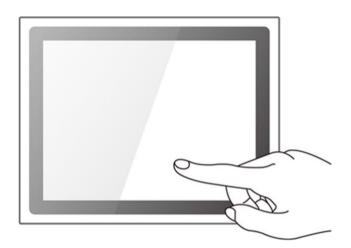


IP65 Stainless P-Cap

15/17/19/21.5" Panel PC

Intel® Core™ i5-7200U Kaby Lake



Model No.: R15IK3S-SPC3 R17IK3S-SPA1 R19IK3S-SPM1 W22IK3S-SPA3

User Manual

Version 1.0

Please read this instructions before operating the device and retain them for future reference.

Contents

Preface4
About This User Manual9
Chapter 1: Introduction 10
1.1 Introduction11
1.2 Product Features11
1.3 Package Content 12
1.4 Connector Placement13
1.5 Physical Buttons and LED Indicators13
1.6 Schematics and Dimensions14
1.6.1 Dimensions 15" 14
1.6.2 Dimensions 17" 14
1.6.3 Dimensions 19" 15
1.6.4 Dimensions 21.5" 15
Chapter 2: Getting Started
2.1 Powering On17
2.1.1 AC Adapter Components 17
2.1.2 Power Considerations
2.1.3 Power Consumption18
2.1.4 Turning On/ Off Your Device
2.2 Connector Pin Assignments 19
2.2.1 Power Cable
2.2.2 Serial Cable
2.2.3 Ethernet Cable
2.2.4 USB 2.0 Cable
2.3 Cleaning the Monitor
Chapter 3: Mounting24
3.1 Cable Mounting Considerations25
3.2 Safety Precautions25
3.3 VESA Mount
3.4 Yoke Mount
Chapter 4: Operating the Device
4.1 Operating System
4.2 Multi-Touch

4.3 How to Enable Watchdog 30
Chapter 5: Insyde BIOS Setup
5.1 How and When to Use BIOS Setup
5.2 BIOS Functions
5.2.1 Main Menu
5.2.2 Advanced
5.2.3 Boot
3.2.3 Security
5.2.4 Power
5.2.5 Exit
5.3 Using Recovery Wizard to Restore Computer
Shapter 6: Driver Installation56
Shapter 6: Driver Installation 56 6.1 Chipset Driver. 57
-
6.1 Chipset Driver
6.1 Chipset Driver.576.2 Graphic Driver .596.3 Management Engine (ME)646.4 Audio Driver .676.5 Ethernet Driver .68
6.1 Chipset Driver576.2 Graphic Driver596.3 Management Engine (ME)646.4 Audio Driver676.5 Ethernet Driver686.6 Watchdog Driver Installation71
6.1 Chipset Driver576.2 Graphic Driver596.3 Management Engine (ME)646.4 Audio Driver676.5 Ethernet Driver686.6 Watchdog Driver Installation71Chapter 6: Technical Support76

Preface

Copyright Notice

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Trademark Acknowledgement

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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 1W18Axxxxxx means October of year 2018.

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.

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!

Ne pas couvrir 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.

*Let service personnel to check the equipment in case any of the following problems appear:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well or you cannot get it to work according to the user manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.
- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20°C (-4°F) or above 60°C (140°F). It may damage the equipment.



Caution/Attention

Use the recommended mounting apparatus to avoid risk of injury. Utiliser l'appareil de fixation recommandé pour éliminer le risque de blessure.



Warning!/ Avertissement!

Only use the connection cords that come with the product. When in doubt, please contact the manufacturer.

Utiliser seulement les cordons d'alimentation fournis avec le produit. Si vous doutez de leur provenance, contactez le manufacturier.



Warning!/ Avertissement!

Always ground yourself against electrostatic damage to the device. Toujours vérifier votre mise à la terre afin que l'équipement ne se décharge pas sur vous.

- Cover workstations with approved anti-static material. Use a wrist strap connected to a work surface and properly grounded tools and equipment.
- Use anti-static mats, heel straps, or air ionizer for added protection.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Keep the work area free of non-conductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Use filed service tools, such as cutters, screwdrivers, and vacuum cleaners that are conductive.
- Always put drivers and PCB's component side on anti-static foam.

Important Information

Federal Communications Commission Radio Frequency Interface Statement



This device complies with part 15 FCC rules.

Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "B" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

EC Declaration of Conformity



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 EN 55022: 2010 Class B
 - 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: 2013
 - IEC61000-4-8: 2010
 - o IEC61000-4-11: 2004
- EN55022: 2010/AC:2011
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

• EN 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013

About This User Manual

This User Manual provides information about using the Winmate® IP65 Stainless P-Cap Panel PC with Intel® Core™ i5-7200U Kaby Lake processor. This User Manual applies to the IP65 Flat Stainless P-Cap Panel PC – R15IK3S-SPC3, R17IK3S-SPA1, R19IK3S-SPM1, and W22IK3S-SPA3.

The documentation set for the IP65 Flat Stainless P-Cap Panel PC provides information for specific user needs, and includes:

- IP65 Stainless P-Cap Panel PC User Manual contains detailed description on how to use the Panel PC, its components and features.
- **IP65 Stainless P-Cap Panel PC Quick Start Guide -** contains detailed description on how to use the Panel PC, its components and features.



Note:

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

Document Revision History

Version	Date	Note
1.0	13-Sept-2018	Initial document release

Chapter 1: Introduction

This chapter gives you product overview, describes features and hardware specification. You will find all accessories that come with the Panel PC in the packing list. Mechanical dimensions and drawings included in this chapter.

1.1 Introduction

Congratulations on purchasing Winmate® IP65 Flat Stainless P-CAP Series Panel PC.

Winmate IP65 Flat Stainless P-CAP Series Panel PC is rugged, industrial-grade panel PC series built to withstand challenging environments, undergoing rigorous testing to ensure safety and top performance. All of the models in the series are sealed to IP65 standard. Stainless housing features anti-corrosion properties making it suitable for food, chemical and pharmaceutical industries. P-CAP multi-touch screen supports glove mode and provides even more convenience for the operator.

Winmate IP65 Flat Stainless P-CAP Panel PC goes beyond that of the standard industrial panel computers with elegant, edge-to-edge design, rugged construction, powerful performance, and flexible mounting options.

The IP65 stainless series work well in food, beverage industry, including food processing operations and packaging, chemical manufacturing and other industrial applications.

1.2 Product Features

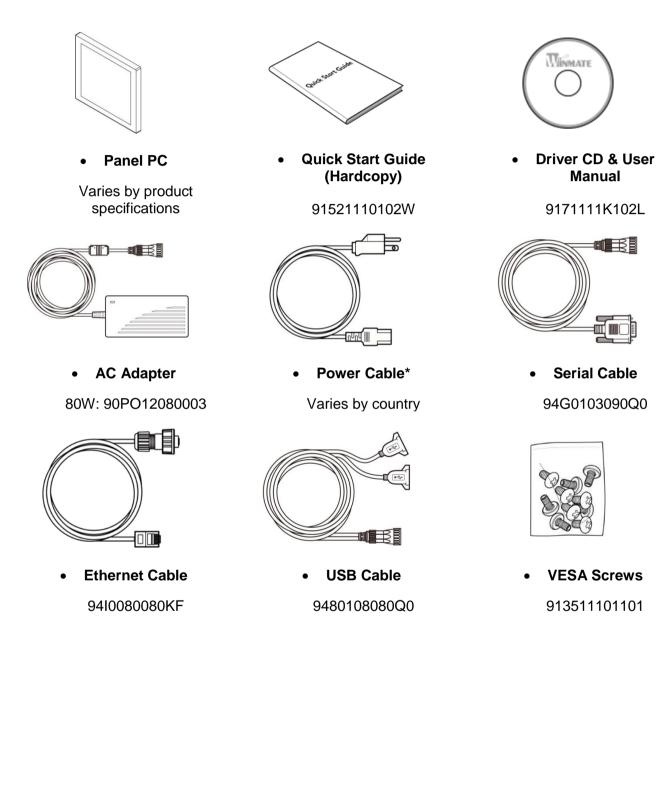
The IP65 Stainless P-Cap Panel PC features:

- Intel® Core™ i5-7200U Kaby Lake 2.5GHz (turbo to 3.1GHz)
- SUS304 stainless steel for food and chemical industries
- Full IP65 waterproof enclosure, good corrosion resistance
- A true flat, easy-to-clean front surface with edge-to-edge design
- Flat multi-touch panel pc with superior readability and P-CAP technology
- Various mounting solutions, Yoke mount and VESA mount
- Plenty of I/O s including USB 2.0, RS-232 serial port and RJ45-10/100/1000 LAN ports
- Waterproof ports with adapter cables for external connectivity
- Supports VESA mount
- Supports Rain/ Glove mode (Optional)

1.3 Package Content

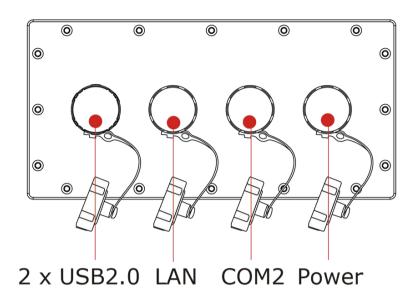
Carefully remove the box and unpack your device. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Standard shipment list:



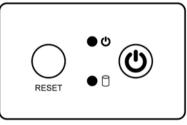
1.4 Connector Placement

IP65 Flat Stainless P-CAP Panel PC has IP65 type connectors with protection cap. For cable specifications refer to the <u>Ch.2, "Cable Specifications"</u> of this user manual.



1.5 Physical Buttons and LED Indicators

Physical buttons and LED indicators located on the rear side of the Panel PC.



Physical Buttons

lcon	Button	Description
RESET	Reset	Press to reset the system
٢	Power On/ Off	Press to power on or power off the device

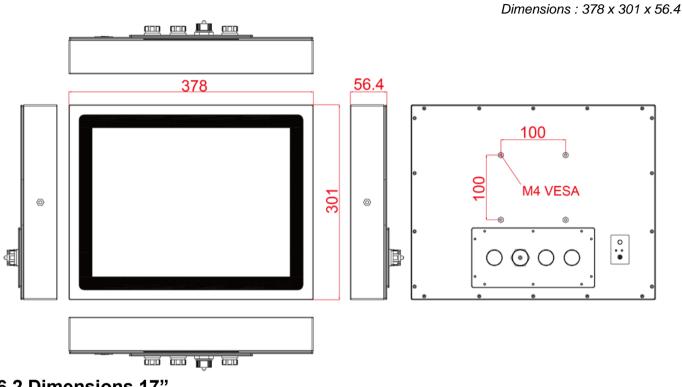
LED Indicators

LED Ty	ре	Status	Description
	۰I	On	Power is on
	U	Off	Power is off
	Ρ	Blinking	Storage activity (Data is being read or written)
		Off	System is idle

1.6 Schematics and Dimensions

This section contains mechanical drawing of the Panel PC. Notice that this is a simplified drawing and some components are not marked in detail.

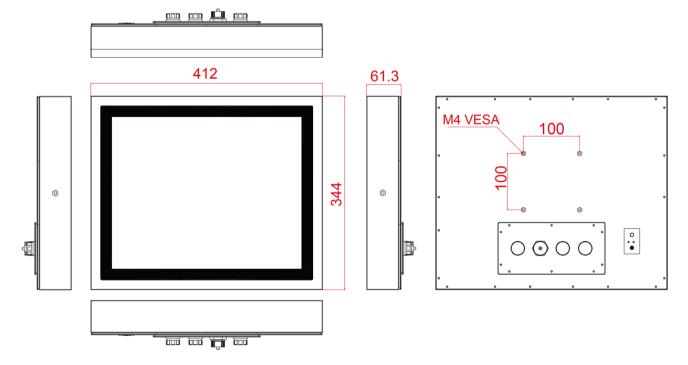
1.6.1 Dimensions 15"



1.6.2 Dimensions 17"

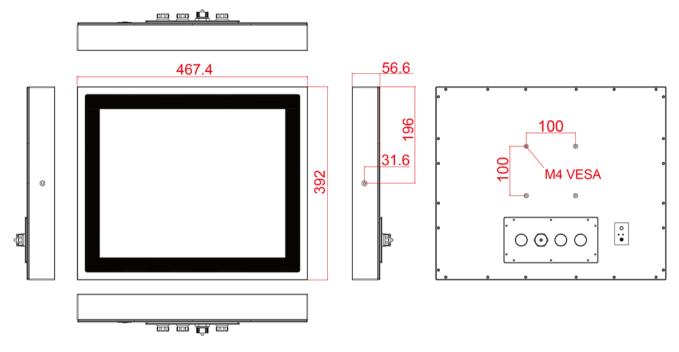
Unit: mm Dimensions : 412 x 344 x 61.3

Unit: mm



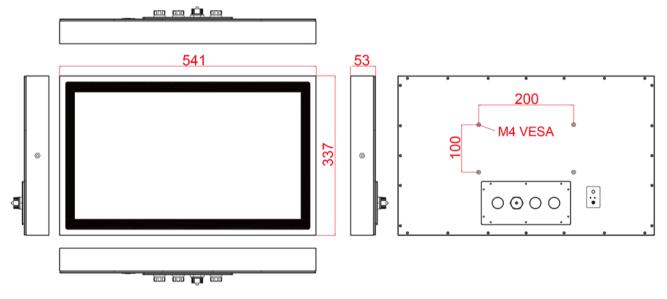
1.6.3 Dimensions 19"

Unit: mm Dimensions : 467.4 x 392 x 56.6



1.6.4 Dimensions 21.5"

Unit: mm Dimensions : 541 x 337 x 53



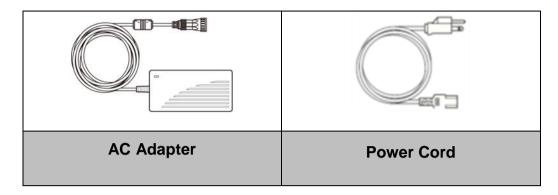
Chapter 2: Getting Started

This chapter tells you important information on power supply, adapter and precautions tips. Pay attention to power considerations.

2.1 Powering On

2.1.1 AC Adapter Components

AC Adapter supplied with the power cord.



AC Adapter specifications vary by panel size.

Size	15"	19"	21.5"
AC Adapter	12V/ 80W	12V/ 80W	12V/ 80W

Safety Precautions:

- Do not use the adapter in a high moisture environment
- Never touch the adapter with wet hands or foot
- Allow adequate ventilation around adapter while using
- Do not cover the adapter with paper or other objects that will reduce cooling
- Do not use the adapter while it is inside a carrying case
- Do not use the adapter if the cord is damaged
- There are NO serviceable parts inside
- Replace the unit if it is damaged or exposed to excess moisture

While using the AC Adapter always:

- Plug-in the power cord to easy accessible AC outlet
- Plug-in the AC adapter to a grounded outlet



Alternating Current Mise à le terre !

This product must be grounded. Use only a grounded AC outlet. Install the additional PE ground wire if the local installation regulations require it. **If you do not use a grounded outlet while using the device, you may notice an electrical tingling sensation when the palms of your hands touch the device.* Ce produit doit être mis à la terre. Utiliser seulement un cordon d'alimentation avec mise à la terre. Si les règlements locaux le requiert, installer des câbles de mise à la terre supplémentaires.

*Si vous n'utiliser pas une prise d'alimentation avec mise à la terre, vous pourriez remarquer une sensation de picotement électrique quand la paume de vos mains touche à l'appareil.

2.1.2 Power Considerations

The Panel PC operates on external DC power. Use the AC adapter included in the package.



Caution/Attention

Use only the AC adapter included in your package. Using other AC adapters may damage the device.

Utiliser seulement le convertisseur AC inclu avec votre appareil. Utiliser d'autres convertisseurs pourraient endommager l'appareil.

2.1.3 Power Consumption

The table below shows power consumption and AC adapter for the Flat Stainless P-CAP Panel PC.

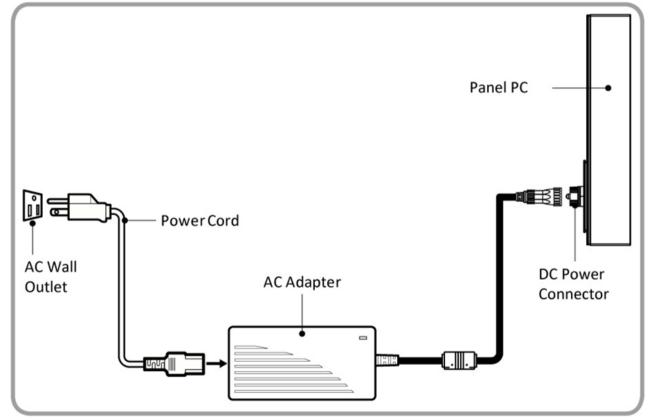
Size	15"	19"	21.5"
Power Consumption*	52W (typ.)	56W (typ.)	66W (typ.)

*With maximum backlight and high CPU load.

2.1.4 Turning On/ Off Your Device

To turn on your device:

- 1. Connect the AC adapter to the DC-in jack connector located on the back side of the Panel PC.
- 2. Connect the power cord to AC adapter.
- 3. Plug the power cord to the AC outlet and the device will turn on automatically.



To turn off your device:

To shut down your device, do the following: Tap Start (\blacksquare) > Shut down. Wait for your Panel PC to completely turn off before disconnecting the power cord (if necessary).

2.2 Connector Pin Assignments

This Panel PC is equipped with four M25 type waterproof connectors. Use only the cables that are included in the package. The pin assignments of the cables are as follows.

2.2.1 Power Cable

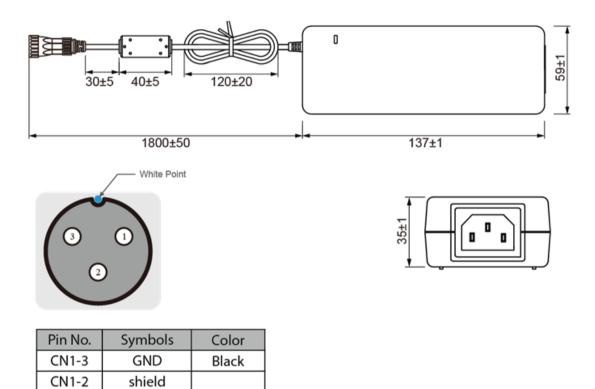
CN1-1

VCC

White

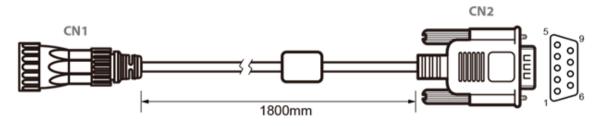
The IP65 Stainless P-Cap Panel PC has M25 type connector. Use power cable to connect Panel PC to the source of power.

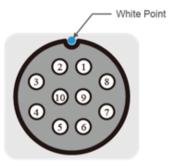
IP65 Stainless P-Cap Panel PC support 12V DC power input.



2.2.2 Serial Cable

The IP65 Stainless P-Cap Panel PC has M25 type serial port connector. Use serial cable to connect serial interfaces.



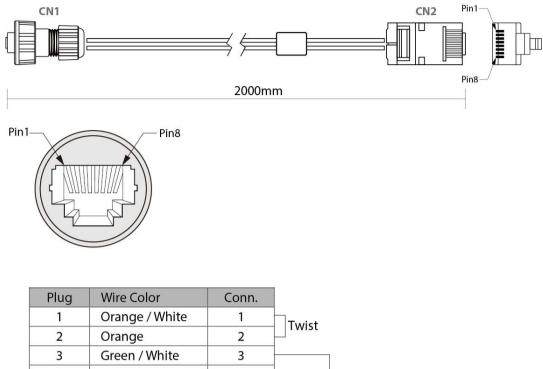


Pin No.	Symbols	Color]
CN1-1	DCD-CON2	Green	\longleftrightarrow
CN1-2	DSR-CON2	Brown	\longleftrightarrow
CN1-3	RXD-CON2	Red	\longleftrightarrow
CN1-4	RTS-CON2	Orange	\longleftrightarrow
CN1-5	TXD-CON2	Blue	$ \longleftrightarrow$
CN1-6	CTS-CON2	White	$ \longleftrightarrow$
CN1-7	DTR-CON2	Purple	\longleftrightarrow
CN1-8	RI-CON2	Yellow	\longleftrightarrow
CN1-9	GND-CON2	Black	$ \longleftrightarrow$
CN1-10	NC		\rightarrow

	Pin No.	Symbols	Color
•	CN2-1	DCD-CON2	Green
•	CN2-6	DSR-CON2	Brown
•	CN2-2	RXD-CON2	Red
•	CN2-7	RTS-CON2	Orange
•	CN2-3	TXD-CON2	Blue
•	CN2-8	CTS-CON2	White
•	CN2-4	DTR-CON2	Purple
•	CN2-9	RI-CON2	Yellow
•	CN2-5	GND-CON2	Black
•	CN2-10	NC	

2.2.3 Ethernet Cable

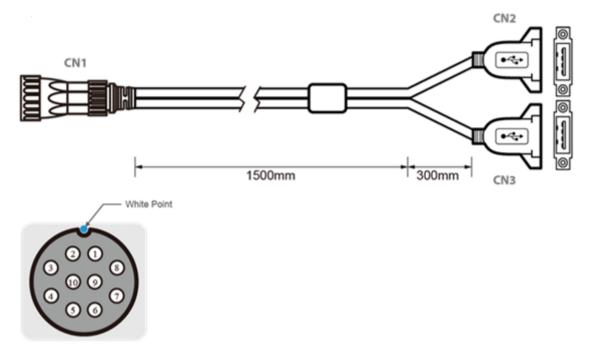
The IP65 Stainless P-Cap Panel PC has M25 type Ethernet connector. Use Ethernet cable to connect the Panel PC to the Internet.



3	Green / White	3	
4	Blue	4	
5	Blue / White	5	Twist Twist
6	Green	6	
7	Brown / White	7	Twist
8	Brown	8	

2.2.4 USB 2.0 Cable

The IP65 Stainless P-Cap Panel PC has one M25 type USB2.0 connector. Use USB2.0 cable to connect external devices such as mouse or keyboard to the Panel PC.



Pin No.	Symbols	Color	
CN1-1	VCC	RED	•
CN1-2	VCC	RED	•
CN1-3	D-	WHITE	•
CN1-4	D-	WHITE	•
CN1-5	D+	GREEN	•
CN1-6	D+	GREEN	•
CN1-7	GND	BLACK	•
CN1-8	GND	BLACK	•
CN1-9	Bra	aid	•
	CN1-1 CN1-2 CN1-3 CN1-4 CN1-5 CN1-6 CN1-6 CN1-7 CN1-8	CN1-1 VCC CN1-2 VCC CN1-3 D- CN1-4 D- CN1-5 D+ CN1-6 D+ CN1-7 GND CN1-8 GND	CN1-1VCCREDCN1-2VCCREDCN1-3D-WHITECN1-4D-WHITECN1-5D+GREENCN1-6D+GREENCN1-7GNDBLACKCN1-8GNDBLACK

	Pin No.	Symbols	Color	
\longleftrightarrow	CN2-1	VCC	RED	
\longleftrightarrow	CN3-1	VCC	RED	
\longleftrightarrow	CN2-2	D-	WHITE	h
\longleftrightarrow	CN3-2	D-	WHITE	╟
\longleftrightarrow	CN2-3	D+	GREEN	μ
\longleftrightarrow	CN3-3	D+	GREEN	
\leftrightarrow	CN2-4	GND	BLACK	
\longleftrightarrow	CN3-4	GND	BLACK	
\leftrightarrow	Braid co	nnect to the h	ousing	

-twisted pair

twisted pair →

2.3 Cleaning the Monitor

Before cleaning:

- Make sure the device is turned off.
- Disconnect the power cable from any AC outlet.

When cleaning:

- Use water up to 80°C to clean the housing.
- Wipe the screen with a clean, soft, lint-free cloth. This removes dust and other particles.
- The display area is highly prone to scratching. Do not use ketene type material (ex. Acetone), Ethyl alcohol, toluene, ethyl acid or Methyl chloride to clear the panel. It may permanently damage the panel and void the warranty.
- If it is still not clean enough, apply a small amount of non-ammonia, non-alcohol based glass cleaner onto a clean, soft, lint-free cloth, and wipe the screen.
- Don not use oil directly on the display screen. If droplets are allowed to drop on the screen, permanent staining or discoloration may occur.

Chapter 3: Mounting

This chapter provides mounting guide for all available mounting options. Pay attention to cautions and warning to avoid any damages.

3.1 Cable Mounting Considerations

For a nice look and safe installation, make sure cables are neatly hidden behind the device. Refer to <u>Chapter 2, section 2.1</u> for the cable installation instruction.

Warning!/ Avertissement!



Observe all local installation requirements for connection cable type and protection level.

Suivre tous les règlements locaux d'installations, de câblage et niveaux de protection.

Warning!/ Avertissement!

Turn off the device and disconnect other peripherals before installation. Éteindre l'appareil et débrancher tous les périphériques avant l'installation.



Alternating Current Mise à le terre !

To prevent electrical shock, the Safety Ground location on the rear must be bonded to the local earth ground through a minimum 12 AWG wire as short as possible

Pour éviter les chocs électriques, l'emplacement de la prise terre à l'arrière doit être lié à terre locale, à travers un 12 AWG minimum et aussi court que possible.

3.2 Safety Precautions

Observe the following common safety precautions before installing any electronic device:

• Use separate, non-intersecting paths to route power and networking wires. If power wiring and device wiring paths must be crossed make sure the wires are perpendicular at the intersection point.

• Keep the wires separated according to the interface. Wires that share similar electrical characteristics must be bundled together.

• Do not bundle input wiring with output wiring. Keep them separate.

When necessary, it is strongly advised that you label wiring to all devices in the system.

Warning!/ Avertissement!



Follow mounting instructions and use recommended mounting hardware to avoid the risk of injury.

Suivez les instructions de montage et d'utilisation recommandé le matériel de montage pour éviter le risque de blessure.

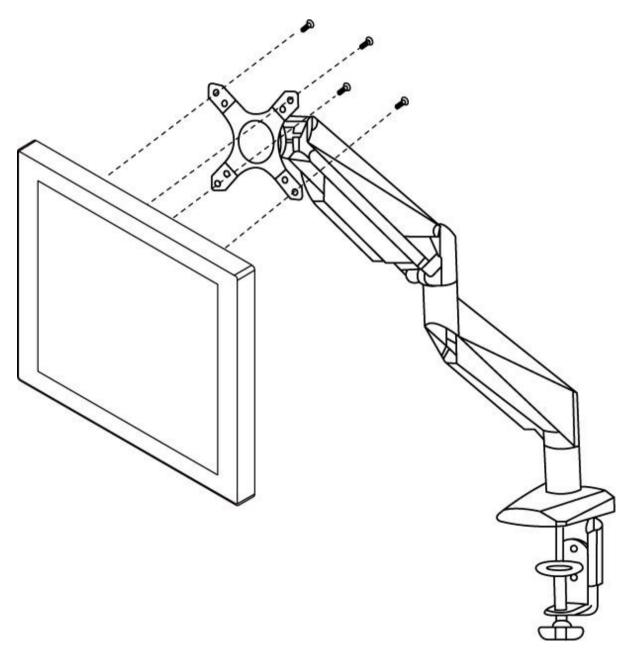
3.3 VESA Mount

Flat Stainless P-CAP Panel PC has VESA mount holes on the rear side. Follow instructions below to mount the unit with VESA Mount bracket (not supplied by Winmate).

Size	VESA Plate Dimensions	Screw hole diameter
15",19"	100 x 100 mm	VESA M4x5 mm
21.5"	100 x 200 mm	VESA M4x5 mm

Mounting Instruction:

- 1. Screw VESA bracket to the fixture (ex. swing arm) with four VESA screws.
- 2. Place the device on VESA bracket.





Note:

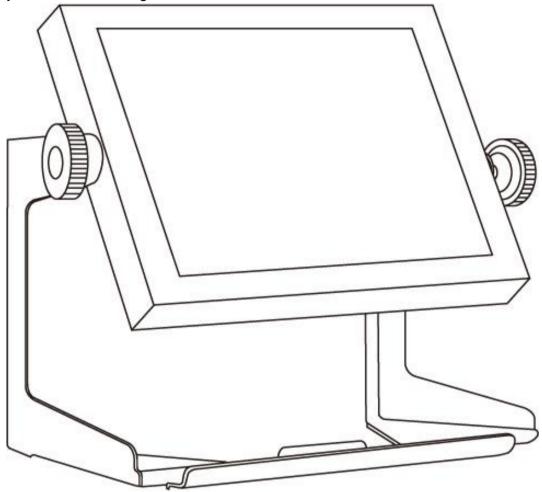
Notice that both hooks on bracket should lock the notches on the back cover of the device.

3.4 Yoke Mount

Yoke Mount solution allows installing the Panel PC with the bracket (not supplied by Winmate).

Mounting instruction:

- 1. Place the Panel PC on the bracket stand, aiming screw holes for each other.
- 2. Secure screws to fix the device upon the bracket stand.
- 3. Firmly secure the locking handle to the Panel PC.



Chapter 4: Operating the Device

In this chapter you will find instructions on how to operate the HMI device.

4.1 Operating System

The Panel PCs supports Windows 10 IoT Enterprise operating system.

4.2 Multi-Touch

The touchpad supports the core gestures for Windows.

Gesture	Windows Usage	Gesture Action	Action
Тар/	Click / Double-click	Click or double-click	R
Double-tap			4m
Panning with	Scrolling	Drag one or two fingers	. 0
Inertia		up and down	I∭L
			C.
Selection/Dr	Mouse-drag/ Selection	Drag one finger left/right	
ag			
(left to right			dhy
with one			
finger)			
Zoom	Zoom (default to	Move two fingers apart/	
	CTRL key + scroll	toward each other	ر الس ر الس
	wheel)		
Rotate	No system default	Move two fingers in	
	unless handled by	opposite directions	
	Application	or	
	(using WM_Gesture	Use one finger to pivot	
	API)	around another	
Press and	Right-click	Press, wait for blue-ring	Opress hold . Prelease
Hold		animation to complete,	Juin Juin States
		then release	
Flicks	Default: Pan Up/	Make quick drag	$\widehat{\mathbf{n}}$
	Down/ Back, and	gestures in the	ዓመ ዓመ
	Forward	described direction	

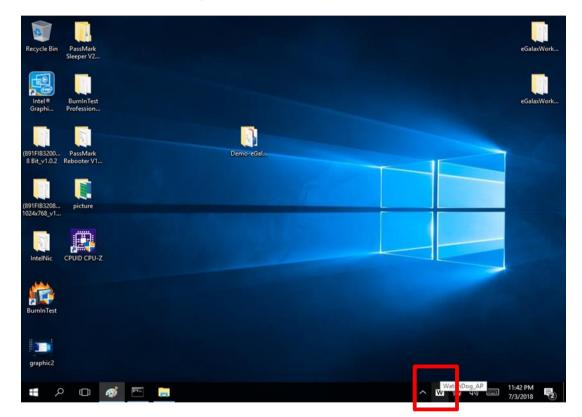
*Reference from Microsoft®

4.3 How to Enable Watchdog

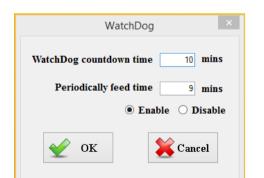
To enable Watchdog, you need to download Winmate Watchdog utility. Find more information on Watchdog in "Watchdog Guide" that you can download from Winmate Download Center or File Share. Refer to the User Manual for more details.

To enable watchdog in Watchdog AP follow the instructions below:

- 1. On the right bottom side of the desktop screen, click ki triangle button to show hidden icons.
- 2. Click w icon to open Watchdog utility.



3. In Watchdog utility window set countdown time and periodically feed time, or disable watchdog.



Example:

Every 10 min watchdog will monitor the system, in case any error occurs the system will restart automatically when the countdown time reaches 0.

Every 9 min watchdog timer will be reset to 10 min.

Setting	Description
Watchdog Countdown TimeThe system automaticity restarts when this countdown to zero. Default: 10 min	
Periodically Feed Time	To set a cycle time to automatically reset watchdog timer. <i>Default: 9 min</i>
Enable / Disable	Enable or disable watchdog. <i>Default: Enable</i>

Chapter 5: Insyde BIOS Setup

BIOS Setup Utility is a program for configuration basic Input / Output system settings of the computer for optimum use. This chapter provides information on how to use BIOS setup, its functions and menu.

5.1 How and When to Use BIOS Setup

To enter the BIOS setup, you need to connect an external USB keyboard, external monitor and press Del key when the prompt appears on the screen during start up. The prompt screen shows only few seconds so need press Del key quickly.



Important:

Updated BIOS version may be published after the manual released. Check the latest version of BIOS on the website.

You may need to run BIOS setup utility for reasons listed below:

- 1. Error message on screen indicates to check BIOS setup
- 2. Restoring the factory default settings.
- 3. Modifying the specific hardware specifications
- 4. Necessity to optimize specifications

BIOS Navigation Keys

The following keys are enabled during POST:

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

The following Keys can be used after entering the BIOS Setup.

Кеу	Function
F1	Help
F5/ F6	Change Values
F9	Setup Defaults
F10	Save & Exit
Esc	Exit
Enter	Select SubMenu
↑/↓	Select Item
\leftarrow / \rightarrow	Select Item



Note:

You can press the F1, F2, F3, F4, –/+, and Esc keys by connecting a USB keyboard to your computer.

For items marked ► press **<Enter>** for more options.

5.2 BIOS Functions

5.2.1 Main Menu

The Main menu displays the basic information about yoursystem including BIOS version, processor RC version, system language, time, and date. When you enter BIOS setup, the first menu that appears on the screen is the main menu. It contains the system information including BIOS version, processor RC version, system language, time, and date.

		InsydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Pow	er Boot Exi		Ref. O.V
InsydeH20 Version Processor Type System Bus Speed System Hemory Speed Cache RAM Total Memory Channel A SODIMM O Channel B Unknown O Platform Configuration CPUID: CPU Speed: CPU Stepping: Number Of Processors: Hicrocode Rev: GT Info: SMX/TXT: PCH Rev / SKU GOP Ver: Intel HE Version / SKU LAN PHY Revision Language System Time System Date	 	IK32. V100 Intel(R) Core(TH) i5-7200U CPU @ 2.50GHz 100 HHz 2133 HHz 512 KB 3192 HB 3192 HB (Not Installed] 0x806E9 (KABYLAKE ULT ULX) 2700 HHz 19 (KBL H0/J0 Stepping) 2 Core(s) / 4 Thread(s) 0000070 512 (0x5916) In-Supported 21 (C1 Stepping) / SKL PCH-LP (U) iHDCP 2. 2 Premium 3.0.1069 11.8.50.3425 / CORPORATE (B2 Stepping) English 2(1:45:171 101/23/2018]	Select the current default language used by the InsydeH2O.
F1 Help Esc Exit	1/↓ Select +/+ Select		F9 Setup Defaults u F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Language	Displays the system	Adjustment of the	Set the language in
	language. [English] is set	language	other language. The
	up by default.		language in this
			device is English.
System Time	This is current time setting.	Date and time	Set the time in the
	The time is maintained by	changes.	format:
	the battery when the		[hh/mm/ss]
	device is turned off.		
System Date	This is current date setting.	Date and time	Set the date in the
		changes.	format [mm/dd/yyyy];

5.2.2 Advanced

Select the Advanced Tab from the setup menu to enter the advanced BIOS setup screen. You can select any of the items on the left frame of the screen to go to the sub menu for the item, such as CPU Configuration. You can use the <Arrow> keys enter all advanced BIOS setup options. The advanced BIOS setup menu is shown below. The submenus described on the following pages.



Caution

Handle advanced BIOS settings page with caution. Any changes can affect the operation of your computer.

Main Advanced Security I	ln: Dower Boot Evit	sydeH20 Setup Utility	Rev. !
CPU Configuration			Configure Management Engine Technology Parameters
Power & Performance		· · · · · · · · · · · · · · · · · · ·	
System Agent (SA) Configura	ation		
PCH-10 Configuration			
PCH-FW Configuration			
S10 F81866A			
Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
sc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit

BIOS Setting	Description	Setting	Effect
		Option	
CPU	Configures Trusted Computing	Enter	Opens submenu
Configuration	parameters		
Power &	Configures Power &	Enter	Opens submenu
Performance	Performance parameters		
System Agent	Configures System Agent	Enter	Opens submenu
Configuration	Configuration parameters		
PCH-OI	Configures PCH-OI parameters	Enter	Opens submenu
Configuration			
PCH-FM	Configures PCH-FM parameters	Enter	Opens submenu
Configuration			
SIO F81866A	Configures SIO F81866A	Enter	Opens submenu
	parameters		

5.2.2.1 CPU Configuration

Advanced	InsydeH20 Setup Utility	Rev. 5.0
CPU Configuration		When enabled, a VMM can utilize the additional hardware capabilities
Type ID Speed	Intel(R) Core(TM) i5-7200U CPU @ 2.50GHz 0x806E9 2700 HHz	provided by Vanderpool Technology.
VHX SHX/TXT	Supported Not Supported	
Intel (VMX) Virtualization Technology Active Processor Cores	<enabled> <all> <enabled></enabled></all></enabled>	
Hyper-Threading AES	<enabled></enabled>	
		ß
F1 Help 1/4 Sele Esc Exit +/+ Sele		F9 Setup Defaults u F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Intel (VMM)	Enable or disable Intel	Enable/Disable	When enabled, a VMM
Virtualization	Virtualization		can utilize the
Technology	Technology.		additional hardware
			capabilities provided by
			Vanderpool
			Technology.
Active Processor	Number of core to enable	All / 1 / 2/ 3	Select number of core
Cores	in each processor		to enable in each
	package		processor package
Hyper Threading	Intel Hyper-Threading	Enable / Disable	Enable or disable
	Technology allows a		Hyper Threading
	single processor to		
	execute two or more		
	separate threads		
	concurrently.		
AES	Enable or disable AES	Enable/Disable	Enable or disable AES
	(Advanced Encyption		
	Standard)		

5.2.2.1.1 F81886A Configuration



Advanced	Ins	ydeH20 Setup Utility	Rev.
Serial Port A	<aut0></aut0>		Configure Serial port using options :
Serial Port A UART Mode	<r\$232></r\$232>		[Disable] No Configuration [Enable] Use
Serial Port B	<auto></auto>		Configuration [Auto] EF1/0\$ chooses
Serial Port C	<auto></auto>		configuration
Serial Port D	<auto></auto>		
Serial Port E	<auto></auto>		
DT	<disable></disable>		
Hardware Monitor			
GP10 Group 0 Configuration			
GP10 Group 1 Configuration			
1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
sc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit

5.2.2.1.2 GPIO Configuration

	Insyd	leH20 Setup Utility	Rev. 5.0
Advanced			
General Purpose Group 0 Input/0 GP1000	utput		User can pull internal resistance push-pull/open-drain
Internal Resistance	<push pull=""></push>		
Input/Output Mode GP1001	<input/>		
Internal Resistance	<push pull=""></push>		
Input/Output Mode GP1002	<input/>		
Internal Resistance	<push pull=""></push>		
Input/Output Mode GP1003	<input/>		
Internal Resistance	<push pull=""></push>		
Input/Output Mode GP1004	<input/>		
Internal Resistance	<push pull=""></push>		
Input/Output Mode	<input/>		
			×
	1/1 Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit
Esc Exit	+/→ Select Item	enter serect 💌 subhenu	

	InsydeH2	20 Setup Utility		Rev. 5.0
Advanced				
General Purpose Group 1 Input/Output GP1010			User can pull internal resistand push-pull/open-drain	ce
Internal Resistance	<push pull=""></push>			
Input/Output Hode GP1011	<input/>			
Internal Resistance	<push pull=""></push>			
Input/Output Mode GP1012	<input/>			
Internal Resistance	<push pull=""></push>			
Input/Output Mode	<input/>			
				R
				10
	ect Item ect Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit	

5.2.2.1.3 Hardware Monitor

Advanced	InsydeH2	20 Setup Utility		Rev. 5.
Hardware Monitor				
Voltage				
VCC (V)	3.344 V			
VIN1 (V)	0.864 V			
VIN2 (V)	12.144 V			
VIN3 (V)	1.936 V			
VIN4 (V)	0.000 V			
VASB3 (V)	3.328 ¥			
VBAT	3.136 V			
VASB5 (V)	5.136 V			
Temperature				
Temperature 0 (°C/°F)	32.0 C/ 89.6 F	:		
Temperature 2 (°C/°F)	37.0 C/ 98.6 F			
				7
F1 Help Esc Exit	1/1 Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubHenu	F9 Setup Defaults F10 Save and Exit	

5.2.2.1.4 PCH-IO Configuration

	Insyde	eH20 Setup Utility		Rev. 5.0
Advanced				
PCH-10 Configuration		PC	I Express Configuration settir	ngs
 ▶PCI Express Configuration ▶SATA And RST Configuration ▶USB Configuration 				
State After G3	<\$5 State>			
				R
F1 Help Esc Exit	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
PCI Express	PCI Express clock gating	Enter	Opens sub-menu
Configuration	enable/disable for each root		
	port.		
SATA And RST	Enable/ Disable SATA device	Enter	Opens sub-menu
Configuratuion			
USB	Selectively enable/ disable	Enter	Opens sub-menu
Configuration	the corresponding USB port		
	from reporting a Device		
	Connection to the controller.		
State After G3	System power state setting	S0 State	
		S5 State	

5.2.2.1.5 PCI Express Configuration

	InsydeH20	Setup Utility	Rev. 5.0
Advanced			
PCI Express Configuration			PCI Express Clock Gating Enable/Disable for each root port.
PCI Express Clock Gating PCIE Port assigned to LAN	<enabled> 5</enabled>		
 ▶PCI Express Root Port 1 ▶PCI Express Root Port 6 ▶PCI Express Root Port 7 ▶PCI Express Root Port 8 ▶PCI Express Root Port 10 ▶PCI Express Root Port 11 ▶PCI Express Root Port 12 			
			ĸ
F1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ▶ SubMenu	F10 Save and Exit
EUG EATT	Condice reality		
Advanced		Setup Utility	Rev. 5.0
Advanced PCI Express Root Port 1 Topology ASPM L1 Substates Gen3 Eq Phase3 Method UPTP DPTP ACS URR FER NFER CER CER CTO SEFE SENFE SENFE SECE PME SC1 Hot Plug Advanced Error Reporting PCIe Speed Transmitter Half Swing	InsydeH20 <pre> </pre> </td <td></td> <td></td>		
Advanced PCI Express Root Port 1 Topology ASPH L1 Substates Gen3 Eq Phase3 Method UPTP ACS URR FER NFER CER CTO SEFE SENFE SECE PHE SCI Hot Plug Advanced Error Reporting PCIe Speed Transmitter Half Swing Detect Timeout Extra Bus Reserved Reserved I/0 PCH PCIE LTR Configuration PCH PCIEL LTR	<pre></pre>		Rev. 5.0
Advanced PCI Express Root Port 1 Topology ASPH L1 Substates Gen3 Eq Phase3 Method UPTP DPTP ACS URR FER NFER CER CTO SEFE SENFE SECE PHE SCI Hot Plug Advanced Error Reporting PCIe Speed Transmitter Half Swing Detect Timeout Extra Bus Reserved Reserved Hemory Reserved 1/0 PCH PCIe LTR Configuration	<pre>InsydeH20 </pre>		Rev. 5.0
Advanced PCI Express Root Port 1 Topology ASPH L1 Substates Gen3 Eq Phase3 Method UPTP DPTP ACS URR FER NFER CER C10 SEFE SENFE SECE PHE SC1 Hot Plug Advanced Error Reporting PC1e Speed Transmitter Half Swing Detect Timeout Extra Bus Reserved Reserved Hemory Reserved 1/0 PCH PC1E LTR Configuration PCH PC1E1 LTR Snoop Latency Override	<pre>InsydeH20 </pre>		Rev. 5.0

5.2.2.1.6 SATA and RST Configuration

InsydeH20 Setup Utility R Advanced			
SATA And RST Configuration		E	nable/Disable SATA Device.
SATA Controller(s)	<enabled></enabled>		
SATA Mode Selection	<ahcts ahcts="" ahcts<="" td=""><td></td><td></td></ahcts>		
Serial ATA Port O	Empty		
Software Preserve	Unknown		
Port O	<enabled></enabled>		
Hot Plug	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
Configured as eSATA	Hot Plug :	supported	
Spin Up Device	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
SATA Device Type	<hard dis<="" td=""><td><pre>< Drive></pre></td><td></td></hard>	<pre>< Drive></pre>	
Topology	<unknown></unknown>		
SATA Port 0 DevSlp	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
DITO Configuration	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
DITO Value	[625]		
DM Value	[15]		
Serial ATA Port 1	Empty		
Software Preserve	Unknown		
Port 1	<enabled></enabled>		
Hot Plug	<d i="" led:<="" sab="" td=""><td>,</td><td></td></d>	,	
Configured as eSATA	Hot Plug :	supported	
Spin Up Device	<d i="" led:<="" sab="" td=""><td>, · · · · · · · · · · · · · · · · · · ·</td><td></td></d>	, · · · · · · · · · · · · · · · · · · ·	
SATA Device Type	<hard dis<="" td=""><td><pre>< Drive></pre></td><td></td></hard>	<pre>< Drive></pre>	
Topology	<unknown></unknown>		
SATA Port 1 DevSlp	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
DITO Configuration	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
DITO Value	[625]		
DM Value	[15]		
Serial ATA Port 2	Phison SS	1P064 (64.0gB)	~
Software Preserve	SUPPORTED		<i>w</i>
Port 2	<enabled></enabled>		
Hot Plug	<d i="" led<="" sab="" td=""><td>></td><td></td></d>	>	
Configured as eSATA	Hot Plug :	supported	
F1 Help	î/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ▶ SubMenu	F10 Save and Exit

5.2.2.1.7 USB Configuration

Advanced	Insy	/deH20 Setup Utility	Rev. 5.
USB Configuration			Selectively Enable/Disable the corresponding USB port from reporting a Device Connection to the controller.
USB Port Disable Override	<disable></disable>		
			7
F1 Help Esc Exit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit

5.2.2.1.8 ME Firmware Configuration

Advanced		InsydeH20 S	etup Utility	Rev.	5.0
HE Firmware Version HE Firmware Hode HE Firmware SKU HE File System Integrity Value ME Firmware Status 1 HE Firmware Status 2 NFC Support HE State Hanageability Features State AHT BIOS Features MAT Configuration HE Unconfig on RTC Clear State Comms Hub Support JHI Support Core Bios Done Message Firmware Update Configuration ME Debug Configuration	e 22 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1. 8. 50. 3425 ormal Hode orporate SKU x90000255 x89108106 isabled Enabled> Enabled> Enabled> Disabled> Disabled> Disabled> Enabled> Enabled>		When Disabled ME will be put into ME Temporarily Disabled Mode.	A
F1 Help	î/↓ Select I		F5/F6 Change Values	F9 Setup Defaults	
Esc Exit	+/+ Select I		Enter Select ▶ SubMenu		E 0
Advanced		Insydeh20 S	etup Utility	KEV.	5.0
Me FW Image Re-Flash					_
		D i sab led>		Enable/Disable Me FW Image Re-Flash function.	R

InsydeH20 Setup Utility Advanced			Rev. 5.0	
Advanced HECI Timeouts Force HE DID Init Status CPU Replaced Polling Disable HE DID Hessage HECI Retry Disable HECI Message check Disable HECI Message check Disable HECI2 Interface Communication KT Device IDER Device End Of Post Message D013 Setting for HECI Disable	[X] (D) isabled> (D) isabled	H2O Setup Utility	Enable/Disable HECI Send/Receive Timeouts.	
F1 Help	1/4 Select Item	F5/F6 Change Values	F9 Setup Defaults	ß

Esc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit	
Advanced	Insyde	H20 Setup Utility	Rev.	5.0
PTT Capability / State	171		Select whether or not the OS you will boot to will be PTP aware	
PTP aware OS	<ptp aware=""></ptp>			
				R
F1 Help	î/↓ Select item	F5/F6 Change Values	F9 Setup Defaults	
Esc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit	

5.2.2.1.9 Power & Performance

Advanced	Ins	sydeH20 Setup Utility		Rev. 5.
Power & Performance		CPL	J - Power Management Control	Options
►CPU - Power Management	Control			
				Ø
F1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults	
Esc Exit	+/→ Select Item	Enter Select 🕨 SubMenu	F10 Save and Exit	

BIOS Setting	Description	Setting Option	Effect
CPU – Power	Configure CPU –	Enter	Opens sub-menu
Management	Power Management		
Control	parameters		

Advanced	InsydeH20 Setup Utility		Rev. 5.0
CPU - Power Management Control		Select the performance state that BIOS will set starting from reset	
Boot performance mode Intel(R) SpeedStep(tm) Intel(R) SpeedShift Technology Turbo Mode C states ▶Custom P-state Table	<tav non-turbo="" performance=""> <enabled> <enabled> <enabled> <enabled> <disabled> <disabled< th=""><th></th><th></th></disabled<></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></disabled></enabled></enabled></enabled></enabled></tav>		
			R

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			
Custom P-state Table			Sets the number of custom P-states. At least 2 states must be present.
Number of P states	[0]		
			\mathcal{R}
			**
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select ► SubMenu	F10 Save and Exit

BIOS Setting	Description	Setting Option	Effect
Boot	Configure Boot	-Max non-turbo	Select the performance
Performance	Performance Mode	performance	state that the BIOS will set
Mode	parameters	-Max battery	starting from reset vector
		-Turbo	
		Performance	
Intel SpeedStep	Configure Intel	Enabled/	Allows more than two
(ta)	SpeedStep (ta)	Disabled	frequency ranges to be
	parameters		supported
Intel Speed Shift	Configure Intel Speed	Enabled/	Enable/ Disable Intel Speed
Technology	Shift Technology	Disabled	Shift Technology support.
	parameters		Enabling will expose the
			CPP v2 interface to allow
			for hardware controlled P-
			states
-Turbo Mode	Enable or disable Turbo	Enabled/	Enable/ Disable processor
	Mode	Disabled	Turbo Mode (requires
			EMTTM enabled too). Auto
			means enabled, unless max
			turbo ratio is bigger than 16
			– SKL AO W/A
C states	Enable or disable	Enabled/	Enable/ Disable CPU Power
	C states	Disabled	Management. Allows COU
			to go to C states when it is
			not 100% utilized
Custom P-state	Configure Custom P-	Enter	Enters sub-menu
Table	state Table parameters		
-Number of P-	Select the number of	[Number]	Set the number of custom
states	custom P-states.		P-states. At least 2 states
			must be present

5.2.2.1.10 System Agent (SA) Configuration

Advanced	Insyd	eH20 Setup Utility		Rev. 5.0
System Agent (SA) Configuration	n	Gr	raphics Configuration	
SA PCle Code Version VT-d	2, 7, 2, 0 Suppor ted			
▶Graphics Configuration				
VT-d	<enabled></enabled>			
				R
F1 Help For Frit	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults	

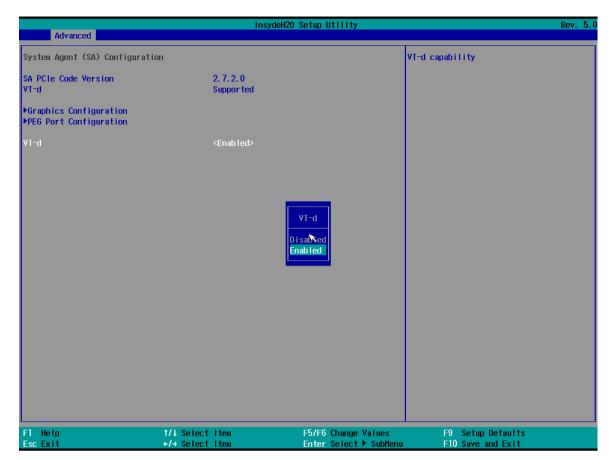
BIOS Setting	Description	Setting Option	Effect
Graphics	Configure Graphics	Enter	Opens sub-menu
Configuration	Configuration		
	parameters		
Vt-d	Intel® Virtualization	Enabled	Vt-d capability
	Technology for	Disabled	
	Directed I/O		

5.2.2.1.11 Graphics Configuration

	Insy	deH20 Setup Utility	Rev. 5.0
Advanced			
Graphics Configuration			Graphics turbo IMON current values supported (14-31)
Graphics Turbo IMON Current	[31]		
Internal Graphics Aperture Size DVMT Pre-Allocated	<auto> <256MB> <32H></auto>		
DVMT Total Gfx Mem Gfx Low Power Mode	<256M> <enabled></enabled>		
			R
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	Effect
		Option	
Internal Graphics	Internal Graphics	Auto	Keep IGFX enabled based on the
	settings	Enabled	setup options
		Disabled	
Aperture Size	Select the aperture	128MB	Select the aperture size
	size	256MB	Note: Above 4MB MMIO BIOS
		512MB	assignment is automatically
		1024MB	enabled when selecting 2048MB
		2048 MB	aperture. To use this feature please
			disable CSM port
DVMT Pre-Allocated	Select DVMT Pre-	0M~60M	Select DVMT 5.0 Pre-Allocated
	Allocated		(Fixed) Graphic Memory size used
			by Internal Graphic Device
DVMT Total Gfx	Select DVMT Total	256M	Select DVMT 5.0 Total Graphic
Mem	Gfx Mem	128M	Memory size used by the Internal
		MAX	Graphic Device
Gfx Low Power Mode	Select Gfx Low	Enabled/	This option is applicable for SFF
	Power Mode	Disabled	only

5.2.2.1.12 Vt-d



BIOS Setting	Description	Setting Option	Effect
Vt-d	Intel® Virtualization	Enabled	Vt-d capability
	Technology for	Disabled	
	Directed I/O		

5.2.3 Boot

Main Advanced Security	Power Boot Exit	sydeH20 Setup Utility	Rev. S	. 0
			Nalaad baad dura da Dual dura. Laaann	7
Boot Type Quick Boot Quiet Boot Network Stack PXE Boot capability Timeout Automatic Failover ▶Boot Type Order	<uef1 boot<br=""><enabled> <disabled> <disabled> (D) <enabled> [0] <enabled> </enabled></enabled></disabled></disabled></enabled></uef1>		Select boot type to Dual type, Legacy type or UEFI type	
				R
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	Effect
		Option	
Boot Type	Boot Type	UEFI Boot	Select boot type to Dual type, Legacy
	configuration	Туре	type or UEFI type
Quick Boot	Quick Boot	Enabled	Allows InsydeH20 to skip certain tests
	configuration	Disabled	while booting. This will decrease the
			time needed to boot the system
Quiet Boot	Quiet Boot	Enabled	Disable or enable booting in text Mode.
	configuration	Disabled	
Timeout	Timeout	[Value]	Timeout settings
Automatic Failover		Enable	If boot to default device fail, it will
			directly try to boot next device
		Disable	If boot to default device fail, it will pop
			warning message then go to firmware
			UI
Boot Type Order	Boot Type	Enter	Opens sub-menu
	Order		

Boot Type Orde	er			
	Ins Boot	ydeH20 Setup Utility		Rev. 5.0
Boot Type Order		Boo	ot Type Order	
USB BEV Hard Disk Drive Others				
▶Hard Disk Drive ▶Others				
				R
F1 Help Esc Exit	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
Hard Disk Type	Hard Disk Type	Enter	Opens Sub-menu
	configuration		
Others	Other configuration	Enter	Opens Sub-menu

5.2.3.1.1 Hard Disk Type

	InsydeH20 Setup Utility		Rev. 5.0
Boot			
Hard Disk Drive		Hard Disk Drive	
Windows Boot Manager (Phison SSMP064GTB3CO-S11)			
			R
			~
F1 Help 1/4 Select Item	F5/F6 Change Values	F9 Setup Defaults	
Esc Exit +/→ Select I tem	Enter Select > Subhenu	F10 Save and Exit	

5.2.3.1.2 Others

	lns Boot	ydeH20 Setup Utility		Rev. 5.0
Others		Ott	hers	
Internal EFI Shell				
				R
F1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults	
Esc Exit	+/→ Select Item	Enter Select ▶ SubMenu	F10 Save and Exit	

3.2.3 Security

		Setup Utility	Rev. 5.0
Main Advanced Security Power B	Boot Exit		
Current TPM Device TPM State TPM Active PCR Hash Algorithm TPM Hardware Supported Hash Algorit TrEE Protocol Version TPM Availability TPM Operation Clear TPM	<tph (ftph)="" 2.0=""> All Hierarchies Ena SHA1 sha1, SHA256 <1.0> <available> <no operation=""> []</no></available></tph>	bled, UnOwned	TrEE Protocol Version: 1.0 or 1.1
Supervisor Password	Not Installed		
Set Supervisor Password			
		R	
	Salast Han		50. Satur Dafaultz
· · · · · · · · · · · · · · · · · · ·	Select Item Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit
		LITTER VETECT / SUDHEHU	

BIOS Setting	Description	Setting Option	Effect
TrEE Protocol	Choose TrEE	1.0	TrEE Protovol
Version	Protocol Version	1.1	Version: 1.0 or 1.1
TPM Availability	TPM Availability	Available	When hidden don't
	configuration	Hidden	exposes TPM to 0
TPM Operation	TPM Operation	[]	Select one of the
	configuration		supported
			operation to
			change TPM2state
Clear TPM	Clear TPM	[]	Select to Clear
	configuration		ТРМ
Set Supervisor	Set Supervisor	Enter New	Install or Change
Password	Password	password	the password and
			the length of
			password must be
			greater than one
			character

5.2.4 Power

		Ins	sydeH20 Setup Utility		Rev. 5.0
Main Advanced	Security Power	Boot Exit			
				Enable/Disable ACP1	S1/S3 Sleep state
ACP1 S3 Auto Wake on S5		<enabled> <disabled></disabled></enabled>			
					R
F1 Help Esc Exit		↓Select Item →Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup De F10 Save and	

BIOS Setting	Description	Setting Option	Effect
ACPI S3	ACPI S3	Disabled	Enable/ Disable ACPI
	configuration	Enabled	S1/S3 Sleep state
Auto Wake on S5	Auto Wake on S5	Disabled	Auto Wake on S5, by
	configuration	By Every Day	Day or Month or fixed
		By Every Month	time of every day

<u>5.2.5 Exit</u>

	Ins	ydeH20 Setup Utility	Rev. 5.
Main Advanced Security	Power Boot Exit		
Exit Saving Changes Save Change Without Exit Exit Discarding Changes Load Optimal Defaults Load Custom Defaults Save Custom Defaults Discard Changes		Exi	it system setup and save your changes.
			7
F1 Help Esc Exit	1/4 Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

5.3 Using Recovery Wizard to Restore Computer



Note:

Before starting the recovery process, make sure to backup all user data. The data will be lost after the recovery process.



Important:

Before starting the recovery process, remove the PCI/ PCIe card and CFast card.

To enable quick one-key recovery procedure:

- 1. Connect the computer to the power source. Make sure the computer stays plugged in to power source during the recovery process.
- 2. Turn on the computer, and when the boot screen shows up, press **Tab+ F6** to initiate the Recovery Wizard.
- 3. The following screen shows the Recovery Wizard. Click **Recovery** button to continue.

Recovery Wizard	
Click " Recovery " to restore y	our system.
The process will clear all of	your data.
If you do not want to restore yo reboot.	our system please press " Quit " to
	Recovery Quit

4. A warning message about data loss will show up. Make sure the data is backed up before recovery, and click **Yes** to continue.



Wait the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete. The system will restart automatically after recovery completed.

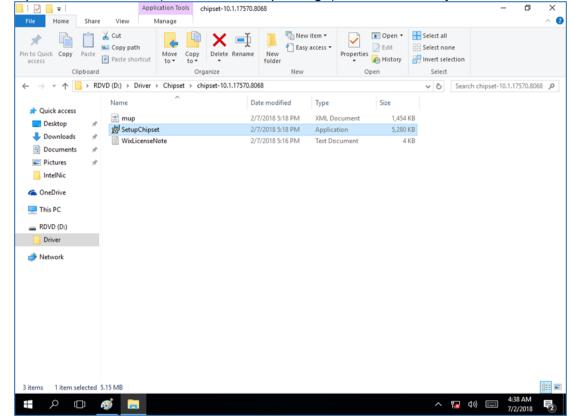
Chapter 6: Driver Installation

This chapter provides guideline to driver installations.

6.1 Chipset Driver

Follow instructions below to install Chipset driver.

1. Open the Driver CD (included in the package) and select Chipset driver.



2. Installation window will pop up, select Next.



3. Select Accept to agree with the terms of license agreement.



4. Check the ReadMe file information, select **Install** to continue.

Intel(R) Chipset Device Software	(intel)
You have successfully installed the following product: Intel(R) Chipset Device Software	
You must restart this computer for the changes to take effect.	
<u>View Log Files</u> Restart Now	Restart Later

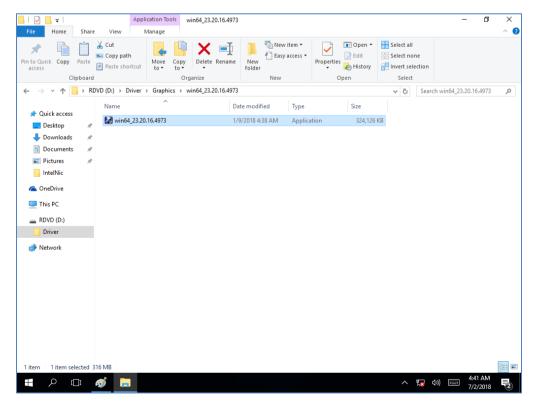
5. Wait for the driver to be installed. When installation completed, select **Restart Now** to restart your computer.



6.2 Graphic Driver

Follow instructions below to install Graphic driver.

1. Open the Driver CD (included in the package) and select Graphic driver.

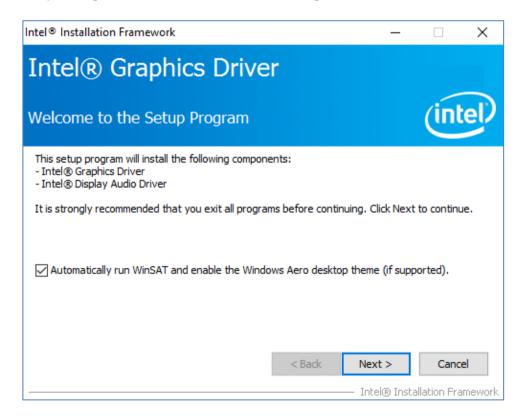


60 IP65 Stainless P-Cap Panel PC User Manual

2. Installation window will pop up, select Next.

Intel(R) Graphics Driver Software - InstallShi	ield Wizard X
Build Date: Dece Platforms: 6th Gen Intel(R) Skylake) 7th Gen Intel(R) Skylake) 7th Gen Intel(R) Kaby Lake) 8th Gen Intel(R) Coffee Lake) Apollo Lake Gemini Lake Operating Syste Microsoft Windo Microsoft Windo Microsoft Windo	: Production Version ember 21, 2017) Core(TM) processor family (codename) Core(TM) processor family (codename) Core(TM) processor family (codename
	< Back Next > Cancel

3. Select Accept to agree with the terms of license agreement.



ntel® Installation Framework		-		×
Intel® Graphics Drive	er			
License Agreement			(int	el)
You must accept all of the terms of the license a program. Do you accept the terms?	greement in order	to continue the	setup	
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)				^
IMPORTANT - READ BEFORE COPYING, INSTALL Do not use or load software (including drivers) f (collectively, the "Software") until you have care By loading or using the Software, you agree to modify from time to time following reasonable no do not install or use the Software.	rom this site or an efully read the foll the terms of this A	owing terms and Agreement, whic	d conditions th Intel may	
Please Also Note:				~
	< Back	Yes	No	

4. Check the ReadMe file information, select **Next** to continue.

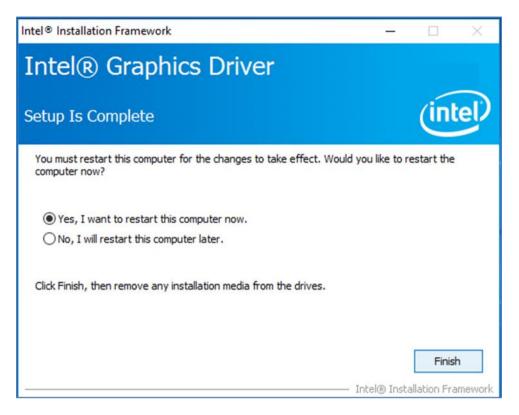
tel® Installation Framework		-		Х
ntel® Graphics Dr	iver			
eadme File Information			(int	el
Refer to the Readme file below to view the	system requirements and instal	ation in	formation	
Driver Version: 23.20.16.4901 Release Version: Production Version Build Date: December 21, 2017				^
Platforms:				
6th Gen Intel(R) Core(TM) processor family 7th Gen Intel(R) Core(TM) processor family 8th Gen Intel(R) Core(TM) processor family Apollo Lake GeminI Lake	(codename Kaby Lake)			
7th Gen Intel(R) Core(TM) processor family 8th Gen Intel(R) Core(TM) processor family Apollo Lake	(codename Kaby Lake)			~

5. Wa	ait for	r the driver to be installed.	
		Intel® Installation Framework	
		Intel® Graphics Driver	
		Setup Progress	(intel)
		Please wait while the following setup operations are performed:	
		Creating Process: C:\Program Files (x86)\Intel\Intel\Intel(R) Processor Graph Installing Driver: Intel(R) Display Audio Version: 10.24.00.01	iics\uninstall\UninstallVulka
			Next >
		In	tel® Installation Framework

6. Select **Next** to continue.

Intel® Installation Framework	
Intel® Graphics Driver	
Setup Progress	(intel)
Please wait while the following setup operations are performed:	
Deleting File: C: \ProgramData \Microsoft\Windows\Start Menu\Prog Deleting File: C: \ProgramData \Microsoft\Windows\Start Menu\Prog Deleting File: C: \Users\Public\Desktop\Intel(R) HD Graphics Control Deleting File: C: \Users\Public\Desktop\Intel(R) Graphics and Media Deleting File: C: \ProgramData \Microsoft\Windows\Start Menu\Prog Deleting File: C: \ProgramData \Microsoft\Windows\Start Menu\Prog Deleting File: C: \Users\Public\Desktop\Intel(R) Iris(R) Graphics Con Deleting File: C: \Users\Public\Desktop\Intel(R) Iris(R) Graphics Con Deleting File: C: \Users\Public\Desktop\Intel(R) Iris(R) Graphics Con Deleting File: C: \Users\Public\Desktop\Intel(R) Iris(R) Graphics Deleting Registry Key: HKLM\SOFTWARE\Intel\GFX\Internal\AudioF Deleting Registry Key: HKLM\SOFTWARE\Intel\GFX\Internal\AudioF	rams Intel Intel (R) Graphic Panel.Ink Control Panel.Ink rams Intel Intel (R) Iris (R) (rams Intel (R) Iris (R) Graph trol Panel.Ink s Control Panel.Ink ix
Click Next to continue.	~
<	>
	Next >
	 Intel® Installation Framework

7. After installation is completed, select "Yes, I want to restart this computer now", and click Finish.



6.3 Management Engine (ME)

Follow instructions below to install Management Engine (ME) .

1. Open the Driver CD (included in the package) and select **ME** driver.

File Home	Share		cation Tools	ME Software In:	Autor			- 0	× ^ (
Pin to Quick Copy access	Bacta	Cut Copy path Paste shortcut	Move to ▼ Copy to ▼ Orga	X Delete • Rename nize	New folder	Properti	Edit Gen Open Open	Select all Select none Invert selection Select	n
← → • ↑	< Int	el Management En	gine Driver(Ka	> ME Softwa	e Installer	~ Ō	Search ME S	Software Installer	Q
📌 Quick access	*	Name IntelMEFWV	er.dll		Date modifier 11/21/2017 11 11/21/2017 11	1:12	Type Application extension		
🕹 Downloads	*	M SetupME			11/21/2017 11		Application	75,094 KE	
Pictures IntelNic OneDrive This PC RDVD (D:) Driver	*		Size: 73	pplication .3 MB odified: 11/21/	2017 11:31 AM				
🧬 Network		73.3 MB							

2. Select **Next** to start the installation.

Setup		×
Intel® Management Engine Components Welcome	(inte	eD
You are about to install the following product:		
Intel® Management Engine Components 11.7.0.1058		
It is strongly recommended that you exit all programs before continuing. Click Next to continue, or click Cancel to exit the setup program.		
Intel Corporation < Back	Next >	Cancel

3. Select **Next** to agree with the terms of license agreement.

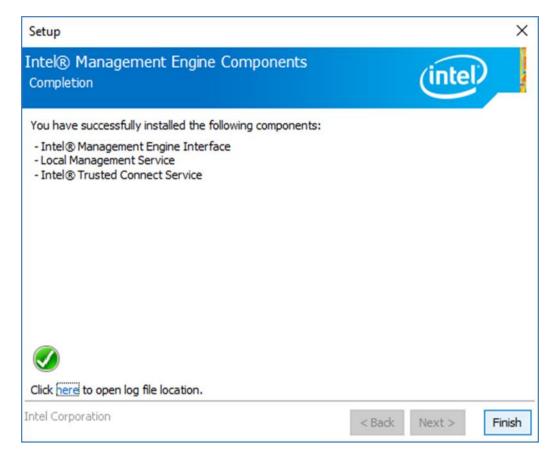
Setup			×
Intel® Management Engine Components License Agreement		(intel)	
INTEL SOFTWARE LICENSE AGREEMENT(OEM / IHV / ISV Distr IMPORTANT - READ BEFORE COPYING, INSTALLING OR USIN Do not use or load software (including drivers) from this site o (collectively, the "Software") until you have carefully read the By loading or using the Software, you agree to the terms of th modify from time to time following reasonable notice to You. It do not install or use the Software.	G. r any asso following t his Agreem	ciated materials terms and conditio ent, which Intel m	ay
Please Also Note: • If you are an Original Equipment Manufacturer (OEM), Indep or Independent Software Vendor (ISV), this complete LICENSE • If you are an End-User, then only Exhibit A, the INTEL SOFT applies.	E AGREEME	ENT applies;	
For OEMs, IHVs and ISVs:			
LICENSE. Subject to the terms of this Agreement, Intel grants	s to You a r	nonexclusive,	~
☑ I accept the terms in the License Agreement.			
Intel Corporation	< Back	Next >	Cancel

4. Wait for the driver to be installed.

Setup	
Intel® Management Engine Components Progress	(intel)
Please wait while the product is being installed.	
Intel Corporation	< Back Next > Cancel

66 IP65 Stainless P-Cap Panel PC User Manual

5. When installation completed, select **Finish** complete installation.



6.4 Audio Driver

Follow instructions below to install Audio driver.

1. Open the Driver CD (included in the package) and select Audio driver.

I Image: Imag	pplication Tools Manage	Realtek High De	finition Driver 6	4bit V6.0.1.8	3036(R281)	- 0	> ~
Image: A constraint of Quick Copy Paste Cut Access Copy Paste Image: A constraint of Quick Clipboard Clipboard			New New folder	Properties	Edit History	Select all Select none Invert selection Select	n
← → ~ ↑ 📙 « Audio > Realtek I	High Definition Dri	ver 64bit V6.0.1.8	036(R281)	5 ~	Search Real	tek High Definitio	٩
Name	^		Date modifie	d Ty	pe	Size	
Cluick access	oit_Win7_Win8_Wir	81 Win10 R281	3/26/2017 7:4		oplication	212,455 KB	
Desktop 🖈							1
👆 Downloads 🛛 🖈							
👮 Documents 🖈							
E Pictures 🖈							
IntelNic IntelNic							
ConeDrive							
This PC							
RDVD (D:)							
Driver							
i Network							
1 item 1 item selected 207 MB							

2. Select Next to continue.



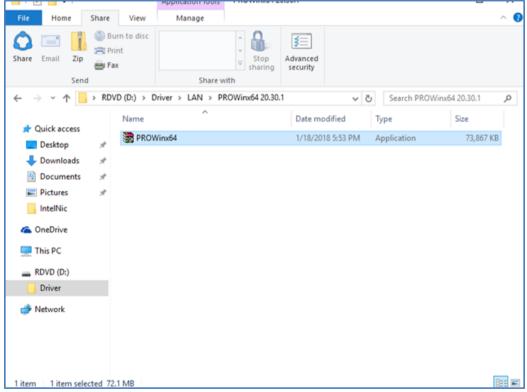
- 68 IP65 Stainless P-Cap Panel PC User Manual
 - 3. When installation completed, select Finish complete installation.



6.5 Ethernet Driver

Follow instructions below to install LAN driver.

1. Open the Driver CD (included in the package) and select LAN driver.



2. When compression is complete, select Next.

提 Intel(R) Network Connections Install Wizard	×
Welcome to the install wizard for Intel(R) Network Connections	(intel)
Installs drivers, Intel(R) Network Connections, and Advanced Networking Services.	
WARNING: This program is protected by copyright law and international treaties.	
< Back Next >	Cancel

3. Read the license agreement, and then select Next.

🛃 Intel(R) Network Connections Install Wizard	×
License Agreement Please read the following license agreement carefully.	(intel)
INTEL SOFTWARE LICENSE AGREEMENT IMPORTANT - READ BEFORE COPYING, INSTALLING OR USIN Do not copy, install, or use this software and any associated material (collectively, the "Software") provided under this license agreement ("Agreement") until you have carefully read the following terms and co By copying, installing, or otherwise using the Software, you agree to the the terms of this Agreement. If you do not agree to the terms of this A do not copy, install, or use the Software.	s conditions. be bound by
LICENSES:	~
 I accept the terms in the license agreement I do not accept the terms in the license agreement 	Print
< Back Next >	Cancel

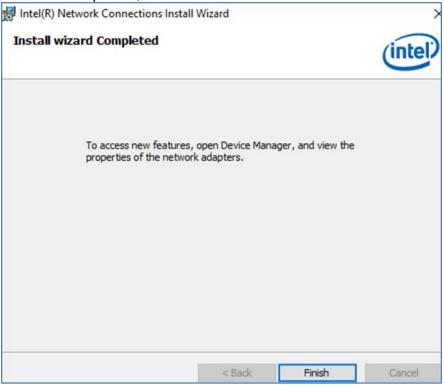
4. System displays the installed packages, select Next.

🖟 Intel(R) Network Connections Install	Wizard		×
Ready to Install the Program The wizard is ready to begin installation			(intel)
Click Install to begin the installation. If you want to review or change any of exit the wizard.	your installation setting	gs, click Back. C	lick Cancel to
	< Back	Install	Cancel

5. Confirm the installation, select **Install** to start the installation.

Intel(R) Network Connections Install			X
Ready to Install the Program			(intel)
The wizard is ready to begin installation	ı.		
Click Install to begin the installation.			
If you want to review or change any of exit the wizard.	f your installation s	ettings, click Back. C	lick Cancel to
	< Back	Install	Cancel

6. When installation is completed, select **Finish** to close the window.



6.6 Watchdog Driver Installation

For more details about Winmate Watchdog, please download Watchdog Guide from Winmate Downloads Center:

http://dc.winmate.com.tw/_downloadCenter/2017/Embedded%20Computing/Watchdog%20Guide_ IB_IH_IV_IK.pdf

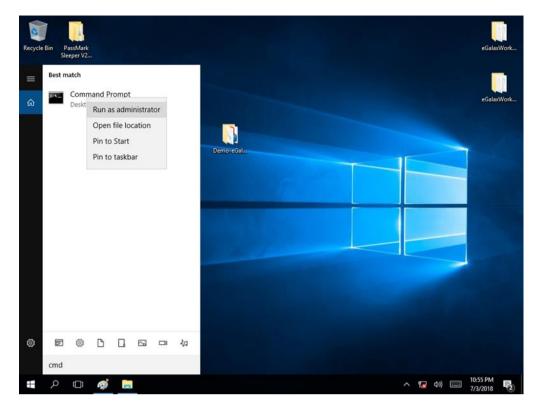
Follow instructions below to install Watchdog driver.

- 1. Type "cmd" in the run box then the cmd.exe will appear in programs.
- 2. Right click on the cmd.exe and click on "Run as administrator" to start
- 3. Open the Driver CD (included in the package) and select Watchdog driver.

St	Manage		125				^
🔤 Copy path	🖕 Move to 🔹	X Delete •	New T	Propertie	Edit	B Select none	
Paste shortcut		- 1178		•			n
iver > WatchDog						Select	۶
	A \$10.0.2(Direct)	2.0.0.4) 7 Ar				Size	1
C STREET, CO.							
15 WatchDog_	AP_3.0.2		3/5/2018 12:5	1 AM V	Vindows Instal	ler 1,593 KB	
	Paste shortcut iver > WatchDog_ Name	Copy path Paste shortcut Vorganity WatchDog_AP V3.0.2(Driver V	Copy path Paste shortcut Organize Vare Name	Copy path Copy to Rename New folder Paste shortcut Organize New New viver > WatchDog_AP V3.0.2(Driver V2.0.0.4) > AP Date modified	Image: Copy path Image: Copy path Image: Paste shortcut Image: Copy to * Image: Copy path Image: Copy to * Image: Copy path Image: Copy to * Image: Copy path Image: Copy path Image: Copy path Image: Copy path <td< td=""><td>Image: Copy path Image: Copy path Image: Paste shortcut Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Organize New New Image: Copy to • Image: Copy to • Image: Copy to • Organize New New Image: Copy to • Image: Copy to • Image: Copy to + Image: Copy to + Image: Copy to + Ima</td><td>Image: Copy path Image: Copy path Image: Paste shortcut Image: Copy to • Image: Paste shortcut Image: Copy to • Image: Copy path Image: Copy to • Image: Copy p</td></td<>	Image: Copy path Image: Copy path Image: Paste shortcut Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Image: Copy to • Organize New New Image: Copy to • Image: Copy to • Image: Copy to • Organize New New Image: Copy to • Image: Copy to • Image: Copy to + Image: Copy to + Image: Copy to + Ima	Image: Copy path Image: Copy path Image: Paste shortcut Image: Copy to • Image: Paste shortcut Image: Copy to • Image: Copy path Image: Copy to • Image: Copy p

72 IP65 Stainless P-Cap Panel PC User Manual

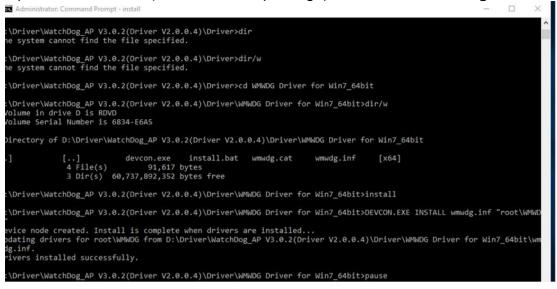
4. When Windows Security dialog appear, select **install** to continue the Installation.



5. Wait for installation to complete. When installation is complete, press any key to close.

\Driver\WatchDog AP V3.0.2(Driver V2 0 0 4)\Driver\dir/w
Loriver Watchbog AP V3.0.2 (Incluse V2.0.2 A Although Starsal Although Starsa Although Starsal Although Sta
\Driver\WatchDog_AP_V3.0.2(Would you like to install this device software?
\Driver\WatchDog_AP_V3.0.2(Name: Winmate System devices e system cannot find the fi
\Driver\WatchDog_AP V3.0.2
\Driver\WatchDog_AP V3.0.2() Always trust software from "WinMate Inc.". Install Dog't Install /olume in drive D is RDVD You should only install driver software from publishers you trust. How can I decide which device software is safe to install? /birectory of D:\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit
] [] devcon.exe install.bat wmwdg.cat wmwdg.inf [x64] 4 File(s) 91,617 bytes 3 Dir(s) 60,737,892,352 bytes free
\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit>install
\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit>DEVCON.EXE INSTALL wmwdg.inf "root\WMWD
wice node created. Install is complete when drivers are installed dating drivers for root\WMWDG from D:\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit\wm g.inf.

6. Open the Driver CD (included in the package) and select Watchdog AP.



7. Select Next.



74 IP65 Stainless P-Cap Panel PC User Manual

8. The installed storage location is displayed, select **Next** to continue.

婦 WatchDog_AP Setup	—		\times
Select Installation Folder			
This is the folder where WatchDog_AP will be installed.			2
To install in this folder, click "Next". To install to a different folder, ent "Browse".	ter it be	low or clic	k
<u>F</u> older:			
C:\Program Files (x86)\WatchDog_AP\WatchDog_AP\		Browse	
Advanced Installer			
< Back Next >	•	Can	cel

9. Select **Next** to start the installation.

	×
媛 WatchDog_AP Setup	X
Ready to Install	
The Setup Wizard is ready to begin the WatchDog_AP installation	2
Click "Install" to begin the installation. If you want to review or change any of your installation settings, click "Back". Click "Cancel" to exit the wizard.	
A down and Testallan	
Advanced Installer	ncel

10. When installation is completed, select **Finish** to close the window.



Chapter 6: Technical Support

This chapter includes the directory for technical support. 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.

7.1 Software Developer Support

Winmate provides the following SDK and Utilities for the IP65 Stainless P-CAP Panel PC.

ltem	File Type	Description
1	SDK	Watchdog SDK
2	Utility	Watchdog Utility

To find the Drivers and SDK, please refer to the Driver CD that comes in the package or contact us. Also, you can download drivers from Winmate Download Center.

Winmate Download Center

Go to	www.winmate.com > Support > Download Center > Full IP65/IP69K S	Stainless PPC > Kaby
Lake		

7.2 Problem Report Form

IP65 Flat Stainless P-CAP Panel PC

Customer name:	
Company:	
Tel.:	Fax:
E-mail:	Date:

Product Serial Number: _____

Problem Description: Please describe the problem as clearly as possible. Detailed description of the occurred problem will allow us to find the best solution to solve the problem as soon as possible.

Appendix A: Product Specifications

Hardware Specifications

	Model Name							
	R15IK3S-SPC3	R17IK3S-SPA1	R19IK3S-SPM1	W22IK3S-SPA3				
Display	Display							
Size	15"	17"	19"	21.5"				
Resolution	1024 x 768	1280 x 1024	1280 x 1024	1920 x 1080				
Brightness	250 <i>cd/m</i> ² (typ.)	350 <i>cd/m</i> ² (typ.)	250 <i>cd/m</i> ² (typ.)	250 <i>cd/m</i> ² (typ.)				
Contrast Ratio	700 : 1(typ.)	1000 : 1 (typ.)	1000 : 1 (typ.)	3000 : 1(typ.)				
Viewing Angle	-80~80(H);- 70~70(V)	-85~85(H);- 80~80(V)	-85~85(H);- 80~80(V)	-89~89(H); -89~89(V)				
Max Colors	16.2M	16.7M	16.7M	16.7M				
System		700011161		2.4011.)				
Processor		-72000 Kaby Lake	e 2.5GHz (turbo to	3.1GHz)				
BIOS	Insyde BIOS							
System Chipset	Intel® SoC Integ	grated						
System Memory	4GB DDR4-213	3 SO-DIMM (Max	16 GB)					
Storage	64GB M.2 B Ke	y SATA III SSD (O	ptions up to 256GE	3)				
Graphic Chipset	Intel® HD Graph	nics 620						
Audio	Realtek ALC283	B HD Audio Codec						
Ethernet	1000 Base-Tx G	igabit Ethernet Co	ompatible					
OS	Windows 10 IoT	Enterprise						
Input/ Output Conne	ctors							
Ethernet LAN	1 x RJ45 - 10/100)/1000 Mbps						
СОМ	1 x RS232							
USB	2 x USB Type-A F	Receptacle						
Power	1 x 12VDC							
Mechanical Specifica	ation							
Cooling System	Fanless							
Mounting	Yoke Mount, VESA Mount							
Environmental Cons	ideration							
Operating Temp.	0°C to +45°C							
Operating Humidity	30% to 90% (non-condensing)							
IP Rating	Full IP65							
Power Specifications	6							
Power Input	12V DC IN (Locka	able Power Jack)						
Power Consumption	52W (typ.)	56W (typ.)	56W (typ.)	66W (typ.)				
Standards and Certific	ation							
Certification CE, FCC, RoHs								

*With maximum backlight and high CPU load.



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