

# **DIN Rail Box PC**

# IBDRW100/ IBDRW100-EX

Intel® Celeron® Bay Trail-M N2930



# **User Manual**

Version 4.0 Document Part No. 917111171001

# Contents

| Preface   |
|---|
| Chapter 1: Introduction7                                      |
| 1.1 Product Description7                                      |
| 1.2 Hardware Specification7                                   |
| 1.2.1 System Specification7                                   |
| 1.2.2 Mechanical and Power7                                   |
| 1.2.3 I/O Connectors7   |
| 1.2.4 Environment Considerations7                             |
| 1.3 Packing List  |
| 1.4 Chassis Dimensions  |
| 1.5 Description of Parts 10                                   |
| Chapter 2: Hardware Installation11                            |
| 2.1 Motherboard Connectors Description 11                     |
| 2.2 Connector Pin Assignment 12                               |
| 2.2.1 Audio (AUDIO1) 12                                       |
| 2.2.2 RS422, RS485 (COM2) 13                                  |
| 2.2.3 COM1 + VGA (CON3)                                       |
| 2.2.4 Isolator DIDO (CON4) 13                                 |
| 2.2.5 DIDO (DIDO1)  |
| 2.2.6 Dual LAN (DUALLAN1) 14                                  |
| 2.2.7 DVI Connector(J3) 14                                    |
| 2.2.8 DC Adapter Jack (J7) 14                                 |
| 2.2.9 Mini PCIE x1 Connector (MINIPCIE1 Full and Half Card)   |
| 2.2.10 Panel1 (PANEL1)  |
| 2.2.11 SSD1 Mini PCIE x1 Connector (SSD1 Full Card)15         |
| 2.2.12 USB1 USB2.0  |
| 2.2.13 USB 2.0 + USB3.0 + LAN Connector (USBLAN3) 16          |
| 2.2.14 Clear CMOS (JP11) 16                                   |
| 2.2.15 RS422, RS485 Terminal Resistor (JP12,JP13, JP17, JP18) |
| 2.2.16 USB 2.0 + LAN Connector (USBLAN2) 17                   |
| 2.2.17 RS422, RS485 Select (JP16, JP19, JP20) 17              |
| 2.2.18 RS232, RS422, RS485 Select (JP8, JP9) 17               |
| Chapter 3: Initial Setup                                      |
| 3.1 DIN Rail Mounting Setup 18                                |
| 3.2 Cable ARM Bracket Installation (Optional for IBDRW100-EX) |

| 3.3 Enclosure for IBDRW100-EX 20                |
|---|
| Chapter 4: Driver Installation22                |
| 4.1 Chipset Driver Installation                 |
| 4.2 Graphic Driver Installation                 |
| 4.3 Ethernet Driver Installation                |
| 4.4 Audio Driver Installation                   |
| 4.5 USB 3.0 Installation                        |
| 4.6 COM Port Driver Installation                |
| Chapter5: BIOS Setup                            |
| 5.1 BIOS Introduction                           |
| 5.1.1 BIOS Setup and Boot Procedure             |
| 5.1.2 BIOS Setup Keys                           |
| 5.2 BIOS Menu                                   |
| 5.2.1 Main                                      |
| 5.2.3 Advanced                                  |
| 5.2.4 Chipset                                   |
| 5.2.5 Security                                  |
| 5.2.6 Boot                                      |
| 5.2.7 Save & Exit                               |
| 5.3 Using Recovery Wizard to Restore the System |
| Appendix  |

#### Preface

#### **Copyright Notice**

No part of this document may be reproduced, copied, translated, or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the prior written permission of the original manufacturer.

#### **Trademark Acknowledgement**

Brand and product names are trademarks or registered trademarks of their respective owners.

#### **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 1W16Axxxxxx 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<br>System Chipset<br>System Memory | : Intel ®Celeron ® Bay Trail-M<br>: Bay Trail SoC Chipset<br>: 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**

| Dimens                   | sions                 | : 85.5 x 152 x 139 mm (L x W x H)                                   |
|--------------------------|-----------------------|---|
| Constr                   | uction                | : Aluminum Housing  |
| Power                    | Input                 | : 9-36V DC IN (isolation) Power Source                              |
| Range                    |                       | : 20W max.  |
| Mounti<br>1.2.3 I/O Coni | ng<br>n <b>ectors</b> | : DIN Rail  |
| Front S                  | 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 |
|                          | W                     | LAN 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 Environ            | ment Considerati      | ons   |
| Operat                   | ing Temperature       | : -20 to 60 deg. C  |
| Operat                   | ing Humidity          | : 5% to 95% (non-condensing)  |
| Anti-Vi                  | bration               | : 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

•



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



Ų

#### **1.5 Description of Parts**



- 1. VGA
- 2. RS232/422/485
- 3. LAN (1 LAN disabled if WLAN
- module<sup>`</sup>added)
- 4.LAN 5. USB
- 5.036
- 6. Audio Jack



- 7. Isolated RS422 default (RS485 as optional)
- 8. DIDÓ
- 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:



#### 12 IBDRW100/ IBDRW100-EX User Manual

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)

| σ | 0 |
|---|---|
| 0 | 0 |
| 0 | 0 |
| 0 | 0 |
| 0 | 0 |

| 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>B_FILTER</b> |
| 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)



# 2.2.5 DIDO (DIDO1)



| 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    |

| 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)



#### 2.2.7 DVI Connector(J3)



| 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            |

| Pin | Signal Name   | Pin             | Signal Name   |
|-----|---------------|-----------------|---------------|
| 1   | 1 GND         |                 | 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           | ND 16 HDMI_HPD1 |               |
| 8   | HDMIB_TMDS1-  | 17              | +V5S          |
| 9   | HDMIB_TMDS1+  | 18              | +V5S          |

## 2.2.8 DC Adapter Jack (J7)

00000

| Pin | Signal Name |
|-----|-------------|
| 1   | Adapter DC  |
| 2   | GND         |
| 3   | GND         |
| 4   | GND         |
| 5   | Adapter DC  |

Adapter DC

6

#### 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)





#### 2.2.16 USB 2.0 + LAN Connector (USBLAN2)



| Pin | Signal<br>Name | Pin        | Signal<br>Name |
|-----|----------------|------------|----------------|
| 1   | USB5V          | 12         | TX2+           |
| 2   | 2 USB- 13      |            | TX2-           |
| 3   | USB+           | 14         | TX3+           |
| 4   | GND            | 15         | TX3-           |
| 5   | USB5V          | 16         | TX4+           |
| 6   | USB-           | 3- 17 TX4- |                |
| 7   | USB+           | 18         | DGND           |
| 8   | GND            | 19         | LEDGN<br>D     |
| 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   | 1-2 3-4 |       |
|           | 1-2   | 2-3     | 2-3   |
|           | 4-5   | 5-6     | 5-6   |
| JP9 (3x4) | 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

| Intel® Chipset Device Software   |  | [   |                 |
|--|--|---|-----------------|
| Intel® Chipset Device Sof<br>License Agreement   | tware  |   | (intel)         |
| You must accept all of the terms of the license a<br>program. Do you accept the terms?<br>INTEL SOFTWARE LICENSE AGREEMENT (OEM<br>IMPORTANT - READ BEFORE COPYING, INSTA<br>Do not use or load this software and any assoc<br>until you have carefully read the following term<br>Software, you agree to the terms of this Agree<br>install or use the Software.<br>Please Also Note:<br>* If you are an Original Equipment Manufacturi<br>(IHV), or Independent Software Vendor (ISV), | greement in order<br>/ IHV / ISV Distrib<br>LLING OR USING.<br>ciated materials (ci<br>is and conditions.<br>ement. If you do r<br>er (OEM), Indeper<br>this complete LICE | to continue the<br>ution & Single Us<br>ollectively, the "<br>By loading or us<br>ot wish to so ag<br>ndent Hardware<br>ENSE AGREEMEN | setup<br>ser)   |
|  | < Back   | Yes   | No              |
|  |  | Intel® Install  | ation Framework |

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

| int           | el® Chipset Device Software (in  | tel |
|---------------|--|-----|
| Re            | adme File Information  |     |
|               | And the second sec |     |
| Dof           | r to the Readma file below to view the evotor requirements and installation informatio   |     |
| Refe<br>Pres  | r to the Readme file below to view the system requirements and installation informatio<br>; the Page Down key to view the rest of the file,  | n.  |
| 0.000         |  |     |
| **            | ***************************************  |     |
|               |  | -   |
| ×             | Product: Intel(R) Chipset Device Software  |     |
| * *           | Product: Intel(R) Chipset Device Software<br>Release: PV   |     |
| * * *         | Product: Intel(R) Chipset Device Software<br>Release: PV<br>Version: 9.2.2.1034  |     |
| * * * *       | Product: Intel(R) Chipset Device Software<br>Release: PV<br>Version: 9.2.2.1034<br>Target: Intel(R) Atom(TM) Processor D2xxx/N2xx  | .x  |
| * * * * *     | Product: Intel(R) Chipset Device Software<br>Release: PV<br>Version: 9.2.2.1034<br>Target: Intel(R) Atom(TM) Processor D2xxx/N2xx<br>Intel(R) SM35 Express Chipset   | cx  |
| * * * * *     | <pre>Product: Intel(R) Chipset Device Software Release: PV Version: 9.2.2.1034 Target: Intel(R) Atom(TM) Processor D2xxx/N2xx Intel(R) SM35 Express Chipset Intel(R) DH89xxCC</pre>  | cx  |
| * * * * * * * | <pre>Product: Intel(R) Chipset Device Software Release: FV Version: 9.2.2.1034 Target: Intel(R) Atom(TM) Processor D2xxx/N2xx Intel(R) SM35 Express Chipset Intel(R) DH89xxCC Date: July 20 2011</pre>   | ix  |
| * * * * * * * | <pre>Product: Intel(R) Chipset Device Software Release: PV Version: 9.2.2.1034 Target: Intel(R) Atom(TM) Processor D2xxx/N2xx Intel(R) SM35 Express Chipset Intel(R) DH89xxCC Date: July 20 2011 mm</pre>  | cx  |
| * * * * * * * | Product: Intel(R) Chipset Device Software<br>Release: PV<br>Version: 9.2.2.1034<br>Target: Intel(R) Atom(TM) Processor D2xxx/N2xx<br>Intel(R) SM35 Express Chipset<br>Intel(R) DH89xxCC<br>Date: July 20 2011  | (X  |
| * * * * * * * | Product: Intel(R) Chipset Device Software<br>Release: PV<br>Version: 9.2.2.1034<br>Target: Intel(R) Atom(TM) Processor D2xxx/N2xx<br>Intel(R) SM35 Express Chipset<br>Intel(R) DH89xxCC<br>Date: July 20 2011<br>III<br>Sack Next > Car  | cx  |

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.

| Name            | *  | Date modified      | Туре               | Size   |
|-----------------|--|--------------------|--------------------|--------|
| Graphics        |  | 12/27/2011 5:26 PM | File folder        |        |
| 📕 HDMI          |  | 12/27/2011 5:26 PM | File folder        |        |
| 🔒 ICC           |  | 12/27/2011 5:26 PM | File folder        |        |
| 🍌 Lang          |  | 12/27/2011 5:26 PM | File folder        |        |
| 🗿 autorun       |  | 12/30/2008 3:31 PM | Setup Information  | 1 KB   |
| S DIFxAPI.dll   |  | 11/2/2006 7:21 AM  | Application extens | 312 KB |
| Installation_Re | adme   | 12/20/2011 10:37   | Text Document      | 30 KB  |
| Readme          |  | 12/20/2011 10:37   | Text Document      | 3 KB   |
| 3d Setup        |  | 12/13/2011 3:20 PM | Application        | 930 KB |
| Setup.if2       | ,  | 6/22/2010 2:21 PM  | IF2 File           | 19 KB  |
| Setup2.if2      | Type: Application<br>Size: 929 KB<br>Date modified: 12/13/20 | 9 2:15 PM          | IF2 File           | 3 KB   |

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.

|  | phics Media Accelera   | ator Driver  | /intol  |
|--|--|--|---|
| etup Prog  | ress   | - AR   | United  |
|  |  | Contraction in the   | and the second second   |
| Please wait whi  | le the following setup operations  | are performed:   |   |
| Copying File: C<br>Copying File: C<br>Copying File: C  | :: 'Program Files (Intel (Intel(R) Gra<br>:: 'Program Files/Intel/Intel(R) Gra<br>:: 'Program Files/Intel/Intel(R) Gra<br>:: 'Program Files/Intel/Intel(R) Gra | aphics Media Accelerator I<br>aphics Media Accelerator I | oriver \uninstall\da-DK<br>Driver \uninstall\da-DK<br>Driver \uninstall\cs-CZ<br>Driver \uninstall\cs-CZ<br>Driver \uninstall\ar-SA |
| Copying File: C<br>Copying File: C<br>Copying File: C<br>Deleting Regis<br>Deleting Regis<br>Click Next to c | : 'Program Files \Intel\Intel(R) Gra<br>: \Windows \system32\difxapi. dll<br>try Key: HKLM\SOFTWARE\Micros<br>try Key: HKLM\SOFTWARE\Intel\I<br>ontinue.       | oft\Windows\CurrentVer:<br>IGDI  | sion \Uninstall \HDMI   |
| Copying File: C<br>Copying File: C<br>Copying File: C<br>Deleting Regis<br>Deleting Regis<br>Click Next to c | : 'Program Files \Intel\Intel(R) Gra<br>: \Windows \system32\difxapi.dll<br>ry Key: HKLM\SOFTWARE\Micros<br>ry Key: HKLM\SOFTWARE\Intel\I<br>ontinue.          | soft\Windows\CurrentVer<br>IGDI  | sion\Uninstall\HDMI   |

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 guickly 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.

| eneral | Driver    | Details    | Resources   |
|--------|-----------|------------|---|
| 17     | Ethem     | et Control | ler   |
|        | Driver    | Provider:  | Unknown   |
|        | Driver    | Date:      | Not available   |
|        | Driver    | Version:   | Not available   |
|        | Digital   | Signer:    | Not digitally signed  |
| Dri    | ver Detai | ls         | To view details about the driver files.   |
| Upd    | ate Drive | r          | To update the driver software for this device.  |
| Roll   | Back Dri  | ver        | If the device fails after updating the driver, roll<br>back to the previously installed driver. |
|        | Disable   |            | Disables the selected device.   |
|        | Uninstall |            | To uninstall the driver (Advanced).   |

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

| Hov | v do you want to search for driver software?   |  |
|-----|--|--|
| +   | Search automatically for updated driver software<br>Windows will search your computer and the Internet for the latest driver software<br>for your device, unless you've disabled this feature in your device installation<br>settings. |  |
| •   | Browse my computer for driver software<br>Locate and install driver software manually.   |  |
|     |  |  |

Ste .5. Choose the path to install driver.

| Brows    | e for driver softw                                    | are on your compute                                 | er                  |                  |  |
|----------|---|---|---------------------|------------------|--|
| Search f | or driver software in thi                             | is location:  |                     |                  |  |
| E:\Drive | r\ID30\Win7\LAN BCN                                   | /157780_k57_32                                      |                     | Browse           |  |
| Inclue   | le subfolders   |   |                     |                  |  |
|          |   |   |                     |                  |  |
|          |   |   |                     |                  |  |
| → Le     | et me pick from a                                     | list of device drivers                              | on my comp          | uter             |  |
| Tł       | is list will show installe<br>ftware in the same cate | ed driver software compatil<br>egory as the device. | ole with the device | , and all driver |  |
|          |   | a a construction of the second                      |                     |                  |  |

Step 6. Click on "Close" and go on.

|  | <b>—</b> X |
|--|------------|
| Update Driver Software - Broadcom NetLink (TM) Gigabit Ethernet      |            |
| Windows has successfully updated your driver software                |            |
| Windows has finished installing the driver software for this device: |            |
| Broadcom NetLink (TM) Gigabit Ethernet                               |            |
|  |            |
|  |            |
|  |            |
|  |            |
|  | Close      |

#### **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.

| Name            | Date modified     | Туре        | Size      |
|-----------------|-------------------|-------------|-----------|
| Vista_Win7_R260 | 5/10/2011 3:21 PM | Application | 86,021 KB |

#### 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.

| ganizo  | e 💌 🔳 Open with | New folder          |             | ₿## <b>•</b> | 0 11 |
|---------|-----------------|---------------------|-------------|--------------|------|
| 1.      | Name            | Date modified       | Туре        | Size         |      |
| 12      | sbp2port.sys    | 2010/11/21 上午 05:29 | System file | B4 KB        |      |
| -       | scfilter.sys    | 2010/11/21 上午 05:29 | System file | 26 KB        |      |
|         | 🚳 scsiport.sys  | 2010/11/21 上午 05:29 | System file | 137 KB       |      |
| A light | 🚳 secdrv.sys    | 2009/7/14 上午 04:50  | System file | 20 KB        |      |
|         | 🚳 serenum.sys   | 2009/7/14 上午 07:45  | System file | 18 KB        |      |
|         | serial.sys      | 2009/7/14 上午 07:45  | System file | 82 KB        |      |
|         | sermouse.sys    | 2009/7/14 上午 07:45  | System file | 20 KB        |      |
|         | 🚳 sffdisk.sys   | 2009/7/14 上午 07:45  | System file | 11 KB        |      |
|         | 🚳 sffp_mmc.sys  | 2009/7/14 上午 07:45  | System file | 12 KB        |      |
|         | 🚳 sffp_sd.sys   | 2010/11/21 上午 05:29 | System file | 13 KB        |      |
| 120     | 17h             |                     |             |              |      |

After the update and update success.

|         |                |                     | I CALL STREET |         |   |
|---------|----------------|---------------------|---------------|---------|---|
| rganize | • Open with    | New folder          |               | 1= - 11 | 0 |
| 1.      | Name           | Date modified       | Туре          | Size    | - |
| 2       | sbp2port.sys   | 2010/11/21 上午 05:29 | System file   | 84 KB   |   |
| -       | 🚳 scfilter.sys | 2010/11/21 上午 05:29 | System file   | 26 KB   |   |
|         | 🚳 scsiport.sys | 2010/11/21 上午 05:29 | System file   | 137 KB  |   |
| 2       | 🚳 secdrv.sys   | 2009/7/14 上午 04:50  | System file   | 20 KB   |   |
|         | 🚳 serenum sys  | 2009/7/14 上午 07:45  | System file   | 18 KB   |   |
| -       | 8 serial sys   | 2011/6/22 上午11:39   | System file   | 90 KB   |   |
|         | SCITIOUSE SYS  | 2009/7/14 上午 07,45  | System file   | 20 K0   |   |
|         | 🚳 sffdisk.sys  | 2009/7/14 上午 07:45  | System file   | 11 KB   |   |
|         | S sffp mmc.svs | 2009/7/14 十年 07:45  | System file   | 12 KB   |   |

**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

| Change User Acco | ount Control setting | as          |
|------------------|----------------------|-------------|
| (1 )             |                      | -           |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
|                  |                      |             |
| See more results |                      |             |
| [                |                      | Shut down h |

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.

| User Account Contro<br>Tell me more about | ol helps prevent potentially harmful programs from making changes to your computer.<br>User Account Control settings |
|---|--|
|   | Default - Notify me only when programs try to make changes to my computer  |
|   | <ul> <li>Don't notify me when I make changes to Windows settings</li> </ul>  |
|   | Recommended if you use familiar programs and visit familiar websites.  |
| Never notify                              |  |

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:

| Кеу   | Function   |
|-------|--|
| Del   | Enters the BIOS setup menu   |
|       | Display the boot menu. Lists all bootable devices that are                     |
| F7    | connected to the system. With cursor $\uparrow$ and cursor $\downarrow$ and by |
|       | pressing <enter>, select the device used for the boot</enter>                  |
| D     | Pressing the [Pause] key stops the POST. Press any other key to                |
| Pause | resume the POST.   |

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

| Кеу                  | 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 $\rightarrow$ | 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:

| Aptio Setup Utility -<br>Main Advanced Chipset Security   | Copyright (C) 2013 American<br>Boot Save & Exit  | Megatrends, Inc.  |
|---|--|---|
| BIOS Information<br>BIOS Vendor<br>Core Version<br>Compliancy<br>Project Version<br>Build Date and Time | American Megatrends<br>5.009<br>UEFI 2.3; PI 1.2<br>IBWWV 006 x64<br>04/18/2014 09:20:23 | Set the Time. Use Tab to<br>switch between Time elements.   |
| CPU Configuration<br>Microcode Patch<br>BayTrail SoC  | 31e<br>B3 Stepping   |   |
| Memory Information<br>Total Memory  | 4096 MB (LPDDR3)   | ++: Select Screen   |
| System Language   | [English]  | †↓: Select Item<br>Enter: Select                            |
| System Date<br>System Time  | [Wed 04/23/2014]<br>[13:44:49]   | +/−: Change Opt.<br>F1: General Help<br>F2: Previous Values |
| Access Level  | Administrator  | F3: Optimized Defaults<br>F4: Save & Exit<br>ESC: Exit      |
| Version 2.16.1242. 0  | opyright (C) 2013 American M   | egatrends, Inc.   |

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

| BIOS Setting           | Description   |
|------------------------|---|
|                        | Enable and disable BIOS support for Intel Active Management                     |
| Intel AMT Support      | Technology  |
| Intel AMT Setup Prompt | Enable and disable the boot interruption <ctrl+p> to call up<br/>Intel</ctrl+p> |
|                        | Management Engine BIOS Extention (MBEx) configuration page                      |
|                        | Enable Client Initiated Remote Access (CIRA) Fast Call for                      |
| AMT CIRA Request Trig  | Help. CIRA allows AMT maintenance event if the AMT PC is                        |
|                        | not in the  |
|                        | intranet  |
|                        | CIRA timeout for connection establishment with MPS                              |
|                        | (Manageability Presence Server / "vPro Enabled Gateway")                        |
|                        | 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

| Aptio Setup Utility – Copyright (C) 2013 American<br>Main Advanced Chipset Security Boot Save & Exit   | Megatrends, Inc.  |
|--|---|
| <ul> <li>ACPI Settings</li> <li>SMART Settings</li> <li>Super ID Configuration</li> <li>Hardware Monitor</li> <li>CPU Configuration</li> <li>PPM Configuration</li> <li>Thermal Configuration</li> <li>IDE Configuration</li> <li>LPSS &amp; SCC Configuration</li> <li>Network Stack Configuration</li> <li>CSM Configuration</li> <li>CMOS</li> <li>Trusted Computing</li> <li>USB Configuration</li> <li>Platform Trust Technology</li> <li>Intel(R) I211 Gigabit Network Connection - 00:00:00:00:</li> <li>Intel(R) I211 Gigabit Network Connection - 00:00:00:00:</li> </ul> | System ACPI Parameters.<br>**: Select Screen<br>14: Select Item<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Exit<br>ESC: Exit |
| Version 2.16.1242. Copyright (C) 2013 American M   | egatrends, Inc.   |

| BIOS Setting              | Description   | Setting         | Effect        |
|---------------------------|---|-----------------|---------------|
|                           |   | options         |               |
| ACDI Cattingo             |   | Enter .         | Opens         |
| ACPTSettings              |   | Enter           | submenu       |
| OMADE Cotting             | Configures CMADT settings   | Enter.          | Opens         |
| SMART Settings            | Configures SMART settings   | Enter           | submenu       |
| Super IO Configuration    | Configures System Super IO  | Entor           | Opens         |
|                           | Chip parameters   | Enter           | submenu       |
| Hardwaro Monitor          | Monitor bardwaro status   | Entor           | Opens         |
|                           |   | Enter           | submenu       |
| CDLLConfiguration         | Configures CPLL sottings  | Entor           | Opens         |
|                           |   | Enter           | submenu       |
| DDM Configuration         | Configures DDM Parameters   | Entor           | Opens         |
| PPM Conliguration         |   | LIIGI           | submenu       |
|                           | Configures Thermal<br>Parameters  | Entor           | Opens         |
|                           |   | Enter           | submenu       |
| IDE Configuration         | Configuras IDE doviação   | Entor           | Opens         |
|                           |   | Enter           | submenu       |
| LPSS & SCC                |   | <b>E</b> inteir | Opens         |
| Configuration             | Conliguies LPSS & SCC   | Enter           | submenu       |
| Network Stack             | Configuras notwork stock  | Entor           | Opens         |
| Configuration             | Configures network stack  | Enter           | submenu       |
| CSM Configuration         | Configures CSM:<br>Enable/Disable, Option ROM<br>execution settings, etc. | Enter           | Opens submenu |
|                           |   |                 | Opens         |
| CMOS                      | CMOS settings / Information   | Enter           | submenu       |
|                           |   | Entor           | Opens         |
|                           | Trusted computing settings  | Enter           | submenu       |
| LISB Configuration        | Configures LICD softings  | Entor           | Opens         |
|                           |   |                 | submenu       |
| Platform Trust Technology | Platform trust technology   | Enter           | Opens         |
|                           |   |                 | submenu       |

#### 5.2.3.1 USB Configuration

| Aptio Setup Utility -<br>Advanced           | Copyright (C) 2013 American | Megatrends, Inc.   |
|---|-----------------------------|--|
| USB Configuration                           |                             | Enables Legacy USB support.                              |
| USB Module Version                          | 8.10.27                     | support if no USB devices are                            |
| USB Devices:<br>1 Drive, 1 Keyboard, 2 Hubs |                             | keep USB devices available<br>only for EFI applications. |
| Legacy USB Support                          | [Enabled]                   |  |
| XHCI Hand-off                               | [Disabled]                  |  |
| EHCI Hand-off                               | [Enabled]                   |  |
| USB Mass Storage Driver Support             | [Enabled]                   |  |
| USB hardware delays and time-outs:          |                             | ++: Select Screen  |
| USB transfer time-out                       | [20 sec]                    | †↓: Select Item  |
| Device reset time-out                       | [20 sec]                    | Enter: Select  |
| Device power-up delay                       | [Auto]                      | +/-: Change Opt.   |
| Need Oberesta Devilence                     |                             | F1: General Help   |
| Mass Storage Devices:                       | [Auto]                      | F2: Previous values                                      |
| NZH   | (Huto)                      | F3: Uptimized Defaults                                   |
|   |                             | FSC: Evit  |
|   |                             | Loor Entr  |
|   |                             |  |
|   |                             |  |
|   |                             |  |

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

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

# 5.2.4 Chipset

| Aptio Setup Utility – Copyright (C) 2013 America<br>Main Advanced <mark>Chipset</mark> Security Boot Save & Exit | n Megatrends, Inc.  |
|--|---|
| ▶ North Bridge<br>▶ South Bridge   | North Bridge Parameters   |
|  | <pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre> |
| Version 2.16.1242. Copyright (C) 2013 American   | Megatrends, Inc.  |

5.2.4.1 Chipset North Bridge Parameters

| Aptio Setup Utility –<br><mark>Chipset</mark>   | Copyright (C) 2013 American     | Megatrends, Inc.   |
|---|---------------------------------|--|
| <ul> <li>Intel IGD Configuration</li> <li>IGD - LCD Control</li> <li>Graphics Power Management Control</li> </ul> |                                 | Config Intel IGD Settings.   |
| Memory Information  |                                 |  |
| Total Memory  | 4096 MB (LPDDR3)                |  |
| Memory Slot0<br>Memory Slot2  | 4096 MB (LPDDR3)<br>Not Present |  |
| Max TOLUD   | [Dynamic]                       |  |
|   |                                 | ++: Select Screen<br>14: Select Item<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Exit<br>ESC: Exit |
| Version 2.16.1242. Co   | pyright (C) 2013 American M     | egatrends, Inc.  |

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

# 5.2.4.2 Chipset South Bridge Parameters

| Ap  | otio Setup Utility -<br>Chipset | Copyright (C) 2013 American  | Megatrends, Inc.  |
|---|---------------------------------|------------------------------|---|
| <ul> <li>Azalia HD Audio</li> <li>USB Configuratio</li> <li>PCI Express Conf</li> </ul> | on<br>figuration                |                              | Azalia HD Audio Options   |
| High Precision T<br>Restore AC Power  | Timer<br>r Loss                 | [Enabled]<br>[Power On]      |   |
| Serial IRQ Mode   |                                 | [Quiet]                      |   |
|   |                                 |                              |   |
|   |                                 |                              | <pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre> |
| 1   | Version 2.16.1242. C            | opyright (C) 2013 American M | Megatrends, Inc.  |

| BIOS Setting           | Description  | Setting                              | Effect  |
|------------------------|--|--------------------------------------|---|
| Azalia HD Audio        | Azalia HD Audio Configures                               |                                      | Disables this<br>function                             |
|                        | onboard audio<br>function                                | Enable                               | function  |
| USB Configuration      | Provides user with configuration                         | USB 2.0(EHCI)                        | Enable / Disable<br>this function                     |
|                        | options for the USB                                      | USB Port 0                           | Enable / Disable<br>this function                     |
|                        | enabling/disabling a                                     | USB Port 1                           | Enable / Disable<br>this function                     |
|                        | specific USB port<br>and support for<br>certain features | USB Port 2                           | Enable / Disable<br>this function                     |
|                        |  | USB Port 3                           | Enable / Disable<br>this function                     |
|                        | Provides user with configuration                         | PCI Express<br>port 0<br>PCI Express | Enable / Disable<br>this function<br>Enable / Disable |
| PCI                    | options for the PCI                                      | port 1<br>PCI Express                | this function   |
| ⊏xpress<br>Configurati | as<br>enabling/disabling                                 | port 2<br>PCI Express                | this function<br>Enable / Disable                     |

#### 44 IBDRW100/ IBDRW100-EX User Manual

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

| Aptio Setup<br>Main Advanced Chipset   | Utility – Copyright (C) 201<br>Security Boot Save & Exit  | 3 American Megatrends, Inc.  |
|--|---|--|
| Password Description   |   | Customizable Secure Boot   |
| If ONLY the Administrator'<br>then this only limits acce<br>only asked for when enteri<br>If ONLY the User's password<br>is a power on password and<br>boot or enter Setup. In Se<br>have Administrator rights.<br>The password length must b<br>in the following range:<br>Minimum length | s password is set,<br>ss to Setup and is<br>ng Setup.<br>d is set, then this<br>imust be entered to<br>tup the User will<br>e |  |
| Maximum length   | 20  | ++: Select Screen<br>fl: Select Item   |
| Administrator Password<br>User Password  |   | Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults |
| ▶ Secure Boot menu   |   | F4: Save & Exit<br>ESC: Exit   |
| Version 2.1  | 6.1242. Copyright (C) 2013  | American Megatrends, Inc.  |

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

# 5.2.5.1 Security Boot Menu

| Aptio Setup L                                     | Itility – Copyright (C) 2013 Ame<br>ecurity | erican Megatrends, Inc.   |
|---|---|---|
| System Mode<br>Secure Boot                        | Setup<br>Not Active                         | Secure Boot can be enabled if<br>1.System running in User mode<br>with enrolled Platform Key(PK<br>2.CSM function is disabled |
| Secure Boot<br>Secure Boot Mode<br>Key Management | [Disabled]<br>[Custom]                      |   |
|   |   | ++: Select Screen   |
|   |   | Enter: Select Trem<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults  |
|   |   | F4: Save & Exit<br>ESC: Exit  |

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

#### 5.2.6 Boot

| Aptio Setup Utility<br>Main Advanced Chipset Security  | – Copyright (C) 2013 American<br>J Boot Save & Exit   | h Megatrends, Inc.  |
|--|---|---|
| Boot Configuration<br>Setup Prompt Timeout<br>Bootup NumLock State   | 1<br>[0n]   | Number of seconds to wait for<br>setup activation key.<br>65535(0xFFFF) means indefinite  |
| Quiet Boot<br>Fast Boot  | [Disabled]<br>[Disabled]  | warting.  |
| Boot Option Priorities<br>Boot Option #1<br>Boot Option #2<br>Boot Option #3<br>Boot Option #4<br>Network Device BBS Priorities<br>Hard Drive BBS Priorities | [UEFI: MultipleCard]<br>[MultipleCard Reader]<br>[IBA GE Slot 0100 v1550]<br>[UEFI: Built-in EFI] | <pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre> |
| Version 2.16.1242.   | Copyright (C) 2013 American M   | Megatrends, Inc.  |

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

#### 48 IBDRW100/ IBDRW100-EX User Manual

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

#### 5.2.7 Save & Exit

| Aptio Setup Utility – Copyright (C) 2013 American<br>Main Advanced Chipset Security Boot Save & Exit     | Megatrends, Inc.                               |
|--|--|
| Save Changes and Exit<br>Discard Changes and Exit<br>Save Changes and Reset<br>Discard Changes and Reset | Exit system setup after saving<br>the changes. |
| Save Options<br>Save Changes<br>Discard Changes  |  |
| Restore Defaults<br>Save as User Defaults<br>Restore User Defaults                                       |  |
| Boot Override<br>IBA GE Slot 0100 v1550  | ++: Select Screen<br>↑↓: Select Item           |
| UEFI: Built-in EFI Shell   | Enter: Select                                  |
| UEFI: MultipleCard Reader 1.00   | +/-: Change Opt.                               |
| Multiplecard Reader 1.00   | F1: General Help<br>F2: Previous Values        |
| Launch EFI Shell from filesystem device  | F3: Optimized Defaults                         |
| ▶ Reset System with ME disable ModeMEUD000   | F4: Save & Exit<br>ESC: Exit                   |
|  |  |
|  |  |
| Version 2.16.1242. Copyright (C) 2013 American M   | egatrends, Inc.                                |
|  |  |

| BIOS Setting                                     | Description  | Setting options                     | Effect                                   |
|--|--|-------------------------------------|--|
|  |  | Enter <yes></yes>                   | Saves the changes                        |
| Save Changes and Exit                            | This saves the changes<br>to the CMOS and exits<br>the BIOS Setup<br>program | Esc <no></no>                       | Return to the BIOS<br>Setup Main Menu    |
|  | This exits the BIOS Setup  | Enter <yes></yes>                   | Saves the changes                        |
| Discard Changes<br>and Exit                      | changes made in BIOS<br>Setup to the CMOS                                    | Esc <no></no>                       | Return to the BIOS Setup<br>Main Menu    |
|  |  | Enter <yes> Saves the changes</yes> |  |
| Save Changes and<br>Reset                        | after saving the<br>changes  | Esc <no></no>                       | Return to the BIOS<br>Setup<br>Main Menu |
|  |  | Entor Voc                           | Saves the                                |
| Discard  | Reset system setup   |                                     | changes                                  |
| Changes and<br>Reset                             | without saving any<br>changes  | Esc <no></no>                       | Return to the BIOS<br>Setup<br>Main Menu |
|  |  | Enter <yes></yes>                   | Saves the changes                        |
| Save Changes                                     | Save changes done so<br>far to any of the setup<br>options                   | Esc <no></no>                       | Return to the BIOS<br>Setup Main Menu    |
|  |  | Enter <yes></yes>                   | Saves the changes                        |
| Discard Changes                                  | Discard changes done<br>so far to any of the<br>setup options                | Esc <no></no>                       | Return to the BIOS<br>Setup Main Menu    |
|  | Restore/load default   | Enter <yes></yes>                   | Saves the changes                        |
| Restore Default values for all the setup options |  | Esc <no></no>                       | Return to the BIOS<br>Setup Main Menu    |
|  |  | Enter <yes></yes>                   | Saves the changes                        |
| Save as User<br>Defaults                         | Save the changes done so far as User defaults                                | Esc <no></no>                       | Return to the BIOS<br>Setup Main Menu    |
|  |  | Enter <yes></yes>                   | Saves the changes                        |
| Restore User<br>Defaults                         | Restore the User Defaults to all the setup options                           | Esc <no></no>                       | Return to the BIOS<br>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, 2<sup>nd</sup> Edition standard and equivalent CSA C22.2 No60950-1-07, 2<sup>nd</sup> 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

CE

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