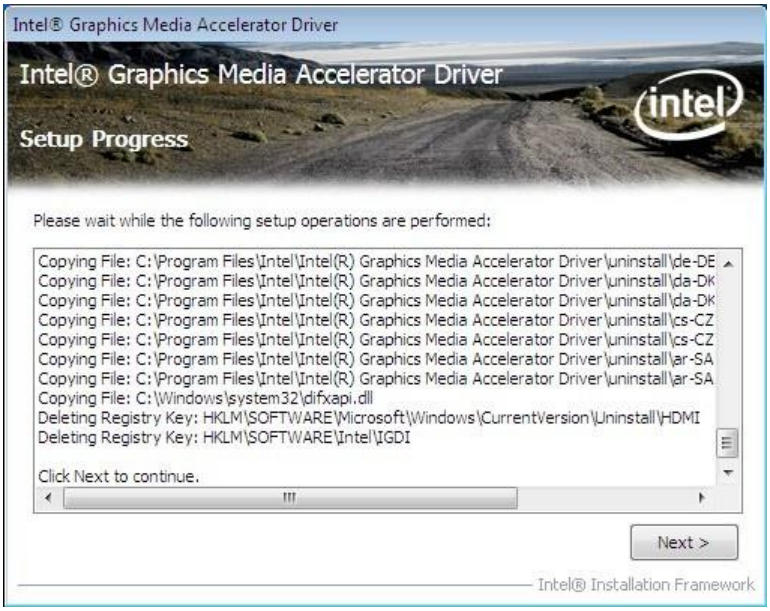


Step 3. Click on “Next “ to install Driver.

Step 4. Click on “Yes “ to agree License.

Step 5. Click on “Next “ to install Driver.

Step 6. Click on “Next “ to install Driver.



Step 7. Click on “Yes, I want to restart this computer now“ to go on.

4.3 Ethernet Driver Installation

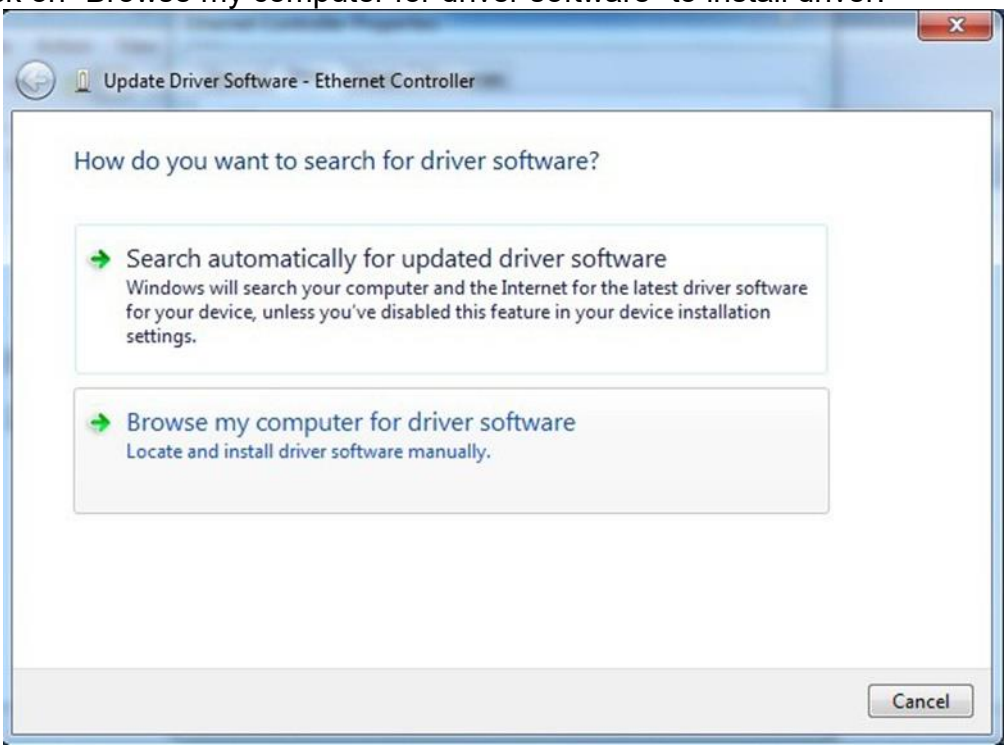
The Users must make sure which operating system you are using in the IB32 Motherboard before installing the Ethernet drivers. Follow the steps below to complete the installation of the Intel ®I210 GbE Ethernet controller LAN drivers. You will quickly complete the installation.

Step 1. Right-click the desktop, and then click Properties.

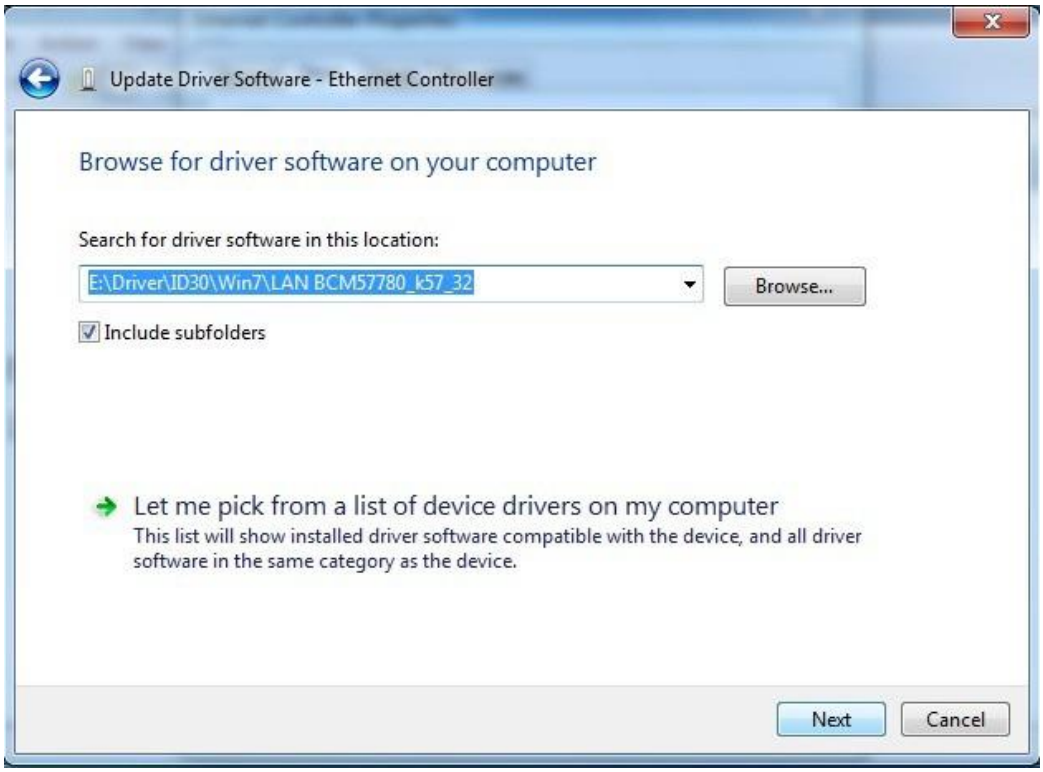
Step 2. In the Other device dialog box, click the Settings tab.

Step 3. Click on “Update Driver” to execute the setup.

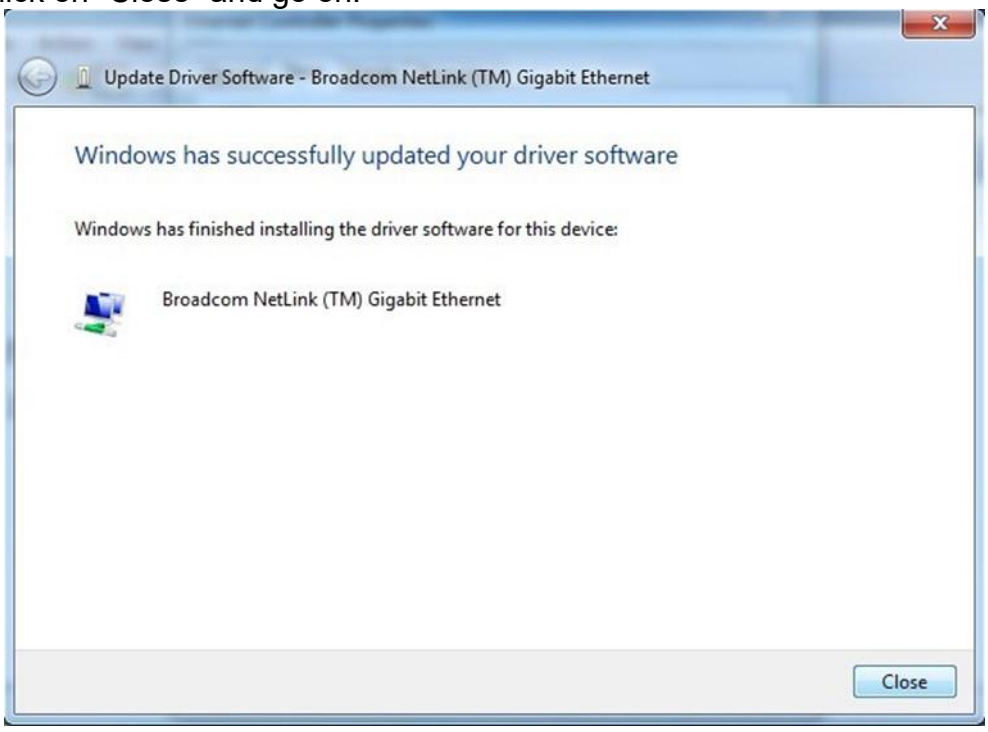
Step 4. Click on “Browse my computer for driver software“ to install driver.



Ste .5. Choose the path to install driver.



Step 6. Click on “Close“ and go on.

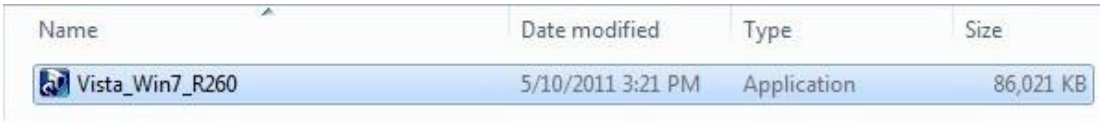


4.4 Audio Driver Installation

The ALC886 series are high-performance 7.1+2 Channel High Definition Audio Codecs providing ten DAC channels that simultaneously support 7.1 sound playback, plus 2 channels of independent stereo sound output (multiple streaming) through the front panel stereo outputs. The series integrates two stereo ADCs that can support a stereo microphone, and feature Acoustic Echo Cancellation (AEC), Beam Forming (BF), and Noise Suppression (NS) technology.

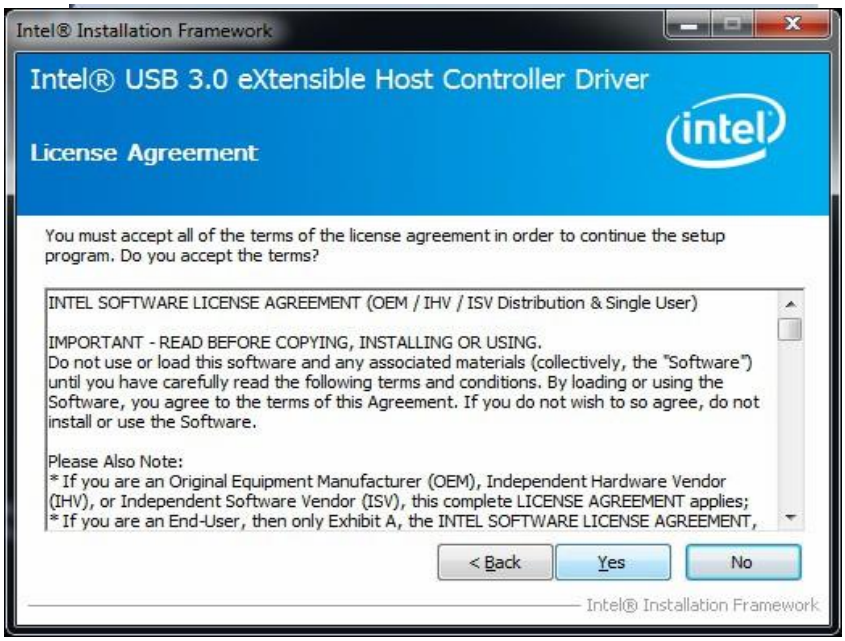
The users must make sure which operating system you are using in the IB32 Motherboard before installing the Audio drivers. Follow the steps below to complete the installation of the Realtek ALC886 Audio drivers. You will quickly complete the installation.

Step 1. Insert the CD that comes with the motherboard. Open the file document "alc655_driver" and click on "Vista_Win7_R260.exe" to execute the setup.



Step 2. Click on "Yes" to install driver.

Step 3. Click on “Yes, I want to restart my computer now” to finish installation.



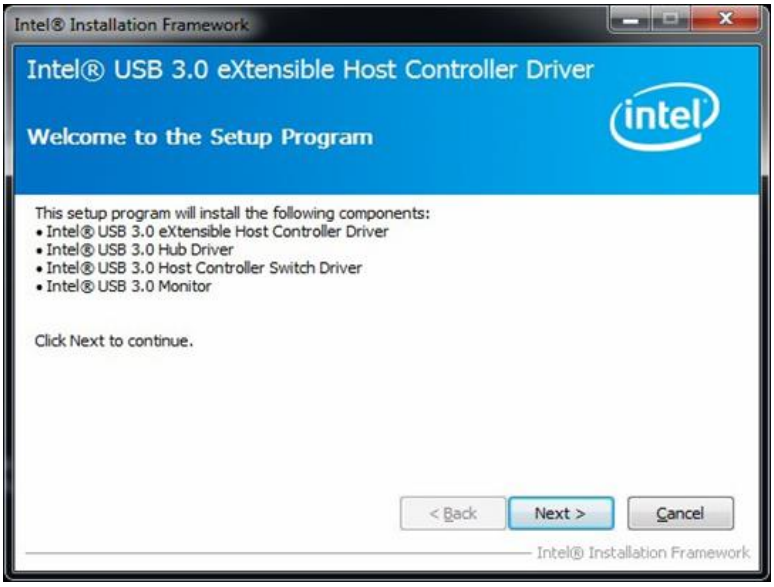
4.5 USB 3.0 Installation

IB32 Motherboard is designed with Intel® USB 3.0 eXtensible Host Controller.
You need to install the Intel® USB 3.0 eXtensible Host Controller driver to enable the function.

Step 1. Locate the hard drive directory where the driver files are stored with the browser or the explore feature of Windows*.

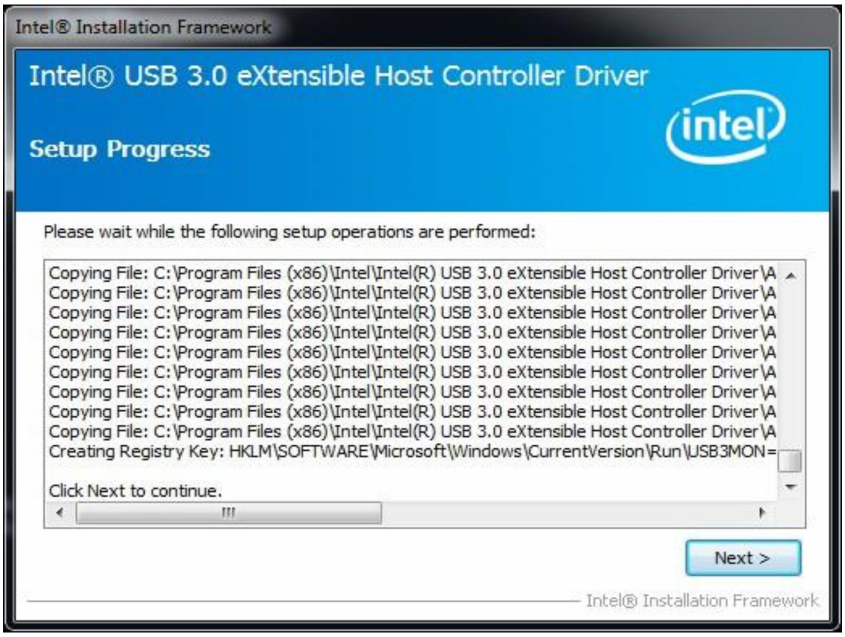
Step 2. Double click the “Setup.exe” from this directory.

Step 3. Click “Next” to continue.



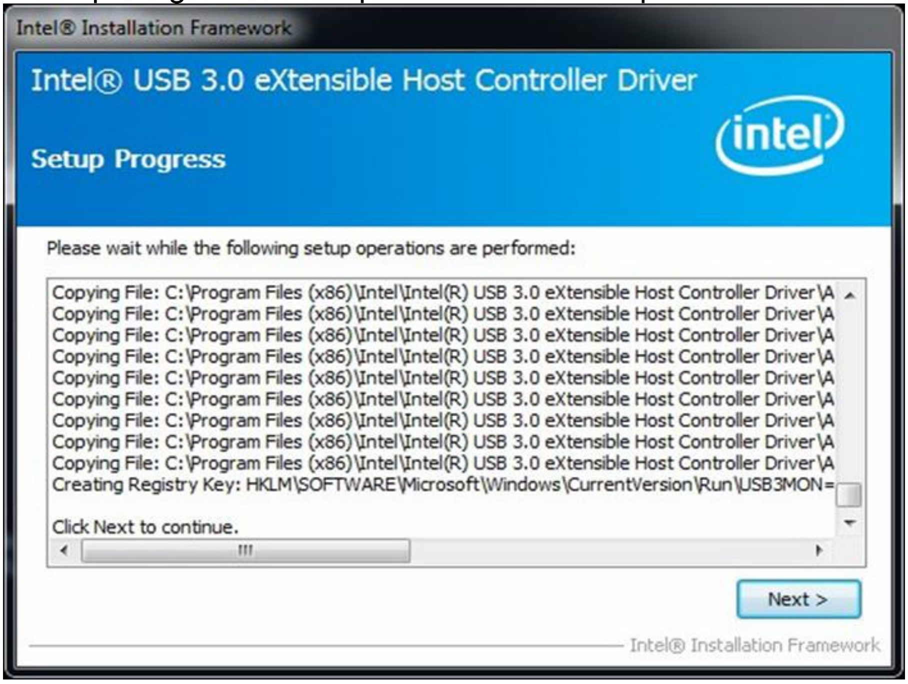
Step 4. Read License Agreement and click “Yes” to proceed.

Step 5. Review Readme File Information and click “Next” to proceed.

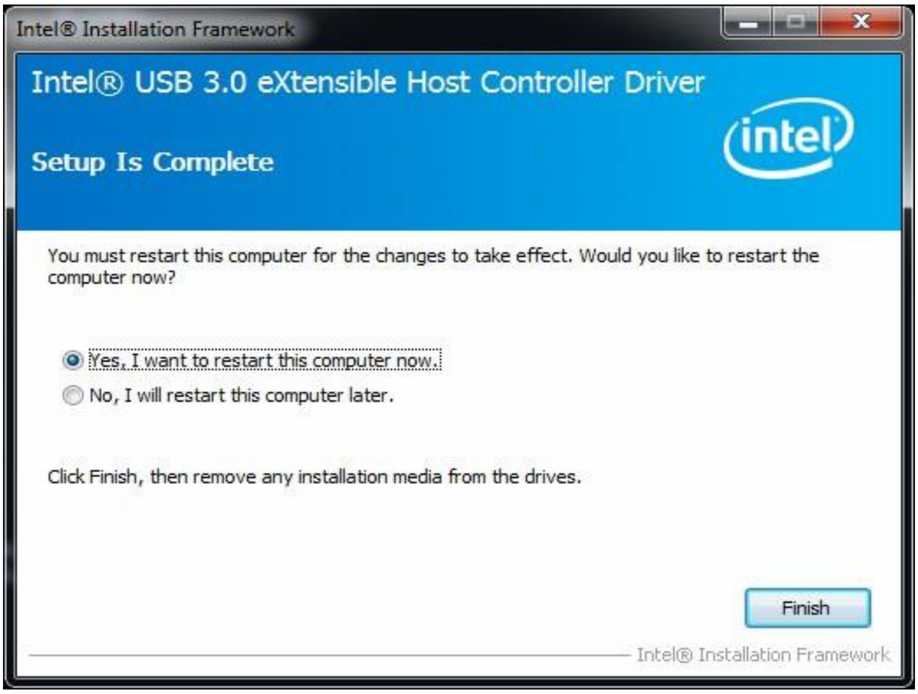


Step 6. When the “Setup Progress” is complete click “Next” to proceed.

Step 7. When the “Setup Progress” is complete click “Next” to proceed.



Step 8. Lastly, the “Setup Complete” screen appears so click “Finish” to restart your computer.



4.6 COM Port Driver Installation

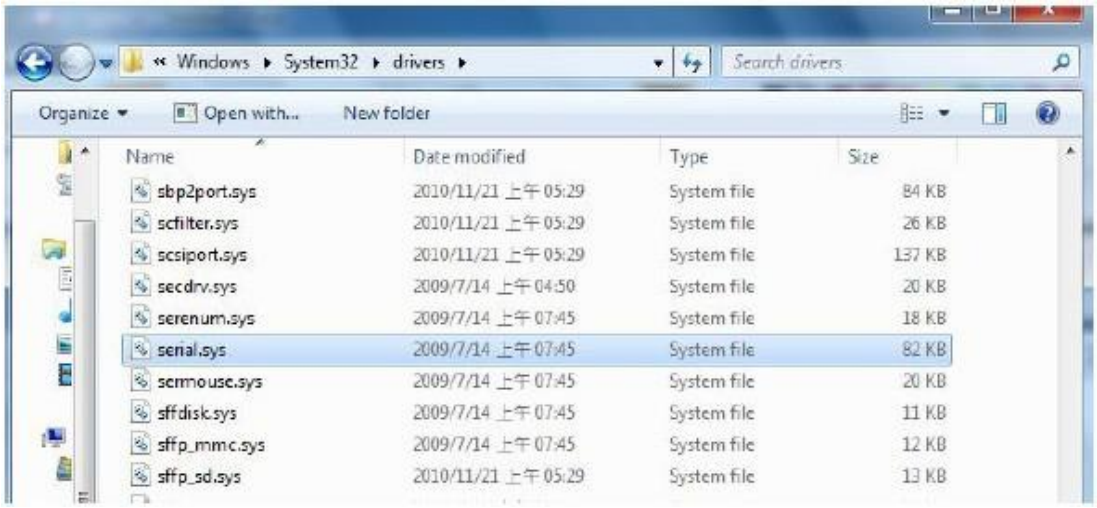
Step 1. If the system is WIN7 please first do close UAC.(Refer following “Disabling User Account
Control (UAC) in Windows 7”)

Step 2. Extract the Patch_0408.zip to a folder.

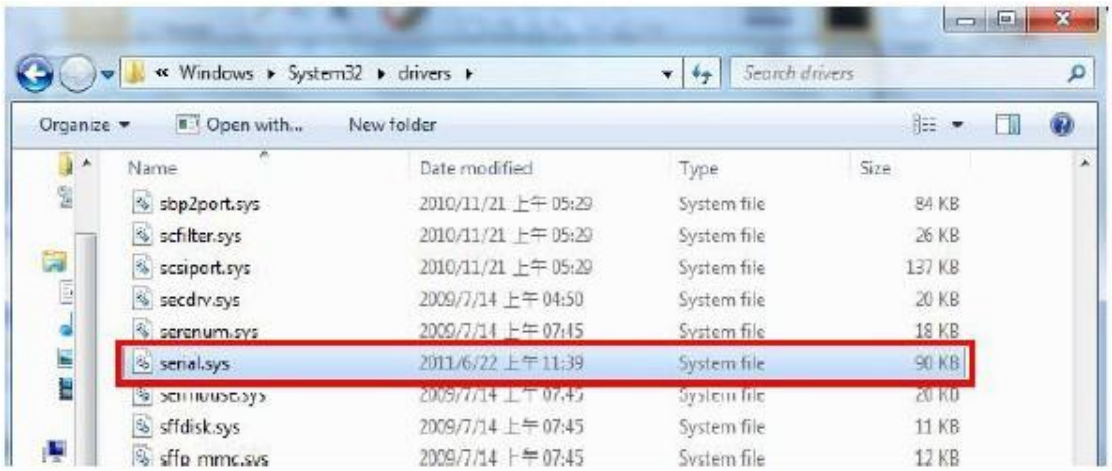
Step 3. Double-click batch file (patch.bat) will install driver.

Step 4. Check driver install success.

Before the update or update fail.



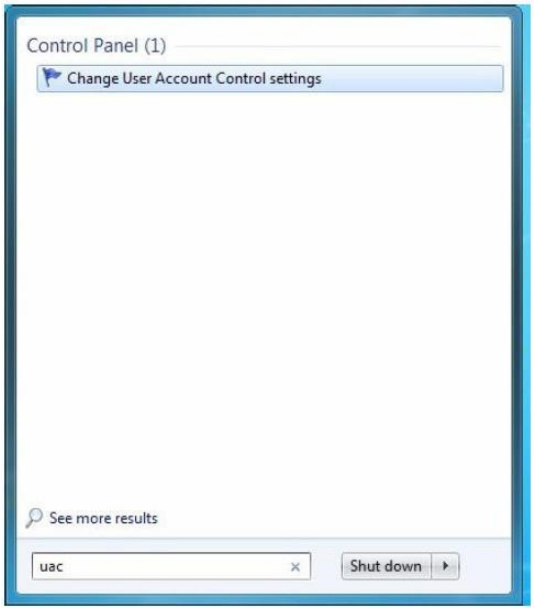
After the update and update success.



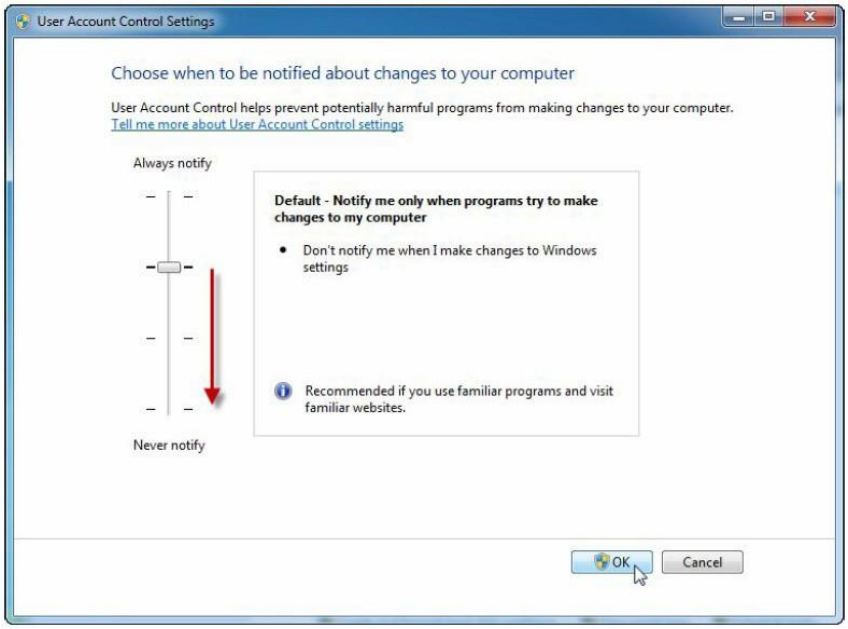
Step 5. You will need to restart your computer for driver install success. Type in this command from the Run menu:

C:\Windows\System32\UserAccountControlSettings.exe

Or uac



To turn off UAC, move the slider to the Never notify position, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.



To turn UAC back on, move the slider to choose when you want to be notified, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation. You will need to restart your computer for UAC to be turned off.

Chapter5: BIOS Setup

5.1 BIOS Introduction

5.1.1 BIOS Setup and Boot Procedure

BIOS stand for “Basic Input Output System” and it is the most basic communication between user and the hardware. To enter BIOS Setup, the [DEL] key must be pressed after the USB controller has been initialized as soon as the following message appears on the monitor during Power On Self-Test (POST):

“Press DEL to run SETUP”

Note: Update BIOS version may be published after the manual is released. Please check with the latest version of BIOS on the website. User may need to run BIOS setup utility for the following status:

1. Error message on screen indicate to check BIOS Setup
2. Restoring the Factory default setting
3. Modifying the specific hardware specification
4. Want to optimize the specification

5.1.2 BIOS Setup Keys

The following keys are enabled during POST:

Key	Function
Del	Enters the BIOS setup menu
F7	Display the boot menu. Lists all bootable devices that are connected to the system. With cursor ↑ and cursor ↓ and by pressing <ENTER>, select the device used for the boot
Pause	Pressing the [Pause] key stops the POST. Press any other key to resume the POST.

The following keys can be used after entering the BIOS Setup:

Key	Function
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit
Esc	Exit
+/-	Change Opt.
Enter	Select or execute command
Cursor ↑	Moves to the previous item
Cursor ↓	Goes to the next item
Cursor ←	Moves to the previous item
Cursor →	Goes to the next item

5.2 BIOS Menu

5.2.1 Main

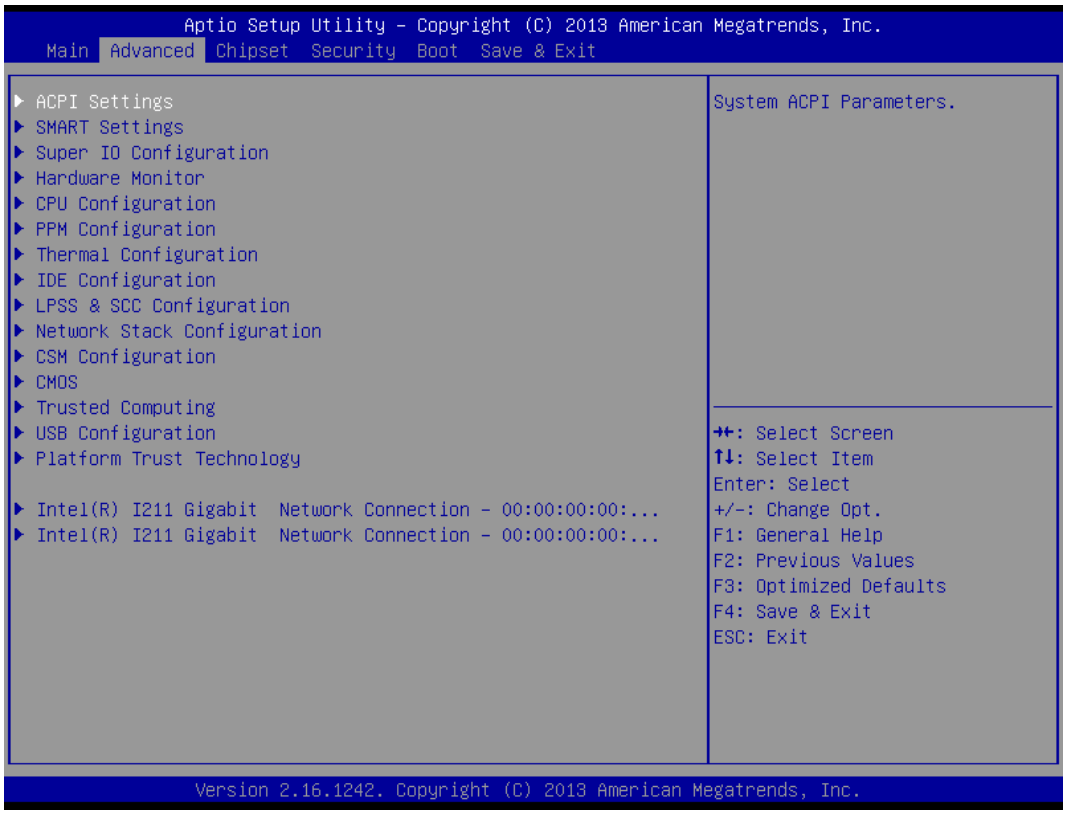
Immediately after the [DEL] key is pressed during startup, the main BIOS setup menu appears:

BIOS setting	Description	Setting options	Effect
System Time	This is current time setting. The time is maintained by the battery when the device is turned off	Adjustment of the time	Set the time in the format [hh:mm:ss]
System Date	This is current date setting. The time is maintained by the battery when the device is turned off	Changes to the date	Set the date in the format [mm/dd/yyyy]
System Language	This is current language setting.	Adjustment of the language	Set the language in other language. The language in this device is English

BIOS Advance Setup Utility

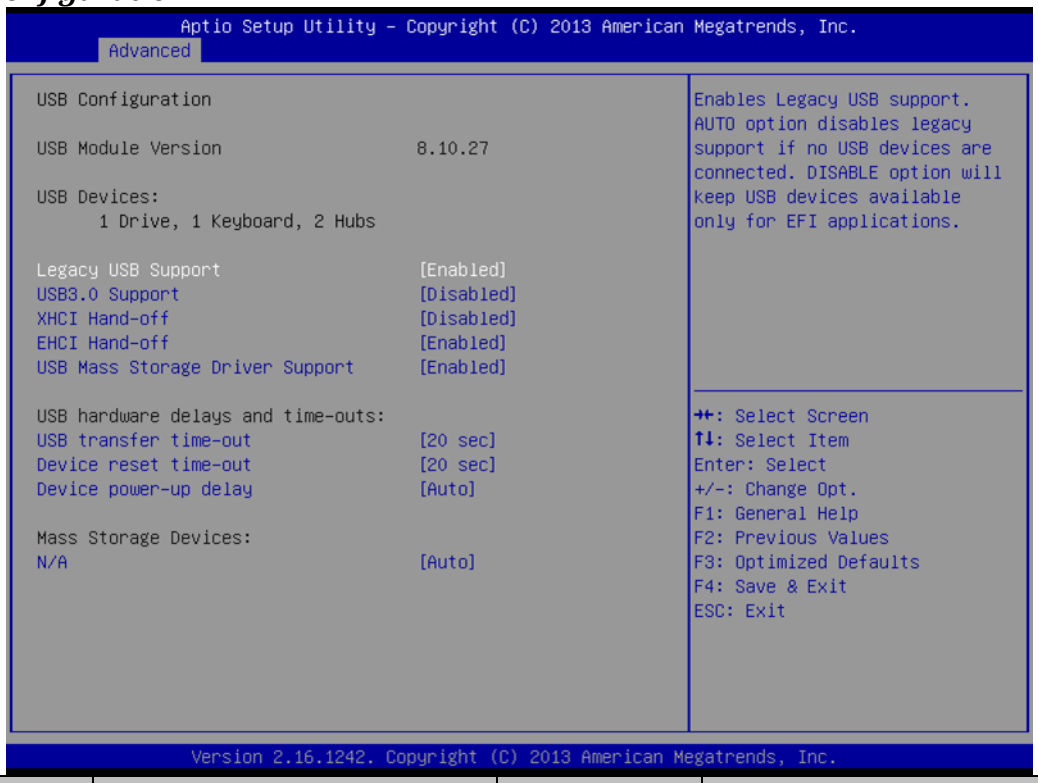
BIOS Setting	Description
Intel AMT Support	Enable and disable BIOS support for Intel Active Management Technology
Intel AMT Setup Prompt	Enable and disable the boot interruption <Ctrl+P> to call up Intel Management Engine BIOS Extention (MBEx) configuration page
AMT CIRA Request Trig	Enable Client Initiated Remote Access (CIRA) Fast Call for Help. CIRA allows AMT maintenance event if the AMT PC is not in the intranet
AMT CIRA Timeout	CIRA timeout for connection establishment with MPS (Manageability Presence Server / “vPro Enabled Gateway”)
Un-Configure ME	Resets all the values of the MEBx to their defaults (see section “Reset with Un-Configure”)
USB Configure	USB Configure: Enable and disable the USB configuration (provisioning)

5.2.3 Advanced



BIOS Setting	Description	Setting options	Effect
ACPI Settings	Configures ACPI settings	Enter	Opens submenu
SMART Settings	Configures SMART settings	Enter	Opens submenu
Super IO Configuration	Configures System Super IO Chip parameters	Enter	Opens submenu
Hardware Monitor	Monitor hardware status	Enter	Opens submenu
CPU Configuration	Configures CPU settings	Enter	Opens submenu
PPM Configuration	Configures PPM Parameters	Enter	Opens submenu
Thermal Configuration	Configures Thermal Parameters	Enter	Opens submenu
IDE Configuration	Configures IDE devices	Enter	Opens submenu
LPSS & SCC Configuration	Configures LPSS & SCC	Enter	Opens submenu
Network Stack Configuration	Configures network stack	Enter	Opens submenu
CSM Configuration	Configures CSM: Enable/Disable, Option ROM execution settings, etc.	Enter	Opens submenu
CMOS	CMOS settings / Information	Enter	Opens submenu
Trusting Computing	Trusted computing settings	Enter	Opens submenu
USB Configuration	Configures USB settings	Enter	Opens submenu
Platform Trust Technology	Platform trust technology	Enter	Opens submenu

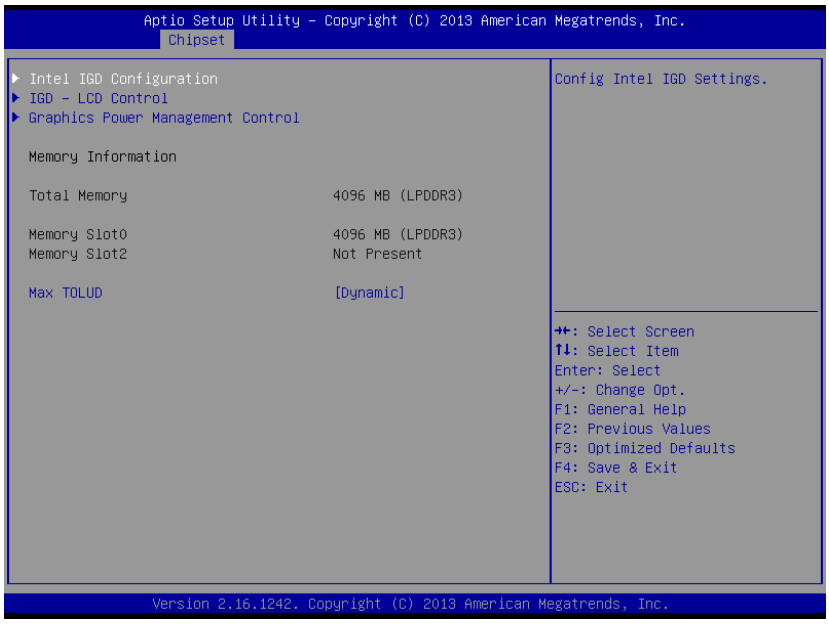
5.2.3.1 USB Configuration



BIOS Setting	Description	Setting Option	Effect
Legacy USB Support	User can enable or disable USB port.	Disable	Will keep USB devices available only for EFI applications.
		Enable	Enable all the USB devices
USB 3.0 Support	User can enable or disable USB 3.0 (XHCI) controller support.	Enable	Enable USB 3.0 is enable
		Disable	USB 3.0 is disable
XHCI Hand-off	This is a workaround for OSs without XHCI hand-off support.	Disable	Disables this function
		Enable	Enables this function
EHCI Hand-off	This is a workaround for OSs without ECHI hand-off support.	Disable	Disables this function
		Enable	Enables this function
USB mass storage driver support	User can Enable or disable USB mass storage driver support.	Disable	Disables this function
		Enable	Enables this function
USB Transfer time- out	The time-out value for control, bulk, and interrupt transfers.	1 Sec 5 Sec 10 Sec 20 Sec	Depends on the time-out value
Device Reset time- out	USB mass storage device start unit command time-out.	10 Sec 20 Sec 30 Sec 40 Sec	Depends on the time-out value
Device power-up delay	Maximum time the device will take before it properly reports itself to the host controller.	Auto	Uses default value: for a root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor

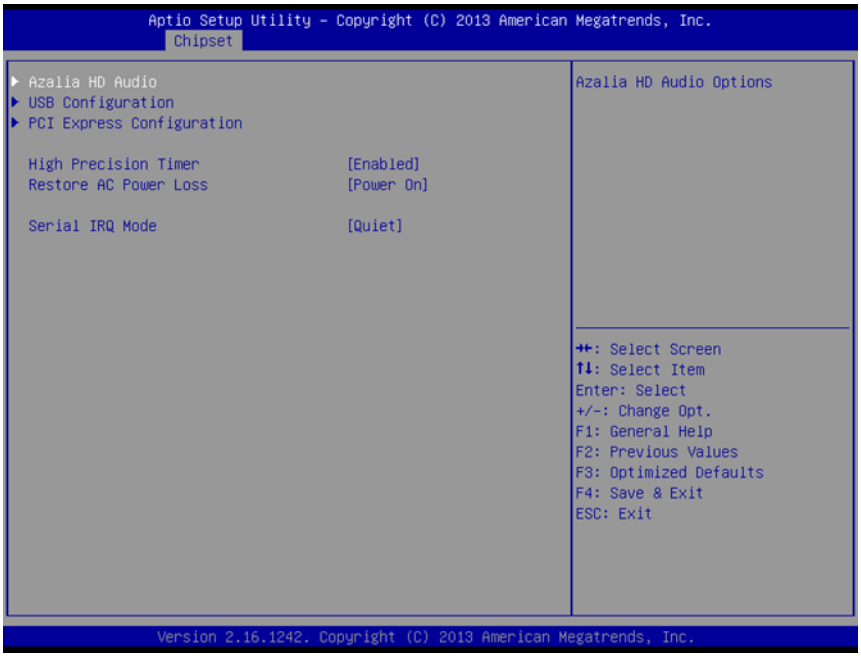
5.2.4 Chipset

5.2.4.1 Chipset North Bridge Parameters



BIOS Setting	Description	Setting options	Effect
Intel IGD Configuration	Provides onboard graphics-related configuration options	Enter	Opens submenu
IGD – LCD Control	Configures IGD – LCD setting	**Enter**	Opens submenu
Graphic Power Management Control	Provides power saving configuration options for the onboard graphics	**Enter**	Opens submenu

5.2.4.2 Chipset South Bridge Parameters

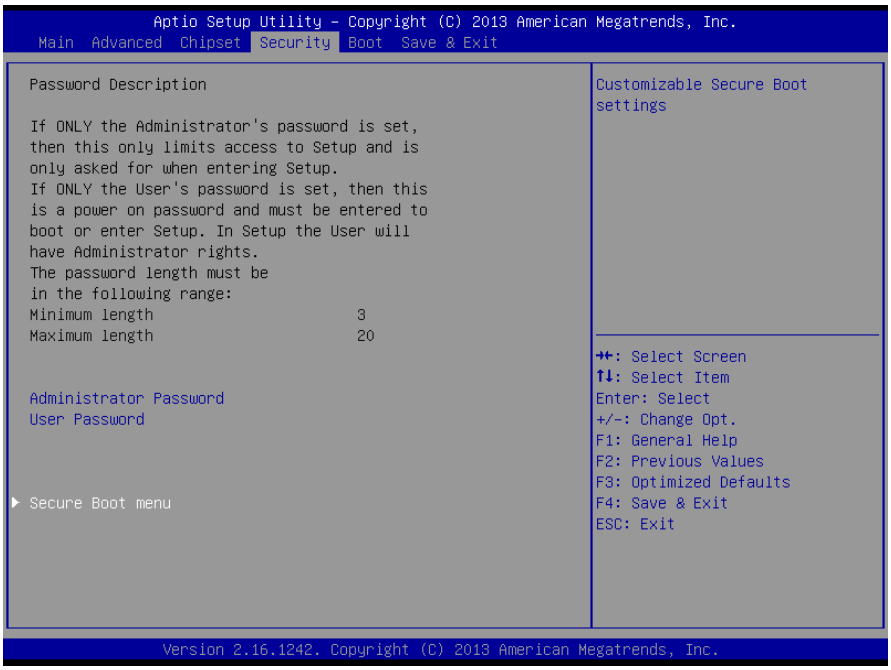


BIOS Setting	Description	Setting options	Effect
Azalia HD Audio	Configures onboard audio function	Disable	Disables this function
		Enable	Enables this function
USB Configuration	Provides user with configuration options for the USB controller, such as enabling/disabling a specific USB port and support for certain features	USB 2.0(EHCI)	Enable / Disable this function
		USB Port 0	Enable / Disable this function
		USB Port 1	Enable / Disable this function
		USB Port 2	Enable / Disable this function
		USB Port 3	Enable / Disable this function
PCI Express Configurati	Provides user with configuration options for the PCI Express bus, such as enabling/disabling	PCI Express port 0	Enable / Disable this function
		PCI Express port 1	Enable / Disable this function
		PCI Express port 2	Enable / Disable this function
		PCI Express	Enable / Disable

on	a specific PCI Express channel and speed configuration	port 3	this function
High Precision Timer	Configures high precision timer (HPET) in the operating system	Disable	Disables this function
		Enable	Enables this function
Restore AC Power Loss	Configures the state of the system after return of power on AC power loss	Power Off	The System stays off upon the return of the AC power
		Power On	The System is turned on upon the return of the AC power
		Last State	The system returns to its last known awake state upon the return of the AC power
Serial IRQ Mode	Configures IRQ mode	Quite	Entering quite (active) mode
		Continuous	Entering Continuous (idle) mode

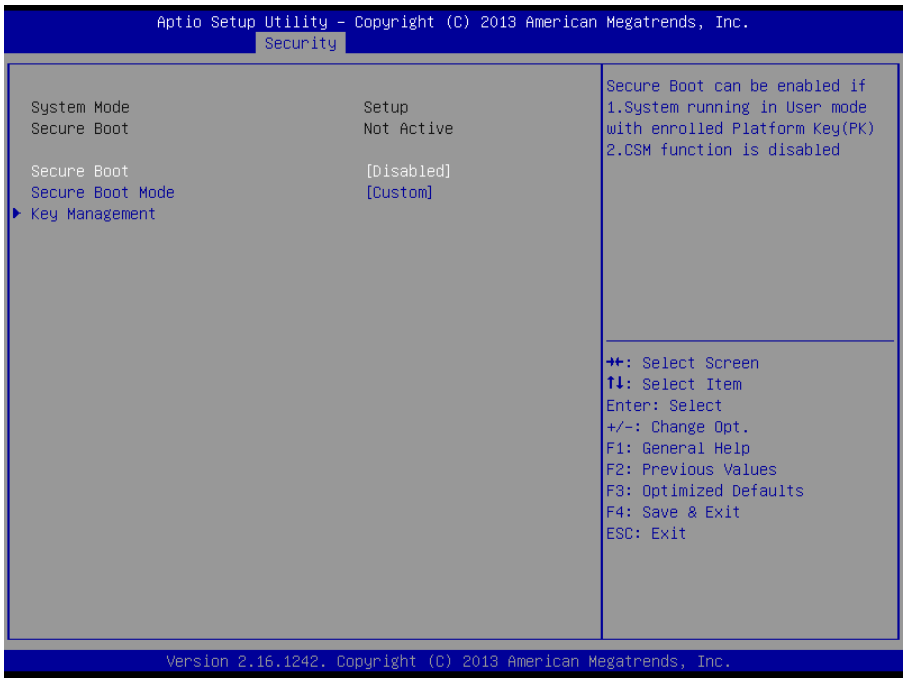
5.2.5 Security

Allows user to configure an administration or user password, user must enter the administrator or user password at system startup and when entering BIOS setup



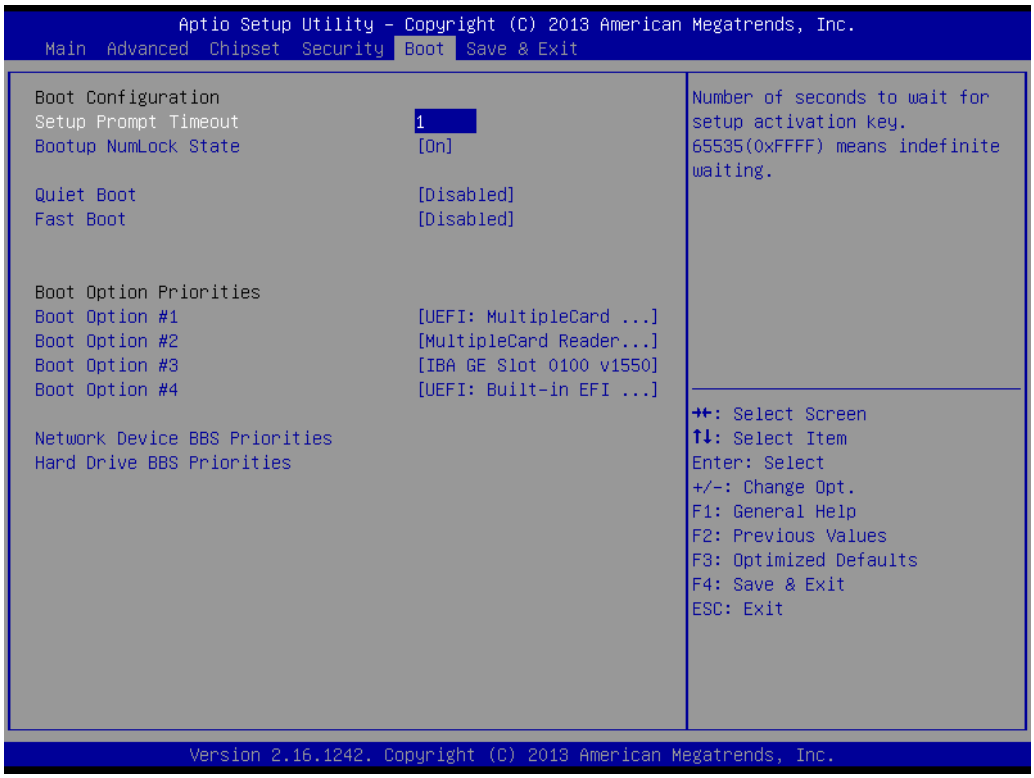
BIOS Setting	Description	Setting options	Effect
Administrator Password	Displays whether or not an administrator password has been set	Enter	Enter Password
User Password	Display whether or not a user password has been set	Enter	Enter Password

5.2.5.1 Security Boot Menu



BIOS Setting	Description	Setting options	Effect
Secure Boot	Displays the current boot state	Disable	Disables this function
		Enable	Enables this function
Secure Boot Mode	Allows user to configure the secure boot mode	Disable	Disables this function
		Enable	Enables this function
Key Management	Provides user with configuration options for secure boot key management	Enroll all factory default keys, Platform key, key exchange key, Authorized signatures, Authorized timestamps, Forbidden signatures	Select the desired key

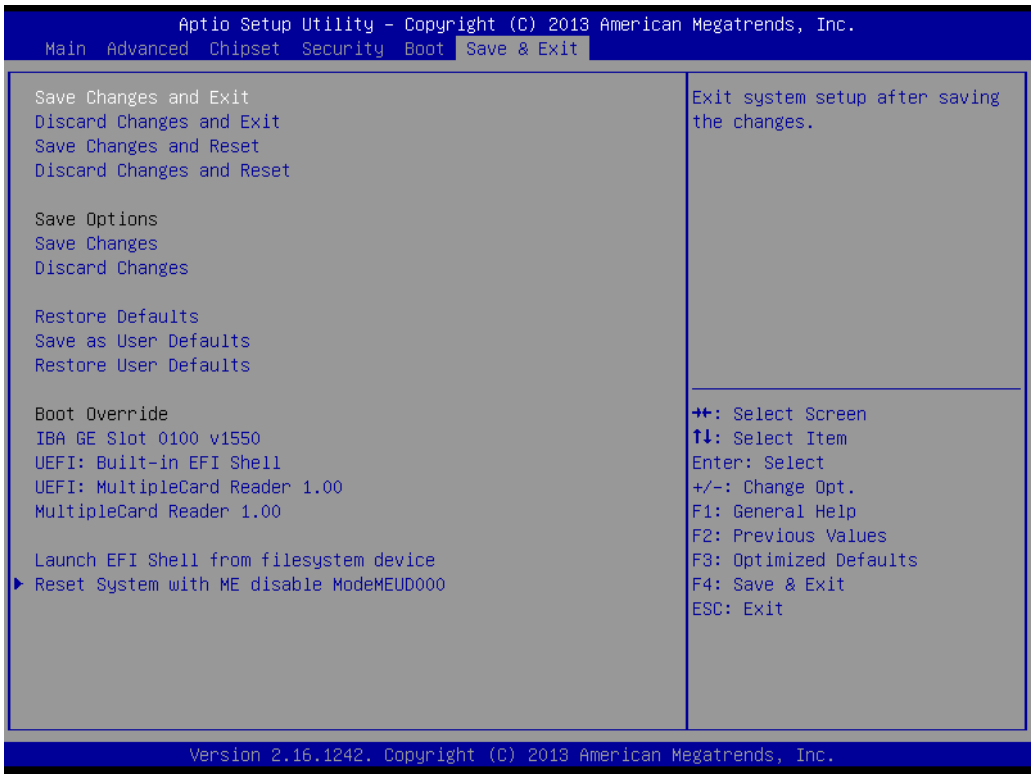
5.2.6 Boot



BIOS Setting	Description	Setting options	Effect
Setup Prompt Timeout	Allows user to configure the number of seconds to stay in BIOS setup prompt screen	Enter	Set the prompt timeout
Boot NumLock State	Enables or disables Numlock feature on the numeric keypad of the keyboard after the POST. (Default: On)	On	Remains On
		Off	Remains Off
Quite Boot	Determines if POST message or OEM logo (default = Black background) is displayed	Disabled	Disables this function
		Enabled	Enables this function
Fast Boot	Enables or disables Fast Boot to shorten	Disable	Disables this function
		Enable	Enables this function

	the OS boot process. (Default: Disabled)		
Boot Option Priority	Specifies the overall boot order from the available devices	Ex: Boot Option#1 (hard drive)	Hard drive as the first priority
Hard Drive BBS Priority	Specifies the boot order for a specific device type, such as hard drives, optical drives, floppy disk drives, and devices that support Boot from LAN function	Enter	Enter the submenu that present the devices of the same type are connected

5.2.7 Save & Exit



BIOS Setting	Description	Setting options	Effect
Save Changes and Exit	This saves the changes to the CMOS and exits the BIOS Setup program	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Discard Changes and Exit	This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Save Changes and Reset	Reset the system after saving the changes	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Discard Changes and Reset	Reset system setup without saving any changes	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Save Changes	Save changes done so far to any of the setup options	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Discard Changes	Discard changes done so far to any of the setup options	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Restore Default	Restore/load default values for all the setup options	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Save as User Defaults	Save the changes done so far as User defaults	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu
Restore User Defaults	Restore the User Defaults to all the setup options	Enter <Yes>	Saves the changes
		Esc <No>	Return to the BIOS Setup Main Menu

5.3 Using Recovery Wizard to Restore the System

Our system has a dedicate recovery partition stored on the hard drive of the PC to enable quick one-key recovery process. This partition occupies about 11GB of the storage space, and comes built-in to each Panel PC and Box PC.

Warning: Before starting the recovery process, be sure to backup all user data, as all data will be lost after the recovery process.

Follow the procedure below to enable quick one-key recovery procedure:

- Plug-in the AC adapter to Box PC. Make sure the Box PC stays plugged in to power source during the recovery process.
- Turn on the Box PC, and when the boot screen shows up, press the **F6** to initiate the Recovery Wizard.
- The following screen shows the Recovery Wizard. Click on “Recovery” button to continue.

A warning message about data loss will show up. Make sure data is backed up before recovery, and click on “Yes” to continue.

Wait till the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process. After recovery is completed, and the Box PC will restart automatically.

Appendix

Refer the following descriptions for various approvals and certifications

N.A. Safety for Information Technology Equipment **(Optional for IBDRW100-EX)**

Certification by Underwriter Laboratories to UL60950-1, 2nd Edition standard and equivalent CSA C22.2 No 60950-1-07, 2nd Edition Standard

N.A. Safety for HazLoc Class 1 Division 2, Groups A,B,C,D,T4 **(Optional for IBDRW100-EX)**

I.T.E. FOR USE IN HAZ.LOC. E361897

Certification by Underwriter Laboratories to ANSI/ISA-12.12.01-2012 standard and equivalent CAN/CSA C22.2 No 213-M1987 Standard

Explosive Atmosphere Directive **(optional for IBDRW100-EX)**

Certification with ATEX Directive 94/9/EC; Independent 3rd party assessment

Low Voltage Directive European Safety for Industrial Control Equipment

Self-Declaration in accordance with European LVD Directive 2006/95/EC; Independent 3rd party assessment (Accredited by IEC 17025)

Electromagnetic Compatibility Directive European EMC for Industrial Control Equipment

Self-Declaration in accordance with EMC Directive 2004/108/EC; Independent 3rd party assessment (Accredited by IEC 17025)

Federal Communications Commission on electromagnetic interference

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may cause harmful and (2) this device must accept any interference received, including that may cause undesired operation

Winmate Inc.
9F, No.111-6, Shing-De Rd., San-Chung District,
New Taipei City 24158, Taiwan, R.O.C
www.winmate.com