

IE32 3.5" SBC

3.5" Form Factor SBC with Intel® Celeron® N6210 Processor (1.5M Cache, up to 2.60 GHz), HDMI, eDP, LVDS, USB 3.2 Gen2 x1, SATA III, and M.2 Interface V100



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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Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. (Standard is one year, extended warranty will need to discuss with our sales representatives. If the customer discovers a defect, we will, at its option, repair or replace the defective product at no charge to the customer, provided 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 1W19Axxxxxx means October of year 2019.

Packing List

Before using this Motherboard, please make sure that all the items listed below are present in your package:

- IE32 3.5" SBC
- User Manual & Driver CD

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Customer Service

We provide a service guide as below for any problem by the following steps: First, contact your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You need to prepare the following information before you call:

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Detailed problem description
- 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. Please do not hesitate to call or e-mail us.

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.

Safety Precautions



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 and Warranty

- 1. Please read these safety instructions carefully.
- 2. Please keep this user manual for later reference.
- 3. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- 4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- 7. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 8. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 9. All cautions and warnings on the equipment should be noted.
- 10. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- 11. If any of the following situations arises, get the equipment checked by service personnel:
 - A. The power cord or plug is damaged.
 - B. Liquid has penetrated into the equipment.
 - C. The equipment has been exposed to moisture.
 - D. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - E. The equipment has been dropped and damaged.
 - F. The equipment has obvious signs of breakage.

About This User Manual

This User Manual provides information about using the IE32 3.5" SBC. The documentation set for the IE32 3.5" SBC provides information for specific user needs, and includes:

• **IE32 3.5" SBC User Manual** – contains detailed description on how to use the motherboard, its components and features.

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NOTE:

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

Chapter 1: General Information

This chapter includes the IE32 3.5" SBC background information.

- 1.1 Introduction
- 1.2 Features
- 1.3 Motherboard Specifications
- 1.4 Functional Description
- 1.5 Physical Description

1.1 Introduction

Thank you for choosing the IE32 3.5" SBC. This motherboard can be integrated with Intel® Celeron® Elkhart Lake N6210 Processor, up to 2.6GHz, which offers a high performance computing platform with low power consumption. The IE32 3.5" SBC supports 260-pin DDR4-3200 non-ECC SO-DIMM RAM, up to 16 GB.

There is an advanced full set of I/O ports including 2 x SATA III, 4 x COM, 2 x USB 3.2 Gen2 x1 (10Gbps), 4 x USB 2.0. The motherboard is designed in 3.5" form factor and measures 146mm x 102mm.

Abundant I/O connectors and expandability makes the IE32 3.5" SBC to be the right fit in the majority of industrial computer applications such as machine vision and control, gaming, POS, KIOSK systems, industrial automation, and others. Powerful processor in 3.5" form-factor meets the demanding performance requirements of modern industrial applications.

1.2 Features

IE32 3.5" SBC features:

- 3.5" Form Factor (146mm x 102mm)
- Intel® Celeron® Elkhart Lake N6210 Processor
- One DDR4-3200 SO-DIMM RAM
- 2 x Intel Gigabit Ethernet
- 2 x SATA III, 4 x COM, 2 x USB 3.2 Gen2 x1, 4 x USB 2.0
- 1 x M.2 2242 B-Key SSD, up to 512GB
- 2 x SATA III for 2.5" SSD/HDD, up to 1TB (Optional) (SATA2 is only available when M.2 SATA is not in use)

1.3 Motherboard Specifications

	Model Name					
	IE32 3.5" SBC					
CDU		Intel® Celeron® Elkhart Lake N6210 Processor				
	CPU	(1.5M Cache, up to 2.60 GHz)				
		260 pin DDR4-3200 non-ECC SO-DIMM RAM				
	System Memory	(max to 16 GB)				
		1 x M.2 2242 B-key SSD up to 512GB				
System	Storage	2 x SATA III for 2.5" SSD/HDD up to 1TB (Optional)				
Specifications		(SATA2 is only available when M.2 SATA is not in use)				
	BIOS	Insyde H20 BIOS				
	Graphic Controller	Intel® UHD Graphics				
	Graphic	HDMI Mode:HDMI 2.0b/ 4096x2160@ 60Hz				
	Resolution	eDP Mode: eDP 1.3/4096x2160@ 60Hz				
Display Specifications	Audio Codec	Realtek HD Audio Codec				
Audio Interface		Mic-in / Line-out				
Audio	Ethernet Controller	Intel Gigabit-LAN Controller x 2				
	Ethernet	Standard IEEE 802.3 Ethernet interface for 2500BASE-T,				
	Interface	1000BASE-T, 100BASE-TX, and 10BASE-TE applications				
		2 x RJ-45				
Ethernet		1 x RS-232/RS422/RS485				
	Rear I/O	2 x USB 3.2 Gen 2 x1 (10Gbps)				
		1 x HDMI 2.0b (Optional)				
		1 x DC-in Power Jack (+12V)				
		1 x eDP / 30-pin(2x15) DF-13 connector				
		1 x LVDS / 40-pin(2x20) DF-13 connector				
		2 x SATA III connector				
		1 x SATA Power connector				
I/O Ports Specification		4 x USB 2.0				
	Internal I/O	1 x Digital I/O(12-bit GPIO) / 14-pin(2x7)				
		1 x Power-input / 6-pin				
		1 x +12V for external power(Yellow) / 2-pin				
		1 x +5V for external power(Red) / 2-pin				
		1 x +3.3V for external power(Blue) / 2-pin				
		1 x Fan / 3-pin				
		1 x Brightness control / 3-pin				

		1 x VR/Software brightness switch jumper/ 3-pin		
		1 x PWM/DA brightness switch jumper / 3-pin		
		1 x 3.3V/5V PWM Level switch jumper / 3-pin		
		1 x Panel Inverter / 7-pin		
		1 x Front Panel / 10-pin(2x5)		
		2 x Speaker with Amp. / 2-pin		
		1 x Audio (Mic-in / Line-in / Line-out) / 12-pin(2x6)		
		1 x RTC Battery / 2-pin		
		3 x COM Ports / 2x 5 pin Headers		
		2 x SATA III		
	Expansions Slot	(SATA2 is only available when M.2 SATA is not in use.)		
		1 x 8pin(2x4) for SATA power		
Mechanical	Dimensions	146 mm x 102 mm / 5.7 x 4 inches (3.5" Form Factor)		
Specifications	Dimensions			
En incoment	Operating Temp.	0°C ~ 50°C		
Considerations	Storage Temp.	-20°C ~ 60°C		
	Humidity	10~95% RH@40°C, non-condensing		
	Power			
Power	Requirement	12V 2.5¢ DC-IN Power Jack		
Management	Power			
	Consumption	0.577		
Operating		Windows 11 IoT Enterprise (Optional)		
System	OS	Windows 10 IoT Enterprise (Optional)		
Jystem		Linux Ubuntu 20.04 (Optional)		
Packing List	Standard	Single Board Computer		
	Stanuaru	Manual & Driver CD		

1.4 Functional Description

IE32 3.5" SBC Function block



1.5 Physical Description

IE32 3.5" SBC Board Dimensions



Chapter 2: Hardware Installation

This chapter provides information on how to use jumpers and connectors on the IE32 3.5" SBC. Be cautious while working with these modules. Carefully read the content of this chapter in order to avoid any damages.

- 2.1 Motherboard Components
- 2.2 Memory Module Installation
- 2.3 I/O Equipment Installation
- 2.4 Jumper Settings
- 2.5 Motherboard Connectors

2.1 Motherboard Components

2.1.1 Component Side



2.1.2 Solder Side





2.2 Memory Module (SO-DIMM) Installation

The IE32 3.5" SBC has two 260-pin SODIMM slot. The socket supports DDR4.

When installing the memory unit, please follow the steps below:

- Firmly insert the SO-DIMM at an angle of about 30-degree into the slot. Align the SO-DIMM with the slot until it is fully inserted. The notch on the SO-DIMM should match the break on the slot.
- 2. Press downwards on SO-DIMM until the retaining clips at both ends fully snap closed and the SO-DIMM is properly seated.





CAUTION

The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the development board and the SO-DIMM if the SO-DIMM is forced into the slot at the incorrect orientation.

2.3 I/O Equipment Installation

2.3.1 Power Input 12V DC in

The IE32 3.5" SBC allows plugging 12V DC-IN jack on the board without another power module converter under power consumption by Intel® Celeron® Processor N series.

2.3.2 Serial COM Port

Three COM Port Pin Headers are build in the IE32 3.5" SBC. Optional COM ports support RS-422/485.

*When an optional touch-screen is ordered with PPC, serial COM port can connect to a serial or an optional touch-screen.

2.3.3 HDMI

The IE32 3.5" SBC has one HDMI port that can be connected to an external LCD monitor. Use HDMI cable to connect to an external LCD monitor, and connect the power cable to the outlet. The HDMI connector is a standard 19-pin HDMI connector.

2.3.4 Ethernet Interface

The IE32 3.5" SBC is equipped with Intel Gigabit-LAN Controller which is fully compliant with the PCIe Ethernet protocol compatible. It is supported by major network operating systems. The Ethernet ports provide two standard RJ-45 jacks.

2.3.5 USB Port

Six USB devices (four with pin headers) may be connected to the system though an adapter cable. Various adapters may come with USB ports. USB usually connect the external system to the system. The USB ports support hot plug-in connection. Whatever, you should install the device driver before you use the device.

2.3.6 Audio

The Audio is provided by a Realtek HD Audio Codec supporting digital audio outputs. The audio interface includes Mic-in / Line-in / Line-out.

2.4 Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.



NOTE:

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

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





CAUTION

To avoid damaging the module, always turn off the power supply before setting jumpers or clearing CMOS.

Jumpers		
Label	Function	Note
JP1	Backlight Power Voltage Select	1x3 header, pitch 2.0mm
JP2	PWM/DC Mode Select	1x3 header, pitch 2.0mm
JP3	Panel Power Voltage Select	2x3 header, pitch 2.54mm
JP4	Brightness PWM Control Select	1x3 header, pitch 2.0mm
JP5	Clear CMOS	1x3 header, pitch 2.0mm
JP6	Clear RTC	1x3 header, pitch 2.0mm

2.4.1 JP1: Backlight Power Voltage Select



Pin №	Name
1-2 (Default)	+5V
2-3	+12V

2.4.2 JP2: PWM/DC Mode Select



Pin №	Name
1-2(Default)	PWM Mode
2-3	DC Mode

2.4.3 JP3: Panel Power Voltage Select

	3.3	/olts			5V	olts	-		12	/olts	-
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	•	6

Pin №	Name
1-2 (Default)	+3.3V
3-4	+5V
5-6	+12V

2.4.4 JP4: Brightness PWM Control Select





Pin №	Name
1-2	Chipset Control
2-3(Default)	VR Control

2.4.5 JP5: CLR CMOS Select



Pin №	Name
1-2(Default)	Normal
2-3	Clear CMOS

2.4.6 JP6: CLR RTC Select



Pin №	Name
1-2(Default)	Normal
2-3	Clear CMOS

2.5 Connector Description

2.5.1 Connector List

Label	Function	Note
CON1	Backlight Power/Control	1 x 7 wafer, pitch 2.0 mm
BT1	RTC Battery	2P wafer, pitch 1.25 mm
COM1	D-SUB9	
COM2.3.4	COM Port	2 x 5 header, pitch 2.0mm
DCJACK1	Power Jack	3p 2.5-5.5ψ DC Jack
DCJACK2	Power Jack	1 x 6 wafer, pitch 2.5 mm
DIDO1	Digital I/O Header	2 x 7 wafer, pitch 2.0mm
CN3	eDP Connector	2 x 15 wafer, pitch 1.25mm
CPU_FAN1	CPU FAN	3P 2.54mm DIP180°
HDMI1	HDMI	HDMI port
LVDS1	LVDS Connector	2 x 20 wafer, pitch 1.25mm
LAN1	RJ45	
LAN2	RJ45	
LAN_LED1	LAN LED For F65EAC BOX	1x4 wafer, pitch 1.0mm
CN6	M.2 Key B SSD	NGFF KEY B Slot
CN7	M.2 Key E WIFI/BT	NGFF KEY E Slot
CN1	Front Panel	2 x 5 wafer, pitch 2.0mm
SATA1,SATA2	SATA Connector	
SATA_PWR1	SATA Power	2 x 4 wafer, pitch 2.0mm
AUDIO1	Audio	2 x 6 wafer, pitch 2.0mm
CN5	Left Speaker	1 x 2 wafer, pitch 2.0 mm
CN4	Right Speaker	1 x 2 wafer, pitch 2.0 mm
USB1	USB3.2 Connector * 2	UEA1112C-8HK1-4H
USB2/ USB3	USB 2.0 Wafer	2 x 4 wafer, pitch 2.0 mm
CN2	Backlight Control VR	1 x 3 wafer, pitch 2.0mm
12V1	Power Output Wafer 12V	1x2 wafer, pitch 2.0 mm. Yellow color
5V1	Power Output Wafer 5V	1x2 wafer, pitch 2.0 mm. Red color
3.3V1	Power Output Wafer 3.3V	1x2 wafer, pitch 2.0 mm. Blue color

2.5.2 Connector Description

2.5.2.1 CON1: Backlight Power/Control



Pin №	Signal Name
1	BKL_PWR
2	BKL_PWR
3	BKL_PWR
4	GND
5	BRIGHT
6	GND
7	BLON_5V

Note: Please refer to INV_VCC1 *settings to select Power Rating.*

2.5.2.2 BT1: RTC Battery



Pin №	Signal Name	Pin №	Signal Name
1	GND	2	+.3.3V



2.5.2.3 COM1: D-SUB9



Pin №	RS232	RS422	RS485
1	DCD	TxD-	D-
2	RXD	TxD+	D+
3	TXD	RxD+	NC
4	DTR	RxD-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

Note: Refer to <u>BIOS</u> to change serial COM port settings.

2.5.2.4 COM2/COM3/COM4: Internal RS232 COM

The serial port which is Winbond I/O support is RS232 only.

Pin №	Signal Name	Pin №	Signal Name
1	FK_NDCD2	2	FK_NDSR2
3	FK_NSIN2	4	FK_NRTS2
5	FK_NSOUT2	6	FK_NCTS2
7	FK_NDTR2	8	FK_NRI2
9	GND	10	COM2_5V



Pin №	Signal Name	Pin №	Signal Name
1	FK_NDCD3	2	FK_NDSR3
3	FK_NSIN3	4	FK_NRTS3
5	FK_NSOUT3	6	FK_NCTS3
7	FK_NDTR3	8	USB
9	GND	10	COM3_5V

Pin №	Signal Name	Pin №	Signal Name
1	FK_NDCD4	2	FK_NDSR4
3	FK_NSIN4	4	FK_NRTS4
5	FK_NSOUT4	6	FK_NCTS4
7	FK_NDTR4	8	FK_NRI4
9	GND	10	COM4_5V

2.5.2.5 DCJACK1: Power Jack



DCJACK1

PinSignal Name1DC_IN2NC3DC_GND

2.5.2.6 DCJACK2: Power Jack



Pin	Signal Name
1	DC_IN
2	DC_IN
3	DC_IN
4	DC_GND
5	DC_GND
6	DC_GND

DCJACK3

2.5.2.7 DIDO1: Digital I/O Header

1	2
3	4
5	6
7	8
9	10

Pin №	Signal Name	Pin №	Signal Name
1	GND	2	DIO_5V
3	DOUT3	4	DOUT1
5	DOUT2	6	DOUT0
7	DINT3	8	DINT1
9	DINT2	10	DINT0

DIDO1

2.5.2.8 CN3: eDP Connector



Pin №	Signal Name	Pin №	Signal Name
1	EMB_AUXN	2	SMB_DATA_MAIN
3	EMB_AUXP	4	SMB_DATA_CLK
5	GND	6	GND
7	DP_TXN3_C	8	+VCC_EDP_BKLT
9	DP_TXP3_C	10	+VCC_EDP_BKLT
11	GND	12	+VCC_EDP_BKLT
13	DP_TXN2_C	14	GND
15	DP_TXP2_C	16	GND
17	GND	18	GND
19	DP_TXN1_C	20	GND
21	DP_TXP1_C	22	LCDVDD
23	GND-	24	LCDVDD
25	DP_TXN0_C	26	LCDVDD
27	DP_TXP0_C	28	LCDVDD
29	GND	30	+VCC_EDP_BKLT

2.5.2.9 CPU_FAN1: CPU FAN



Pin №	Signal Name	Pin №	Signal Name
1	GND	2	+12V
3	SENSE		

2.5.2.10 HDMI1: HDMI Port Connector

Use HDMI connector to connect the IE32 3.5" SBC to an external monitor.



HDMI

Pin №	Signal Name	Pin №	Signal Name
1	TMDS_DATA2+	2	GND
3	TMDS_DATA2-	4	TMDS_DATA1+
5	GND	6	TMDS_DATA1-
7	TMDS_DATA0+	8	GND
9	TMDS_DATA0-	10	TMDS_CLOCK+
11	GND	12	TMDS_CLOCK-
13	CEC	14	NC
15	DDC_CLOCK	16	DDC_DATA
17	GND	18	5V
19	Hot Plug Detect		

2.5.2.11 LVDS1: LVDS Connector



Pin №	Signal Name	Pin №	Signal Name	
1	LCDVDD	2	LVDS0_TX0_N	
3	LCDVDD	4	LVDS0_TX0_P	
5	LCDVDD	6	LVDS0_TX1_N	
7	GND	8	LVDS0_TX1_P	
9	GND	10	LVDS0_TX2_N	
11	GND	12	LVDS0_TX2_P	
13	GND	14	LVDS0_CLK_N	
15	GND	16	LVDS0_CLK_P	
17	GND	18	LVDS0_TX3_N	
19	GND	20	LVDS0_TX3_P	
21	GND	22	LVDS1_TX0_N	
23	GND	24	LVDS1_TX0_P	
25	GND	26	LVDS1_TX1_N	
27	GND	28	LVDS1_TX1_P	
29	GND	30	LVDS1_TX2_N	
31	GND	32	LVDS1_TX2_P	
33	GND	34	LVDS1_CLK_N	
35	GND	36	LVDS1_CLK_P	
37	GND	38	LVDS1_TX3_N	
39	GND	40	LVDS1_TX3_P	

CN12

2.5.2.12 LAN1/LAN2: RJ45

The IE32 3.5" SBC has two Ethernet connectors located on the front. Ethernet ports provide a standard RJ45 jack connector with LED indicators on the front side to show its Active/ Link status and Speed status.



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

2.5.2.13 LAN_LED1: LAN LED

1	2
3	4
5	6
7	8

Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	+3.3V
3	GND	4	SATA_LED#
5	PWRBTN_N	6	GND
7	ADJ+	8	RSTBTN
9	ADJ-	10	+5V

LAN_LED1

2.5.2.14 CN6:NGFF_KEY B SSD

The IE32 3.5" SBC has NGFF M.2 connector for SATAIII.

2.5.2.15 CN7:NGFF_KEY_E WIFI/BT

The IE32 3.5" SBC has NGFF M.2 Key E connector for WIFI/BT.

2.5.2.16 CN1: Front Panel

2	1
4	3
6	5
8	7
10	9
10	9

PANEL 1

Pin №	Signal Name	Pin №	Signal Name
1	PW_LED+	2	HD_LED+
3	GND	4	HD_LED-
5	PW_BT	6	GND
7	BRI+	8	RST-BT
9	BRI-	10	5VSB

2.5.2.17 SATA1, SATA2: SATA Connector



Pin	Signal Name		
1	GND		
2	SATA_TX-		
3	SATA_TX+		
4	GND		
5	SATA_RX-		
6	SATA_RX+		
7	GND		

2.5.2.18 CN5, CN4 :Left: SPK_L & SPK_R



LEFT



RIGHT

2.5.2.19 USB1:USB3.2 Connector * 2

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<u>Jeeee</u> (

USB1

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

2.5.2.20 USB2/USB3: USB 2.0 Wafer

Pin №	Signal Name	Pin №	Signal Name
1	USB1_PWR	2	USB2_PWR
3	USB1_D-	4	USB2_D-
5	USB1_D+	6	USB2_D+
7	GND	8	GND

2.5.2.21 CN2: VR Knob

Pin	Signal Name	
1	GND	
2	+12V	
3	Sense Pin	

2.5.2.22 Power Output Wafer

12V1 (Yellow Wafer)

Pin	Signal Name	
1	+12V	
2	GND	

5V1 (Red Wafer)

Pin	Signal Name	
1	+5V	
2	GND	

3V1 (Blue Wafer)

Pin	Signal Name	
1	+3.3V	
2	GND	

Chapter 3: Insyde H20 BIOS Setup

This chapter describes the different settings available in the INSYDE BIOS that comes with the board. This chapter offers information on the Award BIOS installation utility.

- 3.1 How and When to Use BIOS Setup
- 3.2 BIOS Functions
- 3.3 Using Recovery Wizard to Restore Computer
- 3.4 How to Enable Watchdog

3.1 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:

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

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

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

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



NOTE:

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

3.2 BIOS Functions

3.2.1 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.



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.	Date and time changes.	Set the time in the format: [hh/mm/ss]
System Date	This is current date setting.	Date and time changes.	Set the date in the format [mm/dd/yyyy];

3.2.2 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.

Advanced	In	sydeH20 Setup Utility	Rev. 5.0
Advanced PCPU Configuration PPower & Performance Psystem Agent (SA) Configurati PCH-IO Configuration PCH-FW Configuration	on		CPU Configuration Parameters
F1 Help Esc Exit	1/↓ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► <u>SubHenu</u>	F9 Setup Defaults F10 Save and Exit

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

3.2.2.1 CPU Configuration

	InsydeH20 Setup Utility	Rev. 5.0
Advanced		
CPU Configuration Type ID Speed VHX SHX/TXT Intel (VHX) Virtualization Technology Active Processor Cores AES	Intel(R) Celeron(R) N6211 @ 1.20GHz 0x90661 1200 HHz Supported Not Supported <enabled> <all> <enabled></enabled></all></enabled>	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
F1 Help 1/4 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
Intel (VMX) Virtualization Technology	Enable or disable Intel Virtualization Technology.	Enable/Disable	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool 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

3.2.2.2 F81968 Configuration

	Insyde	H20 Setup Utility	Rev. 5.0
Advanced			
F81968 Chip 1 I/O Configuration Port PUART Port 1 Configuration PUART Port 2 Configuration PUART Port 3 Configuration	4Eh/4Fh		UART Configuration
HUART Port 4 Configuration Hardware Monitor Watch-Dog Timer +GP10 Group 0 Configuration +GP10 Group 5 Configuration +GP10 Group 7 Configuration	<always off=""></always>		
FI Help Esc Exit	+/+ Select Item +/+ Select Item	F57F6 Change Values Enter Select ► SubMenu	FST Setup Defaults F10 Save and Exit

3.2.2.3 GPIO Configuration

	Insy	deH20 Setup Utility	Rev. 5.0
Advanced			
GP1000	<enabled></enabled>		
Direction	<innut></innut>		
GP1001	<enab led=""></enab>		
Direction	<input/>		
001000			
GP1002	<enabled></enabled>		
Direction	Cinputz		
GP1003	<enabled></enabled>		
Direction	<input/>		
GP1004	<enab led=""></enab>		
Direction	<input/>		
F1 Help	î/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select 🕨 SubMenu	F10 Save and Exit

3.2.2.4 Hardware Monitor

	In	sydeH20 Setup Utility	Rev. 5.0
Advanced			
Hardware Monitor			0 : Stop updating 1-15: Update sensors data per specified
Refresh Cycle	[1]		second
Voltage	2,000,11		
SVUU Voore	3.200 V 1.616 V		
V12S	12, 232 V		
V5s	5.080 V		
3VSB	3.280 V		
VBAT	3.072 V		
5VSB	5.160 V		
Temperature			
CPU Temperature	31.0 °C/	87.8 [°] F	
PCH Temperature	31.0 °C/	87.8 °F	
Fan Speed			
CPU Fan Speed	N/A		
	All Coloret Item		F0 Cotur Dofewite
Fi neip Esc Evit	+/+ Select Item	FOTEC Change Values	F9 Setup Defaults
LOL LATI			THO SAYE AND EXIL

3.2.2.5 PCH-IO Configuration

	Insyde	H2O Setup Utility	Rev. 5.0
Advanced			
PCH-10 Configuration			PCI Express Configuration settings
 ▶PCI Express Configuration ▶SATA Configuration ▶USB Configuration 			
State After G3	<\$5 State>		
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults
ESCEXIT	Select Item	Enter Select 🕨 Subhenu	FIU Save and EXIT
BIOS Setting	Description	Setting Option	Effect
-------------------	--	-------------------	----------
PCI Express	PCI Express clock gating enable/disable for	Entor	Opens
Configuration	each root port.	Enter	sub-menu
SATA And RST	Enchle / Dischle CATA device	Entor	Opens
Configuratuion	uratuion		sub-menu
	Selectively enable/ disable the corresponding		Onono
USB Configuration	USB port from reporting a Device Connection to Enter		
	the controller.		sub-menu
State After C2	System power state estting	S0 State	
Sidle Allel GS	System power state setting	S5 State	

3.2.2.6 PCI Express Configuration

	InsydeH20) Setup Utility	Rev. 5.0
Advanced			
PCI Express Configuration			Enable/Disable PCH PCI Express Clock Gating (Power Management) For Each Root
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) PCIe RP#4 (PCIe 0 Single-VC) ▶PCIe RP#5 (PCIe 1 Multi-VC) PCIe RP#6 (PCIe 2 Multi-VC) ▶PCIe RP#7 (PCIe 3 Multi-VC)	Lane configured a Lane configured a Lane configured a	15 USB/SATA/UFS 15 USB/SATA/UFS 15 USB/SATA/UFS	
▶PCIE clocks			
F1 Help Esc Exit	1/4 Select Item	F5/F6 Change Values	F9 Setup Defaults F10 Save and Evit

3.2.2.7 SATA and RST Configuration

InsydeH20 Setup Utility R				
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	<enabled> Unknown Empty <enabled> SUPPORTED IH2S3134N-0646 (64</enabled></enabled>	.068)		
F1 Help	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults	
Esc Exit	F/→ Select Item	Enter Select ► SubMenu	FIO Save and Exit	

3.2.2.8 USB Configuration

	Insyde	H2O Setup Utility	Rev. 5.0
Advanced			
USB Configuration			Selectively Enable/Disable the corresponding USB port from reporting a
USB Port Disable Override	<d i="" le="" sab=""></d>		Device Connection to the controller.
F1 Help Esc Exit	t/∔ Select Item +/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

3.2.2.9 ME Firmware Configuration

	InsydeH20	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 Mode Consumer SKU 0x90000255 0x38850106		When Disabled ME will be put into ME Temporarily Disabled Mode.
HE State HE Unconfig on RTC Clear	<enabled> <enabled></enabled></enabled>		
F1 Help	↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select 🕨 SubMenu	F10 Save and Exit

3.2.2.10 Power & Performance

	In	sydeH20 Setup Utility	Rev. 5.0
Advanced			
Power & Performance			CPU - Power Management Control Options
►CPU - Power Management Contr	ol		
			**
F1 Help	↑/↓ 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 – Power	Enter	Opene sub menu
Management Control	Management parameters		

	li internet interne	nsydeH20 Setup Utility	Rev. 5.0
Advanced			
CPU - Power Management Contro	П		Select the performance state that the BIOS will set starting from reset vector.
Boot performance mode Intel(R) SpeedStep(tm) Intel(R) Speed Shift Technolo Turbo Hode	<tax non-tr<br=""><enabled> Jgy <enabled> <enabled> <enabled></enabled></enabled></enabled></enabled></tax>	urbo Performance>	
		K	
F1 Help	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 SpeedStep (ta)	Configure Intel SpeedStep (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

BIOS Setting	Description	Setting Option	Effect
			Enable/ Disable processor
			Turbo Mode (requires
Turbo Modo	Enable or disable	Enabled/Disabled	EMTTM enabled too). Auto
	Turbo Mode	Ellabled/ Disabled	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 Distate	Configure Custom		
Table	P-state Table	Enter	Enters sub-menu
	parameters		
	Salast the number of		Set the number of custom
-Number of P-states	custom P-states.	[Number]	P-states. At least 2 states
			must be present

3.2.2.7 System Agent (SA) Configuration

InsydeH20 Setup Utility Advanced			
System Agent (SA) Configuration	1		Graphics Configuration
VT-d	Supported		
▶Graphics Configuration VT-d	<enab led=""></enab>		
F1 Help Esc Evit	1/1 Select Item	F5/F6 Change Values	F9 Setup Defaults

BIOS Setting	Description	Setting Option	Effect
Graphics	Configure Graphics Configuration	Entor	Opene cub monu
Configuration	parameters	Enter	Opens sub-menu
	Intel® Virtualization Technology for	Enabled	V/t d conchility
vi-a	Directed I/O	Disabled	VI-0 capability

3.2.2.7.1 Graphics Configuration

Advanced	Insyde	H2O Setup Utility	Rev. 5.0
Graphics Configuration			Graphics turbo IMON current values supported (14-31)
Graphics Turbo IMON Current	[31]		
Aperture Size PSHI SUPPORT DVHT Pre-Allocated DVHT Total Gfx Hem	<256HB> <d i="" led="" sab=""> <60H> <256H></d>		
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
Internal Graphics	Internal Graphics settings	Auto Enabled Disabled	Keep IGFX enabled based on the setup options
Aperture Size	Select the aperture size	128MB 256MB 512MB 1024MB 2048 MB	Select the aperture size Note: Above 4MB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature please disable CSM port

BIOS Setting	Description	Setting Option	Effect
DVMT Pre-Allocated	Select DVMT Pre-Allocated	0M~60M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphic Memory size used by Internal Graphic Device
DVMT Total Gfx Mem	Select DVMT Total Gfx Mem	256M 128M MAX	Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphic Device
Gfx Low Power Mode	Select Gfx Low Power Mode	Enabled/ Disabled	This option is applicable for SFF only

3.2.2.7.2 Vt-d

	InsydeH20 Setup U	tility	Rev. 5.0
Advanced			
System Agent (SA) Configuration		Graphics C	onfiguration
VT-d	Supported		
≻Graphics Configuration VT-d	<enabled></enabled>		
F1 Help 1/4 Selec:	: Item F5/F6	Change Values F9 Select ▶ SubMenuE10	Setup Defaults Save and Exit

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

<u>3.2.3 Boot</u>

	InsydeH20	Setup Utility	Rev.	5.0
	Boot Boot			
Boot Type Order USB BEV Hard Disk Drive Others ▶Hard Disk Drive ▶USB	Boot H20	Setup Utility	Rev.	5.0
			70 Colum Defaults	
Esc Exit	+/→ Select Item +/→ Select Item	F57F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit	

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

3.2.3.1 Boot Type Order

	Insyd	eH20 Setup Utility	Rev. 5.0
Main Advanced Security Pow	er Boot Exit		
Boot Type Quick Boot Quict Boot Network Stack PXE Boot capability ACPI Selection USB Boot EFI Device First UEFI OS Fast Boot USB Hot Key Support Timeout Automatic Failover	 <uef1 boot="" li="" ty;<=""> <enabled></enabled> <disabled></disabled> <disabled></disabled> <disabled></disabled> <acpi6, 1=""></acpi6,> <enabled></enabled> </uef1>	pe>	Select boot type to Dual type, Legacy type or UEFI type
▶Boot Type Order			
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
Hard Disk Type	Hard Disk Type configuration	Enter	Opens Sub-menu
Others	Other configuration	Enter	Opens Sub-menu

3.2.4 Security

	Ins	sydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Powe	er Boot Exit		
Current TPM Device TPM State TPM Active PCR Hash Algorithm TPM Hardware Supported Hash Algo BIOS Supported Hash Algorithm TrEE Protocol Version TPM Availability TPM Operation Clear TPM Supervisor Password User Password Set Supervisor Password Set User Password Set All Hdd Password Set All Master Hdd Password FStorage Password Setup Page	<tph (<br="" 2.0="">All Hierard SHA256 Jorithm SHA1, SHA25 SHA1, SHA25 <1.1> <available <no operat<br="">[] Not Instal Not Instal</no></available </tph>	DTPHD> shies Enabled, Owned 56, SHA384 56, SHA384, SHA512, SH3_256 ion> led led	TrEE 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 Drotocol Varsian	Choose TrEE Protocol	1.0	TrEE Protovol Version:
	Version	1.1	1.0 or 1.1
	TPM Availability	Available	When hidden don't
TPIM Availability	configuration	Hidden	exposes TPM to 0
	TDM Operation		Select one of the
TPM Operation	configuration	[]	supported operation to
			change TPM2state
Clear TPM	Clear TPM	[1]	Select to Clear TPM
	configuration		
		Enter New password	Install or Change the
Set Supervisor Password	Set Supervisor		password and the length
			of password must be
	Fassword		greater than one
			character

3.2.5 Power

	InsydeH20	Setup Utility	Rev. 5.0
Main Advanced Security Power	r Boot Exit		
Main Advanced Security Power Wake on PME Auto Wake on S5	InsydeH20 Boot Exit <enabled> <disabled></disabled></enabled>	Setup Utility	Rev. 5.0 Determines the action taken when the system power is off and a PCI Power Hanagement Enable wake up event occurs.
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		
	ACDI S2 configuration	Disabled	Enable/ Disable ACPI		
ACPI 53	ACPT 55 conliguration	Enabled	S1/S3 Sleep state		
	Auto Make on SE	Disabled	Auto Wake on S5, by		
Auto Wake on S5	Auto wake on 55	By Every Day	Day or Month or fixed		
	configuration	By Every Month	time of every day		

<u>3.2.6 Exit</u>

		InsydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Po	wer Boot Exit		
			Exit system setup and save your changes.
Exit Saving Changes			
Save Change Without Exit			
Exit Discarding Changes			
Load Optimal Defaults			
Load Custom Defaults			
Save Custom Defaults			
Discard Changes			
Fi Help	174 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Item	Enter Select 🕨 SubMenu	FIO Save and Exit

3.3 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 any expansion 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 your system. WARNING! The process will clear all of your data.
If you do not want to restore your system please press " Quit " to reboot. 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. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete.
- 6. After the recovery process to complete, please restart your computer manually.

3.4 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 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 **triangle button** to show hidden icons.
- 2. lick ^W icon to open Watchdog utility.



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



Setting	Description
Watchdog Countdown	The system automaticity restarts when this countdown
Time	time reaches zero. Default: 10 min
Pariadiaally Food Time	To set a cycle time to automatically reset watchdog timer.
	Default: 9 min
Enable / Disable	Enable or disable watchdog. Default: Enable

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.

Chapter 4: Driver Installation

This chapter contains driver installation guide. Follow the instructions below to complete the installation. You will quickly complete the installation. This chapter provides instructions on how to install drivers on the IE32 3.5" SBC.

- 4.1 Chipset Driver Installation
- 4.2 Graphic Driver Installation
- 4.3 Management Engine (ME)
- 4.4 SST Driver Installation
- 4.5 Audio Driver Installation
- 4.6 Ethernet Driver Installation
- 4.7 Watchdog Driver Installation
- 4.8 Digital IO Driver Installation
- 4.9 Resistive Touch Driver for Windows 11 System

4.1 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.

Intel(R) Chipset Device Software	
License Agreement	1
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)	^
 IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load software (including drivers) from this site or any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement, which Intel may modify from time to time following reasonable notice to You. If you do not wish to so agree, do not install or use the Software. Please Also Note: If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV) or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies; If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE 	
AGREEMENT, applies.	~
Back Accept Cancel	

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



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



4.2 Graphic Driver

Follow instructions below to install Graphic driver.

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

📙 i 🕑 📙 🖛 i		Ap	plication To	ols v	vin64_23.20.16.4	1973								- 0	×
File Home	Share	View	Manage												~ 🔞
Pin to Quick Copy access	Daste Paste	<mark>K Cut</mark> ₩ Copy path ₽ Paste shortcut	Move to •	Copy to•	Delete Rena	me New folder	new 🎦 Easy :	item • access •	Properties	Edit	Select all	ne ection			
CI	ipboard			Org	ganize		New		0	pen	Select				
← → • ↑ [> RD	VD (D:) > Driver	r > Graphi	ics > v	vin64_23.20.16.4	1973					~ Õ	Search	n win64_23	.20.16.4973	Q
		Name	^			Date modi	fied	Type		Size					
📌 Quick access		Buick	0.16.4070			1/0/2010 4	20.414	And		224.426	KD.				
E Desktop	*	win64_23.	20.16.4973			1/9/2018 4	38 AM	Applica	tion	324,126	KB				
🕹 Downloads	*														
Documents	*														
E Pictures	*														
IntelNic															
a OneDrive															
💻 This PC															
RDVD (D:)															
Driver															
ight Network															
1 item 1 item se	lected 3	16 MB													
🖬 🔎 🕻	נ	Ø 📒									^	🌄 d	»	4:41 AM 7/2/2018	2

2. Installation window will pop up, select Next.



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

Intel® Installation Framework		-		×
Intel® Graphics Drive	r			
Welcome to the Setup Program			(int	el
This setup program will install the following compone - Intel® Graphics Driver - Intel® Display Audio Driver	ents:			
It is strongly recommended that you exit all program	ns before conti	nuing. Click Nex	t to continu	Je.
Automatically run WinSAT and enable the Windo	ows Aero deskto	op theme (if sup	ported).	
	< Back	Next >	Canc	el
		- Intel® Inst	allation Fra	amework
Intel® Installation Framework		-		×
Intel® Installation Framework	r	-		×
Intel® Installation Framework Intel® Graphics Drive License Agreement	r	_	int	×
Intel® Installation Framework Intel® Graphics Drive License Agreement You must accept all of the terms of the license agree program. Do you accept the terms?	r eement in order	to continue the	cini e setup	×
Intel® Installation Framework Intel® Graphics Drive License Agreement You must accept all of the terms of the license agre program. Do you accept the terms? INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)	r eement in order	to continue the	cint e setup	×
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Intel® Installation Framework

Check the ReadMe file information, select Next to continue.



4. Wait for the driver to be installed.

ntel® Installation Framework	
Intel® Graphics Driver	
Setup Progress	(intel)
Please wait while the following setup operations are performed:	
Creating Process: C: Vrogram Files (x86) (Intel (Intel (R) Processo Installing Driver: Intel(R) Display Audio Version: 10.24.00.01	r Graphics (uninstall (Uninstall Vulka
<	>
	Next >
	— Intel® Installation Framework

5. Select **Next** to continue.



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



4.3 Management Engine (ME)

Follow instructions below to install Management Engine (ME).

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

III III File Home	Share	View	Application T Manage	ools	ME Software In	taller			<u></u>		× ^ (2)
Pin to Quick Copy access Cli	Paste	Cut Copy path Paste shoi	tcut Co	ove to 🔹 py to 🔹 Orga	X Delete ▾ ☞∏ Rename mize	New folder New	Propert	Den • Edit History Open	Sele	ct all ct none rt selectio elect	'n
← → • ↑	« Int	tel Manageme	ent Engine Driv	ver(Ka	> ME Softwar	e Installer	~ Ō	Search ME	Software li	nstaller	,p
★ Quick access Desktop	Name	EFWVer.dll			Date modifie	d 1:12	Type Application exte	ens	21 Ki	3	
🕹 Downloads	*	M Setup	ME			11/21/2017 1	1:31	Application		75,094 K	3
Pictures Pictures IntelNic ConeDrive This PC RDVD (D:) Driver	*			Type: J Size: 7: Date m	Application 3.3 MB rodified: 11/21/	2017 11:31 AM					
Network 3 items 1 item se	lected	73.3 MB									

2. Select Next to start the installation.



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

Setup	×
Intel® Management Engine Components License Agreement	
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)	^
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load software (including drivers) from this site or any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement, which Intel may modify from time to time following reasonable notice to You. If you do not wish to so agree, do not install or use the Software.	
Please Also Note: • If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV) or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies; • If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT, applies.	
For OEMs, IHVs and ISVs:	
LICENSE. Subject to the terms of this Agreement, Intel grants to You a nonexclusive,	~
\square I accept the terms in the License Agreement.	
Intel Corporation < Back Next > Can	cel

4. Wait for the driver to be installed.

Setup			
Intel® Management Engine Components Progress		(inte	D
Please wait while the product is being installed.			
Intel Corporation	< Park	Neuts	Canaal

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



4.4 SST Driver

Follow instructions below to install SST driver.

1. Update Drivers > Browse "My computer" for driver software > Next



2. Wait for driver installation to complete.



4.5 Audio Driver

Follow instructions below to install Audio driver.

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



2. Select **Next** to continue.

Realtek High Definition	Audio Driver Setup (4.54) R2.81 gh Definition .	Audio Driver R2.81	-		×
	Realtek High Definition Audio Dri	ver Setup (4.54) R2.81 ×			
		Welcome to the InstallShield Wizard for Realitek High Definition Audio Driver The InstalShield Wizard will instal Realitek High Definition Audio Driver on your computer. To continue, disk Next.			
	InstallSived	< Bad: Next> Cancel			
∎ 2 ⊡	¢ øj 🖪 🗵	∧ 🗊 d))	84 7/2	2 PM	P.

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



4.6 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.



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

License Agreement			
Please read the following license agree	ement carefully.		intel
INTEL SOFTWA IMPORTANT - READ BEFOR	RE LICENSE AGR	EEMENT TALLING OR USIN	• NG.
(collectively, install, or use this solid ("Agreement") until you have carefu By copying, installing, or otherwise the terms of this Agreement. If you do not copy, install, or use the Softw	ware and any as led under this lic ully read the follo using the Softwa do not agree to t ware.	sociated materia ense agreement wing terms and are, you agree to he terms of this a	lls conditions. be bound by Agreement,
(collectively, the "Software") provid ("Agreement") until you have carefu By copying, installing, or otherwise the terms of this Agreement. If you do not copy, install, or use the Softw LICENSES:	ware and any as led under this lic ully read the follo using the Softwa do not agree to t ware.	sociated materia ense agreement wing terms and are, you agree to he terms of this a	lis conditions. be bound by Agreement, ~
(collectively, the "Software") provid ("Agreement") until you have carefu By copying, installing, or otherwise the terms of this Agreement. If you do not copy, install, or use the Softw LICENSES: I accept the terms in the license agreement	ware and any as led under this lic ully read the follo using the Softwa do not agree to t ware.	sociated materia ense agreement wing terms and are, you agree to he terms of this a	IIS conditions. be bound by Agreement, V
 (collectively, the "Software") provid ("Agreement") until you have careful By copying, installing, or otherwise the terms of this Agreement. If you do not copy, install, or use the Softw LICENSES: I accept the terms in the license agreen I do not accept the terms in the license 	ware and any as led under this lic ully read the follo using the Softwa do not agree to t ware. ment agreement	sociated materia ense agreement wing terms and are, you agree to he terms of this a	IIS conditions. be bound by Agreement, v

4. System displays the installed packages, select **Next**.

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

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

🛃 Intel(R) Network Connections Install	Wizard		×
Ready to Install the Program			(intal)
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, dick Back. C	lick Cancel to
	< Back	Install	Cancel

6. When installation is completed, select ${\bf Finish}$ to close the window.

😸 Intel(R) Network Connections Install Wizard	×
Install wizard Completed	(intel)
To access new features, open Device Manager, and view the properties of the network adapters.	
< Back Finish	Cancel

4.7 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.



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



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.

I I I I File Home	Share	Appl view	lication Tools Manage	AP				- 0	× ^ (2
Pin to Quick Copy access Cli	Paste	Cut Copy path Paste shortcut	Move to •	→ X Delete →	New folder New	Propertie	B Open •	Select all Select none Invert selecti Select	on
$\leftarrow \rightarrow \cdot \uparrow$	« D	river > WatchDog	AP V3.0.2(Drive	er V2.0.0.4) > Af	,	5 V	Search AP		م
📌 Quick access	я	Name	AP_3.0.2		Date modifier 3/5/2018 12:5	d IAM	Type Windows Install	Size	KB
Downloads Documents Pictures IntelNic OneDrive This PC RDVD (D:)	4 4								
Driver									
ight Network									
1 item 1 item sel	lected	1.55 MB							

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, ent "Browse".	er 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

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

WatchDog AP Setup	×
JB Watchbog_Ar Setup	
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.	
Advanced Installer	
< Back 🜍 Install Ca	ncel

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



4.8 Digital IO Driver

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

Follow instructions below to install **Digital IO** 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.
| Recycle | Bin F | assMark
teper V2. | | | | | | | eGalaxWork |
|---------|--------|----------------------|---|--|-------------------|-----|----|-------------|----------------------|
| | Best n | Comm
Deskt | nand P
Run a
Open
Pin to
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is adm
file lo
9 Start
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cation | tor | | DemoreSela | eGalaWWork |
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| - | 2 | | ø | | | | | ~ 🔽 do) 📰 🖯 | 10:55 PM
7/3/2018 |

- 3. Open the Driver CD (included in the package) and select Digital IO driver.
- 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.



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



4.9 Resistive Touch Driver for Windows 11 System

Follow the instructions below to install the touch driver.

1. Click setup

(† New - 🔏 🛛) (1) (1)	i	Sort \scriptstyle	•••
← → ~ ↑ 🛅 :	HIDeGalaxTouch_2.13.0	0.14728-forSingleTouch	Dev × C	○ Search HIDeGalaxTouch_2.1
🖌 🖕 Quick access	Name	^	Date modified 7/16/2019 12:11 AM	Type Siz Configuration sett
Desktop	* 🔄 Iconexe		11/17/2008 9:47 PM	lcon
🛓 Downloads	🖈 🗟 ISSetup.dll		8/21/2011 8:08 AM	Application exten
Documents	* 🗋 layout.bin		9/26/2020 2:52 AM	BIN File
Nictures	* 🖻 search		4/13/2003 4:38 AM	AVI File
💼 spreadsheet	💽 setup		9/26/2020 2:52 AM	Application
늘 Storage & USB	🔊 setup		2/18/2017 12:20 AM	Configuration sett
🚞 writing	Setup.inx		11/24/2019 10:19 PM	INX File
	🗋 setup.isn		8/21/2011 9:45 AM	ISN File
	Setup.iss		5/8/2018 4:11 AM	ISS File
📮 This PC	setup		9/6/2018 3:39 AM	Text Document
🛬 Network	🗋 uninstall.iss		9/6/2018 3:06 AM	ISS File
	x HidAuto4P	Dtc	5/25/2020 1·16 AM	Application

2. Click Next to continue







3. Click Yes to add this controller

HIDeGalaxTouch	- [. × .
HIDEGate:Touch ×		
HIDeGeleviT ouch is configuring your new software installation.		
	Q. (1) 12:	21 AM

4. Restart the computer now and finish the setup.

IIDeGalaxTouch	125		×
Install HIDeGalaxTouch			
HIDeSalaxTouch			
InstallShield Wizard Lompiete			
u comprintari na manto a novaming ni no calabari com ra comprinta.			
Yes, I want to restart my computer now.			
No, I will restart my computer later.			
The driver has been installed. To ensure proper operation the computer needs to be restarted.			
		12:23 AN	1 0

Chapter 5: 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. If any problem occurs immediately contact us.

5.1 Drivers

5.2 Software Development Kit (SDK)

5.1 Drivers

The list of drivers available for IE32 3.5" SBC:

ltem	Driver			
1	Chipset Driver			
2	Graphic Driver			
3	ME Driver			
4	Audio Driver			
5	Ethernet Driver			
6	Watchdog Driver/AP			
7	Digital IO Driver/AP			
8	Windows 11 Resistive Touch Driver			

To find the Drivers, please refer to the Driver CD that comes in the package or contact us.

5.2 Software Development Kit (SDK)

The list of SDK available for IE32 3.5" SBC:

ltem	File Type	Description
1	SDK	Watchdog SDK
2	SDK	Digital IO SDK

To find the SDK, please refer to the Driver CD that comes in the package or contact us.



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