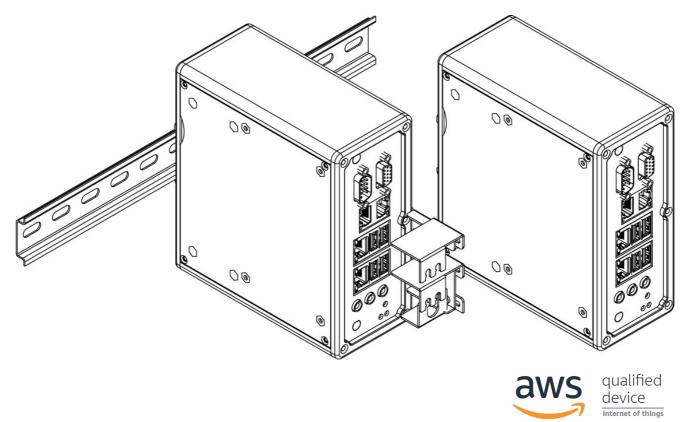


DIN Rail Box PC

IBDRW100-P/ IBDRW100-EX-P

Intel ® Pentium® Processor N4200 1.1 GHz, up to 2.56 GHz



User Manual

Version 1.4 Document Part No. 917111101106

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Preface

Copyright Notice

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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 A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.

Attention Une alerte d'attention indique un dommage possible à l'équipement et explique comment éviter le problème potentiel.



Warning! An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.

Avertissement! Un Avertissement de Choc Électrique indique le potentiel de chocs sur des emplacements électriques et comment éviter ces problèmes.



Alternating Current The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.

Mise à le terre ! Le symbole de Mise à Terre indique le risqué potential de choc électrique grave à la terre incorrecte.

Safety Information



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

Avertissement! 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 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.

Attention 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.

- Replacement of a battery with an incorrect type that can defeat a safeguard
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion
- Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas
- A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas
- Caution: Risk of fire or explosion if the battery is replaced by an incorrect type
- 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 Do not cover the openings!

Attention Ne couvrez pas les ouvertures!

- 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 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.



Attention Mettez-vous toujours à la terre pour éliminer toute charge statique avant de toucher la carte. Les appareils électroniques modernes sont très sensibles aux charges électriques statiques. Par mesure de sécurité, utilisez en tout temps un bracelet antistatique. Placez tous les composants électroniques dans une surface antistatique ou dans un sac blindé antistatique lorsqu'ils ne sont pas dans le châssis.

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.

About This User Manual

This User Manual provides information about using the IBDRW100-P Series DIN Rail Box PC. This User Manual applies to the IBDRW100-P Series DIN Rail Box PC - IBDRW100-P/ IBDRW100-EX-P.

The documentation set for the IBDRW100-P Series DIN Rail Box PC provides information for specific user needs, and includes:

• **User Manual** – contains detailed description on how to use the IBDRW100-P Series DIN Rail Box PC, its components and features.

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Note:

Some pictures in this guide are samples and can differ from actual product.

Chapter 1: Introduction

1.1 Product Overview

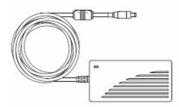
Winmate IBDRW100-P Series is a DIN-rail mounted Fanless Box PC, which provides several serial communication ports. With a compact size and small form factor as well as front accessible I/O port. The IBDRW100-P Series is very convenient for wiring and DIN-rail installation in the control cabinet. The wide operation temperature and Industrial serial port design makes this unit a perfect communication even in harsh and critical location. IBDRW100-EX-P Series is Class 1 Division 2 certified DIN Rail Box PC for hazardous location deployment and for CID2 certified Box PC requires special enclosure box. The IBDRW100-P Series are certified to support the ecosystem of AWS IoT Greengrass giving customers more options for software integration for IoT applications.

1.2 Product Features

Highlights

- Class 1, Division 2 device certified for hazardous area (IBDRW100-EX-P)
- · Designed for industrial automation, DIN Rail applications
- Intel® Apollo Lake N4200, 4 Core @1.1GHz up to 2.56GHz (TDP=6W)
- Intel® Apollo Lake E3950, 4 Core @1.6GHz up to 2.0GHz (TDP=12W)(Optional)
- Intel® Apollo Lake E3940, 4 Core @1.6GHz up to 1.8GHz (TDP=9.5W)(Optional)
- Intel® Apollo Lake E3930, 2 Core @1.3GHz up to 1.8GHz (TDP=6.5W)(Optional)
- 1 x RS232 / 422 / 485 communications, select thru BIOS
- 4 x Giga LAN, 3 x USB 3.0, 1 x USB 2.0, 1 x VGA
- 1 x Line out, 1 x Line in, 1 x Mic in, 1 x Power Jack
- Fanless, streamlined enclosure for highly efficient heat dissipation
- Rated for wide temperature use -20°C to 60°C (IBDRW100-EX-P -40°C to 70°C)
- Certified AWS IoT Greengrass

1.3 Accessories





 AC to DC 12V 36W Power Adapter (For testing only)

Part No. 922D036W12V6

Power Cord

Varies by the country

Terminal Block 3
 pin to 2.5 Ø
 Female Adapter
 Cable
Part No. 94J602G030K0





Open Wire
 Power Cable

Part No. 94EL02X020E0



- User Manual

Part No. 917111101106

Mounting Clip

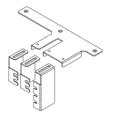
DIN Rail

•

Part No. 90ME01000000

- Terminal Block
 10 pin Female
 Connector for
 DIDO x 2
 Part No. 604530005D01
- Terminal Block
 3 pin Connector for Power

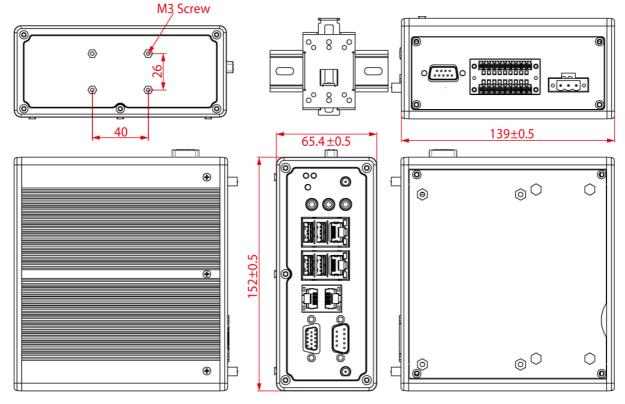
Part No.604520105001



• Cable Holder Kit (For IBDRW100-P-EX only) Part No. 98K000A000E0

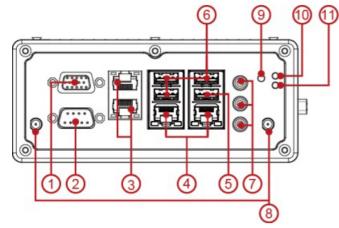
1.4 Chassis Dimensions

Unit: mm

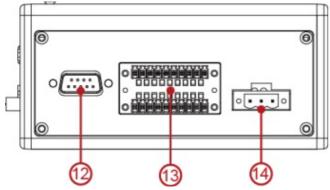


1.5 Description of Parts

Front



Rear



1. VGA

2. COM1 RS232 default (RS422/485 selected by BIOS setting)

- 3. LAN x 2
- 4. LAN x 2
- 5. USB 2.0 x 1
- 6. USB 3.0 x 3
- 7. Audio Jack
- 8. Antenna
- 9. Reset button
- 10. Power LED
- 11. HDD LED
- 12. COM2 Isolated RS422 default
- (RS485 selected by jumper)
- 13. DIDO (9 in, 9 out)
- 14. Power Terminal Block

Chapter 2: Hardware Installation

2.1 Connectors Description

This section describes pin assignment and signal names of IBDRW100-P/ IBDRW100-EX-P interfaces.

2.1.1 USB 3.0 Connector

The IBDRW100-P/ IBDRW100-EX-P provide three USB 3.0 connectors. Use USB 3.0 connector to connect external devices such as mouse or keyboard to the box computer.

Pin assignment and signal names of USB connector

	Į.	H	-	7
	8 7	7_6	5	Ŋ
Υ Π	Н	T	Н	Y
ſ <u>1</u>	2	3	4	٦
	1			┢

Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	USB_D-
3	USB_D+	4	GND
5	STDA_SSRX-	6	STDA_SSRX+
7	GND	8	STDA_SSTX-
9	STDA_SSTX+		

2.1.2 USB 2.0 Connector

The IBDRW100-P/ IBDRW100-EX-P provide one USB 2.0 connectors. Use USB 2.0 connector to connect external devices such as mouse or keyboard to the box computer.

Pin assignment and signal names of USB connector

_			_	
	_	-	_	
1	2	3	4	

Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	Data-
.3	Data+	4	GND

2.1.3 RJ-45 for GigaLAN Connector

The IBDRW100-P/ IBDRW100-EX-P has four GigaLAN connectors located on the front. Ethernet ports provide a standard RJ45 10/100/1000 Mbps jack connector with LED indicators on the front side to show its Active/ Link status and Speed status.

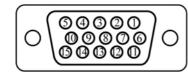
Pin assignment and signal names of Ethernet connector

Activity LED Corange+Green)	Pin №	Signal Name	Pin №	Signal Name
	1	TX1+	2	TX1-
10/100 Mbpa	3	TX2+	4	TX3+
10/100 Mbps- Green 1G	5	TX3-	6	TX2-
Mbps – Orange	7	TX4+	8	TX4-

2.1.4 VGA Connector

The IBDRW100-P/ IBDRW100-EX-P have one VGA DB15 connector. Use VGA cable to connect DIN-Rail Box Computer to external monitor.

Pin assignment and signal names of VGA connector



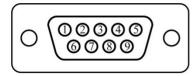
Maximum resolution (VGA) 1920 x 1200 @60 HZ

Pin №	Signal Name	Pin №	Signal Name
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	NC	12	SDA
13	HSYNC	14	VSYNC
15	SCL		

2.1.5 Serial Port RS-232/422/485 Connector

The IBDRW100-P/ IBDRW100-EX-P have one COM1 9-pin D-sub connectors that offer RS-232/422/485 serial communication interface ports. Default setting is RS-232, but this can be modified by BIOS.

Pin assignment and signal names of RS-232/422/485 connector



Pin №	RS-232 (Default)	RS422	RS485
1	DCD	Tx-	DATA-
2	RXD	Tx+	DATA+
3	TXD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

2.1.6 Isolated RS422/485 Connector

The IBDRW100-P/ IBDRW100-EX-P have one isolated COM2 9-pin D-sub connectors that offer RS-422/485 serial communication interface ports. Default setting is RS-422, but this can be modified by jumpers.

Pin assignment and signal names of isolated RS-422/485 connector

	Pin №	RS422	RS485
$\left \bigcirc \right\rangle \begin{array}{c} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 &$	1	Tx-	DATA-
	2	Tx+	DATA+
	3	RX+	NC
	4	RX-	NC
	5	GND	GND
	6	NC	NC
	7	NC	NC
	8	NC	NC
	9	NC	NC

2.1.7 Audio Jack

The IBDRW100-P/ IBDRW100-EX-P have has three stereo audio ports with audio jack connectors: Mic-in, Line-out, Line-in.

Pin assignment and signal names of audio jack

\bigcirc	Color	Signal Name
	BLUE	Line-in
\mathbf{O}	GREEN	Line-out
\bigcirc	PINK	Mic-in

2.1.8 DIDO Connector

Pin assignment and signal names of DIDO connector

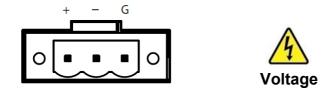
4 <mark>0</mark>	0	0	0	0	0	
00	0	0	0	0	0	Ō

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

2.1.9 DC Power 3pin Terminal Block

The DC power source input of the IBDRW100-P/ IBDRW100-EX-P is a 3 pin terminal block connector that supports 9-36V DC power input.

Pin assignment and signal names of DC power 3pin terminal block



Minimum Voltage 9V Maximum Voltage 36V

2.2 Configuring COM2 Settings by Jumpers

Serial Port COM2 can be configured for RS-422 or RS-485 by jumpers. Jumpers are located on the motherboard. You need to open the housing in order to access the jumpers.

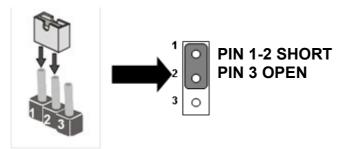


Caution It is recommended to use factory jumper settings. Opening the housing when it is sealed may damage the device and its parts.Attention II est recommandé d'utiliser la configuration d'usine de cavalier.Ouvrir le chassis lorsqu'il est scellé peut endommagé l'appareil et ses pièces.



Note: A pair of needle nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

The jumper setting diagram is shown below. When the jumper cap is placed on both pins, the jumper is SHORT. The illustration below shows a 3-pin jumper; pins 1 and 2 are short. If you remove the jumper cap, the jumper is OPEN.



COM2 Jumper

RS422/485 Terminal Resistor (JP3, JP5)

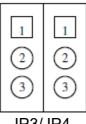
Location	Header Type	Description	Function
JP3	Hoodor 2*1	Terminal Resistor	1-2: Normal
JP5	Header 3*1	Terminal Resistor	2-3: Connector
	•	·	

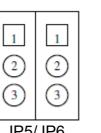
※ Default : 1-2

Select RS422/485 (JP4, JP6, JP7)

Location	Header Type	Description	Function
JP4		Selection RS422	1-2: RS485
JP6 JP7	Header 3*1	/ RS485	2-3: RS422

※ Default : 1-2







JP3/JP4

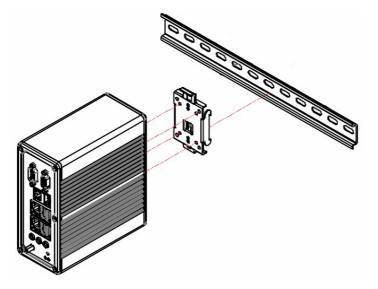
JP5/JP6

Chapter 3: Initial Setup

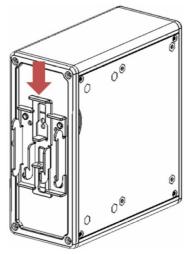
3.1 DIN Rail Mounting Setup

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

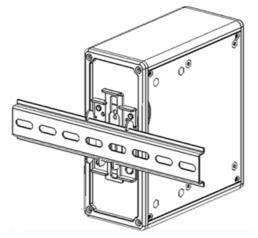
- 1. Screw the provided DIN-rail Kit on the rear side of the box as the diagram shown below.
- 2. Please make sure the stiff metal handle part is located on the top.



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



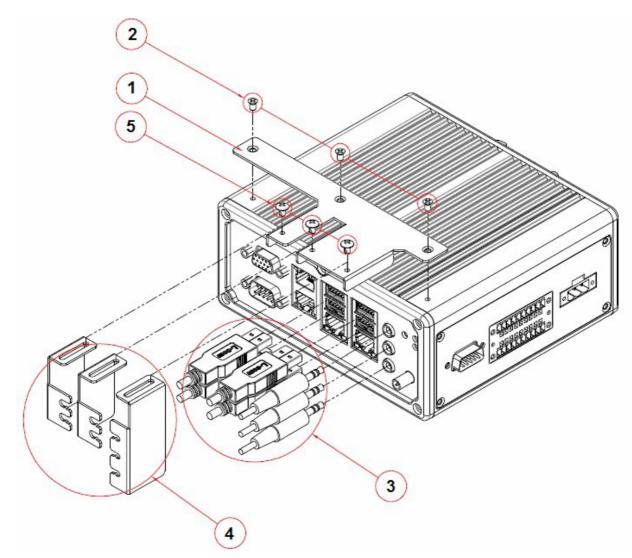
4. Release the handle so it can snap into place as shown below.



3.2 Cable Arm Bracket Installation

Notice that cable arm bracket is an accessory of IBDRW100-EX-P.

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 used to secure some LAN, USB and Audio connectors. Follow these steps to complete the installation.



- 1. Find the cable arm bracket in the package, including the plate, bracket / holder, and screws.
- 2. Install the plate on the top of the box and screw it tightly.
- 3. Plug all the necessary cables into the connectors.
- 4. 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.

Chapter 4: Insyde BIOS Setup

4.1 BIOS Introduction

4.1.1 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**"

- 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

4.1.2 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 \uparrow and cursor \downarrow and by
	pressing <enter>, select the device used for the boot</enter>
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:

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

Note: BIOS version update may be published after the manual is released. Please visit Winmate Download Center to check the latest version of BIOS. User may need to run BIOS setup utility for the following status:

4.2 BIOS Menu

4.2.1 Main

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

Main Advanced Security Power	Rev. 5.0		
Product Name Build Date	IPDR. V102 X64 01/03/2020 15:27:31		the current default language used InsydeH20.
Processor Type System Bus Speed System Memory Speed Cache RAM Total Memory	Intel(R) Pentium(R) 100 MHz 1600 MHz 2048 KB 4096 MB	CPU N4200E @ 1.10GHz	
Platform firmware Information BXT SOC SIC Version MRC Version PUNIT FW PMC FW TXE FW GOP	F1 Stepping 1.1.0 (101G) 00.56 (89.24) 1A 03.1F 3.1.60.2280 10.0.1036		
Language System Time System Date	<english> [02:27:37] [01/21/2020]</english>		
· · · · · · · · · · · · · · · · · · ·	1/↓ Select Item •/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Options	Effect
Language	Select the current default language by the Insyde20	Adjustment of the language. Default: English.	Set the default language
System Time	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]

4.2.2 Advanced

Main Advanced Security Power	r Boot Exit	InsydeH20 Setup Utility		Rev. 5.0
 ▶Boot Configuration ▶Uncore Configuration ▶South Cluster Configuration 			Configures Boot Settings.	
 South Cruster configuration Security Configuration Thermal Configuration S10 F81866A H2oUve Configuration 				
	t/↓ Select Item ⊢/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit	

BIOS Setting	Description	Setting Option	Effect
Boot Configuration	Setting Boot configuration parameters	Enter	Opens submenu
Uncore Configuration	Setting Uncore configuration parameters	Enter	Opens submenu
South Cluster Configuration	Setting South Cluster Configuration parameters	Enter	Opens submenu
Security Configuration	Setting Security Configuration parameters	Enter	Opens submenu
Thermal Configuration	Setting Thermal Configuration parameters	Enter	Opens submenu
S10 F81866A	Setting S10 F81866A parameters	Enter	Opens submenu
H2oUve Configuration	Setting H2oUve Configuration parameters	Enter	Opens submenu

4.2.2.1 USB Configuration

	InsydeH20) Setup Utility	Rev. 5.0
Advanced			
Boot Configuration			OS Selection
OS Selection	<\!indows>		
F1 Help Esc Exit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit
-// 1		Const Cabilla	
BIOS Setting	Description	Setting Option	Effect
OS Selection	OS selection	Windows/ Linux	Select OS. Default: Based
			on your order.

4.2.2.2 Uncore Configuration

Advanced	InsydeH20 Se	tup Utility		Rev. 5.0
<pre>>VBT Hook Configuration RC6(Render Standby) GTT Size Aperture Size DVHT Pre-Allocated DVHT Total Gfx Hem Cd Clock Frequency GT PH Support PAVP Enable</pre>	<enab led=""> <8HB> <256HD> <64H> <256H> <624 HHz> <enab led=""> <enab led=""> <enab led=""></enab></enab></enab></enab>	VВ 	T Hook Config	uration
F1 Help Esc Exit		5/F6 Change Values inter Select ► SubMenu		up Defaults e and Exit
BIOS Setting	Description	Setting Option		fect
VBT Hook Configuration	VBT Hook Configuration	Enabled/ Disab	VE	nables or disables 3T Hook nfiguration
GTT Size	Select GTT (Graphics Translation Table) Size	2MB / 4MB / 8N		elect GTT Size.
Aperture Size	Use this item to set the total size of Memory that must be left to the GFX Engine	128MB / 256MI 512MB		elect Aperture ze.
DVMT Pre- Allocated	Select DVMT5.0 Pre- Allocated (Fixed) Graphics Memory size used by the Internal Graphic Device	32M / 64M / 96 128M /160M / 1 / 224M / 256M /288M / 320M / 352M / 384M /4 / 448M / 480M / 512M	192M All	elect DVMT Pre- located.
DVMT Total Gfx Mem	Select the size of DVMT (Dynamic Video Memory) 5.0 that the Internal Graphics Device will use	128M / 256M /		elect DVMT Total x Mem.
Cd Clock Frequency	Select Cd Clock Frequency	624 MHz	Fr	elect Cd Clock equency. Default: 24 MHz
GT PM Support	Setting GT PM Support parameters	Enabled/ Disat	G	nables or disables T PM Support
PAVP Enable	Setting PAVP parameters	Enabled/ Disat		ables or disables

4.2.2.3 South Cluster Configuration

Advanced		
▶PCI Express Configuration ▶SATA Drives ▶USB Configuration ▶Hiscellaneous Configuration	PCI Express Configuration S	ettings
F1 Help t/1 Select Item	F5/F6 Change Values F9 Setup Defaults	

BIOS Setting	Description	Setting Option	Effect
PCI Express Configuration	PCI Express Configuration Settings	Enter	Opens sub-menu
SATA Drives	SATA Drives Settings	Enter	Opens sub-menu
USB Configuration	USB Configuration Settings	Enter	Opens sub-menu
Miscellaneous Configuration	Miscellaneous Configuration Settings	Enter	Opens sub-menu

4.2.3.3.1 PCI Express Configuration

Advanced	Insyd	eH2O Setup Utility	Rev. 5.0
Advanced PCI Express Configuration PCI Express Clock Gating Peer Memory Write Enable Compliance Mode PCI Express Root Port 1 (Lane PCI Express Root Port 3 (Lane PCI Express Root Port 4 (Lane PCI Express Root Port 5 (Lane PCI Express Root Port 6 (Lane	<enabled> <disabled> <disabled> = 4) = 0) = 1) = 2)</disabled></disabled></enabled>		Rev. 5.0
F1 Help Esc Exit	1/1 Select Item +/+ Select Item	F5/F6 Change Values Enter Select ▶ SubHenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
PCI Express Clock Gating	PCI Express Clock Gating Enable/ Disable for each root port	Enabled/ Disabled	Enables or disables PCI Express Clock Gating
Peer Memory Write Enable	Controls Peer-to- Peer Memory Read Decoding	Enabled/ Disabled	Enables or disables Peer Memory Write Enable
Compliance Mode	Enables or disables Compliance Mode for this PCIe port.	Enabled/ Disabled	Enables or disables Compliance Mode
PCI Express Root	Control the PCI Express Root Port	Auto	To disable unused root port automatically for the most optimum power savings.
Port 2 (Lane 5)		Enable	Enable PCI Root Port
		Disable	Disable PCI Root Port
	Control the PCI Express Root Port	Auto	To disable unused root port automatically for the most optimum power savings.
		Enable	Enable PCI Root Port
		Disable	Disable PCI Root Port

Advanced	Insyde	eH2O Setup Utility	Rev. 5.
PCI Express Root Port 1 (Lane If DISABLED, goto ENABLE firs ASPH L1 Substates ACS URR FER CER CTO SEFE SENFE SECE PHE SCI Hot Plug PCIe Speed Transmitter Half Swing Extra Bus Reserved Reserved Hemory Reserved Hemory Reserved 1/0 PCH PCIE LTR Configuration PCH PCIE LTR Snoop Latency Override Non Snoop Latency Override PCIE Selectable De-emphasis		R	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port
F1 Help Esc Exit	1/↓ Select Item +/+ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit

	Insvd	eH20 Setup Utility	Rev. 5.0
Advanced	iiiiiju		Rev. 0. (
PCI Express Root Port 3 (Lane∣	0) <auto></auto>		Control the PCI Express Root Port.
If DISABLED, goto ENABLE first	then AUTO on next boot		AUTO: To disable unused root port
ASPM	<disabled></disabled>		automatically for the most optimum power
L1 Substates	<disabled></disabled>		savings.
ACS	<enabled></enabled>		Enable: Enable PCle root port
URR	<disabled></disabled>		Disable: Disable PCle root port
FER	<disabled></disabled>		
NFER	<disabled></disabled>		
CER	<d i="" led="" sab=""></d>		
CTO	<d i="" led="" sab=""></d>		
SEFE	<disabled></disabled>		
SENFE	<d i="" led="" sab=""></d>		
SECE	<d i="" led="" sab=""></d>		
PME SCI	<enabled></enabled>		
Hot Plug	<disabled></disabled>		
PCIe Speed	<auto></auto>		
Transmitter Half Swing	<d i="" led="" sab=""></d>		
Extra Bus Reserved	[0]	R	
Reserved Memory	[10]		
Reserved 1/0	[4]		
PCH PCIe LTR Configuration			
PCH PCIE LTR	<enabled></enabled>		
Snoop Latency Override	<auto></auto>		
Non Snoop Latency Override	<auto></auto>		
PCIE LTR Lock	<d ed="" i="" l="" sab=""></d>		
PCIe Selectable De-emphasis	<enabled></enabled>		
F1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ▶ SubMenu	F10 Save and Exit

	Ins	ydeH20 Setup Utility	Rev. 5.0
Advanced			
PCI Express Root Port 4 (Lane)	1) <auto></auto>		Control the PCI Express Root Port.
If DISABLED, goto ENABLE first			AUTO: To disable unused root port
ASPM	<disabled></disabled>		automatically for the most optimum power
L1 Substates	<disabled></disabled>		savings.
ACS	<enabled></enabled>		Enable: Enable PCle root port
URR	<disabled></disabled>		Disable: Disable PCle root port
FER	<disabled></disabled>		
NFER	<disabled></disabled>		
CER	<disabled></disabled>		
CT0	<disabled></disabled>		
SEFE	<disabled></disabled>		
SENFE	<disabled></disabled>		
SECE	<disabled></disabled>		
PME SCI	<enabled></enabled>		
Hot Plug	<disabled></disabled>		
PCIe Speed	<auto></auto>		
Transmitter Half Swing	<disabled></disabled>		
Extra Bus Reserved	[0]	\mathcal{B}	
Reserved Memory	[10]		
Reserved 1/0	[4]		
PCH PCIe LTR Configuration			
PCH PCIE LTR	<enabled></enabled>		
Snoop Latency Override	<auto></auto>		
Non Snoop Latency Override	<auto></auto>		
PCIE LTR Lock	<disabled></disabled>		
PCle Selectable De-emphasis	<enabled></enabled>		
F1 Help	↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select 🕨 SubMenu	F10 Save and Exit

	Insyde	eH20 Setup Utility	Rev. 5.0
Advanced	IIISyde		KC¥. J.U
Advanced PCI Express Root Port 5 (Lane 2) If DISABLED, goto ENABLE first th ASPH L1 Substates ACS URR FER NFER CER CER CTO SEFE SENFE SEOE PHE SCI Hot Plug PCIe Speed Transmitter Half Swing Extra Bus Reserved Reserved Memory Reserved Memory Reserved Memory Reserved I/O PCH PCIE LTR Configuration PCH PCIE LTR Snoop Latency Override Non Snoop Latency Override PCIE Selectable De-emphasis	<auto></auto>		Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCle root port Disable: Disable PCle root port
•	↓ Select Item → Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

	Insyde	eH20 Setup Utility	Rev. 5.
Advanced			
PCI Express Root Port & (Lane If DISABLED, goto ENABLE first ASPH L1 Substates ACS URR FER NFER CER CTO SEFE SENFE SECE PHE SCI Hot Plug PCIe Speed Transmitter Half Swing Extra Bus Reserved Reserved Memory Reserved I/O PCH PCIE LTR Configuration PCH PCIE LTR Snoop Latency Override Non Snoop Latency Override PCIE Selectable De-emphasis			Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port
F1 Help Esc Exit	t/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

	Insy	deH20 Setup Utility	Rev. 5.0
Advanced			
Chipset-SATA Controller Configuration Chipset SATA SATA Mode Selection SATA Interface Speed	<enabled> <ahcl> <gen3></gen3></ahcl></enabled>		Enables or Disables the Chipset SATA Controller.
SATA Port O Software Preserve SATA Port O	[Not Installe Unknown <enabled></enabled>	d]	
SATA Port 1 Software Preserve SATA Port 1	TS64GMTS400 SUPPORTED <enab ed="" =""></enab>	(64.0GB - 6.0GB/s)	
		R	
		×	
F1 Help 1/4 Sele Esc Exit +/+ Sele		F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Chipset SATA	Enables or disables the Chipset SATA Controller	Enabled / Disabled	Enables or disables the Chipset SATA Controller
		AHCI	Advanced Host Controller Interface (AHCI) mode enables the use of advanced features on SATA drives
		IDE	In IDE mode, the hard drive is set to run as an IDE or Parallel ATA (PATA) hard drive.
SATA Mode Selection	Select SATA Mode	RAID	RAID mode allows several hard disk drives to function as one storage area (the array) to provide either data redundancy (backup security) or faster performance (striped reading/writing data from or to the disk drives).
SATA Interface Speed	Select SATA Interface Speed	Gen1/ Gen2/ Gen3	Select SATA Interface Speed
SATA Port 0	Enables or disables SATA Port 0 function	Enabled/ Disabled	Enables or disables SATA Port 0 function

4.2.3.3.3 USB Configuration

	Insyde	120 Setup Utility	Rev. 5.0
Advanced			
USB Per-Port Control XDCI Support XHCI Disable Compliance Mode	<d i="" led="" sab=""> <d i="" led="" sab=""> <false></false></d></d>		Control each of the USB ports (0~7) enable/disable
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit
Las Last	331001 1100		

BIOS Setting	Description	Setting Option	Effect
USB Per-Port Control	Control each of the USB port (0~7) enable/disable	Enabled/ Disabled	Enables or disables each of the USB port
XDCI Support	Disable the XDCI support or enable PCI Mode.	Enabled/ Disabled	Enables or disables XDCI Support
XMCI Disable Compliance Mode	XMCI Disable Compliance Mode settings	TRUE/ FALSE	Enables or disables

4.2.3.3.4 Miscellaneous Configuration

Advanced	Ins	ydeH20 Setup Utility	Rev. 5.0
Advanced Miscellaneous Configuration High Precision Timer 8254 Clock Gating State After G3	<enabled> <disabled> <so state=""></so></disabled></enabled>		Enable or Disable the High Precision Event Timer
F1 Help Esc Exit	1/1 Select Item +/+ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
High Precision Timer	High Precision Timer settings	Enabled / Disabled	Enable or disable the High Precision Timer
8254 Clock Gating	8254 Clock Gating settings	Enabled/ Disabled	Enable or disable8254 Clock Gating
State After G3	State After G3 settings	S0 State / S5 State	S0 = auto power on after power failure S5 = keep power off after power failure

4.2.3.4 Security Configuration

	InsydeH2	20 Setup Utility	Rev. 5.0
Advanced			
TXE Configuration TXE FW Version TXE FW Capabilities TXE FW Features TXE FW OEM Tag TXE Firmware Mode TPM Configuration Target TPM device	3. 1. 60. 2280 31109040 11109040 00000000 Norma1		Select Target TPM device
F1 Help Esc Exit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Target TPM device	Select Target TPM device	dTPM	Select Target TPM device

4.2.3.5 Thermal Configuration

Advanced	InsydeH	20 Setup Utility	Rev. 5.0
Advanced Thermal Configuration Paramete Critical Trip Point Passive Trip Point Passive TC2 Value Passive TSP Value Active Trip Point	rrs <125 C> <111 C> [1] [5] [10] <60 C>		This value controls the temperature of the ACPI Critical Trip Point - the point in which the OS will shut the system off.
F1 Help Esc Exit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Critical Trip Point	This value controls the temperature of the ACPI Critical Trip Point – the point in which the OS will shut the system off	125 C	Set the point in which the OS will shut the system off
Passive Trip Point	This value controls the temperature of the ACPI Passive Trip Point - the point in which the OS will begin throttling the processor.	Disabled, 15C, 23C, 31C, 39C, 47C, 55C, 63C, 71C, 79C, 87C, 95C, 103C, 111C , 119C	Set the point in which the OS will begin throttling the processor
Passive TC1 Value	This value sets the TC1 value for the ACPI Passive Cooling Formula.	1 ~16	Sets the TC1 value for the ACPI Passive Cooling Formula.
Passive TC2 Value	This value sets the TC2 value for the ACPI Passive Cooling Formula.	1~16, default 5	Sets the TC2 value for the ACPI Passive Cooling Formula.
Passive TSP Value	It represents in tenths of a second how often the OS will read the temperature when passive cooling is enabled.	2~32, default 10	This item sets the TSP value for the ACPI Passive Cooling Formula.
Active Trip Point	This value controls the temperature of the ACPI Active Trip Point - the point in which the OS will turn the processor fan on low.	Default 60 C	Set the the point in which the OS will turn the processor fan on Low.

4.2.3.6 S10 F81866A

BIOS Setting	Description	Setting Option	Effect
Configure Serial port settings.		Disabled	No configuration
Serial Port A ~ Serial Port D	Default settings: Serial Port A: AUTO Serial Port B: AUTO	Enabled	User configuration
	Serial Port C: AUTO Serial Port D: DISABLE	Auto	EFI/ OS chooses configuration
WDT	Time-out controller settings	Enabled / Disabled	Enables or disables Time-out controller
Hardware Monitor	Hardware Monitor settings	Enter	Opens sub-menu
GPIO Group 0~8 Configuration	GPIO Group 0~8 Configuration settings	Enter	Opens sub-menu

Serial Port

Advanced	Insy	deH20 Setup Utility		Rev.
Serial Port A Base 1/0 Address Interrupt Hode Serial Port B Serial Port C Serial Port D WDT Hardware Monitor •GP10 Group 0 Configuration •GP10 Group 1 Configuration •GP10 Group 2 Configuration •GP10 Group 3 Configuration •GP10 Group 5 Configuration •GP10 Group 5 Configuration •GP10 Group 6 Configuration •GP10 Group 8 Configuration •GP10 Group 8 Configuration	<enable> <3F8> <1R04> <r\$232> <auto> <auto> <auto> <disable></disable></auto></auto></auto></r\$232></enable>	Hode R\$232 R\$485 R\$422	Choose COM Port Mode	
F1 Help Esc Exit	1/4 Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit	
Advanced	Insy	deH2O Setup Utility		Rev.
Serial Port A Serial Port B Serial Port C Serial Port C Serial Port D WDT WDT Count Mode Counter Hardware Monitor +GP10 Group 0 Configuration +GP10 Group 1 Configuration +GP10 Group 2 Configuration +GP10 Group 3 Configuration +GP10 Group 5 Configuration +GP10 Group 5 Configuration +GP10 Group 6 Configuration +GP10 Group 8 Configuration	<auto> <auto> <auto> <auto> <auto> <enable> <tinute> [0]</tinute></enable></auto></auto></auto></auto></auto>		The time-out counter.	

F1 Help	t/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit

Hardware Monitor

	Insyde	120 Setup Utility	Rev. 5
Advanced			
Hardware Monitor			
Voltage VCC (V) VCORE (V) V12S (V) V3.3S (V) V1N4 (V) VASB3 (V) VBAT	3.408 V 0.880 V 12.144 V 3.392 V 5.423 V 3.424 V 3.248 V		
VASB5 (V) Temperature Temperature 0 (°C/°F) Temperature 2 (°C/°F)	5. 184 V 34.0 C/ 93.2 35.0 C/ 95.0		
Fan Speed			
F1 Help Esc Exit	1/↓ Select Item +/+ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

4.2.3 H2oUve Configuration

	InsydeH20	Setup Utility		Rev. 5.0
Advanced				
H2oUve Setup			Enable/Dis	able interface for H2OUVE tool.
H2OUVE Support	<enabled></enabled>			
F1 Help	1/1 Select Item	F5/F6 Change Values		Setup Defaults
Esc Exit	+/+ Select Item	Enter Select ► SubMer		Setup Defaults D Save and Exit
		-		
BIOS Setting	Description	Setting 0	Option	Effect
	H2OUVE tool interface	Enabled	/	Enables or disables
H2OUVE Support	settings	Disabled		interface for H2OUVE tool

4.2.4 Security

	InsydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Power Boot	Exit	
Current TPM Device TPM State TPM Active PCR Hash Algorithm TPM Hardware Supported Hash Algorithm TrEE Protocol Version TPM Availability TPM Operation Clear TPM	<tpm (dtpm)="" 2.0=""> All Hierarchies Enabled, Owned SHA1, SHA256, SHA384 SHA1, SHA256, SHA384 <1.0> <available> <no operation=""> []</no></available></tpm>	TrEE Protocol Version: 1.0 or 1.1
Supervisor Password User Password	Not Installed Not Installed	
Set Supervisor Password Set User Password		
•	ect Item F5/F6 Change V ect Item Enter Select V	

BIOS Setting	Description	Setting Option	Effect
TrEE Protocol Version	TrEE Protocol Version	1.0 or 1.1	TrEE Protocol Version
TPM Availability	Configure TPM Availability settings	Available	Set TPM Availability
TPM Operation	Configure TPM Operation settings	No Operation	Set TPM Operation
Clear TPM	Clear TPM	[]	Clear TPM
Set Supervisor Password	Set Supervisor Password	Enter	Opens sub-menu

4.2.5 Power

S5

	InsydeH20	Setup Utility	Rev. 5.0
Main Advanced Security Power	r Boot Exit		
▶CPU Configuration			
Wake on PME	<force enabled=""></force>		
Wake on RTC from \$5	<disabled></disabled>		
	-D1300100-		
F1 Help	t/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults

ESU EXIL	FIT Select item Enter	serect 💌 subhenu	TO Save and Exit
BIOS Setting	Description	Setting Option	Effect
CPU Configuration	Setting CPU Configuration parameters	Enter	Opens sub-menu
Wake on PME	Power Management Even from S5 state	Force Enable	Power Management Even after S5 state
Wake on RTC from	Wake on RTC from S5 state	Enabled/	Wake on RTC from

Disabled

S5 state

Wake on RTC from S5 state

Ent

		InsydeH20 Setup Utility	Rev. 5.0
	Power		
CPU Configuration VTX-2 VT-d IM1 AES-NI DTS Active Processor Cores Core O ►CPU Power Management	<disa <enab <enab <disa <disa <disa< td=""><td></td><td>enable or disable the VTX-2 Mode pport</td></disa<></disa </disa </enab </enab </disa 		enable or disable the VTX-2 Mode pport
F1 Help Esc Exit	1/↓ Select Item +/+ Select Item	—	F9 Setup Defaults F10 Save and Exit

4.2.6 Boot

		/deH20 Setup Utility		Rev. 5.0
Main Advanced Security Power	r Boot Exit			
Hain Advanced Security Power Boot Type Quick Boot Quiet Boot Network Stack PXE Boot capability Power Up In Standby Support Add Boot Options USB Boot Timeout Automatic Failover ►Boot Type Order	Boot Exit UEF1 Boot Ty Oisabled> Oisabled> Oisabled> Oisabled> Oisabled> Oisabled> Coisabled> Oisabled> Oisabled> Oisabled> Coisabled> Oisabled> Oisabled> Coisabled> Coisabled> Oisabled> Coisabled> Coisabled>		Select boot type to Dual type type or UEFI type	, Legacy
	t/↓ Select Item ⊢/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit	

BIOS Setting	Description	Setting Option	Effect
Boot Type	Select boot type to Dual type, Legacy type or UEFI type	Dual/ Legacy UEFI	Select boot type to Dual type, Legacy type or UEFI type
Quick Boot	Quick Boot configuration	Enabled/ Disabled	Allows InsydeH20 to skip certain tests while booting. This will decrease the time needed to boot the system
Quite Boot	Quiet Boot configuration	Enabled/ Disabled	Disable or enable booting in text Mode.
Network Stack	Network Stack configuration	Enabled/ Disabled	 Network Stack Support: Windows 8 Bitlocker Unlock UEFI IPv4/ IPv6 PXE Legacy PXE OPROM
Power Up In Standby Support	Power Up In Standby Support	Enabled/ Disabled	Enables or disables Power Up In Standby Support
Add Boot Options	Boot Options settings	First	Boot Options settings
USB Boot	USB Boot settings	Enabled/ Disabled	Enables or disables USB Boot
Timeout	Timeout settings	[Value]	Set Timeout
Automatic Failover	Automatic Failover settings	Enabled/ Disabled	Enables or disables Automatic Failover
Boot Type Order	Select Boot Type Order	Enter	Opens sub-menu

	Ins	ydeH20 Setup Utility	Rev. 5.
Boot Type Order USB BEV Hard Disk Drive Others		800	t Type Order
▶0 thers			
F1 Help Esc Exit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit

4.2.7 Exit

Main Advanced Security	Power Boot Exit	InsydeH20 Setup Utility	Rev. 5.
Main Advanced Security Exit Saving Changes Save Change Without Exit Exit Discarding Changes Load Optimal Defaults Load Custom Defaults Save Custom Defaults Discard Changes	Power Boot Exit		Exit system setup and save your changes.
F1 Help Esc Exit	1/1 Select Item +/+ Select Item	F5/F6 Change Values Enter Select ► Subflenu	F9 Setup Defaults F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Exit Saving Options	Exit system setup and save your changes	Enter	Opens sub-menu
Save Change Without Exit	Save changes without exit system setup	Enter	Opens sub-menu
Exit Discarding Changes	Exit system setup and discard your changes	Enter	Opens sub-menu
Load Optimal Defaults	Load optimal system defaults	Enter	Opens sub-menu
Load Custom Defaults	Load custom system defaults	Enter	Opens sub-menu
Save Custom Defaults	Save custom defaults	Enter	Opens sub-menu
Discard Changes	Discard changes	Enter	Opens sub-menu

4.3 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 **11 GB** of the storage space, and comes built-in to each IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC.



Important:

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 IBDRW100-P/ IBDRW100-EX-P DIN-Rail 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.

Recovery Wizard	ł
Click " Recovery " to restore WARNING! The process will clear all o	
If you do not want to restore reboot.	your system please press " Quit " to Recovery Quit

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 complete the recovery process, the system will be turned off automatically. Please restart your system manually to complete the OS initialize process.

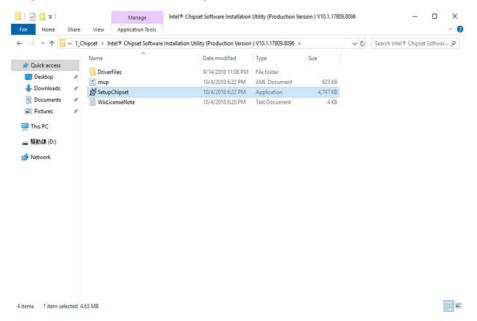
Chapter 5: Driver Installation

Driver installation procedure described in this user manual applies to Windows 10 IoT Enterprise operating system.

5.1 Chipset Driver Installation

Follow the instructions below to complete the installation. You will quickly complete the installation.

Step 1 Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Open the file **"Chipset Driver**". Click **SetupChiset**.



Step 2 Click Next to install driver.



Step 4 Check the License Agreement and click Accept to continue.



Step 5 Check Readme File Information and click Install to continue.

	adme File Information	
2 52 53	****************	*******************
tz		Chipset Device Software
	Target PCH/Chipset	
te:	10.1.19.1:	Intel(R) Atom(TM) Processor C3000 produc
le .	10.1.17.1:	<pre>Intel(R) Atom(TM)/Celeron(R)/Pentium(R)</pre>
te .	10.1.16.6:	Intel(R) 300 Series Chipset Family
te .		Intel(R) C240 Series Chipset Family
2	10.1.15.5:	mobile 8th Gen Intel(R) Core(TM) process
te .	10.1.14.5:	8th Gen Intel(R) Core(TM)
2	10.1.13.3:	Intel(R) Celeron(R)/Pentium(R) Processor
te .	10.1.11.4:	Intel(R) 200 series chipset family
te :		Intel(R) 300 series chipset family
fæ	10.1.10.3:	Intel(R) Xeon(R) processor E3-1200 v6 pr
2		7th Generation Intel(R) Core(TM) process
fæ	10.1.9.2:	Intel(R) C620 series chipset
2	10.1.8.4:	Intel(R) Xeon(R) processor P family
*	10.1.7.3:	Intel(R) Xeon(R) processor E3-1500 v5 pr
2		Intel(R) Xeon(R) processor E3-1200 v5 pr
2		6th Generation Intel(R) Core(TM) process
2	10.1.6.2:	Intel(R) 100 Series chipset
×		T-4-1/05 (

Step 7 Wait for the system to install the driver.



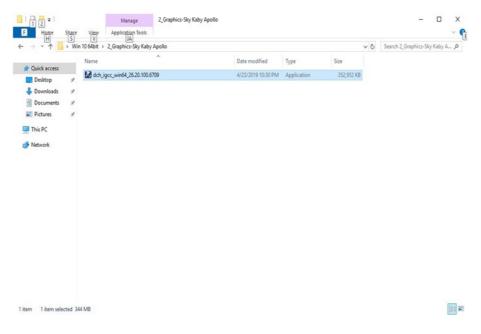
Step 8 Installation is complete. You must restart this computer to the changes to take effect. Click **Restart Now**.



5.2 Graphics Driver Installation

IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC is equipped with Intel SoC Integrated Device. Follow the instructions below to complete the installation. You will quickly complete the installation.

Step 1 Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC.



Step 2 Click Next to continue.

Intel(R) Graphics Driver Software - InstallShield Wizard	2
Release Version: Production Version Driver Version: 26.20.100.6709 Release Date: April 18, 2019 Operating System(s): Microsoft Windows* 10-64 - Fall Creators Update (1709) Microsoft Windows* 10-64 - April 2018 Update (1803) Microsoft Windows* 10-64 - October 2018 Update (1809) Microsoft Windows* 10-64 - May 2019 Update (1903)	^
Platforms: 6th Gen Intel(R) Core(TM) processor family (Codename Skylake) 7th Gen Intel(R) Core(TM) processor family (Codename Kaby Lake) 8th Gen Intel(R) Core(TM) processor family (Codename Kaby Lake-R, Coffee Lake) 9th Gen Intel(R) Core(TM) processor family	~
< Back Next > Car	ncel

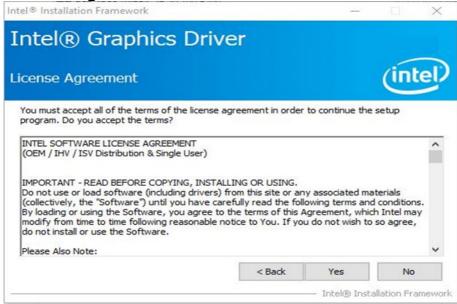
Step 3 The system is extracting files. Please wait while the InstallShield Wizard extracts the files needed to install Intel Graphics Driver Software to your computer. This may take few moments.

Intel(R) Graphics Driver Soft	ware - InstallShield Wizard	×
Extracting Files The contents of this packa	age are being extracted.	
	IIShield Wizard extracts the files needed to i on your computer. This may take a few mom	
Extracting common_clang3	12.dll	
InstallShield		
u istansi irciu	< Back Next >	Cancel

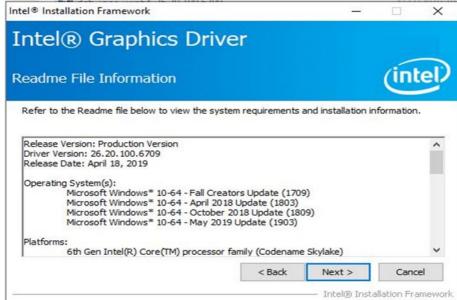
Step 4 Select automatically run WinSAT and enable the Windows Aero desktop theme (if supported) and click **Next**.



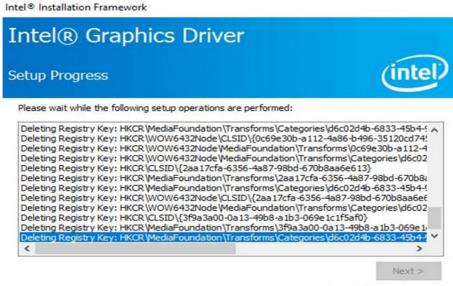
Step 5 Check the License Agreement and click Yes to continue.



Step 6 Check Readme File Information and click Install to continue.



Step 6 Please wait while the following setup operations are performed.



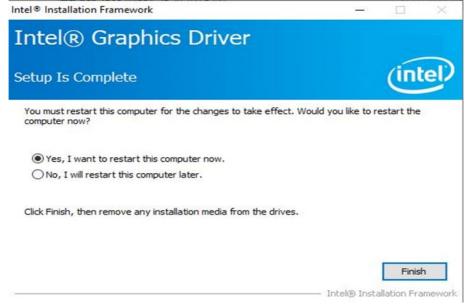
Intel® Installation Framework

Step 7 Click Next to continue.

Intel[®] Installation Framework



Step 7 Select "Yes, I want to restart this computer now", and click Finish.



5.3 TXE Driver Installation

Follow the instructions below to complete the TXE Driver installation.

Step 1 Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Click **SetupTXE.**

File Home	Share	View	Manage Application Tool	Installers					-	□ × ✓ 0
← → * ↑	> Win	10 64bit >	4_TXE > Apollo	Lake Intel(R) TXE	3.1.60.2280_Version_2_HF	> Installers >		~ õ	Search Installers	p
 ← → < ↑ ★ Quick access ■ Desktop ↓ Downloads ⊠ Documents ∞ Pictures ∞ This PC ◆ Network 	* Win	Name 3rd p	Anty Licenses in Sec SW_DCH dowsDriverPackages	unity SW	3.1.602280, Version, 2, HF Date modified 9/14/2018 11:09 PM 9/14/2018 11:09 PM 2/4/2019 10:05 PM 2/4/2019 10:05 PM 2/4/2019 10:04 PM	 Installers > Type File folder File folder File folder XML Document Application 	8 KB 8 KB 45,827 KB	0 ×	Search Installers	م
5 items 1 item se	elected 4	4.7 MB								

Step 2 Click Next to continue.

Setup	×
Intel® Trusted Execution Engine Welcome	(intel)
You are about to install the following product:	
Intel® Trusted Execution Engine 3.1.50.2298	
It is strongly recommended that you exit all programs befor Click Next to continue, or click Cancel to exit the setup prog	
Intel Corporation	<back next=""> Cancel</back>

Step 3 Check the License Agreement, select "I accept the terms in the License Agreement" and click Next to continue.

Setup		>
Intel® Trusted Execution Engine License Agreement	(intel)	
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Sin	gle User)	^
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load software (including drivers) from this site or any associa (collectively, the "Software") until you have carefully read the following ter By loading or using the Software, you agree to the terms of this Agreemen modify from time to time following reasonable notice to You. If you do not y do not install or use the Software.	ms and conditions it, which Intel may	
Please Also Note: • If you are an Original Equipment Manufacturer (OEM), Independent Hard or Independent Software Vendor (ISV), this complete LICENSE AGREEMEN • If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICEN applies.	T applies;)
For OEMs, IHVs and ISVs:		
LICENSE. Subject to the terms of this Agreement, Intel grants to You a nor	nexclusive,	~
I accept the terms in the License Agreement.		
Intel Corporation < Back	Next > Ca	ance

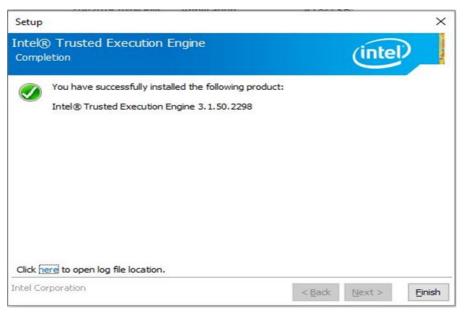
Step 4 Click Next to continue.

Setup			×
Intel® Trusted Execution Engine Confirmation		(inte	D
You are about to install the following components: - Intel® Trusted Execution Engine - Intel® Trusted Execution Engine Storage Proxy Driver - Intel® Dynamic Application Loader - Intel® Trusted Connect Service			
Intel Corporation	< <u>B</u> ack	Next >	<u>C</u> ancel

Step 5 Please wait while the product is being installed.

Setup		
Intel® Trusted Execution Engine Progress	(intel)	1
Please wait while the product is being installed.		
Intel Corporation	< <u>B</u> ack <u>N</u> ext > <u>C</u> ano	:el

Step 6 Click Next to exit installation window.



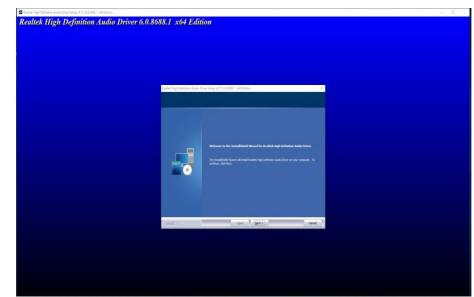
5.4 Audio Driver Installation

Follow the instructions below to complete the Audio Driver installation.

Step 1 Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Open **Audio** folder. Click **Setup.**

🖸 📘 🖬		Manage	8688_FF00_PG471_Win10_RS2_RS3_F	RS4_RS5_19H1_Win7_Wi	HQL		- 🗆 X
File Home Share	View App	olication Tools					~
🕇 📙 - Wi	in 10 64bit → 3_Au	dio > 8688_FF	00_PG471_Win10_RS2_RS3_RS4_RS5_198	H1_Win7_WHQL >		~ Õ	Search 8688_FF00_PG471_Win ,0
 Cuick access Destop # Downloads # Downloads # Downloads # Pictures # Pictures # This PC Network 	Name unersi unersi 0.0412 0.0413 0.0413 0.0415 0.0415 0.0415 0.0416 0.0416 0.0424 0.0424 0.0421 0.0425 0.0421 0.0425 0.0421 0.0425 0.0421 0.0425 0.0421 0.0425 0.0421 0.0425 0.0421 0.0425 0.0421 0.0425 0.0455 0.0455 0.0455 0.0455 0.0455 0.0555	~	Date modified 21 Jacknes 783, 2474, 2454, 255 24 Jacknes 783, 2476 24 Jacknes 783, 24767 24 Jacknes 783, 2	Type comparison set Configuration set SiN File Cabinet File Application setens Application setens Application set INC File ISN File SFile	Size 14.48 14.48 24.	v 0	Search 2000, Prov. Prov. 1, Winz. P

Step 2 Click Next to continue.



Step 3 Wait for the system to install files.

Realtek High Definition Audio Dr	iver Setup (4.71) 6.0.8688.1 x64 Edition	×
Setup Status		
	Realtek High Definition Audio Driver is configuring your new software installation.	
	C:\Program Files (x86)\Realtek\Audio\Drivers\Win64\HDXDMINI.inf	
InstallShield		Cancel

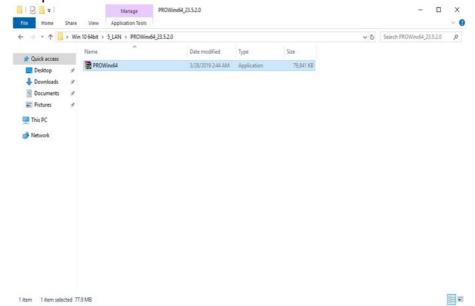
Step 4 Select "Yes, I want to restart this computer now", and click Finish. Realtek High Definition Audio Driver Setup (4.71) 6.0.8688.1 x64 Edition

	InstallShield Wizard Complete The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
	No, I will restart my computer later. Remove any disks from their drives, and then click Finish to complete setup.
InstallShield	< gadk Finish Cancel

5.5 LAN Driver Installation

Follow the instructions below to complete the LAN Driver installation.

Step 1 Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Open LAN folder. Open archived file.



Step 2 Installation is in progress.

WinRAR self-	extracting archive	-		×
	Extracting files to temporary folder Extracting from PROWinx64.exe			
	Extracting DOCS\QUICK\jpn.gif			
	Installation progress			
	Pau	use	Cancel	

Step 3 Click Next to continue.

Welcome to the install wizard Network Connections	for Intel(R)	(intel
Installs drivers, Intel(R) Networking Services.	Network Connections, and A	dvanced
WARNING: This progra international treaties.	m is protected by copyright la	iw and

Step 4 Check the License Agreement, select "I accept the terms in the License Agreement" and click Next to continue.

License Agreement			\frown
Please read the following license agree	ement carefully.		(intel)
SOFTWAR		ENT	^
DO NOT DOWNLOAD, INSTALL, ACCESS UNTIL YOU HAVE READ AND ACCEPTED AGREEMENT. BY INSTALLING, COPYING AGREE TO BE LEGALLY BOUND BY THE You do not agree to be bound by, or the of You to accept, these terms and condition and destroy all copies of the Software in	THE TERMS AND C ACCESSING, OR U TERMS AND COND entity for whose be s, do not install, acc	ONDITIONS OF THIS SING THE SOFTWAR ITIONS OF THIS AGR nefit You act has not	E, YOU EEMENT. If authorized
This SOFTWARE LICENSE AGREEMENT (Corporation, a Delaware corporation ("Int or other entity for whose benefit you act, conditions of this Agreement on behalf of	el") and You. "You" as applicable. If yo	refers to you or you u are agreeing to the	terms and
I accept the terms in the license agree	ment	[Print
I do not accept the terms in the license	agreement		

Step 5 Click Next to continue.

ntel(R) Network Connections Install		-
Setup Options		(intel)
Select the program features you wa	ant installed.	(Index
Install:		
Device drivers		
Intel® PROSet		
Intel® Advanced Network	Services	
Feature Description		
Feature Description		
Feature Description		
Feature Description		
Feature Description		
Feature Description		
Feature Description		
Feature Description		

Step 6 Wait for the system to install files.

	Network Connections Install Intel(R) Network Connect			×
The prog	gram features you selected are	being installed.		intel
9	Please wait while the install v This may take several minute Status:		R) Network Connect	ions.
		< Back	Next >	Cancel

Step 7 Click **Finish** to exit installation window.

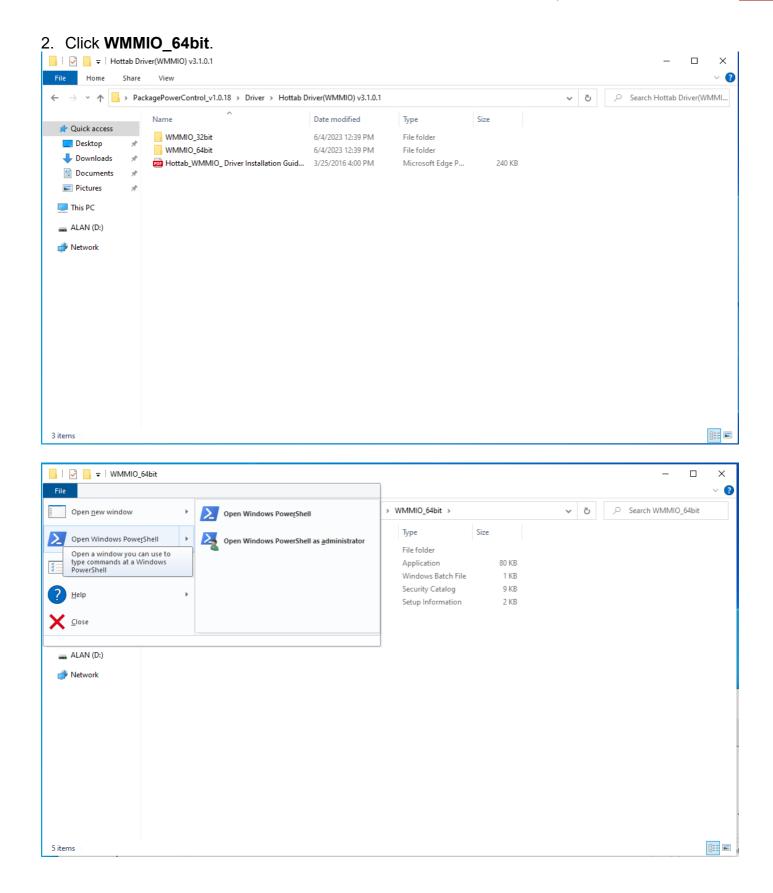
Intel(R) Network Connections Install Wizard	×
Install wizard Completed	(intel)
A shortcut has been created in the Start Menu. desktop, if desired. To access new features, law Configuration Utility from the Start Menu.	
Additional Options:	
Launch Intel(R) PROSet Adapter Configuratio	n Utility
< Back	Finish Cancel

5.6 Thermal Control AP

Follow instructions below to install Thermal Control AP.

1. Click Driver.

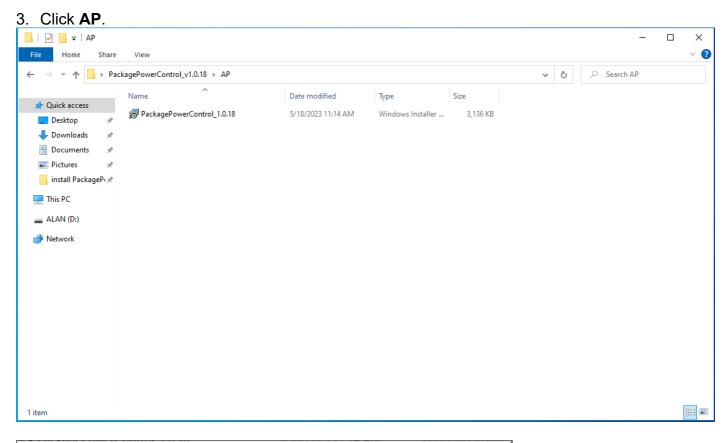
📙 🛛 🛃 🚽 🛛 Pack	agePo	owerControl_v1.0.18							_		×
File Home S	Share	View									~ ?
$\leftarrow \rightarrow \land \uparrow$	> Pac	kagePowerControl_v1.0.18				~	Ō	Q	Search Packa	gePower	Contr
 ← → ✓ ↑ ↓ Quick access ↓ Downloads ⊕ Documents ⊕ Pictures ⊕ This PC ⊕ ALAN (D:) ⊕ Network 	* Pac	kagePowerControl_v1.0.18 Name AP Driver	Date modified 6/4/2023 12:39 PM 6/4/2023 12:39 PM	Type File folder File folder	Size	~	S		Search Packa	gePower	Contr
2 items	er	View							_		× ~ ?
← → · ↑ 📙 >	> Pac	kagePowerControl_v1.0.18 → Driver				~	Ū	Q	Search Driver		
 ✓ Quick access Desktop ✓ Downloads ☑ Documents ☑ Pictures ☑ This PC ☑ ALAN (D:) ☑ Network 	* * * *	Name hottab Driver(WMMIO) v3.1.0.1	Date modified 6/4/2023 12:39 PM	Type File folder	Size						
1 item											

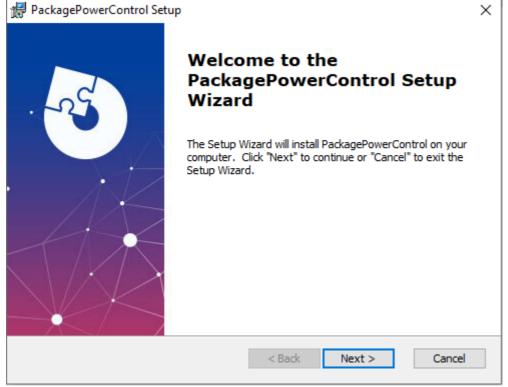


🔁 Administrator: Windows PowerShell	_		×
PS C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>	.\instal	ll.bat	^

🔁 Administrator: Windows PowerShell	_		×
<pre>PS C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit> .</pre>	\insta	11.bat	^
C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>DEVCO mio.inf "root\wmmio" Device node created. Install is complete when drivers are installed Updating drivers for root\wmmio from C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Dri 0.1\WMMIO_64bit\wmmio.inf. Drivers installed successfully.			
C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>pause Press any key to continue			

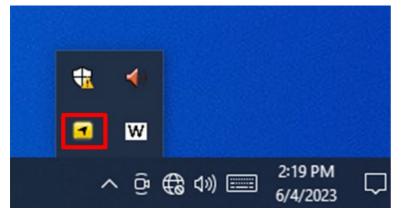
🛃 Device Manager	— 🗆
File Action View Help	
♦ ♦ ■ ■ ■ ■ ■ ₩ × ●	WMMIO Driver Properties ×
 M Sound, video and game controllers Storage controllers 	General Driver Details Events
 The system devices The ACPI Fan 	WMMIO Driver
La ACPI Fan	Driver Provider: Winmate
ACPI Fan	Driver Date: 6/9/2014 Driver Version: 3.1.0.1
ACPI Fixed Feature Button	Digital Signer: Winmate Communication INC.
 ACPI Thermal Zone ACPI Thermal Zone Change Achieve Thermal Zone 	Driver Details View details about the installed driver files.
 Charge Arbitration Driver Composite Bus Enumerator eGalax_eMPIA Touchscreen Enumerator x64 	Update Driver Update the driver for this device.
Generic Bus	Roll Back Driver If the device fails after updating the driver, roll back to the previously installed driver.
 High Definition Audio Controller High precision event timer 	Disable Device Disable the device.
intel(R) Gaussian Mixture Model - 1911 Intel(R) Host Bridge/DRAM Registers - 5904	Uninstall Device Uninstall the device from the system (Advanced).
늘 Intel(R) Management Engine Interface 늘 Intel(R) Power Engine Plug-in	OK Cancel
🏣 Legacy device 🏣 Microsoft ACPI-Compliant System	
Microsoft Hyper-V Virtualization Infrastructure Driver Microsoft System Management BIOS Driver	r
Microsoft UEFI-Compliant System	
icrosoft Windows Management Interface for ACPI	
Mobile 7th/8th Generation Intel(R) Processor Family Mobile Intel(R) Processor Family I/O PCI Express Roo	
Mobile Intel(R) Processor Family I/O PMC - 9D21 Mobile Intel(R) Processor Family I/O SMBUS - 9D23	
🏣 NDIS Virtual Network Adapter Enumerator 🚛 PCI Express Root Complex	
Plug and Play Software Device Enumerator Programmable interrupt controller	
Remote Desktop Device Redirector Bus	
timer	
🏣 UMBus Root Bus Enumerator 🚛 WMMIO Driver	
 WMWDG Universal Serial Bus controllers 	





PackagePowerControl Setup		_		×
Select Installation Folder				
This is the folder where PackagePowerCont	rol will be installe	ed.		0
To install in this folder, click "Next". To insta "Browse".	ill to a different	folder, enter it be	elow or click	
<u>F</u> older:				
C:\Program Files (x86)\PackagePowerContro	l \PackagePower	Control	Browse	
Advanced Installer				
	< Back	Next >	Cance	I
PackagePowerControl Setup	1/10/2025			~
				×
Ready to Install The Setup Wizard is ready to begin the Pac	kagePowerCont	rol installation	X	-5
Click "Install" to begin the installation. If yo installation settings, click "Back". Click "Car	ou want to revie ncel" to exit the	w or change any wizard.	of your	
	< Back	Install	Cance	4
	< DOCK		Cance	





Appendix

Appendix A: Hardware Specifications

		Model Name			
		IBDRW100-P	IBDRW100-EX-P		
System Specification	CPU	Intel® Pentium® N4200 1.1GHz, up to 2.56GHz	Intel® Pentium® E3950 1.6GHz, up to 2.0GHz		
	System Memory	SO-DIMM socket DDR3L-1866 Max. 8GB	SO-DIMM socket DDR3L-1866 Max. 8GB		
	Storage	1 x SATAIII, 1 x M.2 (2242 KEY B, SATAIII)	1 x SATAIII, 1 x M.2 (2242 KEY B, SATAIII)		
	BIOS	Insyde BIOS	Insyde BIOS		
	Graphics	Intel® HD Graphics 505	Intel® HD Graphics 505		
	LAN	4 x Giga LAN (Intel® I210-IT Gigabit-LAN Controller)	4 x Giga LAN (Intel® I210-IT Gigabit-LAN Controller)		
	Audio	Realtek HD Audio Codec	Realtek HD Audio Codec		
	OS	Windows 10 IoT Enterprise, Ubuntu 18.04 LTS	Windows 10 IoT Enterprise, Ubuntu 18.04 LTS		
Wireless Communications	WLAN	Optional 1 x M.2 (KEY E, for Wi-Fi)	Optional 1 x M.2 (KEY E, for Wi-Fi)		
	4G	Optional 4G / LTE	Optional 4G / LTE		
Interface	External I/O	3 x USB 3.0 1 x USB 2.0 4 x RJ-45 for Giga LAN w/LED 1 x VGA 1 x RS232 (Default), RS422/485 switch by BIOS 1 x Isolated RS422(Default), RS485 Switch by jumper 1 x Audio Jack (Mic-in, Line-out, Line-in) 1 x clear CMOS & reset button 1 x DIDO(9in, 9out) 1 x DC Power 3pin Terminal Block	3 x USB 3.0 1 x USB 2.0 4 x RJ-45 for Giga LAN w/ LED 1 x VGA 1 x RS232 (Default), RS422/485 switch by BIOS 1 x Isolated RS422(Default), RS485 Switch by jumper 1 x Audio Jack (Mic-in, Line-out, Line-in) 1 x clear CMOS & reset button 1 x DIDO(9in, 9out) 1 x DC Power 3pin Terminal Block		
Keyboard and Input	Button	1 x Reset Button	1 x Reset Button		
	LED Indicators	Power, Storage	Power, Storage		
Power Management	Power Input	12V DC (isolation)	12V DC (isolation)		
	Power Consumption	20W (max.)	30W (max.)		
	AC Adapter	12V / 36W	12V / 36W		
Mechanical Specification	Dimensions	139 x 64.5 x 152 mm (5.47 x 2.54 x 5.98 inches)	139 x 64.5 x 152 mm (5.47 x 2.54 x 5.98 inches)		
	Gross Weight	6 kg (13.23 lbs)	6 kg (13.23 lbs)		

		Model Name			
		IBDRW100-P	IBDRW100-EX-P		
Mechanical Specification	Net Weight	6.5 kg (14.33 lbs)	6.5 kg (14.33 lbs)		
	Mounting	DIN Rail	DIN Rail		
	Cooling	Fanless	Fanless		
Environment Specification	Operating Temp.	-20° to 60°C (-4° to 140°F)	-40° to 70°C (-40° to 158°F) , when powered by suitable DC source rated -40° to 40°C (-40° to 104°F) , when powered by adaptor.		
	Storage Temp.	-40° to 70°C (-40° to 158°F)	-40° to 70°C (-40° to 158°F)		
	Operating Humidity	5% to 95% RH, non- condensing	5% to 95% RH, non-condensing		
	Shock	MIL-STD-810F/G Method 516.6	MIL-STD-810F/G Method 516.6		
	Vibration	MIL-STD-810F/G Method 514.6	MIL-STD-810F/G Method 514.6		
Approvals and Certifications	Ordinary Location Safety	CSA C22.2 No. 62368-1-14 UL 62368-1	CSA C22.2 No. 62368-1-14 UL 62368-1		
	Hazardous Location Safety	N/A	Class I, Division 2, Groups A, B, C, D T4 (when max. ambient = 70°C) Class I, Division 2, Groups A, B, C, D T5 (when max. ambient = 40°C)		
	loT	AWS IoT Greengrass Certified	AWS IoT Greengrass Certified		

Appendix B: Approvals and Certifications

Refer the following descriptions for various approvals and certifications.

N.A. Safety for Information Technology Equipment (For IBDRW100-EX-P)



Certification by Underwriter Laboratories to CSA C22.2 No. 62368-1-14 standard and equivalent UL 62368-1 Standard

N.A. Safety for HazLoc (For IBDRW100-EX-P)

Class I, Division 2, Groups A, B, C, D T4 (when max. ambient = 70° C) Class I, Division 2, Groups A, B, C, D T5 (when max. ambient = 40° C)



Certification by Underwriter Laboratories to CAN/CSA C22.2 NO. 213-17 standard and equivalent UL 121201 Ed.9 Standard

European Union



This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.

Electromagnetic Compatibility Directive (2014/30/EU)

- EN55024: 2010/ A1: 2015
 - o IEC61000-4-2: 2009
 - o IEC61000-4-3: 2006+A1: 2007+A2: 2010
 - o IEC61000-4-4: 2012
 - o IEC61000-4-5: 2014
 - o IEC61000-4-6: 2014
 - IEC61000-4-8: 2010
 - IEC61000-4-11: 2004
- EN55032: 2012/AC:2013
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

• EN 62368-1

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

Notes

Notes



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