

IoT Gateway

Intel® Elkhart Lake Celeron® N6211, 1.2 GHz Processor



EAC Mini EACIEK20

User Manual

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

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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 1W17Axxxxxx means October of year 2017.

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.)
- Detailed description of the problem
- The exact wording of 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.

Warning!

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

Alternating Current

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

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.



Warning!

During heavy loading in 50°C environment, the top side of the EAC Mini may be over 70°C. Please do not touch these parts with your bare hands.



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.

Safety Precautions

For your safety carefully read all the safety instructions before using the device. All cautions and warnings on the equipment should be noted. Keep this user manual for future reference.

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

problems appear:

- \circ $\,$ The power cord or plug is damaged.
- o 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.
- $\circ~$ 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

Use the recommended mounting apparatus to avoid risk of injury.

Caution

Do not cover the openings!

Warning!

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

Warning!

Always ground yourself against electrostatic damage to the device.

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.

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)

- EN55035: 2017
 - o IEC61000-4-2: 2008
 - o IEC61000-4-3: 2006+A1:2007+A2:2010
 - o IEC61000-4-4: 2012
 - o IEC61000-4-5: 2014+A1:2017
 - IEC61000-4-6: 2013/COR1:2015
 - o IEC61000-4-8: 2009
 - o IEC61000-4-11: 2004+A1:2017
- EN 55032: 2015
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

• EN 62368-1:2014

About This User Manual

The documentation set for the Winmate® EAC Mini EACIEK20 IoT Gateway provides information for specific user needs, and includes:

- EAC Mini EACIEK20 Quick Start Guide describes how to get the box computer up and running.
- EAC Mini EACIEK20 User Manual contains detailed description on how to use the display, its components and features.



Note:

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

Chapter 1: Introduction

This chapter provides the EAC Mini EACIEK20 IoT Gateway product overview, describes its features and hardware specifications.

1.1 Overview

Congratulations on purchasing Winmate® EAC Mini EACIEK20 IoT Gateway

The EAC Mini EACIEK20 is a compact industrial IoT Gateway with low power consuming Intel® Elkhart Lake processor. The EAC Mini provides great expansion including one M.2 2242 Key B slot for SSD or Wi-Fi / Bluetooth. Expansion module offers great options from additional USB ports to WWAN, CANBus, 16Channel Digital I/O, etc. Wireless connectivity and all necessary input and output ports allow the EAC Mini to send data from manufacturing facilities directly to cloud server.

Abundant I/O ports and expansion module with more than thirty different combinations make EAC Mini is suitable for smart factory and machine automation applications.

1.2 Product Features

Winmate® EAC Mini IoT Gateway offers the following features:

- Intel® Celeron® N6211 (1.5M Cache, up to 3.0GHz)
- Intel® Celeron® N6210 (1.5M Cache, up to 2.6GHz) (Optional)
- Fanless cooling system
- Compact size 100 x 70 x 31 mm (w/o mounting bracket)
- Expansion module with 30+ combinations, including 4G/3G/Wi-Fi/ Bluetooth
- Various mounting options: desk, wall, VESA, din-rail
- Suitable for smart factory applications
- Microsoft Azure Certified for IoT
- AWS lot Greengrass Certified
- Expansion Module

30+ combinations, ex:

- WWAN Expansion Board (Single SIM Slot)
- 3-port RS232/422/485 w/ isolation
- 16-Channel Digital I/O w/ isolation
- 2-port CANBUS w/ isolation
- 3 -port USB 2.0
- 2-port RS232/422/485 w/ isolation
- 2-port Giga-LAN
- WWAN Expansion Board (Dual SIM Slot)

1.3 Hardware Specifications

		Model Name
		EACIEK20
	CPU	Intel® Celeron® N6211 (1.5M Cache, up to 3.0GHz) Intel® Celeron® N6210 (1.5M Cache, up to 2.6GHz) (Optional)
System	Graphics Engine	Intel® UHD Graphics
Specification	BIOS	Insyde UEFI
	Watchdog Timer	Programmable 256 levels, timer interval 1 to 255 sec.
	Memory	1 x 3200MT/s 4GB LPDDR4 1 x 3200MT/s 8GB LPDDR4 (Optional)
Storage	еММС	eMMC: Onboard 32 GB eMMC: Onboard 64 GB (Optional) eMMC: Onboard 128 GB (Optional)
	M.2 SATA	M.2 SSD 128GB (Optional) M.2 SSD 256GB (Optional) M.2 SSD 512GB (Optional)
Expansion	M.2	1 x M.2 2242 Key B slot for SSD or WiFi
Expansion	USB Wafer	2 x USB Wafer
	USB	2 x USB3.2 Gen2x1 (TypeA)
External I/O	Ethernet	2 x Giga LAN RJ45 Connector
	HDMI	1 x HDMI 2.0
Power	Power Supply	9V to 36V DC, 2-Pin Terminal Block
Management	Grounding Protection	Chassis Grounding
Buttons and	LED Indicator	1 x Power
LED Indicators	Button	1 x Power Button 1 x Reset Button
	Dimensions	100 (W) x 70 (H) x 31(D) mm (One layer) 100 (W) x 70 (H) x 61(D) mm (Double layer)
	Weight	0.4 kg (One layer), 0.5 kg (double layer)
Mechanical Specification	Mounting	Desk Mounting (Default), Wall Mounting (Default), VESA Mounting (Optional), DIN-Rail Mounting (Optional)
	Cooling	Fanless
	Enclosure	Metal
	Operating Temp.	0~55° C
	Storage Temp.	-15~70° C
Environment	Operating Humidity	10~90% RH
	Shock	Operating, IEC 60068-2-27

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	Vibration	Operating, IEC 60068-2-64
	IP Rating	IP30
Operating System	OS	Windows 11 IoT Enterprise (64 bit) (Optional) Windows 10 IoT Enterprise (64 bit) Optional) Linux Ubuntu 22.04 (Optional)
	EMC & Safety	CE, FCC
Certificate	loT	Microsoft Azure Certified for IoT AWS lot Greengrass Certified

1.4 Package Contents

Carefully remove the box and unpack EAC Mini EACIEK20 IoT Gateway. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

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 factory shipment list:



Open Wire Cable

P/N: 94EL02X020E

Optional Accessories:







• AC Adapter 12V/ 36W P/N: 922D036W12V6



• VESA Mounting Kit P/N:98K000A0009A



DIN Rail Mounting

Kit P/N: 98K000A00099

WLAN External

Antenna

•

•

• WWAN External Antenna P/N: 397SM00000Q

1.5 Description of Parts

This section includes front and rear side I/O ports location of the EAC Mini EACIEK20 IoT Gateway.

Front Side





1.6 LED Indicators

The EAC Mini IoT Gateway provides one HDD and one Power LED indicators located on the front for status monitoring.

LED Type	Status	Description
Power	On	Power is on
FOwer	Off	Power is off

1.7 Mechanical Dimensions

All dimensions are shown in mm (millimeters).

Unit without mounting bracket



Chapter 2: Hardware Installation

This chapter provides information on how to use external I/O and the installation of EAC Mini EACIEK20 IoT Gateway hardware.

2.1 Connectors

This section describes all the external connectors located on the EAC Mini IoT Gateway.

The following sections give you information about EAC Mini standard connectors and pin assignments.

2.1.1 HDMI Connector

Plug HDMI signal cable to the HDMI connector of the EAC Mini EACIEK20, and plug the other end to the monitor.

Pin assignment and signal names of HDMI connector

10	1
19	
18	2

Pin №	Signal Name	Pin №	Signal Name
1	HDMI_RX2+	2	GND
3	HDMI_RX2-	4	HDMI_RX1+
5	GND	6	HDMI_RX1-
7	HDMI_RX0+	8	GND
9	HDMI_RX0-	10	HDMI_RXC+
11	GND	12	HDMI_RXC-
13	HDMI_CON_CEC	14	NC
15	HDMI_CON_SCL	16	HDMI_CON_SDA
17	HDMI_CON_CABLE	18	+5V_HDMI
19	HDMI_CON_HP		

2.1.2 Ethernet Connector

The EAC Mini EACIEK20 has two Ethernet connectors located on the front. Ethernet ports provide a standard RJ45 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

	Pin №	Signal Name	Pin №	Signal Name
(Yellow)	1	TX1+	2	TX1-
	3	TX2+	4	TX3+
8 1	5	TX3-	6	TX2-
	7	TX4+	8	TX4-

2.1.3 USB Connector

The EAC Mini EACIEK20 provides two USB3.2 Gen2x1 Type-A connectors. Use USB3.2 Gen2x1 Type-A connector to connect external devices such as mouse or keyboard to the box computer.

Pin assignment and signal names of USB connector

	ļ	Ĥ	-7-	_
<u>I</u>	8	7_6	5	N
) T	Η	Η		ť
ľ <u>1</u>	2	3	4	٦
				Ŧ

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+		

2.1.4 Power Connector

DC power source input is a 2 pin terminal block connector. Power Input is 9V to 36V DC in.



2.2 Hardware Installation

This chapter describes how to install optional expansion module in the system.



Caution

Always remove the power cord before installing the hardware.

2.2.1 M.2 2242 Key B SSD Installation

To insert M.2 2242 Key B SSD:

- 1. Unscrew the three screws on the bottom cover.
- 2. Plug in M.2 SSD card with into the M.2 slot.
- 3. Screw one screw on board to fix M.2 SSD.
- 4. Screw back the bottom cover.

2.2.2 External Antenna Installation

Notice that external antenna is an optional feature of the EAC Mini EACIEK20.

To install external SMA antenna:

- 1. Remove the rubber cap on the SMA connector before installing the antenna.
- 2. Align the antenna with the SMA connector located on the rear side of the EAC Mini and fasten it as shown on the picture.
- 3. Adjust the position of external antenna for better signal.



2.2.3 Expansion Module Installation

Notice that expansion module is an optional feature of the EAC Mini EACIEK20.

To install expansion module:

1 Unscrew the three screws, and remove the bottom cover.



3 Attach the 2nd layer I/O module, and fasten four screws.

2 Attach the 2nd layer module bracket and install four copper pillars



Fasten three screws to screw back the bottom cover fasten two screws on the side of the module bracket and fasten copper pillars/ screws in front to secure I/O module.





2.2.4 USB Wire Loop Installation

To install USB Wire Loop:

Insert USB to the USB slot.



2 Install copper pillar, USB wire loop, and fasten one screw to secure the USB to the EAC Mini EACIEK20.



3 You have finished the USB Wire Loop installation.



2.3 Connecting the Power

The DC power supply connector of the EAC Mini IoT Gateway is on the front panel. The DC power input for the EAC Mini allows a voltage input range from 9 V DC to 36 V DC.



Warning!

Ensure voltage and polarity is compliant with the DC input. Improper input voltage or polarity can cause system damage.

2.3.1 Connecting the Power

Connect EAC Mini to 9-36V DC. The power source can either be from a power adapter or an inhouse power source. Front power LED indicator indicates the power status of the device.



Note:

If EAC Mini will start to open and go into Windows when you plug the power, you can follow the BIOS setting.

• State After G3: S0 state

	Insyd	deH20 Setup Utility	
Advanced			
PCH-10 Configuration PCI Express Configuration PSATA Configuration PUSB Configuration		Sp is st	ecify what state to re-applied after a ate).
State After G3	<s5 \$tate=""></s5>		
		State After G3 S0 State \$5 State Last State	
F1 Help Fsc Fxit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defa F10 Save and E

To learn more about BIOS setting, please follow Chapter 4 of the IoT Gateway EACIL20 User Manual.

2.3.2 Chassis Grounding

EAC Mini provides EMI protection and a stable grounding base. Use chassis grounding point located on the front.



Chapter 3: Mounting

The EAC Mini supports five types of mounting: wall and desk mounting by default, and optional VESA, DIN-rail mounting solutions. You can purchase mounting kit from Winmate as an optional accessory.

3.1 Wall/ Desk Mount

L-shape mounting brackets for wall/ desk mounting are supplied with the EAC Mini. Before mounting the unit to the wall, attach L-shape mounting brackets to the EAC Mini (supplied by Winmate).

Mounting Instruction:

1 Place the EAC Mini on the fixture (ex. table) and fasten four M3 screws to secure the unit to the fixture.



3.2 DIN-Rail Mount

You can purchase DIN-Rail mounting kit from Winmate as an optional accessory.

DIN-Rail Mounting Kit: Part Number: 821118551400

Mounting Instruction:

1 Fasten screws to secure DIN-rail mounting bracket to the EAC Mini.

Rear Side



2 Place the EAC Mini with the DIN-Rail bracket on the DIN-Rail.

Rear Side



Bottom Side



Bottom Side



3.3 VESA Mount

You can purchase VESA mounting kit from Winmate as an optional accessory.

VESA Mounting Kit Part Number: 821118561001

Mounting Instruction:

0

Mark the location of the screw holes on the fixture (ex. wall). Align the VESA mounting bracket with the screw location and screw VESA plate from the rear side of the fixture.

Place the EAC Mini on the VESA mounting bracket and fasten screws to secure and the EAC Mini to the VESA plate.



3 You have completed VESA mounting installation. Connect other peripherals if needed.



Chapter 4: Insyde UEFI 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.

4.1 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.
ESC	Pressing the [ESC] key stops the POST. Press any other key to resume the POST.

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

Key	Function
F1	Help
Esc	Exit
Cursor ↑/ ↓	Select item
Cursor \leftarrow / \rightarrow	Select item
F5/F6	Change values
Enter	Select submenu
F9	Setup defaults
F10	Save and Exit



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.

4.2 BIOS Functions

4.2.1 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.

	Insyd	eH20 Setup Utility	Rev. 5.0		
Main Advanced Security Power Boot Exit					
Product Name Build Date	IEK20. ¥102 08/23/2023 10	:27:45			
Processor Type System Bus Speed System Memory Speed Cache RAM Total Memory Channel A (2x32) - LPDDR4/4x ▶Platform Information	Intel(R) Cele 100 MHz 3200 MHz 1536 KB 4096 MB 4096 MB	ron(R) N6211 @ 1.20GHz			
Language	<english></english>				
System Time System Date	[04:29:41] [08/25/2023]				
F1 Help	↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults		
Esc Exit	+/+ Select Item	Enter Select ▶ SubMenu	FIU Save and Exit		

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

4.2.2 Advanced Settings

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.

Advanced	Ins	sydeH20 Setup Utility		Rev. 5.0
<pre>>CPU Configuration >Power & Performance >System Agent (SA) Configurat PPCH-10 Configuration >PCH-FW Configuration</pre>	ion		CPU Configuration Parameters	
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
CPU Configuration	Configures Trusted	Enter	Opens submenu
-	Computing 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	Enter	Opens submenu
Configuration	parameters		
PCH-FW	Configures PCH-FW	Enter	Opens submenu
Configuration	parameters		
S10 F81804	Configures S10 F81804	Enter	Opens
	parameters		

4.2.2.1 CPU Configuration

	InsydeH20 Setup Utility	Rev. 5.0
Advanced		
CPU Configuration		When enabled, a VMM can utilize the additional hardware capabilities
Type ID	Intel(R) Celeron(R) N6211 @ 1.20GHz 0x90661	provided by Vanderpool Technology.
Speed VMX	1200 MHz Supported	
SHX/TXT	Not Supported	
Intel (VMX) Virtualization Technology Active Processor Cores	<enabled> <all></all></enabled>	
AES	<enabled></enabled>	
F1Help1/1 SelectEsc Exit+/+ Select	Item F5/F6 Change Values Item Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

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

4.2.2.2 CPU Power Management Configuration

Advanced CPU - Power Management Control Boot performance mode <hax non-turbo="" performance=""> Intel(R) SpeedStep(tm) <enabled> Intel(R) Speed Shift Technology <enabled> Turbo Mode <enabled></enabled></enabled></enabled></hax>	Select the performance state that the BlOS will set starting from reset vector.
CPU - Power Management Control Boot performance mode <flax non-turbo="" performance=""> Intel(R) SpeedStep(tm) <enabled> Intel(R) Speed Shift Technology <enabled> Turbo Mode <enabled></enabled></enabled></enabled></flax>	Select the performance state that the BlOS will set starting from reset vector.
Boot performance mode <hax non-turbo="" performance=""> Intel(R) SpeedStep(tm) <enabled> Intel(R) Speed Shift Technology <enabled> Turbo Mode <enabled></enabled></enabled></enabled></hax>	vector.
F1 Help 1/1 Select Item F5/F6 Change Values	F9 Setup Defaults

BIOS Setting	Description	Setting Option	Effect
Boot Performance Mode	Configure Boot Performance Mode parameters	-Max non-turbo performance -Max battery -Turbo Performance	Select the performance state that the BIOS will set starting from reset vector
Intel Speed Step (ta)	Configure Intel Speed Step (ta) parameters	Enabled/ Disabled	Allows more than two frequency ranges to be supported
Intel Speed Shift Technology	Configure Intel Speed Shift Technology parameters	Enabled/ Disabled	Enable/ Disable Intel Speed Shift Technology support. Enabling will expose the CPP v2 interface to allow for hardware controlled P- states
-Turbo Mode	Enable or disable Turbo Mode	Enabled/ Disabled	Enable/ Disable processor 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 C states	Enabled/ Disabled	Enable/ Disable CPU Power Management. Allows COU to go to C

			states when it is not 100% utilized
Custom P-state Table	Configure Custom P- state Table parameters	Enter	Enters sub-menu
-Number of P- states	Select the number of custom P-states.	[Number]	Set the number of custom P-states. At least 2 states must be present

4.2.2.3 System Agent Configuration

Advanced	InsydeH20) Setup Utility	Rev. 5.0
System Agent (SA) Configuratio	ກ		Graphics Configuration
VT-d	Supported		
VT-d ▶Graphics Configuration VT-d	Supported <enabled></enabled>		
F1 Help Esc Exit	t/4 Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubHenu	F9 Setup Defaults F10 Save and Exit
Advanced	Insydenzy	J Setup Utility	Rev. 5.0
Graphics Configuration			Graphics turbo IMON current values
Graphics Turbo IMON Current	[31]		
Aperture Size PSHI SUPPORT DVHT Pre-Allocated DVHT Total Gfx Hem	<256HB> <disabled> <00H> <256H></disabled>		
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults

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

4.2.2.4 PCH-IO Configuration

Advanced		InsydeH20	Setup Utility	Rev. 5.0
PCH-IV Configuration				PCT Express Configuration settings
 ▶PC1 Express Configuration ▶SATA Configuration ▶USB Configuration 				
State After G3		<\$0 State>		
F1 Help	↑/↓ Select	ltem	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select	ltem	Enter Select ► SubMenu	F10 Save and Exit
		InsydeH20	Setup Utility	Rev. 5.0
Advanced				
PCI Express Configuration				Enable/Disable PCH PCI Express Clock
PCH PCI Express Clock Gating		<platform-por></platform-por>		Port.
►PCIe RP#1 (PCIe 0 Single-VC)				
PCIe RP#2 (PCIe 0 Single VC) PCIe RP#3 (PCIe 0 Single VC)		Lane configured as USB/SATA/UFS		
► PCIE RP#4 (PCIE U SINGIE-VC) ► PCIE RP#5 (PCIE 1 Multi-VC) ► PCIE RP#6 (PCIE 2 Multi-VC)		Lane contrigureu as	098794147059	
▶PCIE RP#0 (PCIE 2 Multi-VC) ▶PCIE PD#7 (PCIE 3 Multi-VC)				
PCIE clocks				
PCIE clocks				
PCIE clocks				
PPCIE clocks				
PCIE clocks				
PPCIE clocks				
PCIE clocks				
PCIE clocks				
PPCIE clocks				
PCIE clocks				
PCIE clocks				
PPCIE clocks				
PPCIE clocks				
BIOS Setting	Description	Setting Option	Effect	
-------------------------------	---	----------------------	---	
PCI Express Configuration	PCI Express clock gating enable/disable for each root port.	Enter	Opens sub-menu	
SATA And RST Configuration	Enable/ Disable SATA device	Enter	Opens sub-menu	
USB Configuration	Selectively enable/ disable the corresponding USB port from reporting a Device Connection to the controller.	Enter	Opens sub-menu	
State After G3	System power state setting	S0 State S5 State	S0 = auto power on after power failure S5 = keep power off after power failure	

4.2.2.4.1 PCI Express Configuration

	Insyde	20 Setup Utility	Rev. 5.0
Advanced			
PCI Express Root Port 1	<enabled></enabled>		Control the PCI Express Root Port.
Connection Type	<\$lot>		
ASPM	<disabled></disabled>		
L1 Substates	<disabled></disabled>		
ACS	<enabled></enabled>		
PTM	<disabled></disabled>		
DPC	<enabled></enabled>		
EDPC	<enabled></enabled>		
URR	<disabled></disabled>		
FER	<disabled></disabled>		
NFER	<disabled></disabled>		
CER	<disabled></disabled>		
SEFE	<disabled></disabled>		
SENFE	<disabled></disabled>		
SECE	<disabled></disabled>		
PME SCI	<enabled></enabled>		
Hot Plug	<disabled></disabled>		
Advanced Error Reporting	<enabled></enabled>		
PC1e Speed	<auto></auto>		
Transmitter Half Swing	<disabled></disabled>		
Detect Timeout	[0]		
Extra Bus Reserved	[0]		
Reserved Memory	[10]		
Reserved 1/0	[4]		
PCH PCIe LTR Configuration			
LTR	<enabled></enabled>		
Snoop Latency Override	<auto></auto>		
Non Snoop Latency Override	<auto></auto>		
Force LTR Override	<d i="" led="" sab=""></d>		
LTR Lock	<d i="" led="" sab=""></d>		
F1 Help	↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select 🕨 SubMenu	FIO Save and Exit

	Insyde	120 Setup Utility	Rev. 5.0
Advanced			
	- 1 I - I-		
PUT Express Root Port 2	<enabled></enabled>		CONTROL THE PUL EXPRESS ROOT PORT.
	<stut></stut>		
Horli 11 Substates			
	 VISdUTEd CEnabled 		
DTM			
	 CENabled> 		
EDDC	<enabled></enabled>		
HDD			
FED	<disabled></disabled>		
NEED	Chisabled>		
CED	<disabled></disabled>		
SEE	cDisabled>		
SENEE	cDisabled>		
SECE	cDisabled>		
PMF_SCI	<enabled></enabled>		
Hot Plug	<disabled></disabled>		
Advanced Error Reporting	<enabled></enabled>		
PC1e Sneed	<auto></auto>		
Transmitter Half Swing	<disabled></disabled>		
Detect Timeout	[0]		
Extra Bus Reserved	[0]		
Reserved Memory	[10]		
Reserved 1/0	[4]		
PCH PCIe LTR Configuration			
LTR	<enabled></enabled>		
Snoop Latency Override	<auto></auto>		
Non Snoop Latency Override	<auto></auto>		
Force LTR Override	<disabled></disabled>		
LTR Lock	<d i="" led="" sab=""></d>		
F1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
ESC EXIT	ere sélect item	Enter Select 🕨 SúbMenu	FIU Save and Exit

	Insyde	120 Setup Utility	Rev. 5.0
Advanced			
DCL Everage Deet Port 5	<pre>cEpabled></pre>		Control the DCL Everyone Poet Port
Composition Tuno			CUNTROL THE PCT EXPRESS ROOT PORT.
	<siut></siut>		
AUS	<enabled></enabled>		
	<euan ieu=""></euan>		
PVC to IC napping	all to all to all		
PIN DDG	<uisabled></uisabled>		
DPC SPACE	<enabled></enabled>		
EDPC	<enabled></enabled>		
URR	<visabled></visabled>		
FER	<disabled></disabled>		
NFER	<disabled></disabled>		
CER	<d i="" led="" sab=""></d>		
SEFE	<d i="" led="" sab=""></d>		
SENFE	<d i="" led="" sab=""></d>		
SECE	<disabled></disabled>		
PME SCI	<enabled></enabled>		
Hot Plug	<disabled></disabled>		
Advanced Error Reporting	<enabled></enabled>		
PCIe Speed	<auto></auto>		
Transmitter Half Swing	<disabled></disabled>		
Detect Timeout	[0]		
Extra Bus Reserved	[0]		
Reserved Memory	[10]		
Reserved 1/0	[4]		
PCH PCIe LTR Configuration			
LTR	<enabled></enabled>		
Snoop Latency Override	<auto></auto>		
Non Snoop Latency Override	<auto></auto>		
Force LTR Override	<d i="" led="" sab=""></d>		
LTR Lock	<d i="" led="" sab=""></d>		
F1 Help	1/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select ▶ SubMenu	FIU Save and Exit

	InsydeH	20 Setup Utility	Rev. 5.0
Advanced			
DOL Evenese Dest Dest C	∠Eurah Larda		Control the DOL Evenese Deet Deet
Connection Tune	<enabled< td=""><td></td><td>CUNTRUT THE PCT EXPRESS ROUT PURT.</td></enabled<>		CUNTRUT THE PCT EXPRESS ROUT PURT.
	<51012 Chieseblada		
	<pre>CD1SaD1Ed></pre>		
	<dtsabled></dtsabled>		
AUS	<enabled></enabled>		
	<enabled></enabled>		
PVC to IC Mapping			
PIM	<disabled></disabled>		
DPC	<enabled></enabled>		
EDPC	<enabled></enabled>		
URR	<disabled></disabled>		
FER	<disabled></disabled>		
NFER	<d i="" led="" sab=""></d>		
CER	<d i="" led="" sab=""></d>		
SEFE	<d i="" led="" sab=""></d>		
SENFE	<d i="" led="" sab=""></d>		
SECE	<d i="" led="" sab=""></d>		
PME SCI	<enabled></enabled>		
Hot Plug	<d i="" led="" sab=""></d>		
Advanced Error Reporting	<enabled></enabled>		
PCIe Speed	<auto></auto>		
Transmitter Half Swing	<d i="" led="" sab=""></d>		
Detect Timeout	[0]		
Extra Bus Reserved	[0]		
Reserved Memory	[10]		
Reserved 1/0	[4]		
PCH PCIe LTR Configuration			
LTR	<enabled></enabled>		
Snoop Latency Override	<auto></auto>		
Non Snoop Latency Override	<auto></auto>		
Force LTR Override	<disabled></disabled>		
LTR Lock	<disabled></disabled>		
F1 Help	↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select 🕨 SubMenu	F10 Save and Exit

InsydeH20 Setup Utility Rev. 5.0 Advanced Control the PCI Express Root Port. Connection Type <\$lot> ASPM L1 Substates <Disabled> <Disabled> ACS Multi-VC <Enabled> <Enabled> ▶VC to TC Mapping PTM <Disabled> DPC <Enabled> <Enabled> EDPC URR <Disabled> FER <Disabled> NFER <Disabled> <Disabled> CER SEFE <Disabled> SENFE <Disabled> SECE <Disabled> PME SCI <Enabled> Hot Plug Advanced Error Reporting <Disabled> <Enabled> PCIe Speed <Auto> Transmitter Half Swing <Disabled> Detect Timeout [0] Extra Bus Reserved [0] [10] [4] Reserved Memory Reserved 1/0 PCH PCIe LTR Configuration LTR <Enabled> Snoop Latency Override <Auto> Non Snoop Latency Override Force LTR Override <Auto> <Disabled> LTR Lock <D i sab led> ↑/↓ Select Item +/+ Select Item F5/F6 Change Values Enter Select ► SubMenu F9 Setup Defaults F10 Save and Exit F1 Help Esc Exit

4.2.2.4.2 SATA And RST Configuration

	Insyde	120 Setup Utility	Rev. 5.0
Advanced			
SATA Configuration			Enable/Disable SATA Device.
SATA Controller(s) SATA Mode Selection	<enabled> <ahcl></ahcl></enabled>		
Serial ATA Port 0 Software Preserve Port 0 Serial ATA Port 1 Software Preserve Port 1	<enab led=""> Unknown Emp ty <enab led=""> SUPPORTED AG I 128642A I 138</enab></enab>	(128.0GB)	
F1 Help	t/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select 🕨 SubMenu	F10 Save and Exit

4.2.2.4.3 USB Configuration

	Insydel	120 Setup Utility	Rev. 5.0
Advanced			
USB Configuration			Selectively Enable/Disable the corresponding USB port from reporting a
USB Port Disable Override	<disable></disable>		Device Connection to the controller.
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit

4.2.2.5 ME Firmware Configuration

	Insyde	H2O Setup Utility	Rev. 5.0
Advanced			
ME Firmware Version ME Firmware Mode ME Firmware SKU ME Firmware Status 1 ME Firmware Status 2	15.40.27.2664 Normal Hode Consumer SKU 0x90000255 0x82100106		When Disabled ME will be put into ME Temporarily Disabled Mode.
HE State ME Unconfig on RTC Clear	<enabled> <enabled></enabled></enabled>		
F1 Help Esc Exit	t/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ▶ SubMenu	F9 Setup Defaults F10 Save and Exit

4.2.2.6 F81804 Configuration

	Insyd	eH20 Setup Utility	Rev. 5.0
Advanced Advanced			
Advanced F81804 Chip 1 I/O Configuration Port >Hardware Honitor Watch-Dog Timer >GP10 Group 0 Configuration >GP10 Group 7 Configuration >GP10 Group 9 Configuration	4Eh/4Fh <always off=""></always>	eH20 Setup Utility	Rev. 5.0 Monitor all hardware sensors like voltage/temperature/fan speed
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/→ Select Item	Enter Select ► SubMenu	F10 Save and Exit

4.2.2.7 Hardware Monitor

	Ins	sydeH20 Setup Utility	Rev. 5.0
Advanced			
Hardware Monitor			0 : Stop updating 1-15: Update sensors data per specified
Refresh Cycle	[1]		second
Voltage			
3VCC	2.032 V		
VIN1/Vcore	1.664 V		
VINZ 2000	3.248 V		
JA2R	3.320 V 2.244 U		
SVCD	3.344 V A 70A V		
3430	4.704 ¥		
Temperature			
Temperature 1	-42.0 °C/-	43.6 °F	
Temperature 2	-128.0 °C/-	-198. 4 °F	
F1 Help	↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select ► SubMenu	F10 Save and Exit

4.2.3 Security Menu

This section allows to configure and improve system, and set up some system features according to your preferences.

	Insyc	leH2O Setup Utility	Rev. 5.0
Main Advanced Security Pow	er Boot Exit		
HainAdvancedSecurityPowCurrent TPM DeviceTPM StateTPM Active PCR Hash AlgorithmTPM Hardware Supported Hash AlgorithmTPM EProtocol VersionTPM AvailabilityTPM OperationClearClear TPMSupervisor PasswordUser PasswordSet Supervisor PasswordSet All Hdd PasswordSet All Haster Hdd Password> Storage Password Setup Page	er Boot Exit <tph (dtf<br="" 2.0="">All Hierarchi SHA256 gorithm SHA1, SHA256, SHA1, SHA256, <1.1> <available> <no operation<br="">[]] Not Installed Not Installed</no></available></tph>	YH)> les Enabled, Owned SHA384 SHA384, SHA512, SH3_256	frEE Protocol Version: 1.0 or 1.1
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
TrEE Protocol Version	Choose TrEE Protocol Version	1.0 1.1	TrEE Protovol Version: 1.0 or 1.1
TPM Availability	TPM Availability configuration	Available Hidden	When hidden don't exposes TPM to 0
TPM Operation	TPM Operation configuration	[]	Select one of the supported operation to change TPM2state
Clear TPM	Clear TPM configuration	[]	Select to Clear TPM
Set Supervisor Password	Set Supervisor Password	Enter New password	Install or Change the password and the length of password must be greater than one character

4.2.4 Power Menu

Hain Advanced Security Power Boot Exit Wake on PHE <enabled> Auto Wake on S5 <disabled></disabled></enabled>	
Wake on PHE <pre>determines the action taken when system power is off and a PCI Po Hanagement Enable wake up event action % action % for the system power is off and a PCI Po Hanagement Enable wake up event </pre>	_
	the ver vccurs.
F1 Help 1/4 Select Item F5/F6 Change Values F9 Setup Defaults For Exit 5 Loct Item F1/4 Select Item F10 Save and Exit	

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

4.2.5 Boot Menu

	Insyd	eH20 Setup Utility	Rev. 5.0
Main Advanced Security	Power Boot Exit		
Boot Type Quick Boot Quiet Boot Network Stack PXE Boot capability ACP1 Selection Timeout Automatic Failover ▶Boot Type Order	 UEF1 Boot Ty Enabled> Oisabled> Oisabled> Oisabled> Oisabled> Acpi6, 1> [3] Enabled> 	pe>	Select boot type to Dual type, Legacy type or UEFI type
F1 Help For Exit	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults

BIOS Setting	Description	Setting Option	Effect
Boot Type	Boot Type configuration	UEFI Boot Type	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
Quiet Boot	Quiet Boot configuration	Enabled Disabled	Disable or enable booting in text Mode.
Timeout	Timeout	[Value]	Timeout settings
Automotio		Enable	If boot to default device fail, it will directly try to boot next device
Failover		Disable	If boot to default device fail, it will pop warning message then go to firmware UI
Boot Type Order	Boot Type Order	Enter	Opens sub-menu

4.2.5.1 Boot Type Order

		InsydeH20 Setup Utility	Rev. 5.0
	Boot		
Boot Type Order			
BEV Hard Disk Drive Others			
▶Hard Disk Drive ▶USB			
F1 Help Esc Exit	1/↓ Select Item +/+ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

4.2.6 Exit Menu

		InsydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Pow	wer Boot Exit		
			Exit system setup and save your changes.
Exit Saving Changes			
Save Change Without Exit			
Exit Discarding Changes			
Load Optimal Defaults			
Save Custom Defaults			
Discard Changes			
braculu changes			
F1 Help	t/l Select Item	E5/E6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select > SubMenu	F10 Save and Exit
LOU LAIL			

4.3 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 **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 you WARNING! The process will clear all of yo	ur system. our data.	
If you do not want to restore you reboot.	ır system please press " Recovery	Quit " to 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.



5. Wait the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete. After complete the recovery process, please restart your computer manually.

4.4 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.

To enable watchdog in Watchdog AP follow the instructions below:

- 1. On the right bottom side of the desktop screen, click **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 Time	The system automaticity restarts when this countdown time reaches zero. <i>Default: 10 min</i>
Periodically Feed Time	To set a cycle time to automatically reset watchdog timer. <i>Default:</i> 9 <i>min</i>
Enable / Disable	Enable or disable watchdog. <i>Default: Enable</i>

Chapter 5: Driver Installation

This chapter provides instructions on how to install drivers on the EAC Mini IoT Gateway. You will quickly complete the installation.

- 5.1 Chipset Driver Installation
- 5.2 Graphic Driver Installation
- 5.3 Management Engine (ME)
- 5.4 Serial IO Driver Installation
- 5.5 Ethernet Driver Installation
- 5.6 Watchdog Driver Installation
- 5.7 Thermal Control AP Installation

5.1 Chipset Driver Installation

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.	
View Log Files	
Restart Now	Restart Later

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



5.2 Graphic Driver Installation

Follow instructions below to install Graphic driver.

1. Open the driver CD and double-click on **Graphic** driver.

- 🛃 🔒 🛨			Manage	win64						- 🗆 X
File Home	Share	View	Application Tools							~ (?)
← → ▼ ↑ 📘	> dri	ver → Intel®	Graphics Driver V27.2	0.100.8816 >	win64		~	Ū		
	_	Name	^		Date modified	Туре	Size			
🖈 Quick access		Granh	vics		1/2/2022 8-48 PM	File folder				
E Desktop	1	Lang			1/2/2022 8-48 PM	File folder				
👆 Downloads	*	×64			1/2/2022 8:48 PM	File folder				
Documents	*	autor	un		9/20/2017 3:06 AM	Setup Information		1 KB		
Pictures	*	M igypin	1		9/8/2020 6:26 AM	Application		1 005 KB		
cap		install	lation readme		10/21/2020 5:38 PM	Text Document		13 KB	1	
	,,	licens	e		9/16/2020 3:12 PM	Text Document		37 KB		
💻 This PC		readm	ne		10/21/2020 5:40 PM	Text Document		455 KB		
USB Drive (D:)		Setup	.if2		9/8/2020 4:08 AM	IF2 File		38 KB		
i Network										
9 items 1 item sel	ected (0.98 MB								

2. The system opens installation window, click **Next** to continue.



3. Click **Yes** to agree to the license terms.

Intel® Installation Framework	—		\times
Intel® Graphics Driver			
License Agreement		(int	el
You must accept all of the terms of the license agreement in order to co program. Do you accept the terms?	ontinue the	setup	
GRAPHIC DRIVERS SOFTWARE LICENSE AGREEMENT (Version January	y 2020)		^
IMPORTANT NOTICE PLEASE READ AND AGREE BEFORE DOWNLOAD COPYING OR USING This Software License Agreement (the "Agreement") is between you, or other legal entity that you represent and warrant you have the legal a (each, "You" or "Your") and Intel Corporation and its subsidiaries (coller regarding Your use of the Software defined below. By downloading, in: otherwise using the Software, You agree to be bound by the terms of do not agree to the terms of this Agreement, or do not have legal aut to agree to them, do not download, install, copy or otherwise use the s	DING, INST or the comp authority to ctively, "In stalling, cop this Agreer hority or re Software.	ALLING, bind, tel") bying or nent. If You quired age	u 🕹
< Back	Yes	No	
I	intel® Insta	allation Fra	mework

4. Check installation details and click Next.



5. Check installation details and click Next.

ntel® 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 \P Deleting File: C: \ProgramData \Microsoft\Windows \Start Menu \P Deleting File: C: \Users \Public \Desktop \Intel(R) HD Graphics Con Deleting File: C: \Users \Public \Desktop \Intel(R) Graphics and Me Deleting File: C: \ProgramData \Microsoft\Windows \Start Menu \P Deleting File: C: \ProgramData \Microsoft\Windows \Start Menu \P Deleting File: C: \Users \Public \Desktop \Intel(R) Iris(R) Graphics C Deleting File: C: \Users \Public \Desktop \Intel(R) Iris(R) Graphics C Deleting File: C: \Users \Public \Desktop \Intel \(R) Iris(R) Graphics C Deleting File: C: \Users \Public \Desktop \Intel \Intel \(R) Iris(R) Graphics C Deleting Registry Key: HKLM\SOFTWARE \Intel \GFX \Internal \Au Deleting Registry Key: HKLM\SOFTWARE \Intel \GFX \Internal \Au	rograms\Intel(R) Graphics and rograms\Intel\Intel(R) Graphic trol Panel.lnk dia Control Panel.lnk rograms\Intel\Intel(R) Iris(R) (rograms\Intel(R) Iris(R) Graph Control Panel.lnk bhics Control Panel.lnk dioFix dioFix					
Click Next to continue.	>					
	Next >					

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



5.3 Management Engine (ME)

Follow instructions below to install Management Engine (ME).

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

🖓 📙 🚽			Manage	MEI-Only In:	staller MSI				-	×
File Home	Share	View	Application Tools							~ ?
← → • ↑	« Inte	el_(R)_CSME_	15.0.30.1611_C0_Consu	umer > Install	ner > Installers > MEI-Only Installer MSI			ō		
- A Oviele		Name	^		Date modified	Туре	Size			
		🚳 IntelM	IEFWVer.dll		3/11/2021 8:11 AM	Application exten		20 KB		
Desktop	×.	🚳 MEISe	tup		3/11/2021 8:11 AM	Application	3	3,385 KB		
👆 Downloads	*	MEOn	IyMUP3		3/11/2021 8:11 AM	Compressed (zipp	3	3,098 KB		
🔮 Documents	*	📄 mup			3/11/2021 8:11 AM	XML Document		13 KB		
Pictures	*									
cap	*									
chipset	*									
picture	*									
🖂 💻 This PC										
🕞 👝 USB Drive (D:)										
> 💣 Network										

2. Select Next to start the installation.



3. Click Next to agree to the license terms.



4. Check installation details and click Next.



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



5.4 Serial IO Driver Installation

Follow instructions below to install Serial IO driver.

- Step 1 Open the Driver CD (included in the package) and select Serial IO driver.
- Step 2 Right click on " iaLPSS2_GPIO2_EHL "
- Step 3 Select Install
- Step 4 Right click on " iaLPSS2_I2C_EHL "
- Step 5 Select Install
- Step 6 Right click on " iaLPSS2_SPI_EHL "
- Step 7 Select Install
- Step 8 Right click on " iaLPSS2_UART2_EHL "
- Step 9 Select Install
- Step 10 Right click on " UartSubDevice "

Step 11 Select Install

S u A 🔲 . This							
→ * T 🛄 > Inis	PC > Desktop > Intel(R) Serial IO V	/5.123.1.1021 → 5.123.1.1021-Beta3		~	Ō		
	Name	Date modified	Туре	Size			
Quick access	iaLPSS2 GPIO2.svs	8/4/2020 10:53 AM	System file		87 KB		
Desktop 📌	jalpss2 gpio2 ehl	8/4/2020 10:53 AM	Security Catalog		9 KB		
🖌 Downloads 🛛 🖈	jaLPSS2 GPIO2 EHL	8/4/2020 10:53 AM	Setup Information		12 KB		
Documents 🖈	iaLPSS2 I2C.sys	7/30/2020 7:04 PM	System file		149 KB		
Pictures 🖈	jalpss2 i2c ehl	7/30/2020 7:04 PM	Security Catalog		19 KB		
CDM21229 2017101	aLPSS2 I2C EHL	7/30/2020 7:03 PM	Setup Information		14 KB		
	iaLPSS2_SPI.sys	8/4/2020 10:49 AM	System file		107 KB		
This PC	ialpss2_spi_ehl	8/4/2020 10:50 AM	Security Catalog		14 KB		
RDVD (D:)	iaLPSS2_SPI_EHL	8/4/2020 10:49 AM	Setup Information		12 KB		
	iaLPSS2_UART2.sys	8/4/2020 11:37 AM	System file		380 KB		
Network	ialpss2_uart2_ehl	8/4/2020 11:37 AM	Security Catalog		15 KB		
	iaLPSS2_UART2_EHL	8/4/2020 11:36 AM	Setup Information		13 KB		
	uartsubdevice	8/4/2020 10:53 AM	Security Catalog		10 KB		
	UartSubDevice	8/4/2020 10:53 AM	Setup Information		3 KB		
1	JuartSubDevice.svs	8/4/2020 10:53 AM	System file		35 KB		
	1 Data 2						
→	1-Beta3						- 0
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5.5 Ethernet Driver Installation

Follow instructions below to install LAN driver.

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

nare Email Zip	🕄 Print 🔋 Fax	Share v	÷ Stop sharing	Advanced security				
· -> · • •	RDVD (D:) > 1	Driver > LAN > P	ROWinx64 20.30.	1	~ Ö	Search PROV	Vinx64 20.30.1	\$
	Name	^		Date modified	4	Туре	Size	
★ Quick access	RO	Winx64		1/18/2018 5:5	3 PM	Application	73,867 KB	È
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IntelNic ConeDrive This PC								
 IntelNic OneDrive This PC RDVD (D:) 								
 IntelNic OneDrive This PC RDVD (D:) Driver 								

2. When compression is complete, select Next.



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

😽 Intel(R) Network Connections Install	vvizaru		
License Agreement			(Intel
Please read the following license agree	ment carefully.		linter
INTEL SOFTWAI	RE LICENSE AGR	EEMENT	
IMPORTANT - READ BEFOR	RE COPYING, IN S	TALLING OR USI	NG.
Do not copy, install, or use this softw	ware and any as	sociated materia	als
(collectively, the "Software") provide ("Agreement") until you have carefu By copying, installing, or otherwise of the terms of this Agreement. If you of do not copy, install, or use the Softw	ed under this lic ully read the follo using the Softwa do not agree to t vare.	ense agreement wing terms and are, you agree to he terms of this	conditions. be bound by Agreement,
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(collectively, the "Software") provide ("Agreement") until you have carefu By copying, installing, or otherwise of the terms of this Agreement. If you of do not copy, install, or use the Softw LICENSES: I accept the terms in the license agreem	ed under this lic illy read the follo using the Softwa do not agree to t vare.	ense agreement wing terms and are, you agree to he terms of this	t conditions. be bound by Agreement, Print
 (collectively, the "Software") provide ("Agreement") until you have careful By copying, installing, or otherwise of the terms of this Agreement. If you of do not copy, install, or use the Softw LICENSES: I accept the terms in the license agreem I do not accept the terms in the license 	ed under this lic illy read the follo using the Softwa do not agree to t vare. nent agreement	ense agreement wing terms and are, you agree to he terms of this	t conditions. be bound by Agreement, Print

4. System displays the installed packages, select Next.

intel(r) Network Connections install v	rizaru		
Ready to Install the Program			lintal
The wizard is ready to begin installation.			linter
Click Install to begin the installation.			
If you want to review or change any of y exit the wizard.	our installation	settings, <mark>click</mark> Back.	Click Cancel to

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

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

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



5.6 Watchdog Driver

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

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

Recycle	e Bin P Sle	assMark teper V2	5											e	SalaxWork
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	cmd														
	Q		ø	-							^	1	d») 💷	10:55 T	18 2

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

🚾 Administrator: Command Prompt - install	-		\times
D:\Driver\WatchDog_AP_V3.0.2(Driver_V2.0.0.4)\Driver>dir/w The system cannot find the fi 🖂 Windows Security X			î
D:\Driver\WatchDog_AP_V3.0.2(Would you like to install this device software? The system cannot find the f:			
D:\Driver\WatchDog_AP_V3.0.2(The system cannot find the f: Publisher: WinMateInc.			
D:\Driver\WatchDog_AP_V3.0.2			
Volume in drive D is ROVD Volume Serial Number is 6834 () You should only install driver software from publishers you trust. <u>How can I</u> <u>decide which device software is safe to install?</u>			
Directory of D:\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit			
<pre>[.] [] devcon.exe install.bat wmwdg.cat wmwdg.inf [x64] 4 File(s) 91,617 bytes 3 Dir(s) 60,737,892,352 bytes free</pre>			
D:\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit>install			
D:\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver for Win7_64bit>DEVCON.EXE INSTALL wmwd 5"	g.inf "	root\W	MWD
Device node created. Install is complete when drivers are installed Jpdating drivers for root\WMWDG from D:\Driver\WatchDog_AP V3.0.2(Driver V2.0.0.4)\Driver\WMWDG Driver f wdg.inf.	or Win7	_64bit	\wm U

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



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



6. Select Next.



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

🛃 WatchDog_AP Setup	-		×
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, en "Browse".	ter it be	low or clic	k
Eolder:			
C:\Program Files (x86)\WatchDog_AP\WatchDog_AP\		Browse.	
Advanced Installer			
< Back Next	>	Can	cel

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



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

🙀 WatchDog_AP Setup	×
	Completing the WatchDog_AP Setup Wizard
	Click the "Finish" button to exit the Setup Wizard.
	Launch WatchDog_AP
	< Back Finish Cancel

5.7 Thermal Control AP

Follow instructions below to install Thermal Control AP.

1. Click Driver.

📙 🛃 📙 🖛 PackageP	PowerControl_v1.0.18						- 🗆	×
File Home Share	View							~ ?
	ackagePowerControl_v1.0.18				~	ē	,○ Search PackagePower	Contr
10.11	Name	Date modified	Туре	Size				
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📕 Downloads 🖈	Driver	6/4/2023 12:39 PM	File folder					
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💻 This PC								
ALAN (D:)								
💣 Network								
2 items								

📙 💆 📙 🖛 Driv	/er						-	п х
File Home	Share	View						~ 🕐
$\leftarrow \rightarrow \checkmark \land \square$	> Pac	:kagePowerControl_v1.0.18 → Driver				✓ Ū	Search Driver	
- Oviek ereer		Name	Date modified	Туре	Size			
Desktop	*	Hottab Driver(WMMIO) v3.1.0.1	6/4/2023 12:39 PM	File folder				
Downloads	*							
Documents	*							
Pictures	*							
💻 This PC								
👝 ALAN (D:)								
💣 Network								
1 item								

~ _

2. Click WMMIO_64	bit . 3.1.0.1							- 0	×
File Home Share View	ntrol v1.0.18 > Driver > Hottab D	Driver(WMMIO) v3.1.0.1				ت ب	Q	earch Hottab Driver	~ ?
 ← → · · · · · · · · · · · · · · · · · ·	ttroI_v1.0.18 ⇒ Driver ⇒ Hottab L ^ I_32bit J_64bit WMMIO_ Driver Installation Guid	Drver(WMMIO) v3.1.0.1 Date modified 6/4/2023 12:39 PM 6/4/2023 12:39 PM 3/25/2016 4:00 PM	Type File folder File folder Microsoft Edge P	Size 240 KI	3	~ 0		earch Hottab Driver	(WMML
3 items ↓								- 0	× ~ ?
Open <u>n</u> ew window ▶ Open Windows PowerShell ▶ Open a window you can use to type commands at a Windows PowerShell ▶ Image: the powerShell ▶	Open Windows Powe <u>r</u> She	ell ell as <u>a</u> dministrator	 WMMIO_64bit > Type File folder Application Windows Batch File Security Catalog Setup Information 	Size 80 KE 1 KE 9 KE 2 KE	3 3 3	~ Ū	ء م	earch WMMIO_64bi	:
ALAN (D:)									

Z 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	^

PS C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit> .\i	nstal	ll.bat	~
	eve 1		
C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>DEVCON.6 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 Driver 0.1\WMMIO_64bit\wmmio.inf. Drivers installed successfully.	r(WMM	INSTALL MIO) v3	wm
C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>pause Press any key to continue			



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3. Click AP.

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□ 🖸 📑 = AP							_	
File Home Share View								~ 😈
← → ~ ↑ 📙 > PackagePowerControl_v	/1.0.18 > AP				~	Q	Search AP	
Name	^	Date modified	Туре	Size				
★ Quick access Quick access Quick access	rControl 1.0.18	5/18/2023 11:14 AM	Windows Installer	3 136 KB				
Desktop 🖈		5, 10, 2020 1111 1 10		0,100 110				
🕂 Downloads 🖈								
🖆 Documents 🖈								
📰 Pictures 🖈								
install PackagePi 🖈								
💻 This PC								
- ALAN (D:)								
Network								
1 item								
PackagePowerControl Setu	Welcome (PackagePo Wizard The Setup Wizard w computer. Click "Ne Setup Wizard.	to the owerCon vill install Packagel ext" to continue o	trol Set PowerControl or r "Cancel" to ex	× n your it the				
	< E	Back Next	> (Cancel				

M rackager owercontror setup		_		×
Select Installation Folder			$\langle \cdot \rangle$	-
This is the folder where PackagePowerCont	ol will be installe	d.		0
				×.
To install in this folder, click "Next". To insta "Browse".	l to a different f	older, enter it b	elow or click	
<u>F</u> older:				
- C:\Program Files (x86)\PackagePowerContro	l\PackagePower(Control	Browse	
Advanced Installer				
	< Back	Next >	Cancel	
🚽 PackagePowerControl Setup		1.121 23101		Х
Ready to Install				2
Ready to Install The Setup Wizard is ready to begin the Pad	kagePowerContr	ol installation	X	2
Ready to Install The Setup Wizard is ready to begin the Pac	kagePowerContr	ol installation	X	-S
Ready to Install The Setup Wizard is ready to begin the Pac Click "Install" to begin the installation. If yo installation settings, click "Back". Click "Can	kagePowerContr u want to reviev cel® to exit the w	ol installation v or change any vizard.	r of your	S
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Ready to Install The Setup Wizard is ready to begin the Pac Click "Install" to begin the installation. If yo installation settings, click "Back". Click "Can	kagePowerContr u want to reviev cel" to exit the w	ol installation v or change any vizard.	of your	3
Ready to Install The Setup Wizard is ready to begin the Pac Click "Install" to begin the installation. If yo installation settings, click "Back". Click "Can	kagePowerContr u want to reviev cel" to exit the w	ol installation v or change any izard.	of your	3
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Chapter 6: Technical Support

This chapter includes pathway for technical support and Software Development Kit (SDK). 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. If any problem occurs fill in problem report form enclosed and immediately contact us.

6.1 Software Developer Support

You can download SDK, derivers and other document from <u>Winmate Download Center</u> or <u>Winmate</u> <u>File Share</u>.

Winmate Download Center

<u>http://www.winmate.com/</u> > Support > Download Center > Embedded Computing > EAC Mini EACIEK20

6.2 Problem Report Form

IoT Gateway

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

This chapter provides additional information about EAC Mini EACIEK20 IoT Gateway.

Appendix A: Order Information

EAC Mini EACIEK20 IoT Gateway available in the following configurations:

Model Name	Configuration
EACIEK20-100-A432	Intel N6211, 4G RAM, 32GB eMMC, 2 x USB3.2 Gen2x1, 2 x LAN, 1 x HDMI
EACIEK20-101-A432	Intel N6211, 4G RAM, 32GB eMMC, 2 x USB3.2 Gen2x1, 2 x LAN, 1 x HDMI, Wi-Fi(Client)
EACIEK20-102-A432	Intel N6211, 4G RAM, 32GB eMMC, 2 x USB3.2 Gen2x1, 2 x LAN, 1 x HDMI, 4G (With micro SD card and micro SIM-card slot)
EACIEK20-119-A432	Intel N6211, 4G RAM, 32GB eMMC, 2 x USB3.2 Gen2x1, 2 x LAN, 1 x HDMI, M.2 SSD expansion

Additional ordering options:

ltem	Specifications
AC Adapter	AC Adapter 12V/36W (P/N 922D036W12V6)
Mounting	VESA Mounting Kit (P/N 98K000A0009A) DIN-Rail Mounting Kit (P/N98K000A00099)
External Antenna	WLAN External Antenna (P/N 397SM000000S) WWAN External Antenna (P/N 397SM000000Q)
Expansion Module	EACWSLT-222: 4G EACWSLT-231: 3-port RS232/422/485 w/ isolation EACWSLT-232 : 16-Channel Digital I/O w/ isolation EACWSLT-233 : 2-port CANBUS w/ isolation EACWLST-234 : 3-port USB 2.0 EACWLST-235 : 2-port RS232/422/485 w/ isolation EACWLST-236: 2-port Giga LAN EACWLST-237: 4G with Dual SIM

Appendix B: Expansion Module

16-Channel Digital I/O with isolation EACWLST-232

To install EACWLST-232 module:

- 1. Follow the procedure described in <u>Chapter 2, "Expansion Module Installation"</u> to install EACWLST-232 module.
- 2. Connect two USB cables. One end to EACWLST-232 board and another end to EAC Mini motherboard.
- 3. Finish module installation.

USB Cable Connection Diagram:



Pin assignment and signal names of DIDO connector



Pin No	Signal Name	Pin No.	Signal Name
1	EXDIN0	14	EXDIN1
2	EXDIN2	15	EXDIN3
3	EXDIN4	16	EXDIN5
4	EXDIN6	17	EXDIN7
5	ISO_ECOM	18	ISO_PCOM
6	ISO_GND	19	EXDOUT0
7	EXDOUT1	20	EXDOUT2
8	EXDOUT3	21	EXDOUT5
9	EXDOUT5	22	EXDOUT6
10	EXDOUT7	23	Х
11	Х	24	Х
12	DI_INOUT3	25	Х
13	Х		

2- Port CANBus with isolation EACWLST-233

To install EACWLST-233 module:

- 4. Follow the procedure described in <u>Chapter 2, "Expansion Module Installation"</u> to install EACWLST-233 module.
- 5. Connect two USB cables. One end to EACWLST-233 board and another end to EAC Mini motherboard.
- 6. Finish module installation.

USB Cable Connection Diagram:



CANBus EACWLST-234

To install EACWSLT-234 module:

- Follow the procedure described in <u>Chapter 2, "Expansion Module Installation"</u> to install EACWSLT-234 module.
- 2. Connect two USB cables. One end to EACWSLT-234 board and another end to EAC Mini motherboard.
- 3. Finish module installation.

USB Cable Connection Diagram:

EAC Mini Motherboard



EACWLST-234 Board (U2CANBUS)



EACWLST-236 Board

2-port Giga-LAN EACWLST-236

To install EACWSLT-236 module:

- 1. Follow the procedure described in <u>Chapter 2, "Expansion Module Installation"</u> to install EACWSLT-236 module.
- 2. Connect two USB cables. One end to EACWSLT-236 board and another end to EAC Mini motherboard.
- 3. Finish module installation.

USB Cable Connection Diagram:

EAC Mini Motherboard



4G Module EACWSLT-222 & EACWSLT-237

To install EACWSLT-222 module:

- 4. Follow the procedure described in <u>Chapter 2, "Expansion Module Installation"</u> to install EACWSLT-222 module.
- 5. Connect two USB cables. One end to EACWSLT-222 board and another end to EAC Mini motherboard.
- 6. Finish module installation.

USB Cable Connection Diagram:



2-Port RS232/422/485 with isolation EACWLST-235 & EACWLST-231

To install EACWLST-235 module:

- 1. Follow the procedure described in <u>Chapter 2, "Expansion Module Installation"</u> to install EACWLST-235 module.
- 2. Connect one end of the USB cable to the EACWLST-235 board and another end to the EAC Mini motherboard.
- 3. Adjust jumper settings if needed.
- 4. Finish module installation.

USB Cable Connection Diagram:



Jumper Settings:

JP1, JP5, JP9: RS232/RS422/RS485 Selector

	RS	232	_		RS4	RS422			RS485		
1	0	0	2	1	0	0	2	1	0	0	2
3	0	0	4	3	0	0	4	3	0	0	4
5	0	0	6	5	0	0	6	5	0	0	6

JP2, JP6, JP10: RS232/RS422/RS485 Selector

RS232 R					S42	22/	48	5	
1	0	0	0	2	1	0	0	0	3
4	0	0	0	6	4	0	0	0	6
7	0	0	0	9	7	0	0	0	9
10	0	0	0	12	10	0	0	0	12

JP3/JP4, JP7/JP8, JP11/JP12: RS422/RS485 120-ohm Selector



Jumper	120 ohms
1-2	V
2-3	Х

Notice: Full loading only for three USB ports.

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