FABS-9XXA Series

12.1", 15", 15.6", 17", 19", and 21.5" Food Industrial Panel PC.

User Manual

Release Date	**Revision**
Jun. 2021	**V1.2**

Revision History

Reversion	Date	Description
1.0	2020/06/03	Official Release
1.1	2020/09/17	Modify 1.2 Spec data
1.2	2021/06/07	Modify 1.2 Spec data+ Add 1.3 15.6" dimension graph Modify manual title to FABS-9XXA Series

Warning!

This equipment will generate, use and radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at its own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Instruction Guide

SAFETY INSTRUCTIONS

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment that are warn of potential hazards and to call attention to information on clarifying or simplifying the procedure.

⚠️	This is the safety alert symbol. It is the purpose of alerting you to potential hazards. Obey all safety information that follows this symbol to avoid possible injury or death.

♨️	This is the high temperature alert symbol. It is warning you attention the high temperature position of product when you operating or repairing the system. Before you repair or clean it. We suggest you waiting for the machine to be cooler

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained by qualified personnel only. No responsibility is assumed by Digital Electronics Corporation for any consequences arising out of the use of this material. A qualified person is one who has skills and knowledge related to the construction, operation and installation of electrical equipment, and has received safety training to recognize and avoid the hazards involved.

DISCLAIMER of LIABILITY

We have reviewed the contents of this publication to ensure the description of hardware and software to meet the consistency. Since the many variables associated with particular installation, we cannot guarantee all condition. Furthermore, we are not responsible for any modified, altered or reconstructed equipment if users did it.

SAFETY INFORMATION

- There is no perfect solution to move heavy objects comfortably, we suggest you to seek the support tools to help, such as a trolley or stacker before you moving heavy objects.
- We suggest you to take a slow and smooth action when you're moving the objects to avoid strain your back and muscles.
- Please be careful about the surrounding and ground conditions while you moving the heavy objects. In

meanwhile, please also notice the place you placing the objects is appropriate.

- Never allow fluids, metal filings or wiring debris to enter any openings in the operator panel. This may cause fire or electrical shock.
- Storing the operator panel under the environmental temperature is lower/higher than recommended temperature in this; otherwise, it may cause the breakdown of LCD display.
- Please turn off the product before you do any repair, clean, maintenance, and disassembly of the situations.
- Electrostatically sensitive components include almost all electrical, electronic, optoelectronic and electromechanical components. These components are sensitive to overvoltage because of the technical reasons and their function may be impaired or destroyed by electrostatic discharge. Observe the regulations to carefully manage the ESD components.
- We can promise our product and some of the electronic components that observe the regulation of EMI certification but we suggest operate the systems by qualified operator or the personnel who doesn't wear the pacemaker.
- Keeping slots and openings in the product for ventilation and should never be blocked or covered to ensure the reliable operation of the product and protect it from overheating.
- The front panels of these products have approval by IP66/IP69K level, defined in international standard EN60529 of test and verify. We suggest keeping products in ventilation and in a dry environment; please follow our cleaning guide when you need to clean the product.
- Make sure you follow the local environmental regulations when your products need to be scrapped.
- Contact your local government for understanding the information on regarding the waste systems available.
  We suggest separate electrical appliance from general trash and follow handling waste disposal systems.

FABS Series has approval through this certification for your reference:

Applicable Standards:	EN 55011: 2009 + A1: 2010 (Group 1, Class A)	EN 61000-6-2: 2005 / AC: 2005
	EN 61000-6-4: 2007 + A1: 2011	IEC 61000-4-2: 2008
	EN 61000-3-2: 2014	IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010
	EN 61000-3-3: 2013	IEC 61000-4-4: 2012
		IEC 61000-4-5: 2014
		IEC 61000-4-6: 2013
		IEC 61000-4-8: 2009
		IEC 61000-4-11: 2004

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Chapter 1.

Chapter 1 Getting Started

1.1 Features

- Intel® 6th/7th, Core i3/5/7 Processors

- 12.1"/15"/15.6"/17"/19"/21.5" Food Industrial Panel PC

- Flat front panel touch screen IP66/IP69K design

- DDR4L SO-DIMM Socket

- DC 9-36V wide range power input

- Fanless design.

1.2 Specifications

	FABS-912AP/R/GH	FABS-915AP/R/GH	FABS-916AP/R/GH	FABS-917AP/R/GH	FABS-919AP/R/GH	FABS-921AP/R/GH
SYSTEM						
CPU	Intel® 6th/7th, Corei3/5/7 Processors					
Chipset	SoC					
Memory	1 x 260Pin SO-DIMM DDR4 up to 16GB 2133MHz					
I/O Port						
Outside I/O Port	2 x USB 3.0 type A 2 x GbE LAN RJ-45 1 x RS-232 DB-9(COM2) 1 x DB-9 RS-232/422/485 (Default RS-232)(COM1) 1 x Audio Line Out 1 x HDMI Port (optional) 1 x 3-pin DC 9-36V power input terminal 1 x 2-pin connector for power on/off button					
Option	TB-528 Series UPS Battery VESA Stand 4G LTE/WiFi/BT					
Storage Space						
Storage	1 x 2.5" SATA HDD space (Easy Accessible)					
Expansion Slot						
Expansion	1 x Internal Mini-PCIe Slot full size onboard					
Display (STD)						
Display Type	12.1"	15"	15.6"	17"	19"	21.5"
Max.	800x600	1024x768	1366x768	1280x1024	1280x1024	1920x1080

Resolution	1024x768		1920x1080			
Max. Color	262K/16.2M	16.2M	16.7M	16.7M	16.7M	16.7M
Luminance (cd/m^2)	450 500	300	300 450	350	350	250
Contrast Ratio	1500:1-SVGA 1000:1-XGA	2000:1	500:1-HD 800:1-FHD	800:1	1000:1	3000:1
Viewing Angle	178/178-SVGA 178/178-XGA	H:176 V:176	160/160-HD 178/178-FHD	H:160 V:140	H:170 V:160	H:178 V:178
Backlight Lifetime(hrs)	50,000-SVGA 30,000-XGA	70,000	50,000	50,000	50,000	30,000

Display (HB)

Display Type	12.1"	15"	15.6"	17"	19"	21.5"
Max. Resolution	800x600 1024x768	1024x768	1366x768 1920x1080	1280x1024	1280x1024	1920x1080
Max. Color	16.2M/262K	16.7M	16.7M-HD 16.2M-FHD	16.7M	16.7M	16.7M
Luminance (cd/m^2)	1000	1000	1000	1000	1000	1000
Contrast Ratio	700:1	800:1	500:1-HD 800:1-FHD	1000:1	1000:1	3000:1
Viewing Angle	178/178-SVGA 160.140-XGA	H:160 V:150	160/160-HD 170/170-FHD	H:170 V:160	H:170 V:160	H:178 V:178
Backlight Lifetime(hrs)	50,000	50,000	50,000	50,000	50,000	50,000

Touch Screen

Type	Project capacitive/ Resistive Touch/ Glass (with Anti-Reflection Coating)
Interface	USB over 90%(PCT) USB over 80% (RT)

Power

Power Input	DC 9~36V					
Power Consumption	Max:47W-SVGA Max:46W-XGA	Max:41W	Max: 46W	Max:54W	Max:54W	Max:54W

Mechanical

Construction	304 Stainless Steel Chassis / 316 Stainless Steel Chassis (Optional)					
Mounting	Panel Mount					
Dimension-mm	331x257x 52	422x322x 54	424x289.5x 58.1	449x358x 63.8	485x398x 63.8	573.8x378.8x 59.8
Net Weight-Kg	3.4	5.2	5.4	6.3	7.2	7.8

Environmental	
Operating Temperature	0~50°C 0~40°C (For 21.5" High Brightness Model)
Storage Temperature	-30~70°C
Humidity	10 to 95% @ 40°C, non- condensing
Vibration	1G / 5 ~ 500Hz (Random) / Operation
Shock	15G peak acceleration(11 msec. duration)/operation
Altitude	0 ~ 1000m
Operate Altitude	0.6~1.7m
Certification	CE / FCC Class A **Compliance with EN 1672-2 for P/G models**
Operating System Support	
OS Support	Windows 10 IoT

PoE Application

Max power consumption of each model

Model	PoE+(25W)	PoE++(45W)
FABS-912A	n	y*
FABS-915A	n	y*
FABS-916A	n	y*
FABS-917A	n	n
FABS-919A	n	n
FABS-921A	n	n

* Max Power Consumption: Backlight bright setting 100%,+Turbo on+ System full loading with full rear IO connectors.
* Power consumption may have 10% tolerance difference due to different MB, parts, test instrument, and so on.
* y* means: system turbo off+ rear IO no loading+ LED backlight down to 70%, and the PSE cable connect to the system needs to be shorter than 50m. If you need some IO loading, please find your sales represenrive to discuss.
* y* does not apply in Linux OS.
* We suggest to use the adapter that Aplex approved. If you would like to adopt your own power supply or adapter, please add another 20-30% from the above power consumption to make sure the system can work correctly.

1.3 Dimensions
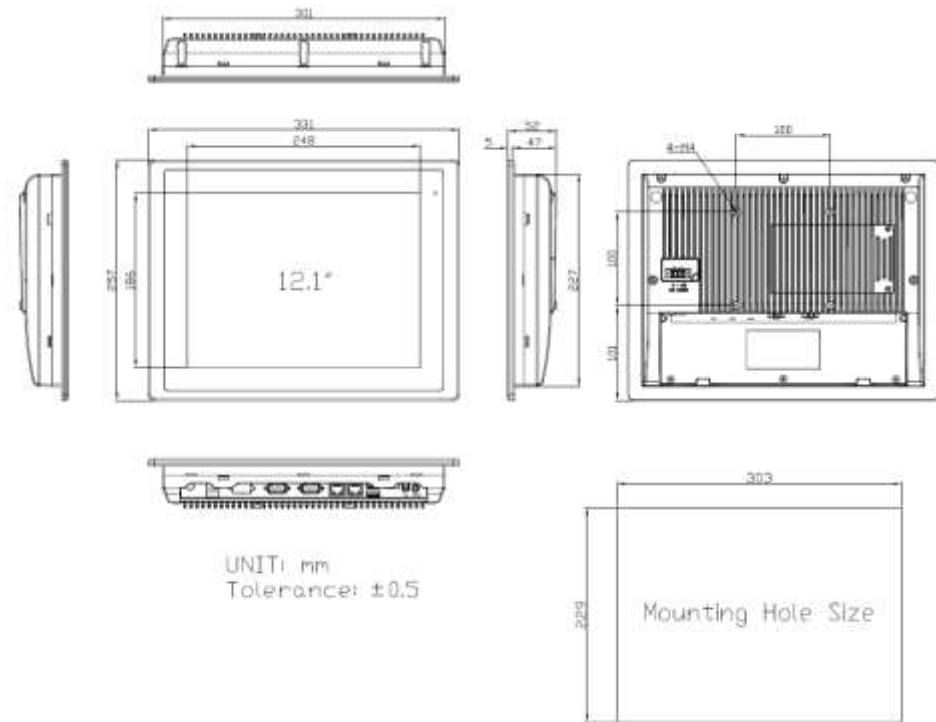
Figure 1.3.1 Dimensions of FABS-912APR/G(H)
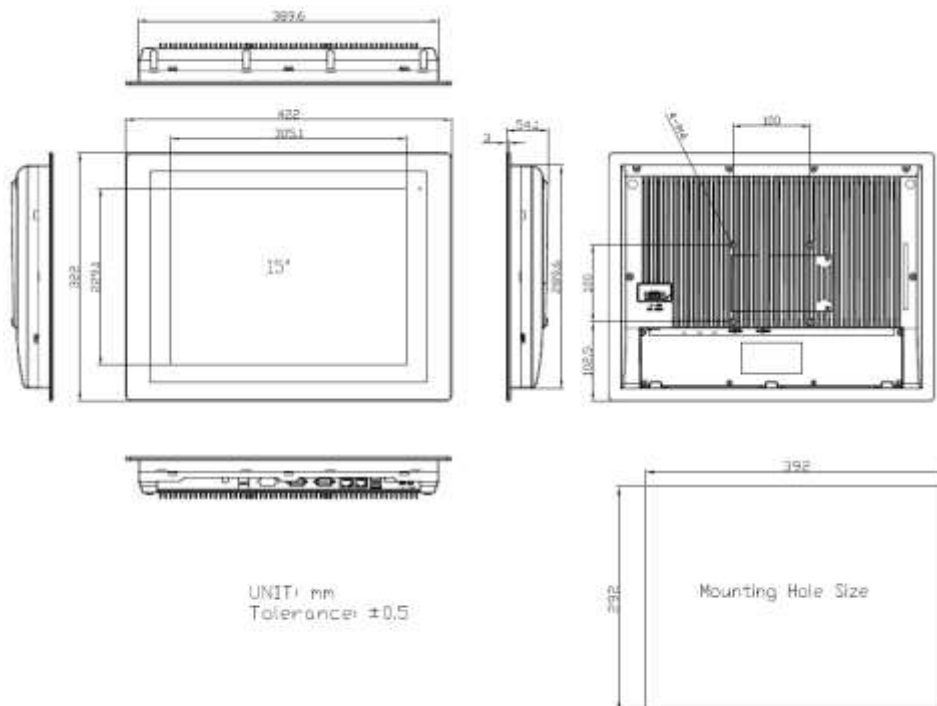
Figure 1.3.2 Dimensions of FABS-915APR/G(H)

UNIT: mm
Tolerance: ±0.5
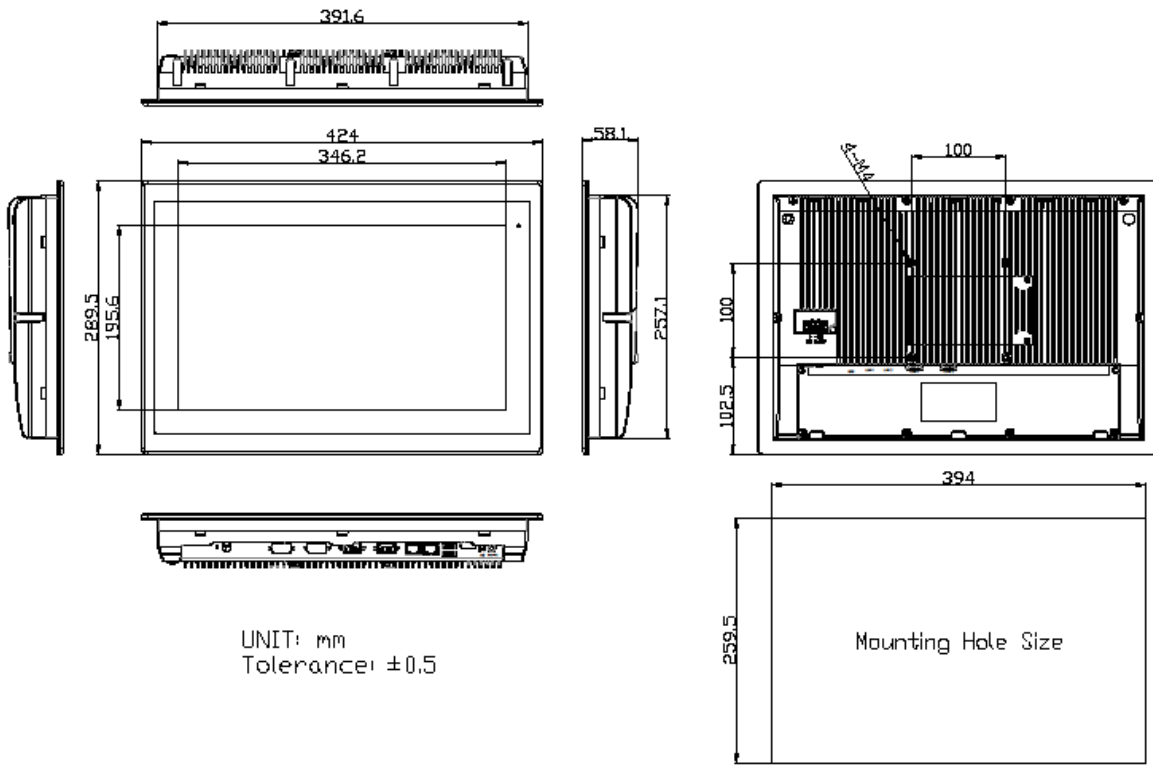
Figure 1.3.3 Dimensions of FABS-916APR/G(H)

UNIT: mm
Tolerance: ±0.5
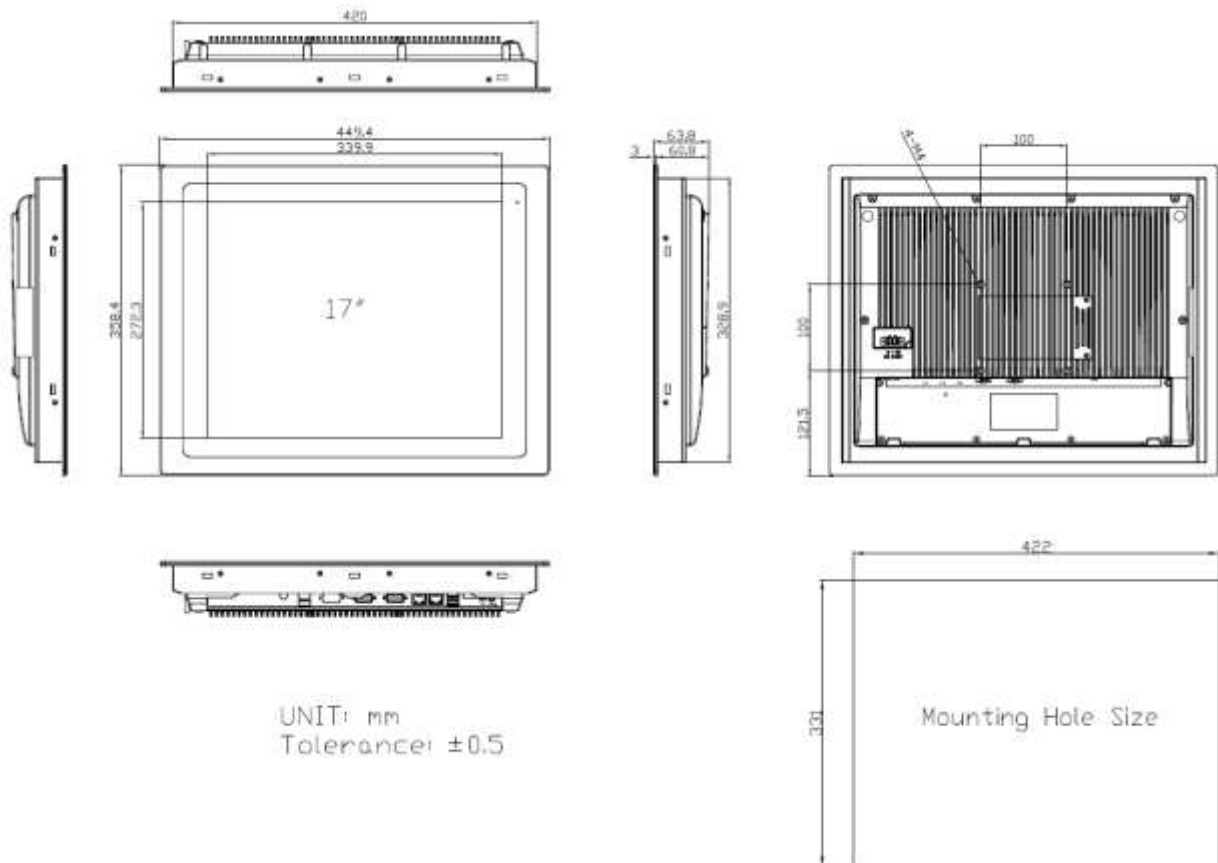
Figure1.3.4   Dimensions of FABS-917APR/G(H)
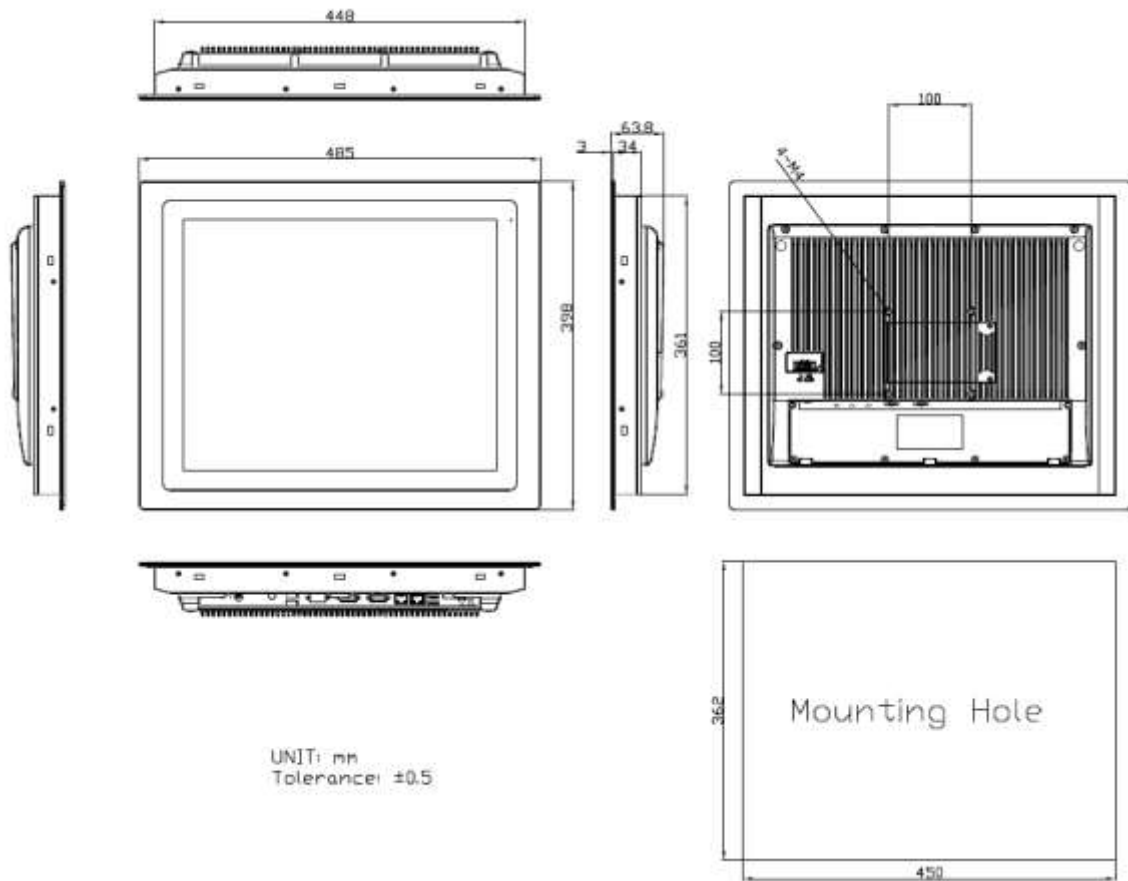
Figure1.3.5 Dimensions of FABS-919APR/G(H)
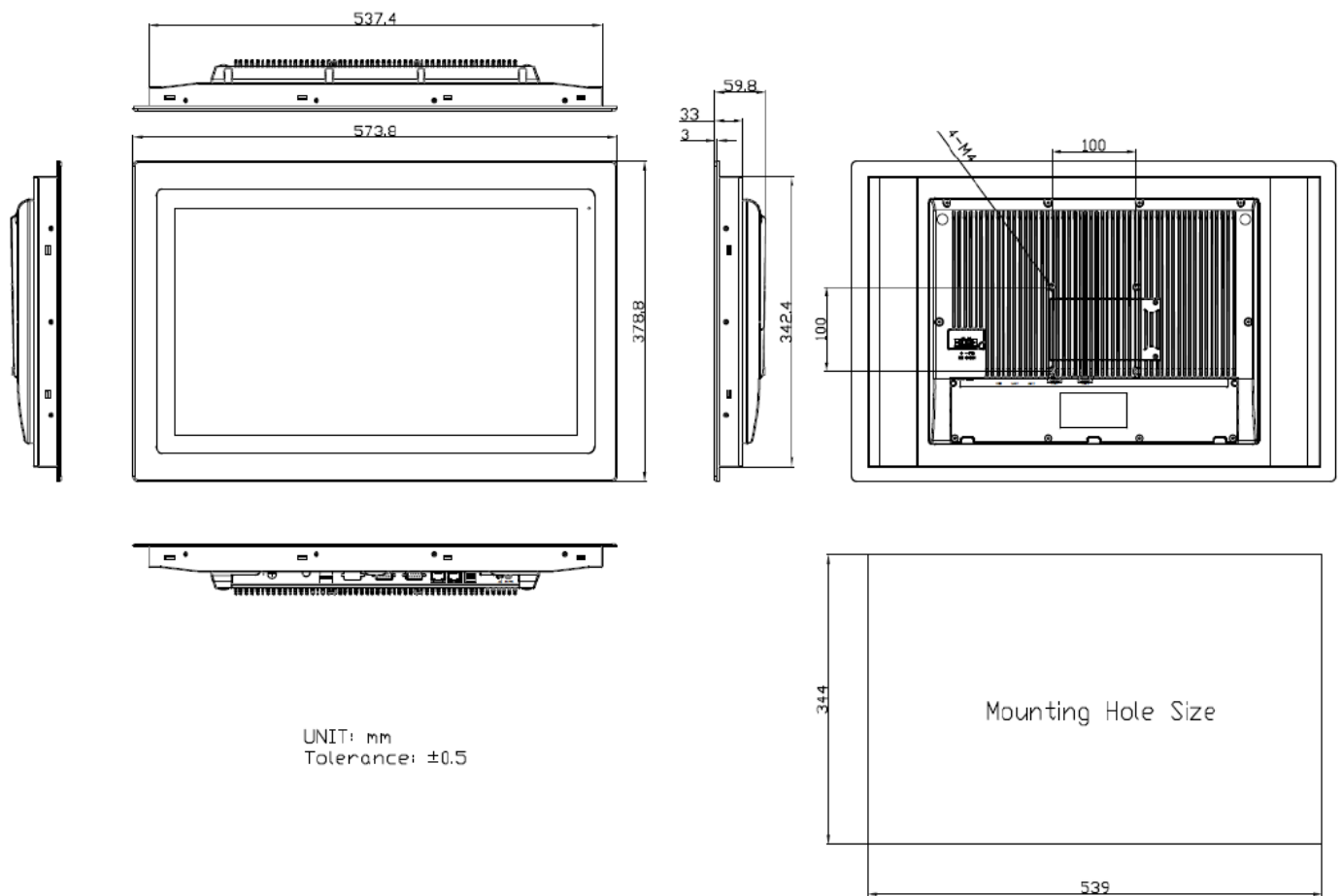
Figure1.3.6 Dimensions of FABS-921APR/G(H)

The mounting-hole size (back side) needs keep more than 30mm space between system and wall for installing panel mount kit, the rules suitable for FABS series.
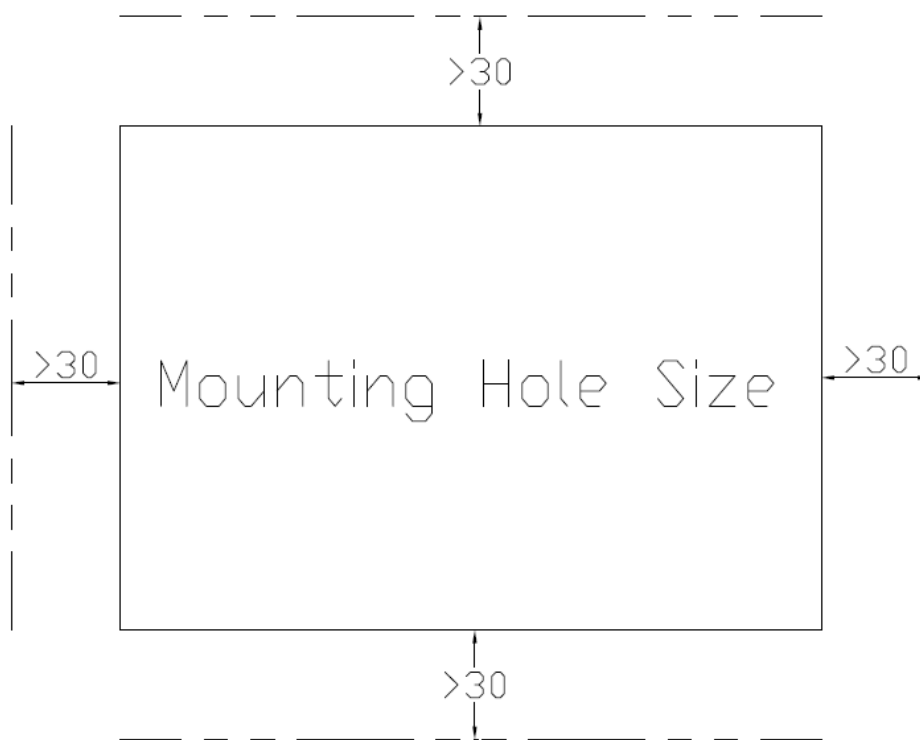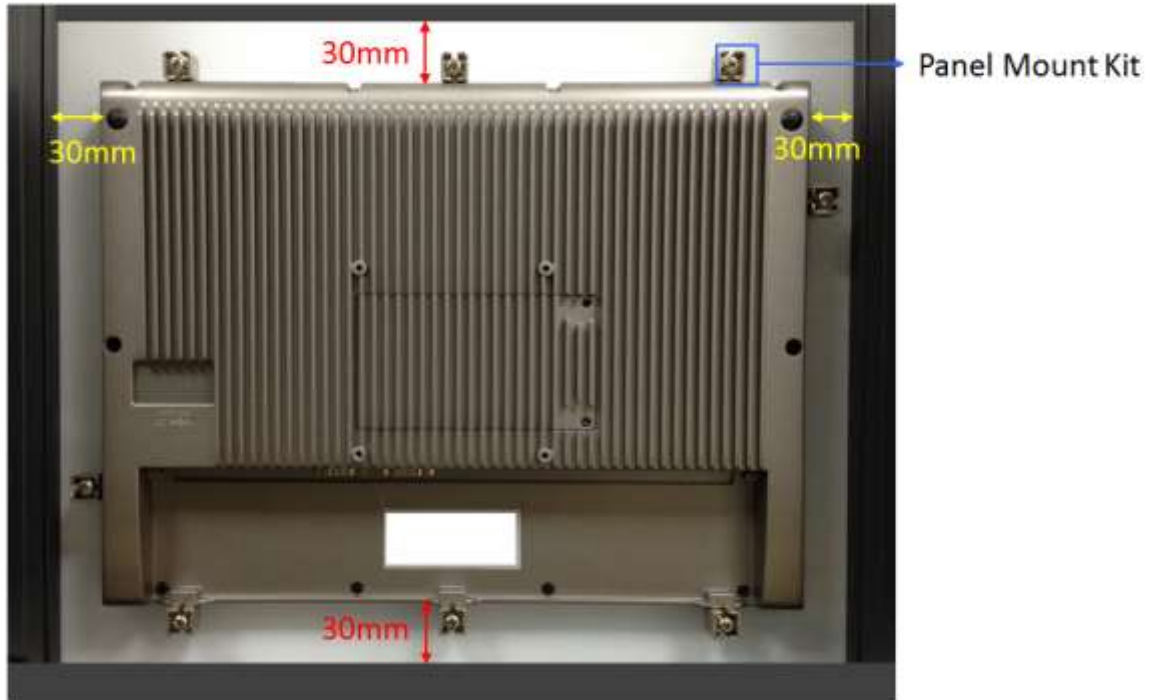
Figure1.3.7 Wall thickness of mounting-hole size

1.3　Brief Description of FABS Series

　　FABS series are panel PC series models for food industrial application, which comes with Optimized frame designed. It is powered by Intel 6th/7th Corei3/ i5/ i7 processors and supports DDR4L memory. They come with 12.1"~21.5" color TFT display. There are multiple I/O ports such as USB, LAN, and so on. These models are designed by minimize grooves and gaps as well as increased resistance to cleaning and disinfection agent and can be panel mount with control cabinet so that liquids can run off. The models support wide range DC 9-36V power input and the front touch panel certified IP66/IP69K grade, thus you can use them in food industrial environment and give the best in monitoring and control applications.

Figure 1.4.1 Front View of FABS Series

Power input

Figure 1.34.2 Rear View of FABS Series

Chapter 2. Installation and Comfort Guide

2.1.   Adjust your monitor and posture

There is no one monitor placement that can keep all body parts happy all the time. Throughout the day, let the comfort of your eyes, neck, shoulders, and back help you determine how to move and when. Placement, zoom, and lighting are all important factors that affect your comfort and productivity. We suggest following the guideline below, and adjusting your monitor and posture when you use our products:

- To find out your comfortable viewing distance, adjust the monitor height up and down until your head is balanced comfortably over your shoulders.
- Your head should not come forward as well as your neck should not bend uncomfortably forward, backward to any degree.
- Place the monitor in an area where glare and bright reflections are eliminated. Try to avoid bright light sources in your field of vision. Also you can adjust LCD backlight from [Chipset Setting] (please refer page 45) according light source environment.
- To avoid craning your neck forward to view the text that is too small, experiment with adjusting the percentage of zoom to 125 percent or higher.
- Remember to blink, on the average, people blink 22 times per minute. Without realize it, when viewing a monitor, some people slow their blink rate to less than 7 blinks per minute. Also suggest take 10 minutes breaks after you watch the screen 40~50 minutes every time.
- Our products support touch technology, when using touch, you need to be especially attentive to the comfort of your neck, shoulders, and arms. There is no one monitor placement can keep all body parts comfortable all the time, so you should adjust your screen when you feel uncomfortably.

Here is a demo posture when you use our products; please adjust your work surface so that your shoulders will be relaxed and keep your wrists neutrally aligned.

2.2.   Installation your monitor

Each Panel size map to different mounting-hole size, please make sure it is correct.
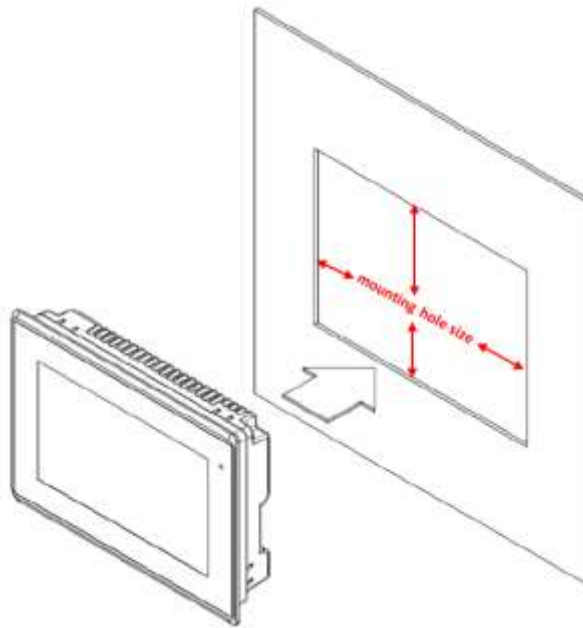
2.2.2

(a) If environment with good airflow, such as it has fan or air conditioner, the minimum space is 3cm between the machine and wall.

(b) If environment without any fan or air conditioner, the minimum space is 15cm between the machine and wall.

(c) The stainless steel thickness range is 2mm ~ 9mm, if thickness under 2mm, the metal wall surface may bend after panel mount kit installed.
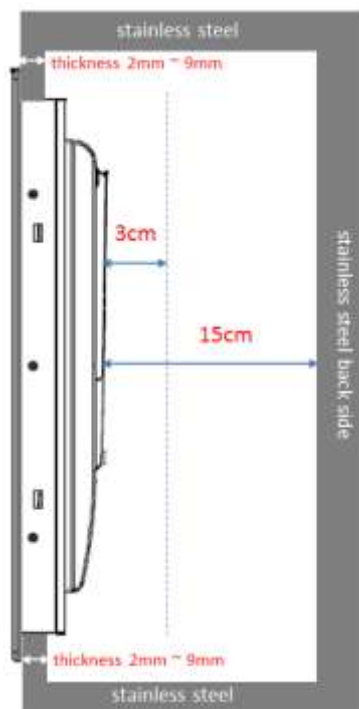
2.2.3 Use panel mount kit to install it
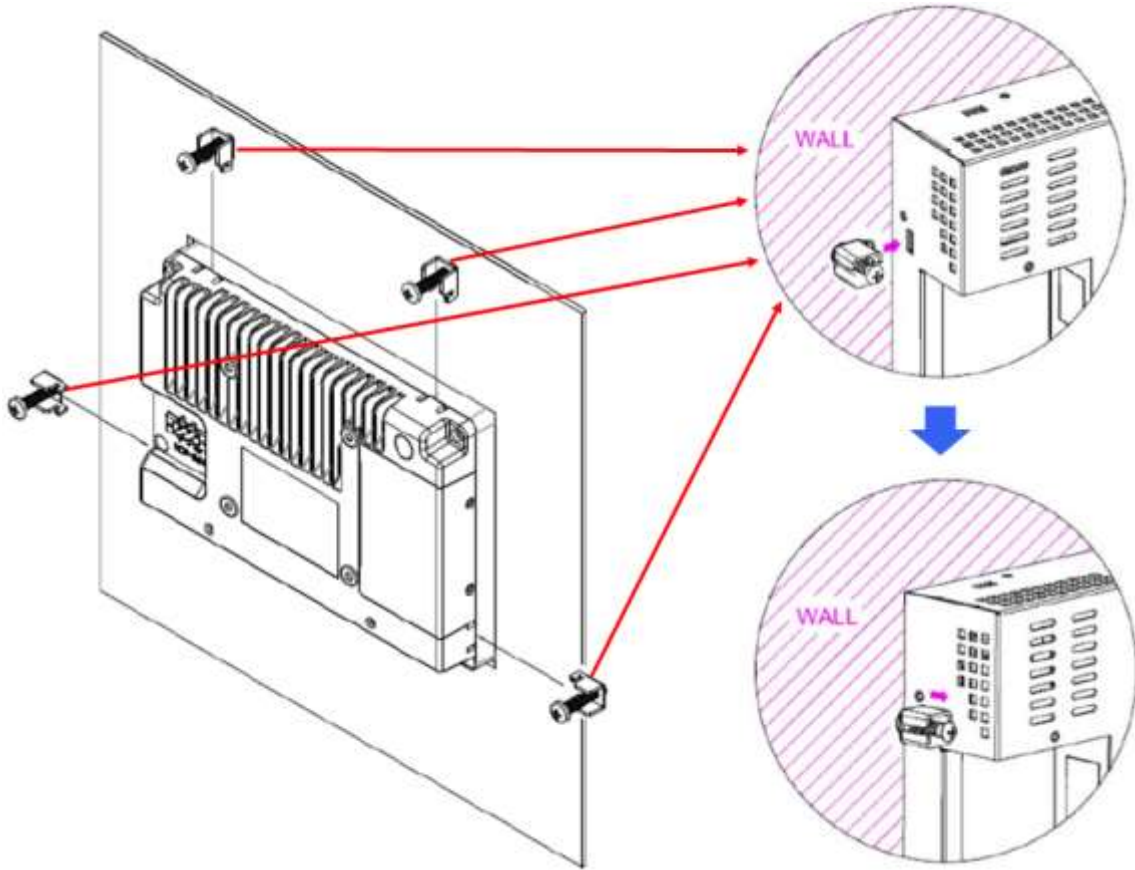
2.2.4 Attention ⚠️

(a) MUST use Electric Screwdriver to fix it.

(b) Set to 8 ~ 10kgf/cm of screw torque, low torque will cause unexpected problems.

(c) High torque could cause metal wall surface bend and possible water leakage.

(d) Low torque could cause possible water leakage.

(e) Please ensure the metal wall surface is even and flat before performing the installation (include consideration such as if the metal surface is with paint or without paint.)

(f) After installation, please ensure the device and metal wall surface is well-intact and well-fitted. Please ensure there is no water leakage after the installation.

(g) Please note the gasket could deteriorate over time. It is suggested to have routine inspection over the device& metal wall surface in order to guarantee highest water-proof compliance.
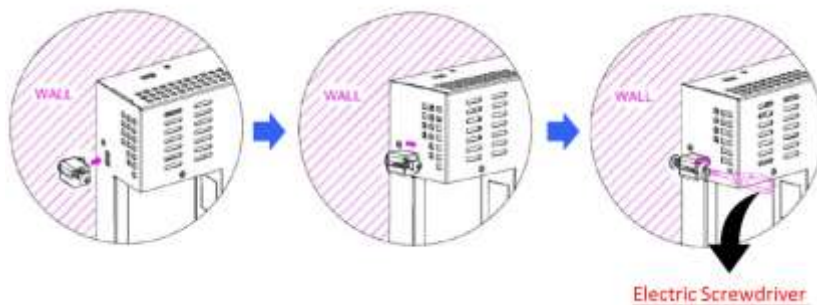
Chapter 3. Hardware

3.1. Motherboard Introduction

SBC-7114 is a 4" industrial motherboard developed on the basis of Intel Skylake-U Processor, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual GbE ports, 6-COM ports and one Mini PCIE configuration, one HDMI/DP port, one eDP port, one LVDS interface. To satisfy the special needs of high-end customers, CN1 and CN2 and CN3 richer extension functions. The product is widely used in various sectors of industrial control.

3.2. Specifications

Specifications	
Board Size	170mm x 113mm
CPU Support	Intel® Core™ i3-6100U/2.30GHz (onboard) Intel® Core™ i5-6300U/2.40GHz up to 3.00GHz (option) Intel® Core™ i7-6600U/2.60GHz up to 3.40GHz (option)
Chipset	SOC
Memory Support	1 x SO-DIMM (260pins), up to 16GB DDR4L 2133MHz FSB
Graphics	Intel® HD Graphics 520
Display Mode	1 x HDMI or DP Port 1 x LVDS (18/24-bit dual LVDS) 1 x eDP DF13-40P for EDP1 (option)
Support Resolution	Up to 4096 x 2304 for HDMI Up to 1920 x 1200 for LVDS (PS8625) Up to 4096 x 2304 for eDP
Dual Display	HDMI/DP + LVDS HDMI/DP + eDP1 (option) LVDS + eDP1 (option) HDMI/DP + LVDS + eDP1 (option)
Super I/O	Nuvoton NCT6106D
BIOS	AMI/UEFI
Storage	1 x SATAIII Connector (7Pin) 1 x SATAIII Connector (7Pin+15Pin) 1 x MSATA Connector (MPCIE or MSATA, Default: MSATA)
Ethernet	2 x PCIe Gbe LAN by Intel 82574L
USB	2 x USB3.0 (typeA) stack ports (USB3)

	(USB3.0:USB3-1/USB3-2, USB2.0:USB1/USB2) 2 x USB2.0 Pin Header for CN3 (USB3/USB4) 2 x USB3.0/USB2.0 Pin Header for CN3 (PCIe1x or USB3.0, option) 1 x USB2.0 Pin Header for CN2(USB5) 1 x USB2.0 Pin Header for CN1(USB7 or Touch, option) 1 x USB2.0 Pin Header for EDP1(USB7 or Touch, option) 1 x USB2.0 for MPCIE1(USB6)

Serial	1 x RS232/RS422/RS485 port, DB9 connector for external (COM1)
	     Pin 9 w/5V/12V/Ring select
	 1 x RS232 port, DB9 connector for external (COM2)
	     Pin 9 w/5V/12V/Ring select
	 2 x UART for CN3 (COM3,COM4)
	 1 x RS422/485 header for CN2 (NCT6106D/COM5)
	 1 x RS422/485 header for CN2 (NCT6106D/COM6)

Digital I/O	8-bit digital I/O by Pin header (CN2)
	     4-bit digital Input
	     4-bit digital Output
	 4-bit digital I/O by Pin header (CN3)
	     2-bit digital Input
	     2-bit digital Output

Battery	Support CR2477 Li battery by 2-pin header (BAT3/CMOS)
Smart Battery	1 x Smart Battery Support 3 Serial Li battery by 10-pin header (BAT2)

Audio	Support Audio via Realtek ALC269Q HD audio codec
	     Support Lin-out by Jack (LINE_OUT1)
	     Support Line-in, Line-out, MIC by 2x6-pin header(AUDIO2)
	     Support a stereo Class-D Speaker Amplifier with 2 watt per channel
	     output power, by 1x4-pin header (SPK1)

Keyboard /Mouse	1 x PS2 keyboard/mouse by box pin header (CN3)
Expansion Bus	1 x mini-PCI-express slot (MPCIE or MSATA, Default: MPCIE) 1 x PCI-express for CN3 1 x PCI-express for CN3 (PCIe 1x or USB3.0, Default: PCIe 1x)
Touch Ctrl	1 x Touch ctrl header for TCH1 (USB10)
Power Management	Wide Range DC9V-36V input 1 x 3-pin power input connector
Switches and LED Indicators	1 x Power on/off switch (P_SW1/BT2/CN2/CN3) 1 x Reset (CN2)

	1 x Power LED status (CN1)
	1 x HDD LED status (CN2)
	1 x Buzzer
External I/O port	2 x COM Ports (COM1/COM2)
	2 x USB 3.0 Ports (stack)
	2 x RJ45 GbE LAN Ports
	1 x HDMI Port
	1 x Audio Jack (Line out)
Temperature	Operating: -20℃ to 70℃
	Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
Power Consumption	12V /3A (Intel i3-6100U2.30 GHz processor with 16GB DDR4/HDD)
EMI/EMS	Meet CE/FCC class A
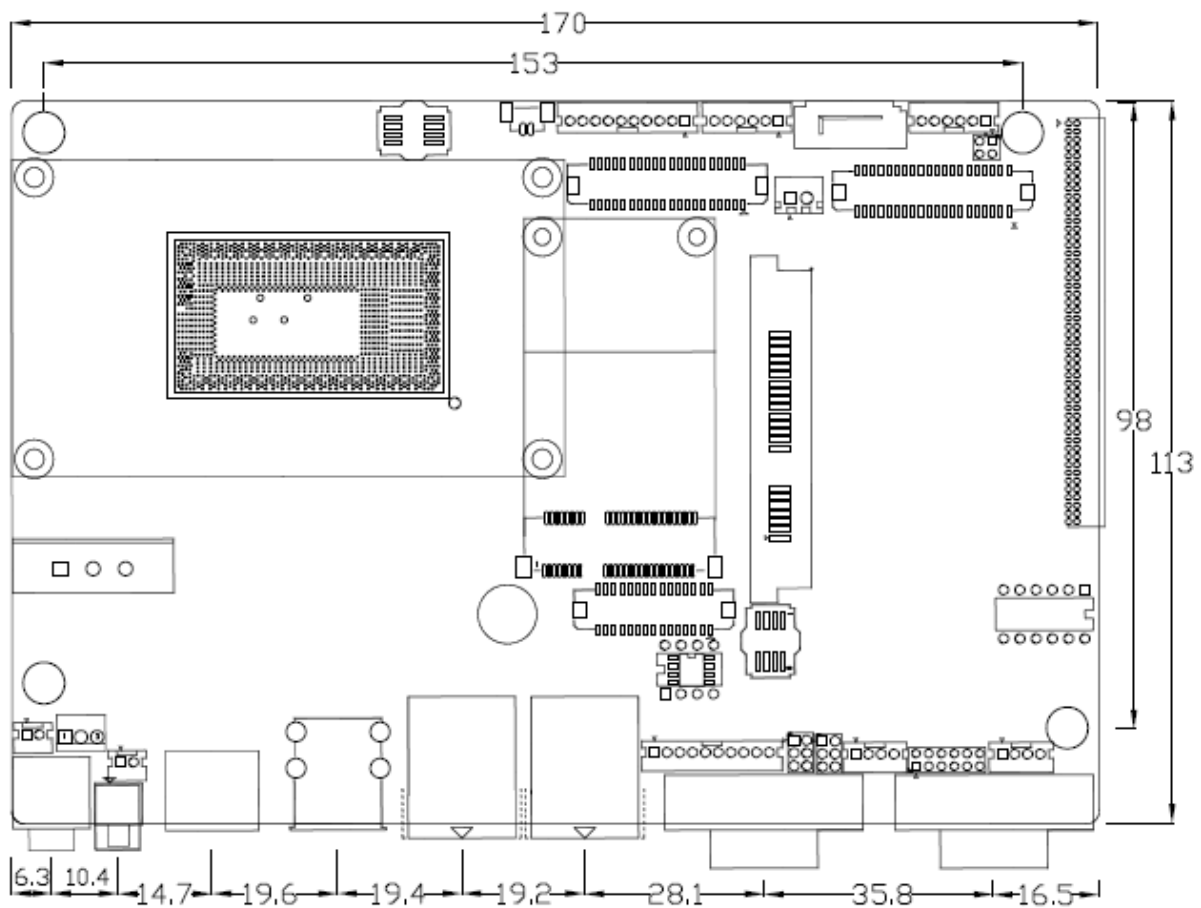
(units: mm)

Figure 3.2.1 Motherboard Dimensions of SBC-7114

3.3. Jumpers and Connectors Location
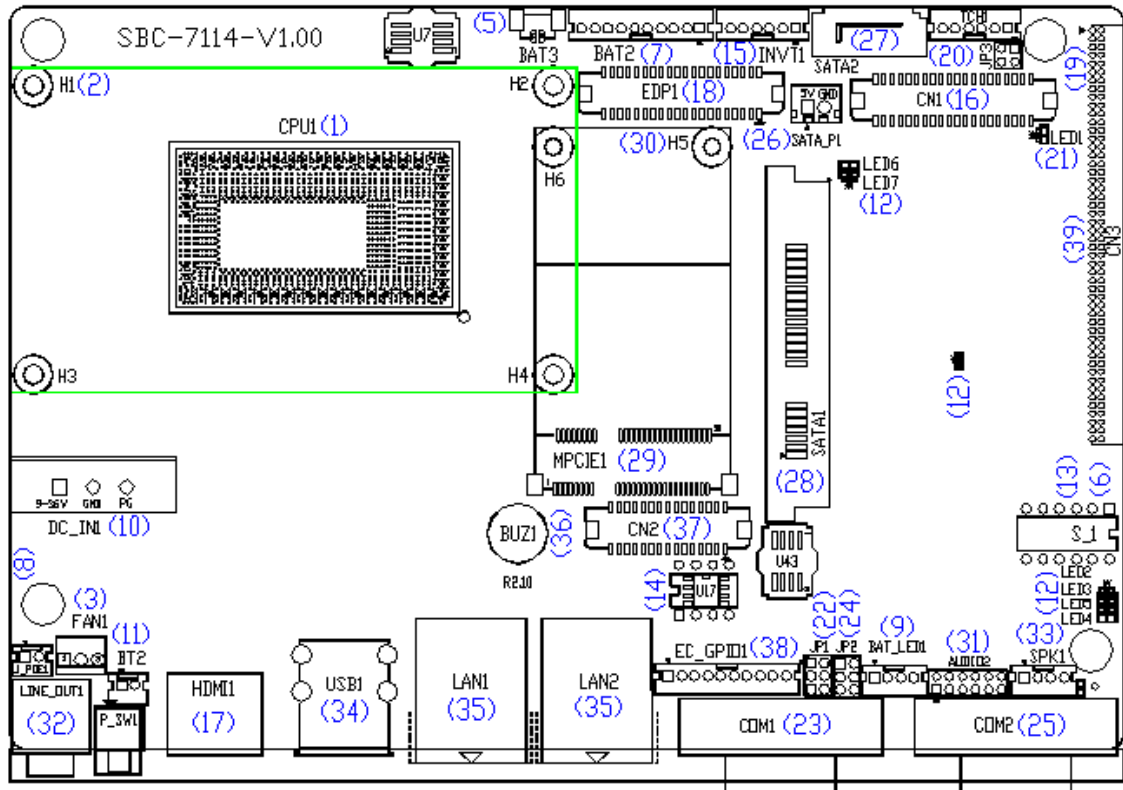
Figure 3.3.1   Jumpers and Connectors Location- Board Top
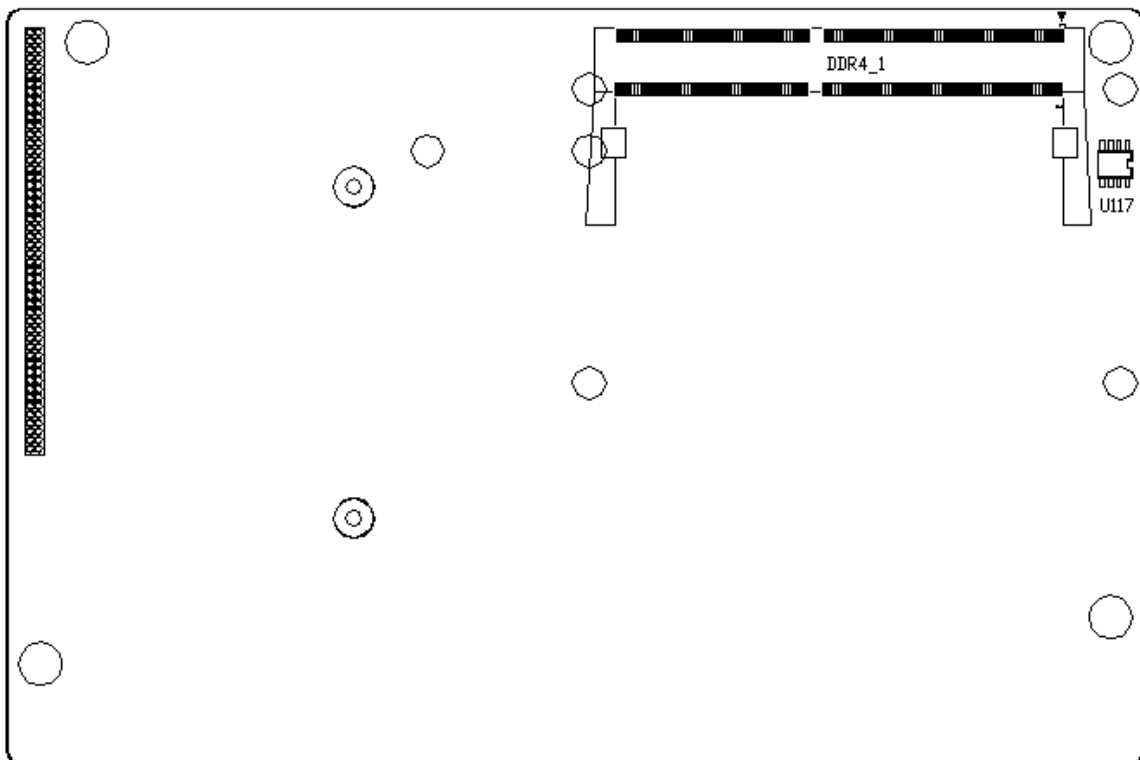
Figure 3.3.2   Jumpers and Connectors Location- Board Bottom

3.4. Jumpers Setting and Connectors

1. CPU1:

(FCBGA1356), onboard Intel Skylake-U Processors.

Model	Processor					
	Number	PBF	Cores/ Threads	TDP	Embedded	Remarks
SBC-7114-I3-6100U	I3-6100U	2.30GHz	2 / 4	15W	●	
SBC-7114-I3-6100UP	I3-6100U	2.30GHz	2 / 4	15W	●	option
SBC-I5-6300U	I5-6300U	2.4 up to 3.0GHz	2 / 4	15W 25W	●	option
SBC-I5-6300UP	I5-6300U	2.4 up to 3.0GHz	2 / 4	15W 25W	●	option
SBC-7114-I7-6600U	I7-6600U	2.6 up to 3.4GHz	2 / 4	15W 25W	●	option
SBC-7114-I7-6600UP	I7-6600U	2.6 up to 3.4GHZ	2 / 4	15W 25W	●	option
SBC-7114-I5-6200U	I5-6200U	2.3 up to 2.8GHz	2 / 4	15W 25W	○	option
SBC-7114-I5-6200UP	I5-6200U	2.3 up to 2.8GHz	2 / 4	15W 25W	○	option

2. H1/H2/H3/H4 (option**):**

CPU1 Heat Sink Screw holes, four screw holes for Intel Skylake-U Processors
Heat Sink assembles.

3. FAN1:

(2.54mm Pitch 1x3 Pin Header), Fan connector, cooling fans can be connected directly for use.
You may set the rotation condition if cooling fan in menu of BIOS CMOS Setup.

Pin#	Signal Name
1	Ground
2	VCC
3	Rotation detection

Note: Output power of cooling fan must be limited under 5W.

4. DDR4_1:

(SO-DIMM 260Pin socket), DDR4 memory socket, the socket is located at the top of the board and supports 260Pin 1.2V DDR4 2133MHz FSB SO-DIMM memory module up to 16GB.

5. BAT3:

(1.25mm Pitch 1x2 Wafer Pin Header, SMD) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	Ground
PIN2	VBAT

6. S_1 (PIN1, PIN2):

(Switch), ATX Power and Auto Power on jumper setting.

S-1 (Switch)	Mode
Pin1 (Off)	ATX Power
Pin1 (On)	**Auto Power on (Default)**

(Switch), CMOS clear switch, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

S-1 (Switch)	CMOS
Pin2 (Off)	NORMAL (Default)
Pin2 (On)	Clear CMOS

Procedures of CMOS clear:

a) Turn off the system and unplug the power cord from the power outlet.

b) To clear the CMOS settings, push the S_1 pin2 ON for about 3 seconds, then push the S_1 Pin2 OFF.

c) Power on the system again.

d) When entering the POST screen, press <ESC> or <DEL> key to enter CMOS Setup Utility to load optimal defaults.

e) After the above operations, save changes and exit BIOS Setup.

7. BAT2:

(2.0mm Pitch 1x10 Wafer Pin Header), Smart Battery Interface.

Pin#	Signal Name
Pin1	VCC_BAT1
Pin2	VCC_BAT1
Pin3	VCC_BAT1
Pin4	SMB_DAT_SW
Pin5	SMB_CLK_SW

Pin6	BAT1_TEMP
Pin7	Ground
Pin8	Ground
Pin9	Ground
Pin10	SET_BAT1_ON

Function	Specifications
Nominal voltage (3S1P)	11.1~12.6V
Charge voltage	12.6V
Charge current	0.5C

8. J_POE1:

(2.0mm Pitch 1x2 Wafer Pin Header), POE or DCIN input setting.

J_POE1 (Jumper)	DC_IN1	BAT2
Pin1-Pin2 (open, **Default**)	●	-
Pin1-Pin2 (Close)	-	●

9. BAT_LED1:

(2.54mm Pitch 1x4 Wafer Pin Header), The Charge status indicator for BAT2.

Pin1-Pin3: Charge LED status

Pin2-Pin3: Discharge LED status

Pin4-Pin3: EC LED status

Pin#	Signal Name
Pin1	BAT1_LED+
Pin2	BAT1_LED-
Pin3	Ground
Pin4	RST_EC

10. DC_IN1:

(5.08mm Pitch 1x3 Pin Connector), DC9~36V System power input connector.

Pin#	Power Input
Pin1	DC+9V~36V
Pin2	Ground
Pin3	FG

Model	DC_IN1
SBC-7114-I3-6100U	180°Connector
SBC-7114-I5-6300U	180°Connector
SBC-7114-I7-6600U	180°Connector
SBC-7114-I3-6100UP	45°Connector
SBC-7114-I5-6300UP	45°Connector
SBC-7114-I7-6600UP	45°Connector

Connector	Power input
DC_IN1 (Default)	DC_IN1
BAT2 (option)	BAT2
DC_IN1+BAT2 (option)	DC_IN1

11. P_SW1/BT2:

Power on/off button, is used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

P_SW1	Function
1x2 Pin connect	Default
Button	Option

12. LED2/LED3/LED4/LED5/LED6/LED7/LED8:

LED2: LED STATUS. Green LED for 3P3V_ALLS_EC Power status.

LED3: LED STATUS. Green LED for 3P3V_S5 Power status.

LED4: LED STATUS. Green LED for Motherboard Standby Power Good status.

LED5: LED STATUS. (Reserve)

LED6: LED STATUS. Green LED for charge status.

LED7: LED STATUS. Green LED for charge Complete status.

LED8: LED STATUS. Green LED for charge Power Good status.

13. S_1 (PIN3/PIN4):

(Switch), LVDS jumper setting.

S-1(Switch)	Function (CN1)
Pin3 (ON)	Single channel LVDS
Pin3 (OFF)	**Dual channel LVDS (Default)**
Pin4 (ON)	**8/24 bit (Default)**
Pin4 (OFF)	6/18 bit

14. U17:

AT24C02-DIP8, The EEPROM IC (U17) is the set of LVDS resolution. If you need other resolution settings, please upgrade U17 data.

Model	LVDS resolution
SBC-7114-I3-6100U SBC-7114-I5-6300U SBC-7114-I7-6600U	1280x1024 (default)
	800x480 (option)
	800x600 (option)
	1024x768 (option)
	1920x1080 (option)
	……………….

15. INVT1:

(2.0mm Pitch 1x6 wafer Pin Header), Backlight control connector for LVDS
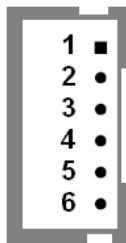
Pin#	Signal Name
1	+DC12V_S0
2	+DC12V_S0
3	Ground
4	Ground
5	BKLT_EN_OUT
6	BKLT_CTRL

16. CN1：

(1.25mm Pitch 2x20 Connector, DF13-40P),For 18/24-bit LVDS output connector, fully support by Parad PS8625(DP to LVDS), the interface features dual channel 24-bit output. Low Voltage Differential Signaling, A high speed, low power data transmission standard used for display connections to LCD panels.

Function	Signal Name	Pin#		Signal Name	Function
	12V_S0	2	1	12V_S0	
	BKLT_EN_OUT	4	3	BKLT_CTRL	
	Ground	6	5	Ground	
	LVDS_VDD5	8	7	LVDS_VDD5	
	LVDS_VDD3	10	9	LVDS_VDD3	

	Signal Name	Pin#		Signal Name	
LVDS	Ground	12	11	Ground	LVDS
	LA_D0_P	14	13	LA_D0_N	
	LA_D1_P	16	15	LA_D1_N	
	LA_D2_P	18	17	LA_D2_N	
	LA_D3_P	20	19	LA_D3_N	
	LA_CLKP	22	21	LA_CLKN	
	LB_D0_P	24	23	LB_D0_N	
	LB_D1_P	26	25	LB_D1_N	
	LB_D2_P	28	27	LB_D2_N	
	LB_D3_P	30	29	LB_D3_N	
	LB_CLKP	32	31	LB_CLKN	
	Ground	34	33	Ground	USB7 (option)
USB7 (option)	USB7_P	36	35	USB7_N	
	5V_S5_USB	38	37	5V_S5_USB	
Power LED	PWR_LED+	40	39	Ground	Power LED

17. HDMI1:

(HDMI 19P Connector), High Definition Multimedia Interface connector
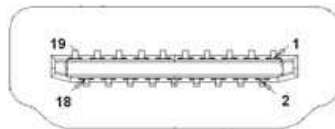
18. EDP1(option):

(2.0mm Pitch 1x6 wafer Pin Header), internal Touch controller connector

Function	Signal Name	Pin#		Signal Name	Function
EDP	12V_S0_EDP	2	1	12V_S0_EDP	EDP
	12V_S0_EDP	4	3	12V_S0_EDP	
	Ground	6	5	Ground	
	EDP_VDD5	8	7	EDP_VDD5	
	EDP_VDD3	10	9	EDP_VDD3	
	CPU_CFG4	12	11	Ground	
	EDP_BKLT_EN	14	13	EDP_TXN_1	
	EDP_BKLT_CTRL	16	15	EDP_TXP_1	
	EDP_VDD_EN	18	17	Ground	
	EDP_TXN_2	20	19	EDP_TXN_0	
	EDP_TXP_2	22	21	EDP_TXP_0	
	Ground	24	23	Ground	
	EDP_TXN_3	26	25	EDP_AUX_N	
	EDP_TXP_3	28	27	EDP_AUX_P	
	EDP_DISP_UTIL	30	29	I2C1_SCL	I2C

	EDP_HP_CN	32	31	I2C1_SDA	
	Ground	34	33	Ground	USB7 (option)
USB7 (option)	USB7_P	36	35	USB7_N	
	5V_S5_USB	38	37	5V_S5_USB	
Power LED	PWR_LED+	40	39	Ground	Power LED

19. JP3:

(2.0mm Pitch 2x2 wafer Pin Header), Touch jumper setting
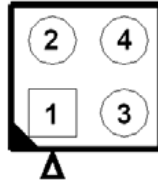
JP3	Touch (TCH1)
Open 3-4 (default)	Enable
Close 3-4 (option)	Disable
Open 1-2 (default)	--

Priority Order:			
Touch Function	JP3(3-4)	S_1(Pin5)	EC_GPIO
TCH1 (Enable)	Short	--	--
TCH1 (Disable)	Open	ON	--
TCH1 (Enable)	Open	OFF	1 (Default)
TCH1 (Disable)	Open	OFF	0

20. TCH1:

(2.0mm Pitch 1x6 wafer Pin Header), internal Touch controller connector

Pin#	Signal Name
1	SENSE
2	X+
3	X-
4	Y+
5	Y-
6	GND_SEARCH

21. LED1:

LED1: LED STATUS. Green LED for Touch power status.

22. JP1:

(2.0mm Pitch 2x3 Pin Header), COM1 jumper setting, pin1~6 are used to select signal out of pin9 of COM1 port.

JP1 Pin#	Function
Close1-2	**COM1 RI (Ring Indicator) (default)**
Close3-4	COM1 Pin9:DC+5V (option)
Close5-6	COM1 Pin9:DC+12V (option)

23. COM1:

(Type DB9M), Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. COM1 port is controlled by pins No.1~6 of JP1, select output Signal RI or 5V or 12V. For details, please refer to description of JP1 and RS_232 and RS_422 setting.
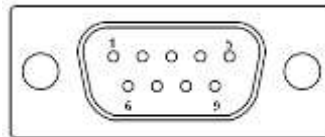
RS232 (Default):	
Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP1 select Setting (RI/5V/12V)**
BIOS Setup： Advanced/NCT6106D Super IO Configuration/F75111 COM1 Configuration【RS-232】	

RS422 (option):	
Pin#	Signal Name
1	422_TX-
2	422_TX+
3	422_RX+
4	422_RX-
5	Ground
6	NC
7	NC
8	NC
9	NC

| BIOS Setup： |
| Advanced/NCT6106D Super IO Configuration/F75111 COM1 Configuration【RS-422】 |

RS485 (option):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup：	
Advanced/NCT6106D Super IO Configuration/F75111 COM1 Configuration【RS-485】	

24. JP2:

(2.0mm Pitch 2x3 Pin Header),COM2 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM2 port.

JP2 Pin#	Function
Close 1-2	**COM2 RI (Ring Indicator) (default)**
Close 3-4	COM2 Pin9：DC+5V (option)
Close 5-6	COM2 Pin9：DC+12V (option)

25. COM2:

(Type DB9M),Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.
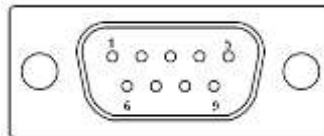
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground

6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP2 select Setting (RI/5V/12V)**

26. SATA_P1:

(2.5mm Pitch 1x2 box Pin Header), One onboard 5V output connector are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V
2	Ground

Note:

Output current of the connector must not be above 1A.

27. SATA2:

(SATA 7Pin), SATA Connectors, one SATA connector is provided with transfer speed up to 6.0Gb/s.

28. SATA1:

(SATA 7Pin+15Pin), SATA Connectors, one SATA connector is provided with transfer speed up to 6.0Gb/s.

29. MPCIE1:

(50.95mmx30mm Socket 52 Pin), mSATA socket is located at the top and supports mini PCIe devices with LPCbus and SMbus and mSATA signal. B2 mSATA bus is for flash disk signal.

Function	Support
Mini SATA	○(co-lay, option)
Mini PCIe	●
LPC bus	●
SMbus	●
USB2.0 (USB6)	●

30. H5/H6:

MPCIE1 SCREW HOLES, H5and H6 for mini PCIe card (30mmx50.95mm) assemble.

31. AUDIO2:

(2.0mm Pitch 2x6 Pin Header), Front Audio, An onboard Realtek ALC269Q codec is used to provide high-quality audio I/O ports. Line Out can be connected to a headphone or amplifier. Line In is used for the connection of external audio source via a Line in cable. MIC is the port for microphone input audio.

Signal Name	Pin#	Pin#	Signal Name
+5V	1	2	GND_AUD
LINE-OUT-L	3	4	LINE-OUT-R
FRONT_JD	5	6	LINE1_JD
LINE-IN-L	7	8	LINE-IN-R
MIC-IN-L	9	10	MIC-IN-R
GND_AUD	11	12	MIC1_JD

32. LINE_OUT:

(Diameter 3.5mm Jack), HD Audio port, An onboard Realtek ALC269-VB codec is used to provide high quality audio I/O ports. Line Out can be connected to a headphone or amplifier.

33. SPK1:

(2.0mm Pitch 1x4 Wafer Pin Header), support a stereo Class-D Speaker Amplifier with 2 watt per channel output power.

Pin#	Signal Name
1	SPK_OUTL_P
2	SPK_OUTL_N
3	SPK_OUTR_N
4	SPK_OUTR_P

34. USB1:

USB3-1/USB3-2：(Double stack USB type A), Rear USB connector, it provides up to two USB3.0 ports. High-speed USB2.0 allows data transfers up to 480 Mb/s, USB 3.0 allows data transfers up to 5.0Gb/s, support USB full-speed and low-speed signaling.
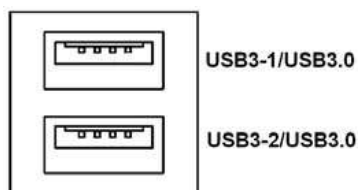
Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.
If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

35. LAN1/LAN2:

LAN1/LAN2: (RJ45 Connector), Rear LAN port, Two standard 10/100/1000M RJ-45 Ethernet ports are provided. Use Intel 82574L chipset, LINK LED (green) and ACTIVE LED (green) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.
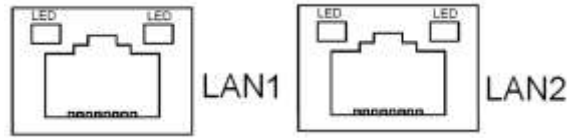
36. BUZ1:

Onboard buzzer

37. CN2:

(DF13-30P Connector), expands output connector and provides eight GPIO, two RS422 or RS485, one USB2.0, one Power on/off, one Reset.

Function	Signal Name	Pin#		Signal Name	Function
5V	5V_S5	2	1	5V_S5	5V
6106_GPIO41	GPIO_IN2	4	3	GPIO_IN1	6106_GPIO40
6106_GPIO43	GPIO_IN4	6	5	GPIO_IN3	6106_GPIO42
6106_GPIO45	GPIO_OUT2	8	7	GPIO_OUT1	6106_GPIO44
6106_GPIO47	GPIO_OUT4	10	9	GPIO_OUT3	6106_GPIO46
	Ground	12	11	Ground	
485 or 422	485+_422TX5+	14	13	485-_422TX5-	485 or 422
RS422 (COM5)	422_RX5+	16	15	422_RX5-	RS422(COM5)
485 or 422	485+_422TX6+	18	17	485-_422TX6-	485 or 422
RS422(COM6)	422_RX6+	20	19	422_RX6-	RS422(COM6)
5V	5V_S0	22	21	HDD_LED+	HDD LED
USB2.0	5V_USB5	24	23	5V_USB5	USB2.0
	USB5_P	26	25	USB5_N	
	Ground	28	27	FP_RST-	RESET
Power auto on	PWRBTN_ON	30	29	Ground	
COM5/COM6 BIOS Setup：					
Advanced/NCT6106D Super IO Configuration/COM5 Configuration【RS-485】					
Advanced/NCT6106D Super IO Configuration/COM5 Configuration【RS-422】					
Advanced/NCT6106D Super IO Configuration/COM6 Configuration【RS-485】					
Advanced/NCT6106D Super IO Configuration/COM6 Configuration【RS-422】					

38. EC_GPIO1:

(2.0mm Pitch 1X10 Pin Header), for expand connector, It provides eight GPIO.

Pin#	Signal Name
1	Ground
2	EC_GPA0
3	EC_GPA1
4	EC_GPE6
5	EC_GPE0
6	EC_GPH3
7	BKLT_CTRL_PWR
8	EC_ADC6
9	EC_ADC7
10	3.3V_ALLS_EC

39. CN3:

(1.27mm Pitch 2X50 Female Header),for expanding output connector, it provides four GPIO, two USB 2.0,one PS/2 mouse, one PS/2 keyboard, two uart, one PCIex1,one SMbus, two PCIex1 or USB3.0, two USB2.0, connects to the TB-528 riser Card.

Function	Signal Name	Pin#		Signal Name	Function
	5V_S5_USB	1	2	5V_S5_USB	
	5V_S5_USB	3	4	5V_S5_USB	
	USB34_OC	5	6	PSON_ALL-	
USB4	USB4_N	7	8	USB4_P	USB4
USB3	USB3_N	9	10	USB3_P	USB3
	Ground	11	12	Ground	
PS/2 MS	PS2_MSCLK	13	14	PS2_MSDATA	PS/2 MS
PS/2 KB	PS2_KBCLK	15	16	PS2_KBDATA	PS/2 KB
COM4 (UART)	COM4_RI	17	18	COM4_DCD-	COM4 (UART)
	COM4_TXD	19	20	COM4_RXD	
	COM4_DTR	21	22	RICOM4_RTS-	
	COM4_DSR	23	24	COM4_CTS-	
	Ground	25	26	Ground	
COM3 (UART)	COM3_RI	27	28	COM3_DCD-	COM3 (UART)
	COM3_TXD	29	30	COM3_RXD	
	COM3_DTR	31	32	DSRCOM3_RTS-	
	COM3_DSR	33	34	DTRCOM3_CTS-	
GPPC20	PCH_GPPC20	35	36	PCH_GPPC22	GPPC22
GPPC21	PCH_GPPC21	37	38	PCH_GPPC23	GPPC23

	Ground	39	40	Ground	
PCIe 1	PCIE1_TX_N0	41	42	PE1_TX_P0	PCIe 1
	PCIE1_RX_N0	43	44	PE1_RX_P0	
	Ground	45	46	Ground	
	CLK_100M_PE1_N	47	48	CLK_100M_PE1_P	
	PCIE1_WAKE_N	49	50	PLT_RST_BUF2-	
SMBUS	SMB_CLK_S5	51	52	SMB_DATA_S5	SMBUS
PCIE	CLKREQ_PE1-	53	54	Ground	
	3P3V_S5	55	56	PWRBTN_ON-	Power Auto on
	3P3V_S5	57	58	3P3V_S5	
12V	12V_S0	59	60	12V_S0	12V
12V	12V_S0	61	62	12V_S0	12V
PCIE3	Ground	63	64	Ground	PCIE3
	PE3_TX_N0	65	66	PE3_TX_P0	
	PE3_RX_N0	67	68	PE3_RX_P0	
	Ground	69	70	Ground	
	CLK_100M_PE0_N	71	72	CLK_100M_PE0_P	
	CLKREQ_PE0-	73	74	CLKREQ_PE5-	
PCIE5 or USB3.0	Ground	75	76	Ground	PCIE5 or USB3.0
	CLK_100M_PE5_N	77	78	CLK_100M_PE5_P	
	USB5PE1_TX_N	79	80	USB5PE1_TX_P	
	USB5PE1_RX_N	81	82	USB5PE1_RX_P	
PCIE6 or USB3.0	Ground	83	84	Ground	PCIE6 or USB3.0
	USB6PE2_TX_N	85	86	USB6PE2_TX_P	
	USB6PE2_RX_N	87	88	USB6PE2_RX_P	
	CLK_100M_XDP_N	89	90	CLK_100M_SDP_P	
USB2.0	Ground	91	92	Ground	USB2.0
	USB8_N	93	94	USB8_P	
	USB9_N	95	96	USB9_P	
	5V_S5	97	98	5V_S5	
	3P3V_S5	99	100	3P3V_S5	

40. TB-528C2ME1 (option):

   SBC-7114 Riser Card, TB-528C2ME1 CN3 connect to SBC-7114 CN3 pin Header.

   TB-528C2ME1 Top：
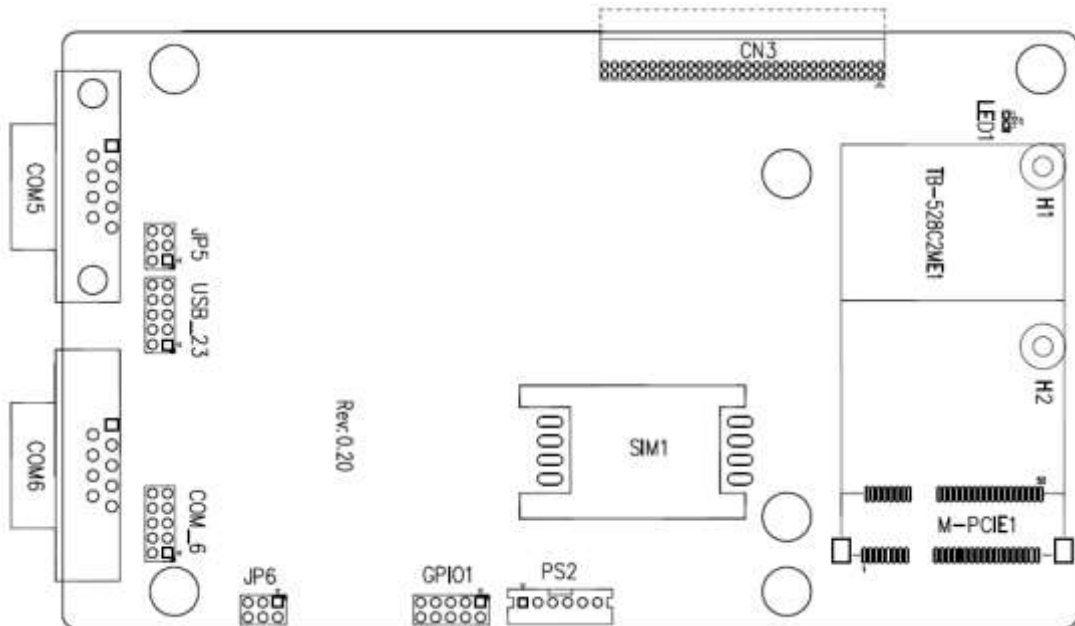
CN3：

(1.27mm Pitch 2X30 Pin Header), connect to SBC-7114 CN3 pin Header.

M-PCIE1：

(Socket 52Pin), mini PCIe socket, is located at the top, it supports mini PCIe devices with **USB2.0(USB3)**, Smbus, SIM and PCIe signal. MPCIe card size is 30x30mm or 30x50.95mm.

Signal Name	Function support
PCIe 1X	Yes
USB2.0 (USB2)	Yes
SMBus	Yes
SIM	Yes

H1/H2:

MPCIE1 SCREW HOLES, H2 for mini PCIE card (30mmx30mm) assemble. H1 for mini PCIE card (30mmx50.95mm) assemble.

LED1：

Mini PCIe devices LED Status

SIM1：

(SIM Socket 6 Pin), support SIM Card devices

PS2：

(2.0mm Pitch 1X6 Pin Wafer), PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard or mouse via a dedicated cable for direct use.

Pin#	Signal Name
1	KBDATA
2	MSDATA
3	Ground
4	+5V
5	KBCLK
6	MSCLK

GPIO1：

(2.0mm Pitch 2x5 Pin Header), General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	NC
NC	3	4	SMB_DATA_R
SMB_CLK_R	5	6	PCH-GPIO56
PCH -GPIO57	7	8	PCH -GPIO59
PCH -GPIO58	9	10	+5V

USB_23：

(2.0mm Pitch 2x5 Pin Header), front USB connector, it provides one USB port via a dedicated USB cable, speed up to 480Mb/s.

Signal Name	Pin#	Pin#	Signal Name
5V_USB23	1	2	5V_USB23
USB4_N	3	4	**USB3_N（option, NC）**
USB4_P	5	6	**USB3_P（option, NC）**
Ground	7	8	Ground
NC	9	10	Ground

Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

JP5：

(2.0mm Pitch 2x3 Pin Header), COM5 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM5 port.

JP5 Pin#	Function
Close 1-2	**RI (Ring Indicator) (default)**

Close 3-4	COM5 Pin9=+5V	(option)
Close 5-6	COM5 Pin9=+12V	(option)

COM5(SBC-7114/COM3)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM5 port is controlled by pins No.1~6 of **JP5**, select output Signal RI or 5V or 12v. For details, please refer to description of JP3.

Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP5 Setting: **Pin1-2 : RI (**Ring Indicator**)　　(default)** Pin3-4 : 5V Standby power　　**(**option**)** Pin5-6:12V Standby power　　(option)

JP6：

(2.0mm Pitch 2x3 Pin Header), COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP6 Pin#	Function	
Close 1-2	**RI (Ring Indicator)**	**(default)**
Close 3-4	COM6 Pin9=+5V	(option)
Close 5-6	COM6 Pin9=+12V	(option)

COM6(SBC-7114/COM4)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM6 port is controlled by pins No.1~6 of **JP6**, select output Signal RI or 5V or 12v. For details, please refer to description of JP6.

Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP6 Setting: **Pin1-2 : RI (**Ring Indicator**)**　　**(default)** Pin3-4 : 5V Standby power　　**(**option**)** Pin5-6:12V Standby power　　(option)

COM_6(SBC-7114/COM4)：

(2.0mm Pitch 2X5 Pin Header), COM6 Port, one standard RS232 port is provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP6 Setting: RI/5V/12V	9	10	NC

41.　TB-528C2 (option):

　SBC-7114 Riser Card, TB-528C2 CN3 connects to SBC-7114 CN3 pin Header.

　TB-528C2 Top：

CN3：
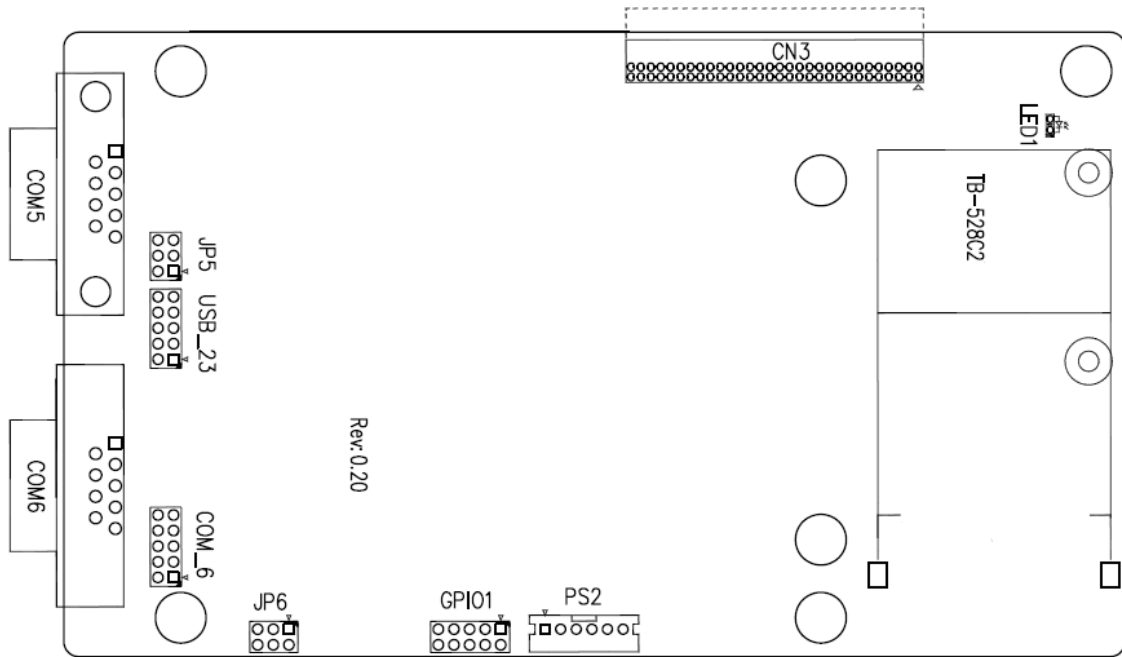
(1.27mm Pitch 2X30 Pin Header), connect to SBC-7114 CN3 pin Header.

LED1：

MiniPCIe devices' LED Status.

PS2：

(2.0mm Pitch 1X6 Pin Wafer), PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard or mouse via a dedicated cable for direct used.

Pin#	Signal Name
1	KBDATA
2	MSDATA
3	Ground
4	+5V
5	KBCLK
6	MSCLK

GPIO1：

(2.0mm Pitch 2x5 Pin Header), General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	NC
NC	3	4	SMB_DATA_R
SMB_CLK_R	5	6	PCH-GPIO56
PCH -GPIO57	7	8	PCH -GPIO59
PCH -GPIO58	9	10	+5V

USB_23：

(2.0mm Pitch 2x5 Pin Header), Front USB connector, it provides one USB port via a dedicated USB cable, speed up to 480Mb/s.

Signal Name	Pin#	Pin#	Signal Name
5V_USB23	1	2	5V_USB23
USB4_N	3	4	USB3_N
USB4_P	5	6	USB3_P
Ground	7	8	Ground
NC	9	10	Ground

Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

JP5：

(2.0mm Pitch 2x3 Pin Header), COM5 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM5 port.

JP5 Pin#	Function
Close 1-2	**RI (Ring Indicator) (default)**
Close 3-4	COM5 Pin9：+5V (option)
Close 5-6	COM5 Pin9：+12V (option)

COM5(SBC-7114/COM3)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM5 port is controlled by pins No.1~6 of **JP5**, select output Signal RI or 5V or 12v, For details, please refer to description of JP3.

Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)

9	JP5 Setting:
	Pin1-2 : RI (Ring Indicator**) (default)**
	Pin3-4 : 5V Standby power **(**option**)**
	Pin5-6:12V Standby power (option)

JP6：
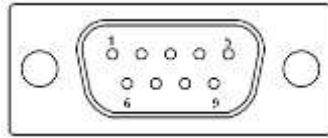
(2.0mm Pitch 2x3 Pin Header),COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP6 Pin#	Function
Close 1-2	**RI (Ring Indicator) (default)**
Close 3-4	COM6 Pin9：+5V (option)
Close 5-6	COM6 Pin9：+12V (option)

COM6(SBC-7114/COM4)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM6 port is controlled by pins No.1~6 of **JP6**, select output Signal RI or 5V or 12v. For details, please refer to description of JP6.

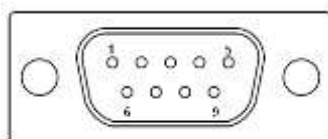| Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP6 Setting: **Pin1-2 : RI (**Ring Indicator**) (default)** Pin3-4 : 5V Standby power **(**option**)** Pin5-6:12V Standby power (option)

COM_6 (SBC-7114/COM4)：

(2.0mm Pitch 2X5 Pin Header), COM6 Port, up to one standard RS232 port is provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP6 Setting: RI/5V/12V	9	10	NC

42. TB-528C1U2P1/TB-528C1U2 (option):

SBC-7114 Riser Card,TB-528C1U2P1 CN3 connect to SBC-7114 CN3 pin Header.

TB-528C1U2P1 Top：

CN3：

(1.27mm Pitch 2X30 Pin Header), connect to SBC-7114 CN3 pin Header.

M-PCIE1：

(Socket 52Pin), mini PCIe socket, it is located at the top, it supports mini PCIe devices with Smbus, SIM and PCIe signal. MPCIe card size is 30x30mm or 30x50.95mm.

Signal Name	Function support
PCIe 1X	Yes
USB2.0 (USB3)	**NC (option)**
SMBus	Yes
SIM	Yes

H1/H2:

MPCIE1 SCREW HOLES, H2 for mini PCIE card (30mmx30mm) assemble. H1 for mini PCIE card (30mmx50.95mm) assemble.

LED1：

Mini PCIe devices' LED Status.

SIM1 (option)：

(SIM Socket 6 Pin), support SIM Card devices

PS_ON1：

(2.0mm Pitch 1X2 Pin Wafer), ATX Power and Auto Power on jumper setting

PS_ON	Mode
Close 1-2	**Auto Power on　(Default)**
Open 1-2	ATX Power

PS_ON2（option）：

(2.0mm Pitch 1X2 Pin Wafer)

PS2：

(2.0mm Pitch 1X6 Pin Wafer), PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard or mouse via a dedicated cable for direct used.

Pin#	Signal Name
1	KBDATA
2	MSDATA
3	Ground
4	+5V
5	KBCLK
6	MSCLK

GPIO1：

(2.0mm Pitch 2x5 Pin Header), General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	NC
NC	3	4	SMB_DATA_R
SMB_CLK_R	5	6	PCH-GPIO56
PCH -GPIO57	7	8	PCH -GPIO59
PCH -GPIO58	9	10	+5V

USB23(SBC-7114 USB3/USB4)：

(Double stack USB type A), Rear USB connector, it provides up to 2 USB2.0 ports, speed up to 480Mb/s.

USB_23 (option)：

(2.0mm Pitch 2x5 Pin Header), Front USB connector, it provides one USB port via a dedicated USB cable, speed up to 480Mb/s.

Signal Name	Pin#	Pin#	Signal Name
5V_USB23	1	2	5V_USB23
USB4_N	3	4	USB3_N
USB4_P	5	6	USB3_P
Ground	7	8	Ground
NC	9	10	Ground

Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.
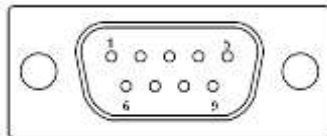
JP5：

(2.0mm Pitch 2x3 Pin Header), COM5 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM5 port.

JP3 Pin#	Function	
Close 1-2	**RI (Ring Indicator)**	**(default)**
Close 3-4	COM5 Pin9：+5V	(option)
Close 5-6	COM5 Pin9：+12V	(option)

COM5(SBC-7114/COM3)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM5 port is controlled by pins No.1~6 of **JP5**, select output Signal RI or 5V or 12v. For details, please refer to description of JP3.

Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)

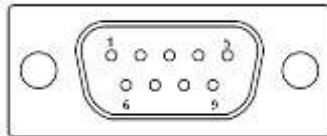| 8	CTS (Clear To Send)
9	JP5 Setting: **Pin1-2 : RI (**Ring Indicator**) (default)** Pin3-4 : 5V Standby power **(**option**)** Pin5-6:12V Standby power (option)

JP6：

    (2.0mm Pitch 2x3 Pin Header),COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP3 Pin#	Function	
Close 1-2	**RI (Ring Indicator)**	**(default)**
Close 3-4	COM6 Pin9：+5V	(option)
Close 5-6	COM6 Pin9：+12V	(option)

COM6(SBC-7114/COM4)：

    (Type DB9),serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM6 port is controlled by pins No.1~6 of **JP6**,select output Signal RI or 5V or 12v, For details, please refer to description of JP6.

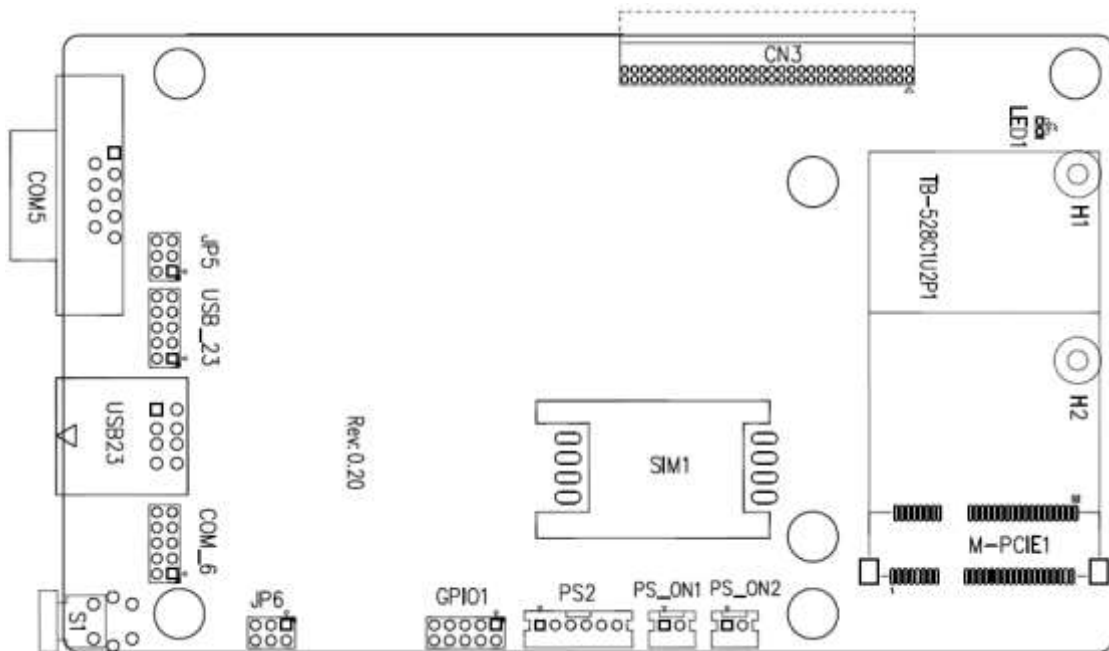| Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP6 Setting: **Pin1-2 : RI (**Ring Indicator**) (default)** Pin3-4 : 5V Standby power **(**option**)** Pin5-6:12V Standby power (option)

S1：

PWR BT: POWER on/off Button, is used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

PWR LED: POWER LED status.

S1	Model
Yes	TB-528C1U2P1
No	TB-528C1U2

43. **TB-528CAN2 R2.00 (option):**

SBC-7114 Riser Card,TB-528CAN2 CN3 connect to SBC-7114 CN3 pin Header.

It provides two CAN-bus Interface.

TB-528CAN2 Top：
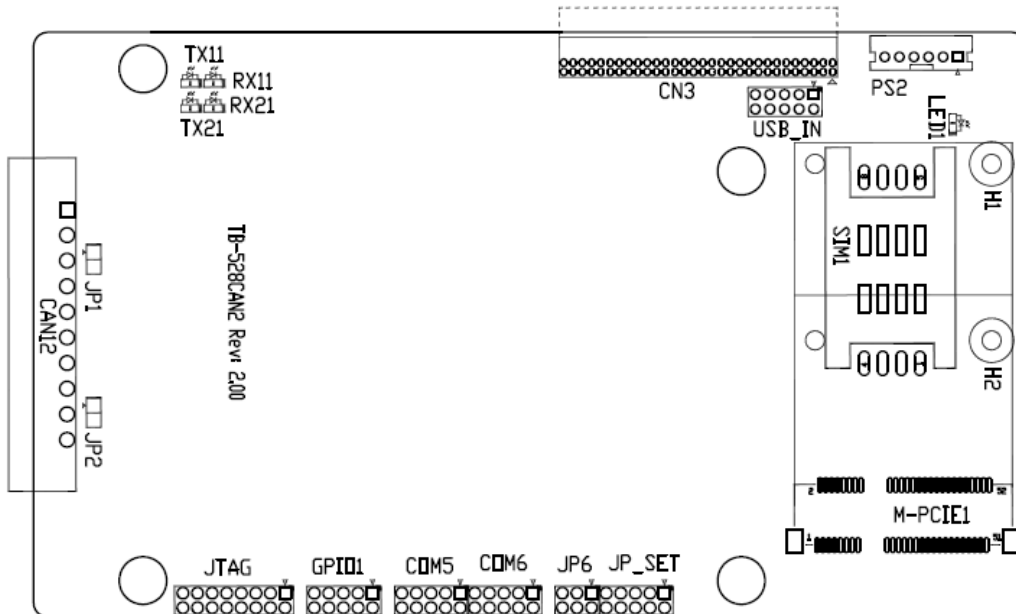
CN3：

(1.27mm Pitch 2X30 Pin Header),connect to SBC-7114 CN3 pin Header.

M-PCIE1：

(Socket 52Pin),mini PCIe socket, it is located at the top, it supports mini PCIe devices with Smbus,USB2.0,SIM and PCIe signal. MPCIe card size is 30x30mm or 30x50.95mm.

Signal Name	Function support
PCIe 1X	Yes
USB2.0 (USB2)	Yes
SMBus	Yes

SIM	Yes

H1/H2:

MPCIE1 SCREW HOLES, H2 for mini PCIE card (30mmx30mm) assemble. H1 for mini PCIE card (30mmx50.95mm) assemble.

LED1：

Mini PCIe devices LED Status.

SIM1（option）：

(SIM Socket 6 Pin), Support SIM Card devices.

PS2：

(2.0mm Pitch 1X6 Pin Wafer), PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard or mouse via a dedicated cable for direct used.

Pin#	Signal Name
1	KBDATA
2	MSDATA
3	Ground
4	+5V
5	KBCLK
6	MSCLK

USB_IN（option）：

(2.0mm Pitch 2x5 Pin Header) ,Front USB connector, it provides two USB port via a dedicated USB cable, speed up to 480Mb/s.

Signal Name	Pin#	Pin#	Signal Name
5V_USB34	1	2	5V_USB34
NC (USB4_N)	3	4	NC (USB3_N)
NC (USB4_P)	5	6	NC (USB3_P)
Ground	7	8	Ground
NC	9	10	Ground

Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

JP_SET (option)：

(2.0mm Pitch 2x5 Pin Header).

Signal Name	Pin#	Pin#	Signal Name
3P3V_S5_USB	1	2	3P3V_S5
3P3V_S5_USB	3	4	3P3V_S5
3P3V_S5_USB	5	6	3P3V_S5
PSON_ATX	7	8	Ground
PSON_ATX	9	10	Ground

JP6：

(2.0mm Pitch 2x3 Pin Header),COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP3 Pin#	Function	
Close 1-2	**RI (Ring Indicator)**	**(default)**
Close 3-4	COM6 Pin9：+5V	(option)
Close 5-6	COM6 Pin9：+12V	(option)

COM6(SBC-7114/COM4)：

(2.0mm Pitch 2X5 Pin Header),COM6 Port, up to one standard RS232 port are provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP6 Setting：RI/5V/12V	9	10	NC

COM5(SBC-7114/COM3)：

(2.0mm Pitch 2X5 Pin Header),COM5 Port, up to one standard RS232 port are provided. They can be used directly via COM cable connection.

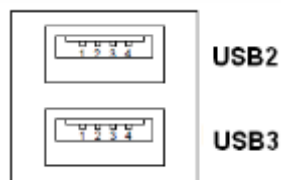| Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

GPIO1：

(2.0mm Pitch 2x5 Pin Header),General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	NC
NC	3	4	SMB_DATA_R
SMB_CLK_R	5	6	PCH-GPIO56
PCH -GPIO57	7	8	PCH -GPIO59
PCH -GPIO58	9	10	+5V

JTAG：

(2.0mm Pitch 2x5 Pin Header), Reserve.

JP1：

(2.0mm Pitch 1x2 Pin Header), Reserve.

JP2：

(2.0mm Pitch 1x2 Pin Header), Reserve.

CAN1/CAN2：

(3.5mm Pitch 1x10 Pin connector), it provides two CAN-bus Interface.

Pin#	Channel	Signal Name	Function
1	CAN2	CANL2	CAN bus Signal L
2		R2-	Terminal resistor R-(internally connected to CANL2)
3		FG	Shield cable (FG)
4		R2+	Terminal resistor R+(internally connected to CANH2)
5		CANH2	CAN bus Signal H
6	CAN1	CANL1	CAN bus Signal L
7		R1-	Terminal resistor R-(internally connected to CANL1)
8		FG	Shield cable (FG)
9		R1+	Terminal resistor R+(internally connected to CANH1)
10		CANH1	CAN bus Signal H

【See TB-528CAN2 Manual】

44. TB-528U2 (option):

SBC-7114 Riser Card,TB-528U2 CN3 connect to SBC-7114 CN3 pin Header.

TB-528U2 Top：
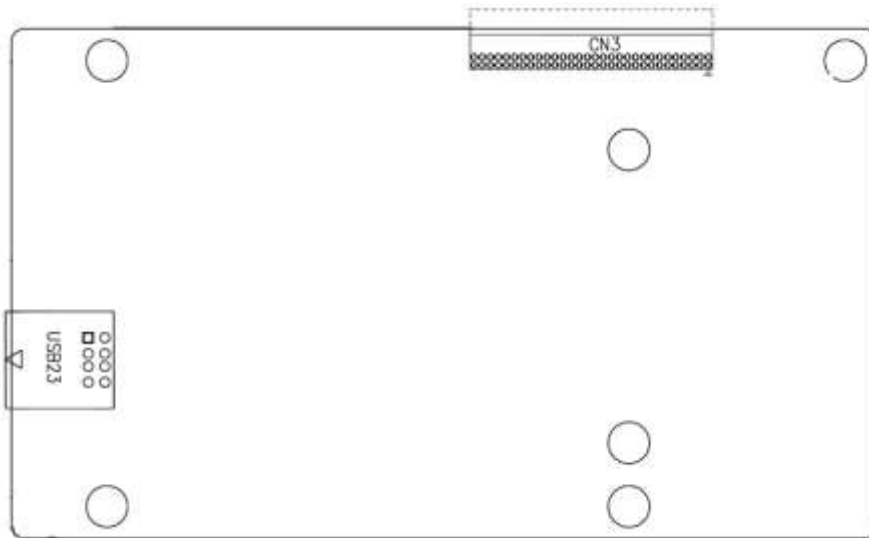
CN3：

(1.27mm Pitch 2X30 Pin Header),connect to SBC-7114 CN3 pin Header.

USB23(SBC-7114 USB3/USB4)：

(Double stack USB type A), Rear USB connector, it provides up to 2 USB2.0 ports, speed up to 480Mb/s.
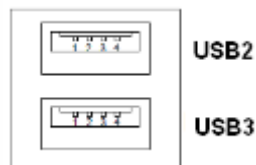
45. TB-528E1U2POE (option):

SBC-7114 Riser Card, TB-528E1U2POE CN3 connect to SBC-7114 CN3 pin Header, TB-528E1U2POE 12V_OUT1 connect to SBC-7114 BAT2.

TB-528E1U2POE Top：
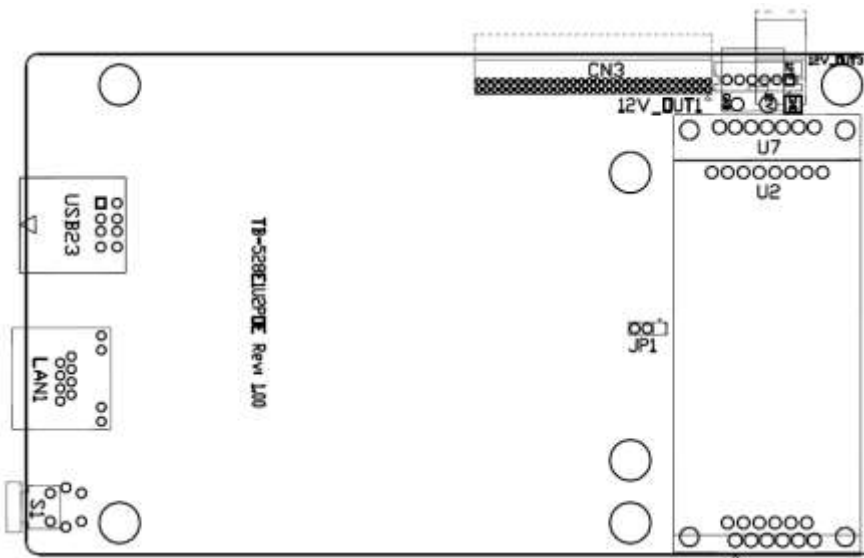
CN3：

(1.27mm Pitch 2X30 Pin Header),connect to SBC-7114 CN3 pin Header.

USB23(SBC-7114 USB3/USB4)：

(Double stack USB type A), Rear USB connector, it provides up to 2 USB2.0 ports, speed up to 480Mb/s.
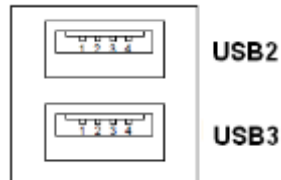
LAN1：

(RJ45 Connector), Rear LAN port, one standard 10/100/1000M RJ-45 Ethernet ports are provided. Use Intel I211-AT chipset, LINK LED (green) and ACTIVE LED (green) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.
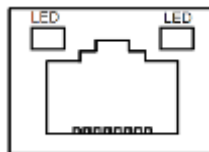
PSE Function support	
PSE output Voltage	DC44~ 57V

12V_OUT1：

(3.96mm Pitch 1x2 Pin Header), POE DC12V Output.
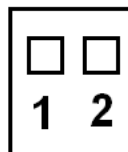
Pin#	Output Voltage
1	12V_POE
2	Ground

POE: The Ag5510 input complies with the IEEE802.3at specification. When the inputs are connected to a Power Sourcing Equipment (PSE), they will automatically present a Powered Device (PD) signature to the PSE (when requested). The equipment will then recognize that a PD is connected to that line and supply power.

Model	U7	Maximum Output Power	SBC-7114
TB-528E1UPOE	AG5510	40W	●

12V_OUT3(option)：
(2.0mm Pitch 1x6 Pin Header), Reserve.

12V_OUT1(option)：
(3.96mm Pitch 1x2 Pin Header), Reserve.

JP3(option)：
(2.0mm Pitch 1x3 Pin Header), Reserve.

S1(option)： Reserve.

46. TB-528U4 R1.10 (option):

SBC-7114 Riser Card, TB-528U4 CN3 connect to SBC-7114 CN3 pin Header.

TB-528U4 Top：
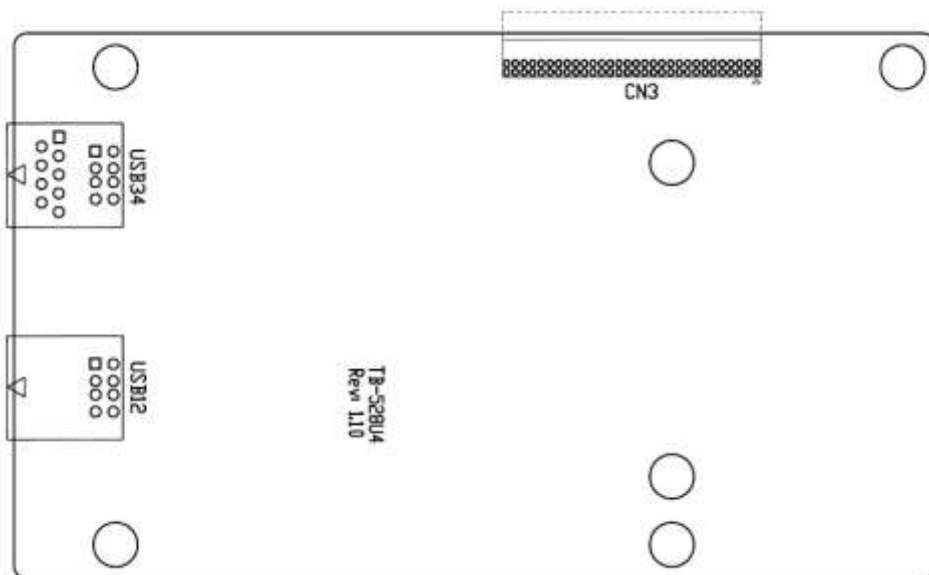
CN3：
(1.27mm Pitch 2X30 Pin Header),connect to SBC-7114 CN3 pin Header.

USB12/USB34(USB-HUB)：
(Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, speed up to 480Mb/s.
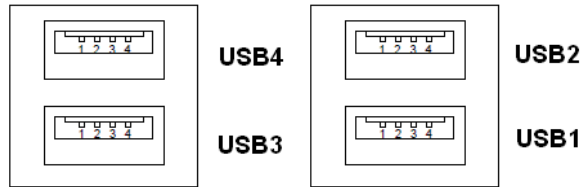
47. TB-528U4C2ME1P1 R1.10 (option):

SBC-7114 Riser Card, TB-528U4C2ME1P1 CN3 connect to SBC-7114 CN3 pin Header.

TB-528U4C2ME1P1 Top：
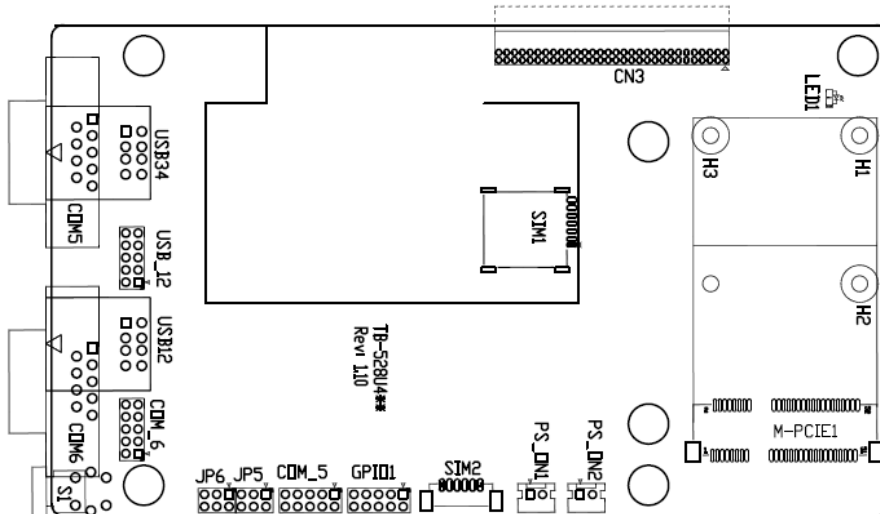
CN3：

(1.27mm Pitch 2X30 Pin Header), connect to SBC-7114 CN3 pin Header.

M-PCIE1：

(Socket 52Pin),mini PCIe socket, it is located at the top, it supports mini PCIe devices with **USB2.0(USB3)**,Smbus,SIM and PCIe signal. MPCIe card size is 30x30mm or 30x50.95mm.

Signal Name	Function support
PCIe 1X	Yes
USB2.0 (USB2)	Yes
SMBus	Yes
SIM	Yes

H1/H2:

MPCIE1 SCREW HOLES, H2 for mini PCIE card (30mmx30mm) assemble. H1 for mini PCIE card (30mmx50.95mm) assemble.

LED1：

Mini PCIe devices LED Status

SIM1：

(Nano SIM Socket 6 Pin), Support SIM Card devices

SIM2 (option)：

(1.25mm Pitch 1X6 Pin Wafer), Support SIM Card devices

GPIO1：

(2.0mm Pitch 2x5 Pin Header),General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	GPIO_OUT1
GPIO_OUT2	3	4	SMB_DATA_R
SMB_CLK_R	5	6	GPIO_IN1
GPIO_IN2	7	8	GPIO_IN3
GPIO_IN4	9	10	+5V

USB12/USB34(USB-HUB)：

(Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, speed up to 480Mb/s.
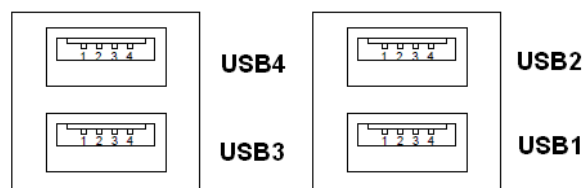
USB_12（option）：

(2.0mm Pitch 2x5 Pin Header) ,Front USB connector, it provides two USB port via a dedicated USB cable, speed up to 480Mb/s.

Signal Name	Pin#	Pin#	Signal Name
5V_USB12	1	2	5V_USB12
E_USB1_N	3	4	E_USB2_N
E_USB1_P	5	6	E_USB2_P
Ground	7	8	Ground
NC	9	10	Ground

Note:

Before connection, make sure that pinout of the USB Cable is in accordance with that of the said tables. Any inconformity may cause system down and even hardware damages.

JP5：

(2.0mm Pitch 2x3 Pin Header),COM5 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM5 port.

JP5 Pin#	Function
Close 1-2	**RI (Ring Indicator) (default)**
Close 3-4	COM5 Pin9=+5V (option)
Close 5-6	COM5 Pin9=+12V (option)

COM5(SBC-7114/COM3，option)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM5 port is controlled by pins No.1~6 of **JP5**,select output Signal RI or 5V or 12v, For details, please refer to description of JP3.

Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP5 Setting: **Pin1-2 : RI (**Ring Indicator**) (default)** Pin3-4 : 5V Standby power **(**option**)** Pin5-6:12V Standby power (option)

COM_5 (SBC-7114/COM3)：

(2.0mm Pitch 2X5 Pin Header), COM5 Port, up to one standard RS232 port are provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP6 Setting: RI/5V/12V	9	10	NC

JP6：

(2.0mm Pitch 2x3 Pin Header), COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP6 Pin#	Function	
Close 1-2	**RI (Ring Indicator)**	**(default)**
Close 3-4	COM6 Pin9=+5V	(option)
Close 5-6	COM6 Pin9=+12V	(option)

COM6(SBC-7114/COM4, option)：

(Type DB9), serial port, standard DB9 serial port is provided to make a direct connection to serial devices. COM6 port is controlled by pins No.1~6 of **JP6**,select output Signal RI or 5V or 12v, For details, please refer to description of JP6.

Pin#	Signal Name
1	DCD#　(Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	JP6 Setting: **Pin1-2 : RI (**Ring Indicator**)**　　**(default)** Pin3-4 : 5V Standby power　　**(**option**)** Pin5-6:12V Standby power　　(option)

COM_6 (SBC-7114/COM4)：

(2.0mm Pitch 2X5 Pin Header), COM6 Port, up to one standard RS232 port are provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP6 Setting: RI/5V/12V	9	10	NC

PS_ON1：

(2.0mm Pitch 1X2 Pin Wafer), ATX Power and Auto Power on jumper setting

PS_ON	Mode
Close 1-2	**Auto Power on　(Default)**
Open 1-2	ATX Power

PS_ON2（option）：

(2.0mm Pitch 1X2 Pin Wafer)

S1：

PWR BT: POWER on/off Button, is used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

PWR LED: POWER LED status.

48. **TB-548 R1.00 (option):**

SBC-7114 Riser Card, TB-548 LVDS1 connect to SBC-7114 CN1 DF13-40P, TB-548 INVT1 connect to SBC-7114 INVT1,TB-548 TOUCH1 connect to SBC-7114 TCH1, TB-548 CON1 connect to TB-547 CON1.

TB-548 Top：
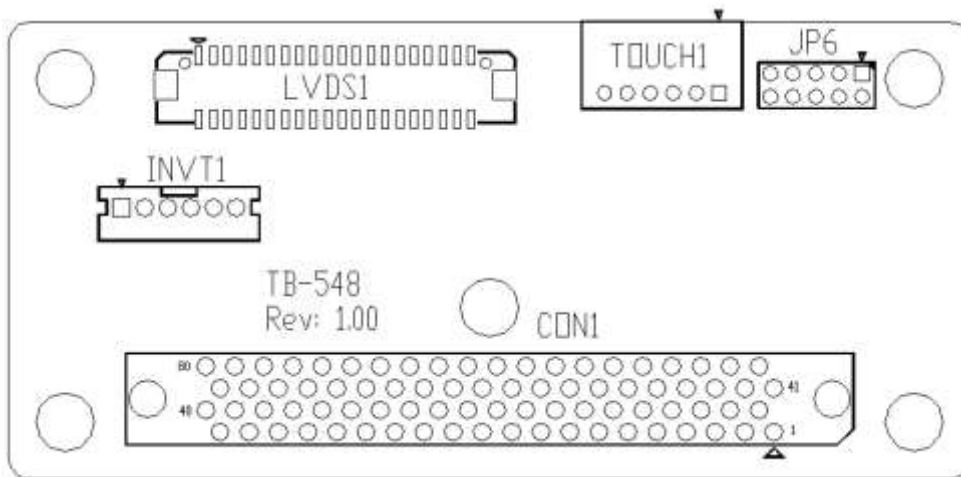
LVDS1：

(1.25mm Pitch 2x20 Connector,DF13-40P).

Function	Signal Name	Pin#		Signal Name	Function
	12V_S0	2	1	12V_S0	
	BKLT_EN_OUT	4	3	BKLT_CTRL	
	Ground	6	5	Ground	
	LVDS_VDD5	8	7	LVDS_VDD5	
	LVDS_VDD3	10	9	LVDS_VDD3	

LVDS	Ground	12	11	Ground	LVDS
	LA_D0_P	14	13	LA_D0_N	
	LA_D1_P	16	15	LA_D1_N	
	LA_D2_P	18	17	LA_D2_N	
	LA_D3_P	20	19	LA_D3_N	
	LA_CLKP	22	21	LA_CLKN	
	LB_D0_P	24	23	LB_D0_N	
	LB_D1_P	26	25	LB_D1_N	
	LB_D2_P	28	27	LB_D2_N	
	LB_D3_P	30	29	LB_D3_N	
	LB_CLKP	32	31	LB_CLKN	
USB7 (option)	Ground	34	33	SEL_LCD_EDID	
	USB7_P	36	35	USB7_N	
	5V_S5_USB	38	37	LVDS1_DDC_DATA	
Power LED	PWR_LED+	40	39	LVDS1_DDC_CLK	

INVT1:

(2.0mm Pitch 1x6 wafer Pin Header), Backlight control connector for LVDS
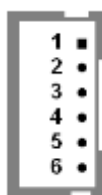
Pin#	Signal Name
1	+DC12V_S0
2	+DC12V_S0
3	Ground
4	Ground
5	BKLT_EN_OUT
6	BKLT_CTRL

TOUCH1:

(2.0mm Pitch 1x6 wafer Pin Header), internal Touch controller connector

Pin#	Signal Name
1	SENSE
2	X+
3	X-
4	Y+
5	Y-
6	GND_EARCH

JP6 (option)：

(2.0mm Pitch 2x5 Pin Header), LVDS EDID setting jumper

JP6 Pin#	Function (CN1)
Close 1-2	Single channel LVDS
Open 1-2	Dual channel LVDS
Close 3-4	8/24 bit
Open 3-4	6/18 bit
SEL-LCD-EDID：	
Close 5-6	Onboard EDID
Open 5-6	Panel EDID
All open（JP6）	**Default**

49. **TB-547 R1.10 (option):**

TB-548 Riser Card, TB-547 LVDS1 connect to LVDS Panel,TB-547 INVT1 connect to LVDS Panel,TB-547 TOUCH1 connect to TOUCH Panel,TB-547 CON1 OPS connect to TB-548 CON1.

TB-547 Top：
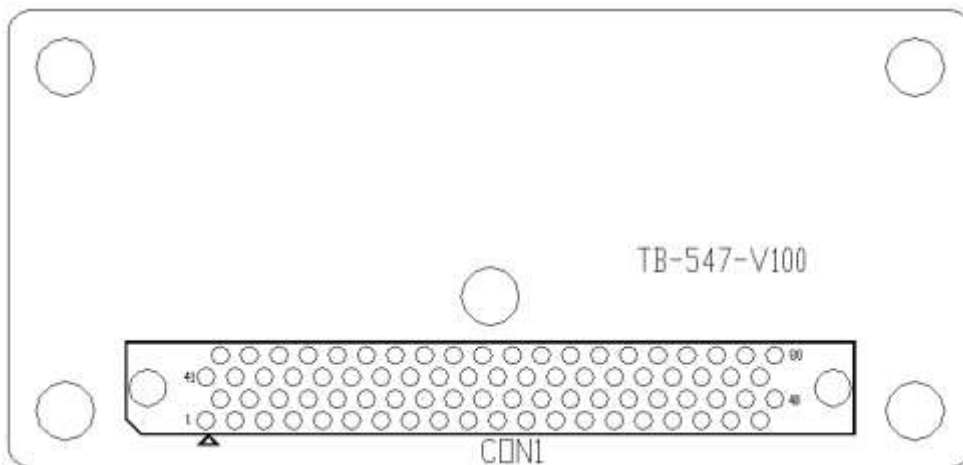
TB-547 Bottom：
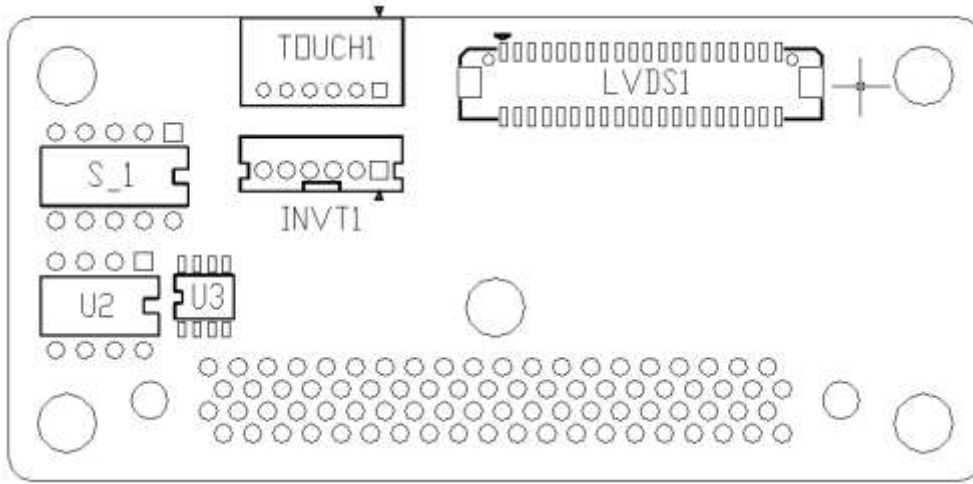
LVDS1：

(1.25mm Pitch 2x20 Connector, DF13-40P)

Function	Signal Name	Pin#		Signal Name	Function
LVDS	12V_S0	2	1	12V_S0	LVDS
	BKLT_EN_OUT	4	3	BKLT_CTRL	
	Ground	6	5	Ground	
	LVDS_VDD5	8	7	LVDS_VDD5	
	LVDS_VDD3	10	9	LVDS_VDD3	
	Ground	12	11	Ground	
	LA_D0_P	14	13	LA_D0_N	
	LA_D1_P	16	15	LA_D1_N	
	LA_D2_P	18	17	LA_D2_N	
	LA_D3_P	20	19	LA_D3_N	
	LA_CLKP	22	21	LA_CLKN	
	LB_D0_P	24	23	LB_D0_N	
	LB_D1_P	26	25	LB_D1_N	
	LB_D2_P	28	27	LB_D2_N	
	LB_D3_P	30	29	LB_D3_N	
	LB_CLKP	32	31	LB_CLKN	
USB7 (option)	Ground	34	33	Ground	
	USB7_P	36	35	USB7_N	
	5V_S5_USB	38	37	5V_S5_USB	
Power LED	PWR_LED+	40	39	Ground	

INVT1:

(2.0mm Pitch 1x6 wafer Pin Header), Backlight control connector for LVDS
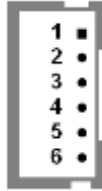
Pin#	Signal Name
1	+DC12V_S0
2	+DC12V_S0
3	Ground
4	Ground
5	BKLT_EN_OUT
6	BKLT_CTRL

TCH1:

(2.0mm Pitch 1x6 wafer Pin Header), internal Touch controller connector

Pin#	Signal Name
1	SENSE
2	X+
3	X-
4	Y+
5	Y-
6	GND_EARCH

S_1(PIN3):

(Switch), LVDS EDID setting jumper.

S_1(Switch)	Function (LVDS)
Pin1（ON）	Single channel LVDS
Pin1（OFF）	Dual channel LVDS
Pin2（ON）	8/24 bit
Pin2（OFF）	6/18 bit
SEL-LCD-EDID （SBC-7114 U17 or OPC-547 U2/U3）	
Pin3（**ON**）	Onboard EDID
Pin3（**OFF**）	Panel EDID
Pin4	-
Pin5	-
This setting can only select SBC-7114 R2.XX S_1 or TB-547 S_1.	

U3：

AT24C02,The EEPROM IC（U3）is the set of LVDS resolution.

If you need other resolution settings, please upgrade U3 data.

	800*480（option）
	800*600（option）
LVDS resolution	1024*768（option）
	1280*1024 (option)
	1920*1080（option）
	……

Chapter 4. BIOS Setup

4.1.   Operations after POST Screen

After CMOS discharge or BIOS flashing operation, press [Delete] key to enter CMOS Setup.
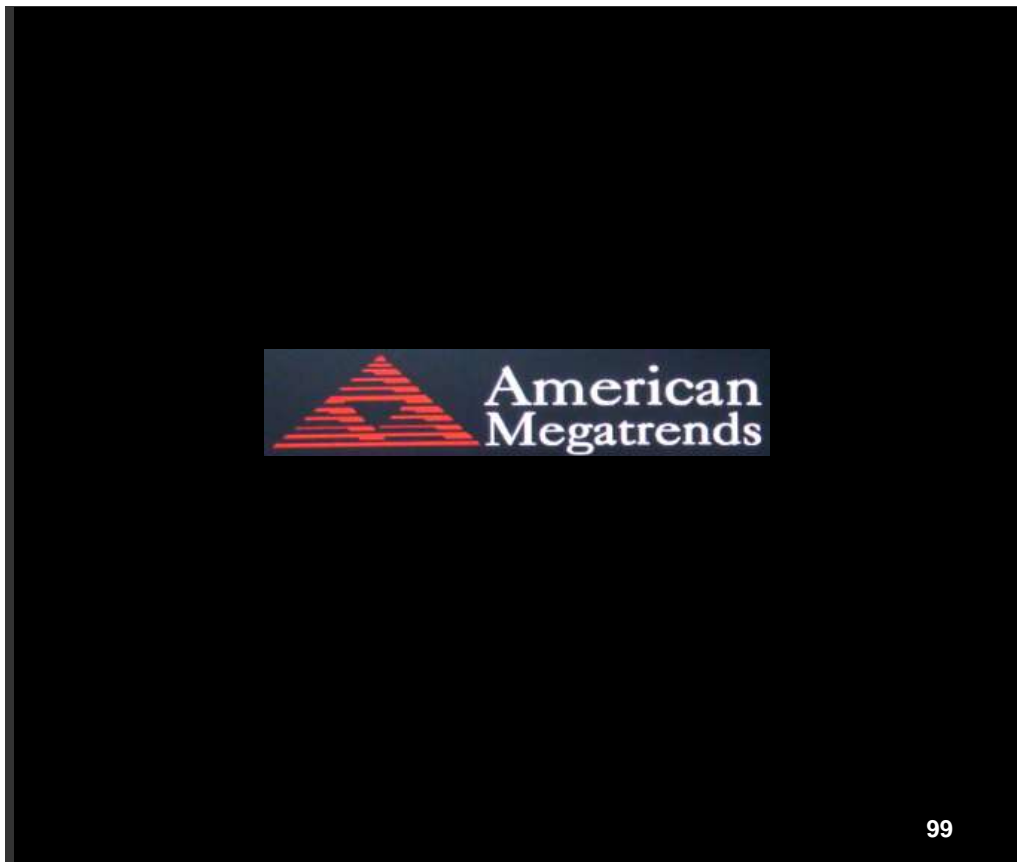
After optimizing and exiting CMOS Setup

4.2. BIOS Setup Utility

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.

4.3. Main Settings

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit

BIOS Information

BIOS Vendor   American Megatrends

Core Version   5.11

Compliancy   UEFI 2.4; PI 1.3

Project Version   7114v 0.16 x64

Build Date and Time   06/19/2017 13:51:32

Processor Information

Name   SkyLake

Brand String   Intel（R）Core（TM）

i3-6100U/i5-6200U

CPU@2.30GHz

Choose the system default Language

Frequency	2200 MHz	→←: Select Screen
		↑↓ : Select Item
IGFX VBIOS Version	1046	Enter: Select
Memory RC Version	2.0.0.1	+/- : Charge Opt.
Total Memory	4096 MB	F1 : General Help
Memory Frequency	2133 MHz	F2: Previous Values
		F3:Optimized Defaults
System Language	[English]	F4:Save and Exit
		ESC Exit
System Date	[Sun 01/01/2009]	
System Time	[00:00:10]	

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System Time:

Set the system time, the time format is:

Hour :	0 to 23
Minute :	0 to 59
Second :	0 to 59

System Date:

Set the system date, the date format is:

Day: Note that the 'Day' automatically changes when you set the date.

Month: 01 to 12

Date: 01 to 31

Year: 1998 to 2099

4.4. Advanced Settings

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.				
Main	Advanced	Chipset	Security	Boot	Save & Exit

System ACPI Parameters.

►ACPI Settings

►AMT Configuration

►NCT6106D Super IO Configuration

►NCT6106D HW Monitor

►IT8528SEC Super IO Configuration

►CPU Configuration

►Platform Misc Configuration	→←: Select Screen
►SATA Configuration	↑↓ : Select Item
►CSM Configuration	Enter: Select
►USB Configuration	+/- : Charge Opt.
	F1 : General Help
	F2: Previous Values
	F3:Optimized Defaults
	F4:Save and Exit
	ESC Exit

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4.4.1 ACPI Settings

Enable ACPI Auto Conf:

> **[Disabled]**
> [Enabled]

Enable Hibernation:

> **[Enabled]**
> [Disabled]

ACPI Sleep State:

> **[S3 (Suspend to RAM)]**
> [Suspend Disabled]

Lock Legacy Resources:

> **[Disabled]**
> [Enabled]

S3 Video Repost:

> **[Disabled]**
> [Enabled]

ACPI Low Power S0 Idle:

> **[Disabled]**
> [Enabled]

4.4.2 AMT Configuration

Intel AMT	[Disabled]
BIOS Hotkey Pressed	[Disabled]
MEBx Selection Screen	[Disabled]
Hide Un-Configure ME Configuration Prompt	[Disabled]
MEBx Debug Message Output	[Disabled]
Un-Configure ME	[Disabled]
Amt Wait Timer	0
ASF	[Enabled]

Activate Remote Assistance Process	[Disabled]
USB Provisioning of AMT	[Enabled]
PET Progress	[Enabled]
AMT CIRA Timeout	0
WatchDog	[Disabled]
OS Timer	0
BIOS Timer	0

4.4.3 NCT6106D Super IO Configuration

Super IO Chip	NCT6106D
Serial Port 1 Configuration	
Serial port	**[Enabled]**
	[Disabled]
Device Settings	IO=3F8h； IRQ=4；
Change Settings	**[Auto]**
F75111 COM1 Config	
	[RS-232 Mode]
	[RS-485 Mode]
	[RS-422 Mode]
Serial Port 2 Configuration	
Serial port	**[Enabled]**
	[Disabled]
Device Settings	IO=2F8h； IRQ=3；
Change Settings	**[Auto]**
Serial Port 3 Configuration	
Serial port	**[Enabled]**
	[Disabled]
Device Settings	IO=3E8h； IRQ=7；
Change Settings	**[Auto]**
Serial Port 4 Configuration	
Serial port	**[Enabled]**
	[Disabled]
Device Settings	IO=2E8h； IRQ=7；
Change Settings	**[Auto]**

Serial Port 5 Configuration

Serial port   **[Enabled]**
                                       [Disabled]

Device Settings   IO=2F0h； IRQ=7；
Change Settings   **[Auto]**
COM5 Config   **[RS-485 Mode]**
                                       [RS-422 Mode]

Serial Port 6 Configuration

Serial port   **[Enabled]**
                                       [Disabled]

Device Settings   IO=2E0h； IRQ=7；
Change Settings   **[Auto]**
COM6 Config   **[RS-485 Mode]**
                                       [RS-422 Mode]

Power Failure   **[Power OFF]**
                                       [Power ON]
                                       [Last state]

4.4.4 NCT6106D HW Monitor

Pc Health Status

CPU Temperature   ：38
CPU Fan Speed   ：N/A
VCORE   ：+0.872V
12V   ：+11.864V
5V   ：+5.299V
VCC3V   ：+3.472V

4.4.5 IT8528SEC Suoer IO Configuration

EC VERSION   7114E005
Super IO Chip   IT8528SEC

4.4.6 CPU Configuration

Intel(R) Core(TM) i5-6200U CPU @ 2.30GHz
CPU Signature   406E3
Microcode Patch   9E
Max CPU Speed   2300 MHz
Mix CPU Speed   400MHz
CPU Speed   2200 MHz

Processor Cores	2
Hyper Threading Technology	Supported
Intel VT-X Technology	Supported
Intel SMX Technology	Not Supported
64-bit	Supported
EIST Technology	Supported
CPU C3 state	Supported
CPU C6 state	Supported
CPU C7 state	Supported
CPU C8 state	Supported
CPU C9 state	Supported
CPU C10 state	Supported
L1 Date Cache	32KB x 2
L1 Code Cache	32KB x 2
L2 Cache	256 KB x 2
L3 Cache	3 MB
L4 Cache	Not Present
Hyper-threading	[Enabled]
Active Processor Cores	[All]
Overclocking lock	[Disabled]
Intel Virtualization Technology	[Enabled]
Hardware Prefetcher	[Enabled]
Adjacent Cache Line Prefetch	[Enabled]
CPU AES	[Enabled]
Boot performance mode	[Max Non-Turbo Performance]
Intel(R) Speed Shift Technology	[Enabled]
Intel(R) SpeedStep(tm)	[Enabled]
Turbo Mode	[Enabled]
Package Power Limit MSR Lock	[Disabled]
1-Core Ratio Limit Override	0
2-Core Ratio Limit Override	0
Configurable TDP Boot Mode	[Nominal]
Configurable TDP Lock	[Disabled]
CTDP BIOS control	[Disabled]
Platform PL1 Enable	[Disabled]
Platform PL2 Enable	[Disabled]
CPU C states	[Enabled]
Enhanced C-states	[Enabled]
C-State Auto Demotion	[C1 and C3]
C-State Un- Demotion	[C1 and C3]

Package C state demotion	[Enabled]
Package C state undemotion	[Enabled]
CState Pre-Wake	[Enabled]
Package C State limit	[AUTO]
CFG lock	[Enabled]

►Power Limit 3 Settings

Power Limit 3 Override	[Disabled]

►Power Limit 4 Settings

Power Limit 4 Override	[Disabled]

►CPU Thermal Configuration

CPU DTS	[Disabled]
TCC Activation Offset	0
ACPI 3.0 T-States	[Disabled]

Debug Interface	[Disabled]
Debug Interface Lock	[Enabled]
SW Guard Extensions(SGX)	[Software Controlled]
Select Owner EPOCH input type	[No Change In Owner EPOCHS]

PRMRR Size	[AUTO]

4.4.7 Platform Misc Configuration

Native PCIE Enable	[Enabled]
Native ASPM	[Auto]
BDAT ACPI Table Support	[Disabled]
Intel Ready Mode Technology	[Disabled]
ACPI Debug	[Disabled]
PTID Support	[Enabled]
PECI Access Method	[Direct I/O]
Firmware Configuration	[Test]
ZpODD Support	[Disabled]
PCI Delay Optimization	[Disabled]

►**DPTF Configuration**

DPTF   [Disabled]

►**Platform Setting**

Pmic Vcc IO Level   [Disabled]
Pmic Vddq Level   [Disabled]
Power Sharing Manager   [Disabled]
Select Camera   [IVCAM]
Enable 3D Camera DFU device   [Disabled]\

Wireless device   [Disabled]
WRDS Package
  WiFi SAR   [Disabled]
HID Event Filter Driver   [Disabled]
Enable Wireless Charge Support   [Disabled]
Enable FFU Support   [Disabled]

4.4.8 SATA Configuration

SATA Controller（S）   [Enabled]
SATA Mode   [AHCI]
SATA Test Mode   [Disabled]
►Software Feature Mask SATA Controller
    Aggressive LPM Support   [Enabled]
SATA Controller Speed   [Default]

Serial ATA Port 0   Empty
  Software Preserve   Unknown
  Port 0   [Enabled]
  Hot Plug   [Disabled]
  External SATA   [Disabled]
  Spin Up Device   [Disabled]
  SATA Device Type   [Hard Disk Drive]
  Topology   [Unknown]
  Device Sleep   [Disabled]
  SATA DEVSLEP Idle Timeout Config   [Disabled]

Serial ATA Port 1   Empty
  Software Preserve   Unknown

Port 1	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
Topology	[Unknown]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]
Serial ATA Port 2	Empty
Software Preserve	Unknown
Port 2	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
Topology	[Unknown]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]
Serial ATA Port 3	Empty
Software Preserve	Unknown
Port 3	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
Topology	[Unknown]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]
Serial ATA Port 4	Empty
Software Preserve	Unknown
Port 4	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
Topology	[Unknown]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]

Serial ATA Port 5	Empty
Software Preserve	Unknown
Port 5	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
Topology	[Unknown]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]

4.4.9 CSM Configuration

Compatibility Support Module Configuration

CSM Support	[Enabled]
CSM16 Module Version	07.79
GateA20 Active	[Upon Request]
Option ROM Messages	[Force BIOS]
INT19 Trap Response	[Immediate]
Boot option filter	[UEFI and Legacy]
Option ROM execution	
Network	[Do not launch]
Storage	[UEFI]
Video	[Legacy]
Other PCI devices	[UEFI]

4.4.10 USB Configuration

USB Module Version   16

USB Controllers:
        1XHCI
USB Devices:
        1 Keyboard,1 Mouse

Legacy USB Support	[Enabled]
XHCI Hand-off	[Enabled]
USB Mass Storage Driver Support	[Enabled]
Port 60/64 Emulation	[Disabled]
USB Hardware delays and time-outs:	
USB transfer time-out	[20 sec]
Device reset time-out	[20 sec]
Device power-up delay	[Auto]

4.5.   Chipset Settings

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.				
Main	Advanced	Chipset	Security	Boot	Save & Exit

►System Agent （SA） Configuration
►PCH-IO Configuration

System Agent （SA）
Configuration

→←: Select Screen
↑↓ : Select Item
Enter: Select
+/- : Charge Opt.
F1 : General Help
F2: Previous Values
F3:Optimized Defaults
F4:Save and Exit
ESC   Exit

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4.5.1   System Agent （SA） Configuration

System Agent Bridge Name	Skylake
SA PCIe Code Version	2.0.0.0
VT-d	Supported
VT-d	[Enabled]
Primary IGFX Boot Display	[VBIOS Deafault]
Secondary IGFX Boot Display	[Disabled]

Active LFP	[eDP Port-A]
Panel Color Depth	[18 Bit]
LCD Backlight Control	[PWM Normal by BIOS]
BIOS Control Backlight Level	[Level 7]

►**Graphics Configuration**

IGFX VBIOS Version	1046
Graphics Turbo IMON Current	31
Skip Scanning of External Gfx Card	[Disabled]
Primary Display	[Auto]
Primary PEG	[Auto]
Primary PCIE	[Auto]
Internal Graphics	[Auto]
GTT Size	[8MB]
Aperture Size	[256MB]
DVMT Pre-Allocated	[32M]
DVMT Total Gfx Mem	[256M]
Gfx Low Power Mode	[Enabled]
VDD Enable	[Enabled]
PM Support	[Enabled]
PAVP Enable	[Enabled]
Cdynmax Clamping Enable	[Enabled]
Cd Clock Frequency	[675MHz]

►Intel(R) Ultrabook Event Support

IUER Slate Enable	[Disabled]
IUER Dock Enable	[Disabled]
IUER Button Enable	[Disabled]

►DMI/OPI Configuration

DMI Vc1 Control	[Disabled]
DMI Vcm Control	[Enabled]

►**Memory Configuration**

Memory RC Version	2.0.0.1
Memory Frequency	2133MHz
Total Memory	4096MB
VDD	1200
DIMM#0	4096MB
DIMM#1	Not Present
DIMM#2	Not Present

DIMM#3	Not Present

Memory Timings(tCL-tRCD-tRP-tRAS) 15-36

MRC ULT Safe Conifg	[Disabled]
Maximum Memory Frequency	[Auto]
HOB Buffer Size	[Auto]
ECC Support	[Enabled]
Max TOLUD	[Dynamic]
LCD Backlight Mode	[PWM]
Backlight Control	[PWM Normal by BIOS]
BIOS Control Backlight Level	[Level 7]
SA GV	[Enabled]
SA GV Low Freq	[MRC default]
Energy Performance Gain	[Disabled]
EPG DIMM Idd3N	26
EPG DIMM Idd3P	11
Retrain on Fast fall	[Enabled]
Enable RH Prevention	[Enabled]
Row Hammer Solution	[Hardware RHP]
RH Activation Probability	[1/2^11]
Exit On Failure(MRC)	[Enabled]
MC Lock	[Enabled]
Probeless Trace	[Disabled]
Enable/Disable IED(Intel Enhanced Debug)	[Disabled]
Ch Hash Support	[Enabled]
Ch Hash Mask	12488
Ch Hash Interleaved Bit	[BIT8]
VC1 Read Metering	[Enabled]
VC1 RdMeter Time Window	800
VC1 RdMeter Threshold	280
Strong Weak Leaker	7
Memory Scrambler	[Enabled]
Channel A DIMM Control	[Enable both DIMMS]
Channel B DIMM Control	[Enable both DIMMS]
Force Single Rank	[Disabled]
Memory Remap	[Enabled]
Time Measure	[Disabled]
Lpddr Mem WL Set	[Set B]
EV Loader	[Disabled]
EV Loader Delay	[Enabled]
Fast Boot	[Enabled]

DLL Weak Lock Support   [Enabled]
►**Memory Thermal Configuration**
►**Memory Power and Thermal Throttling**
DDR PowerDown and idle counter   [BIOS]
For LPDDR Only:DDR PowerDown and idle counter
                                      [BIOS]
REFRESH_2X_MODE   [Disabled]
LPDDR Thermal Sensor   [Enabled]
SelfRefresh Enable   [Enabled]
SelfRefresh IdleTimer   512
Throttler CKEMin Defeature   [Enabled]
Throttler CKEMin Timer   48
For LPDDR Only:Throttler CKEMin Defeature
                                      [Enabled]
For LPDDR Only:Throttler CKEMin Timer
                                      64
Pwr Down Idle Timer   0
►**Dram Power Idle Timer**
Use user provided power weights, scale factor, and channel
    power floor values   [Disabled]
Energy Scale factor   4

Idle Energy Ch0Dimm0   10
PowerDown Energy Ch0Dimm0   6
Activate Energy Ch0Dimm0   172
Read Energy Ch0Dimm0   212
Write Energy Ch0Dimm0   221

Idle Energy Ch0Dimm1   10
PowerDown Energy Ch0Dimm1   6
Activate Energy Ch0Dimm1   172
Read Energy Ch0Dimm1   212
Write Energy Ch0Dimm1   221

Idle Energy Ch1Dimm0   10
PowerDown Energy Ch1Dimm0   6
Activate Energy Ch1Dimm0   172
Read Energy Ch1Dimm0   212
Write Energy Ch1Dimm0   221

Idle Energy Ch1Dimm0   10

PowerDown Energy Ch1Dimm0	6
Activate Energy Ch1Dimm0	172
Read Energy Ch1Dimm0	212
Write Energy Ch1Dimm0	221
Idle Energy Ch1Dimm1	10
PowerDown Energy Ch1Dimm1	6
Activate Energy Ch1Dimm1	172
Read Energy Ch1Dimm1	212
Write Energy Ch1Dimm1	221

►**Memory Thermal Reporting**

Lock Thermal:Management Registers [Enabled]

Memory Thermal Reporting

Extern Therm Status	[Disabled]
Closed Loop Therm Manage	[Disabled]
Open Loop Therm Manage	[Disabled]

Thermal Threhold Settings

Warm Threshold Ch0 Dimm0	255
Warm Threshold Ch0 Dimm1	255
Hot Threshold Ch0 Dimm0	255
Hot Threshold Ch0 Dimm1	255
Warm Threshold Ch1 Dimm0	255
Warm Threshold Ch1 Dimm1	255
Hot Threshold Ch1 Dimm0	255
Hot Threshold Ch1 Dimm1	255

Thermal Throttle Budget Settings	
Warm Budget Ch0 Dimm0	255
Warm Budget Ch0 Dimm1	255
Hot Budget Ch0 Dimm0	255
Hot Budget Ch0 Dimm1	255
Warm Budget Ch1 Dimm0	255
Warm Budget Ch1 Dimm1	255
Hot Budget Ch1 Dimm0	255
Hot Budget Ch1 Dimm1	255

►Memory RAPL

Rapl Power Floor Ch0	0
Rapl Power Floor Ch1	0
RAPL PL Lock	[Disabled]
RAPL PL 1 enable	[Disabled]
RAPL PL 1 Power	0
RAPL PL 1 WindowX	0
RAPL PL 1 WindowY	0
RAPL PL 1 enable	[Disabled]
RAPL PL 1 Power	0
RAPL PL 1 WindowX	0
RAPL PL 1 WindowY	0
Memory Thermal Management	[Disabled]

►Memory Training Algorithms

Early Command Training	[Disabled]
SenseAmp Offset Training	[Enabled]
Early ReadMPR Timing Centering 2D	[Enabled]
Read MPR Training	[Enabled]
Receive Enable Training	[Enabled]
Jedec Write Leveling	[Enabled]
Early Write Time Centering 2D	[Enabled]
Early Read Time Centering 2D	[Enabled]
Write Timing Centering 1D	[Enabled]
Write Voltage Centering 1D	[Enabled]
Read Timing Centering 1D	[Enabled]
Dimm ODT Training*	[Enabled]
Max RTT_WR	[ODT Off]
DIMM RON Training*	[Enabled]
Write Drive Strength/Equalization 2D*	[Disabled]
Write Slew Rate Training*	[Enabled]
Read ODT Training*	[Enabled]
Read Equalization Training*	[Enabled]
Read Amplifier Training*	[Enabled]
Write Timing Centering 2D	[Enabled]
Read Timing Centering 2D	[Enabled]
Command Voltage Centering	[Enabled]
Write Voltage Centering	[Enabled]

Read Voltage Centering 2D	[Enabled]
Late Command Training	[Enabled]
Round Trip Latency	[Enabled]
Turn Around Timing Training	[Enabled]
Rank Margin Tool	[Disabled]
Memory Test	[Disabled]
DIMM SPD Alias Test	[Enabled]
Receive Enable Centering 1D	[Enabled]
Retrain Margin Check	[Enabled]
Command Power Training	[Disabled]

►**GT-Power Management Control**

GT Info	GT2
RC6(Render Standby)	**[Enabled]**

4.5.2   PCH-IO Configuration

Intel PCH RC Version	2.0.0.0
Intel PCH SKU Name	PCH-LP Mobile(U) Premium SKU
Intel PCH REV ID	21/C1

►**PCI Express Configuration**

PCI Express Clock Gating	[Enabled]
DMI Link ASPM Control	[Enabled]
Port8xh Decode	[Disabled]
Peer Memory Write Enable	[Disabled]
Compliance Test Mode	[Disabled]
PCIe-USB Glitch W/A	[Disabled]
PCIe function swap	[Enabled]

   ►**PCI Express Gen3 Eq Lanes**

Override SW EQ Settings	[Disabled]

   ►**PCI Express Root Port 1**

PCI Express Root Port 1	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7

ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE1 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►**PCI Express Root Port 2**

PCI Express Root Port 2	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]

CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE2 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

► **PCI Express Root Port 3**

PCI Express Root Port 3	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]

SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE3 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

▶PCI Express Root Port 4

PCI Express Root Port 4	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]

PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE4 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

▶**PCI Express Root Port 5**

PCI Express Root Port 5	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0

Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE5 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►PCI Express Root Port 6

PCI Express Root Port 6	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2

PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE6 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►PCI Express Root Port 7

PCI Express Root Port 7	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]

PCH PCIe CLKREQ# Configuration
PCIE7 CLKREQ Mapping Override   [Default]
Snoop Latency Ocerride   [Auto]
Non Snoop Latency Ocerride   [Auto]

►**PCI Express Root Port 8**

PCI Express Root Port 8   [Enabled]
  Topology   [Unknown]
ASPM Support   [Auto]
L1 SubStates   [L1.1&L1.2]
Gen3 Eq Phase3 Method   [Software Search]
UPTP   5
DPTP   7
ACS   [Enabled]
  URR   [Disabled]
  FER   [Disabled]
  NFER   [Disabled]
  CER   [Disabled]
  CTO   [Disabled]
  SEFE   [Disabled]
  SENFE   [Disabled]
  SECE   [Disabled]
  PME SCI   [Enabled]
  Hot Plug   [Disabled]
  Advanced Error Reporting   [Enabled]
PCIe Speed   [Auto]
  Transmitter Half Swing   [Disabled]
Detect Non-Compliance Device   [Disabled]
Extra Bus Reserved   0
Reserved Memory   10
Prefetchable Memory   10
Reserved I/O   4
PCIE Cp   2
PCIE Cm   6
PCIE LTR   [Enabled]
PCIE LTR Lock   [Disabled]

PCH PCIe CLKREQ# Configuration
PCIE8 CLKREQ Mapping Override   [Default]
Snoop Latency Ocerride   [Auto]
Non Snoop Latency Ocerride   [Auto]

►PCI Express Root Port 9

PCI Express Root Port 9	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE9 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►PCI Express Root Port 10

PCI Express Root Port 10	[Enabled]
Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE10 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►**PCI Express Root Port 11**

PCI Express Root Port 11	[Enabled]

Topology	[Unknown]
ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE11 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►**PCI Express Root Port 12**

PCI Express Root Port 12	[Enabled]
Topology	[Unknown]

ASPM Support	[Auto]
L1 SubStates	[L1.1&L1.2]
Gen3 Eq Phase3 Method	[Software Search]
UPTP	5
DPTP	7
ACS	[Enabled]
URR	[Disabled]
FER	[Disabled]
NFER	[Disabled]
CER	[Disabled]
CTO	[Disabled]
SEFE	[Disabled]
SENFE	[Disabled]
SECE	[Disabled]
PME SCI	[Enabled]
Hot Plug	[Disabled]
Advanced Error Reporting	[Enabled]
PCIe Speed	[Auto]
Transmitter Half Swing	[Disabled]
Detect Non-Compliance Device	[Disabled]
Extra Bus Reserved	0
Reserved Memory	10
Prefetchable Memory	10
Reserved I/O	4
PCIE Cp	2
PCIE Cm	6
PCIE LTR	[Enabled]
PCIE LTR Lock	[Disabled]
PCH PCIe CLKREQ# Configuration	
PCIE12 CLKREQ Mapping Override	[Default]
Snoop Latency Ocerride	[Auto]
Non Snoop Latency Ocerride	[Auto]

►**USB Configuration**

USB Precondition	[Disabled]
XHCI Disable Compliance Mode	[FALSE]
xDCI Support	[Disabled]
USB Port Disable Override	[Disabled]

►**BIOS Security Configuration**

RTC Lock   [Enabled]
BIOS Lock   [Disabled]

►**HD Audio Configuration**
HD Audio   [Autio]
 Audio DSP   [Disabled]
 HDA-Link Codec Select   [Platform Onboard]
 iDisplay Audio Disconnect   [Disabled]
 PME Enable   [Disabled]

►**HD Audio Advanced Configuration**
 HD Audio Subsystem Advanced Configuration Settings
 I/O Buffer Control:
  I/O Buffer Ownership   [HD-Audio Link]
  I/O Buffer Voltage Select   [3.3V]
 Statically Switchable BCLK Clock
 Frequency Configuration:
  HD Audio Link Frequency   [24MHz]
  iDisplay Link Frequency   [96MHz]

►**HD Audio DSP Features Configuration**
 HD Audio Subsystem Features Configuration(ACPI)

 Audio DSP NHLT Endpoints:
 Configuration:
 DMIC   [4 Mic Array]
 Bluetooth   [Disabled]
 I2S   [Disabled]
 Audio DSP Feature Support:
  WoV(Wake on Voice)   [Disabled]
  Bluetooth Sideband   [Disabled]
  BT Intel HFP   [Disabled]
  BT Intel A2DP   [Disabled]
  Codec based VAD   [Disabled]
  DSP based Speech.Pre-Peocessing Disabled   [Disabled]

 Voice Activity Detection   [Intel Wake on

Voice]

 Audio DSP Pre/Post-Processing
 Module Support:

Waves	[Disabled]
DTS	[Disabled]
IntelSst Speech	[Disabled]
Dolby	[Disabled]
ForteMedia SAMSoft	[Disabled]
Intel WoV	[Disabled]
Sound Research IP	[Disabled]
Conexant Pre-Process	[Disabled]
Conexant Smart Amp	[Disabled]
Custom Module 'Alpha'	[Disabled]
Custom Module 'Beta'	[Disabled]
Custom Module 'Gamma'	[Disabled]

►Serial IO Configuration

Touch Panel	[SPI Touch]
BT/UART Mux Select	[UART Signal]
I2C0 Controller	[Disabled]
I2C1 Controller	[Disabled]
I2C2 Controller	[Disabled]
I2C3 Controller	[Disabled]
I2C4 Controller	[Disabled]
I2C5 Controller	[Disabled]
SPI0 Controller	[Disabled]
SPI1 Controller	[Disabled]
UART0 Controller	[Disabled]
UART1 Controller	[Disabled]
UART2 Controller	[Disabled]
GPIO Controller	[Enabled]

►Serial IO GPIO Settings

GPIO IRQ Route	[IRQ14]
WITT/MITT Test Device	[Disabled]
UART Test Device	[Disabled]
Addtional Serial IO devices	[Disabled]

►SerialIO timing parameters

SerialIO timing parameters	[Disabled]

►SkyCam Configuration

SkyCam CIO2 Device	[Disabled]

Control Logic 0	[Disabled]
Control Logic 1	[Disabled]
Control Logic 2	[Disabled]
Control Logic 3	[Disabled]
Link0	[Disabled]
Link1	[Disabled]
Link2	[Disabled]
Link3	[Disabled]
PORT-A HS-RXEN/TEM-EN Override	[Disabled]
PORT-B HS-RXEN/TEM-EN Override	[Disabled]
PORT-C HS-RXEN/TEM-EN Override	[Disabled]
PORT-D HS-RXEN/TEM-EN Override	[Disabled]
PORT-A CTLE	[Enabled]
PORT-B CTLE	[Enabled]
PORT-C/D CTLE	[Enabled]
PORT-A CTLE CAP Value	e
PORT-A CTLE RES Value	d
PORT-B CTLE CAP Value	e
PORT-B CTLE RES Value	d
PORT-C/D CTLE CAP Value	e
PORT-C/D CTLE RES Value	d
PORT-A TRIM	[Enabled]
PORT-B TRIM	[Enabled]
PORT-C TRIM	[Enabled]
PORT-D TRIM	[Enabled]
PORT-A Data Trim Value	bbbb
PORT-B Data Trim Value	bbbb
PORT-C/D Data Trim Value	cccc
PORT-A Clk Trim Value	a
PORT-B Clk Trim Value	a
PORT-C Clk Trim Value	9
PORT-D Clk Trim Value	a

▶ **SCS Configuration**

eMMC 5.0 Controller	[Enabled]
eMMC 5.0 HS400 Mode	[Enabled]
Driver Strength	[33 Ohm]
SDCard 3.0 Controller	[Disabled]

▶ **ISH Configuration**

ISH Controller	[Disabled]

PDT Unlock Message	[Disabled]

►TraceHub Configuration Menu

TraceHub Enabled Mode	[Disabled]
MemRegion 0 Buffer Size	[1MB]
MemRegion 1 Buffer Size	[1MB]

►Pch Thermal Throttling Control

Thermal Throttling Level	[Suggested Setting]
DMI Thermal Setting	[Suggested Setting]
SATA Thermal Setting	[Suggested Setting]

►SB Porting Configuration

SATA RAID ROM	[Legacy ROM]
DCI enable(HDCIEN)	[Disabled]
DCI Auto Detect Enabled	[Enabled]
Debug Port Selection	[Legacy UART]
GNSS	[Disabled]
PCH LAN Controller	[Enabled]
LAN PHY Drives LAN_WAKE#	[Disabled]
Sensor Hub Type	[None]
DeepSx Power Policies	[Disabled]
LAN Wake From DeepSx	[Enabled]
Wake on LAN	[Enabled]
SLP_LAN# Low on DC Power	[Enabled]
K1 off	[Enabled]
Wake on WLAN Enable	[Disabled]
Disable DSX ACPRESENT PullDown	[Disabled]
CLKRUN# Logic	[Enabled]
Serial IRQ Mode	[Continuous]
Port 61h Bit-4 Emulation	[Enabled]
High Precision Timer	[Enabled]
State After G3	[S5 State]
Port 80h Redirection	[LPC Bus]
Enhance Port 80h LPC Decoding	[Enabled]
Compatible Revision ID	[Disabled]
PCH Cross Throttling	[Enabled]
Disable Energy Reporting	[Disabled]
Capsule Reset Type	[Capsule S3 Resume]
Pcie Pll SSC	[Auto]

IOAPIC 24-119 Entries   [Enabled]
Unlock PCH P2SB   [Disabled]
PMC READ DISABLE   [Enabled]

4.6. Security Settings

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Megatrends, Inc.

| Main | Advanced | Chipset | Security | Boot | Save & Exit |

Password Description   Set Administrator Password

If ONLY the Administrator's password is set,

Then this only limits access to Setup and is

Only asked for when entering Setup.

If ONLY the User's password is set, then this   →←: Select Screen

Is a power on password and must be entered to   ↑↓ : Select Item

Is a power on password and must be entered to   Enter: Select

Boot or enter Setup. In Setup the User will   +/- : Charge Opt.

Have Administrator rights.   F1 : General Help

The password length must be   F2: Previous Values

In the following range: F3:Optimized Defaults

Minimum length   3   F4:Save and Exit

Maximum length   20   ESC   Exit

Administrator Password

User Password

►Secure Boot menu

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4.6.1 Administrator Password

Create New Password
****

4.6.2 User Password

```
┌─ Create New Password ─┐
│ ******************* │
└───────────────────────┘
```

Type the password with up to 20 characters and then press ◀Enter▶ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ◀Enter▶ key. You may press ◀Esc▶ key to abandon password entry operation.

To clear the password, just press ◀Enter▶ key when password input window pops up. A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter BIOS setup. This will prevent unauthorized persons from changing your system configurations.

Also, the feature is capable of requesting users to enter the password prior to system boot to control unauthorized access to your computer. Users may enable the feature in Security Option of Advanced BIOS Features. If Security Option is set to System, you will be requested to enter the password before system boot and when entering BIOS setup; if Security Option is set to Setup, you will be requested for password for entering BIOS setup.

4.7. Boot Settings

```
┌──────────────────────────────────────────────────────────────────────────────┐
│        Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.      │
├────────┬──────────┬─────────┬──────────┬──────┬─────────────────────────────────┤
│  Main  │ Advanced │ Chipset │ Security │ Boot │      Save & Exit               │
├────────┴──────────┴─────────┴──────────┴──────┼─────────────────────────────────┤
│  Boot Configuration                            │ Number of seconds toWait for   │
│                                                │                                │
│    Setup Prompt Timeout       1                │ Setup Activation key.          │
│    Bootup Numlock State      [On]              │ 65535(0xFFFF)means Indef       │
│    Quiet Boot                [Disabled]        │ inite waiting.                 │
│                                                │                                │
│    Boot Option Priorities                      │                                │
│    Fast Boot                 [Enabled]         │                                │
│                                                │                                │
│    Driver Option Priorities                    │ →←: Select Screen              │
│    New Boot Option Policy    [Default]         │ ↑↓  : Select Item              │
│                                                │ Enter:   Select                │
│                                                │ +/- : Charge Opt.              │
│                                                │ F1 : General Help              │
│                                                │ F2: Previous Values            │
│                                                │ F3:Optimized Defaults          │
│                                                │ F4:Save and Exit               │
│                                                │ ESC   Exit                     │
├────────────────────────────────────────────────┴─────────────────────────────────┤
│        Version 2.18.1263. Copyright (C) 2017 American Megatrends , Inc.           │
└──────────────────────────────────────────────────────────────────────────────┘
```

Setup Prompt Timeout   [1]
Bootup Numlock State

[On]

Quiet Boot

[Disabled]

Fast Boot

[Disabled]

Driver Option Priorities
New Boot Option Policy   [Default]

4.8.   Save & Exit Settings

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit

Save Options

Save Changes and Exit

Discard Changes and Exit

Save Changes and Reset

Discard Changes and Reset

Save Changes

Discard Changes

Default Options

Restore Defaults

Save as user Defaults

Restore user Defaults

Boot Override

Launch EFI Shell from filesystem device

Exit system setup after
Saving the changes.

→←: Select Screen

↑↓   : Select Item

Enter: Select

+/- : Charge Opt.

F1 : General Help

F2: Previous Values

F3:Optimized Defaults

F4:Save and Exit

ESC   Exit

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Save Changes and Exit

Save & Exit Setup save Configuration and exit?

[Yes]

[No]

Discard Changes and Ext

Exit Without Saving Quit without saving?

[Yes]

[No]

Save Changes and Reset

Reset the system affer Saving The changes?

[Yes]

[No]

Discard Changes and Reset

Reset system setup without Saving any changes?

[Yes]

[No]

Save Changes

Save Setup done so far to any of the setup options?

[Yes]

[No]

Discard Changes

Discard Changes done so far to any of the setup options?

[Yes]

[No]

Restore Defaults

Restore /Load Defaults values for all the setup options?

[Yes]

[No]

Save as user Defaults

Save the changes done so far as User Defaults?

[Yes]

[No]

Restore user Defaults

Restore the User Defaults to all the setup options?

[Yes]

[No]

Boot Override

Launch EFI Shell from filesystem device

WARNING Not Found

[ok]

Chapter 5. Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows 8.1 & 10. The software and drivers are included with the motherboard. The contents include **Intel/VGA chipset driver, Audio driver, Com Driver, and TXE(Win) Driver Installation instructions are given below.????????**

> **Important Note:**
> After installing your Windows operating system, you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

5.1. Intel(R) AtomTM SoC Chipset

To install the Intel chipset driver, please follow the steps below.

Step 1. Select **Intel (R) AtomTM SoC Chipset** from the list

**Step 2.** Here is welcome page. Please make sure you save and exit all programs before install. Click **Next.**

Step 3. Read the license agreement. Click **Accept** to accept all of the terms of the license agreement.
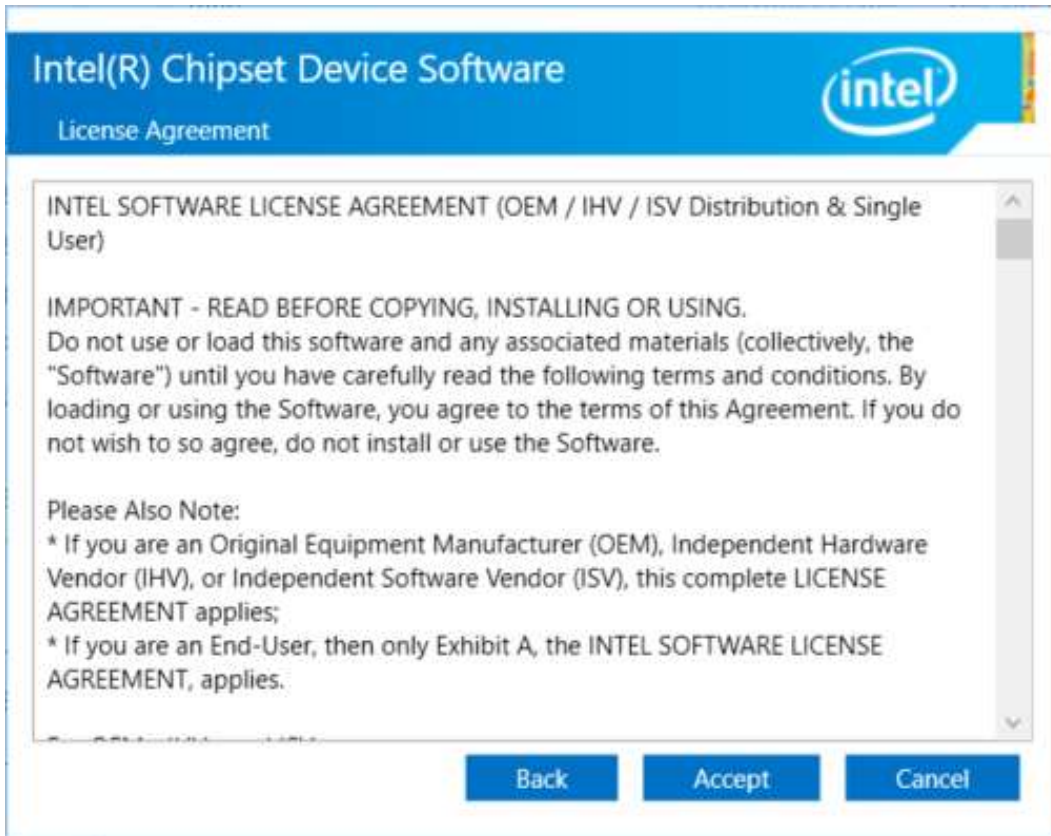
Step 4. Click **Install** to begin the installation.
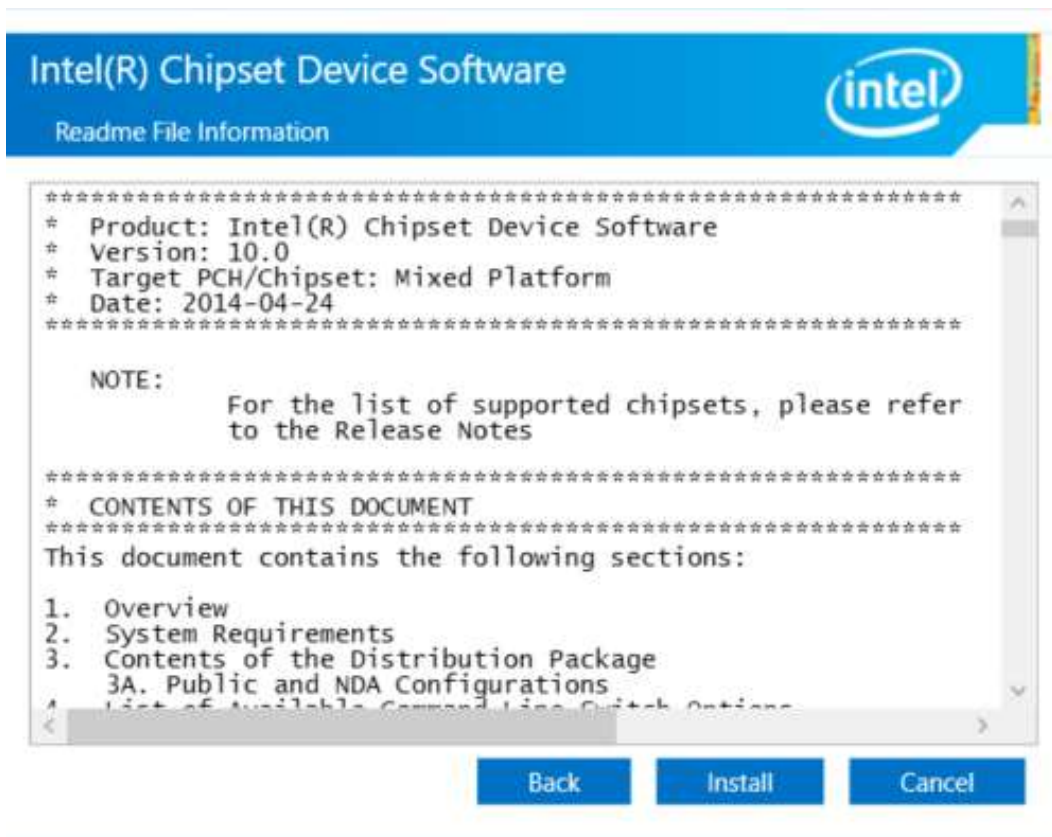
Step 5. Click **Finish** to exit the wizard.

Intel(R) Chipset Device Software

Completion

You have successfully installed the following product:

Intel(R) Chipset Device Software

Press Finish to complete the setup process.

View Log Files

Finish

5.2. Intel(R) VGA Chipset

To install the Intel (R) VGA Chipset, please follow the steps below.

Step 1. Select **Intel(R) VGA Chipset** from the list**.**
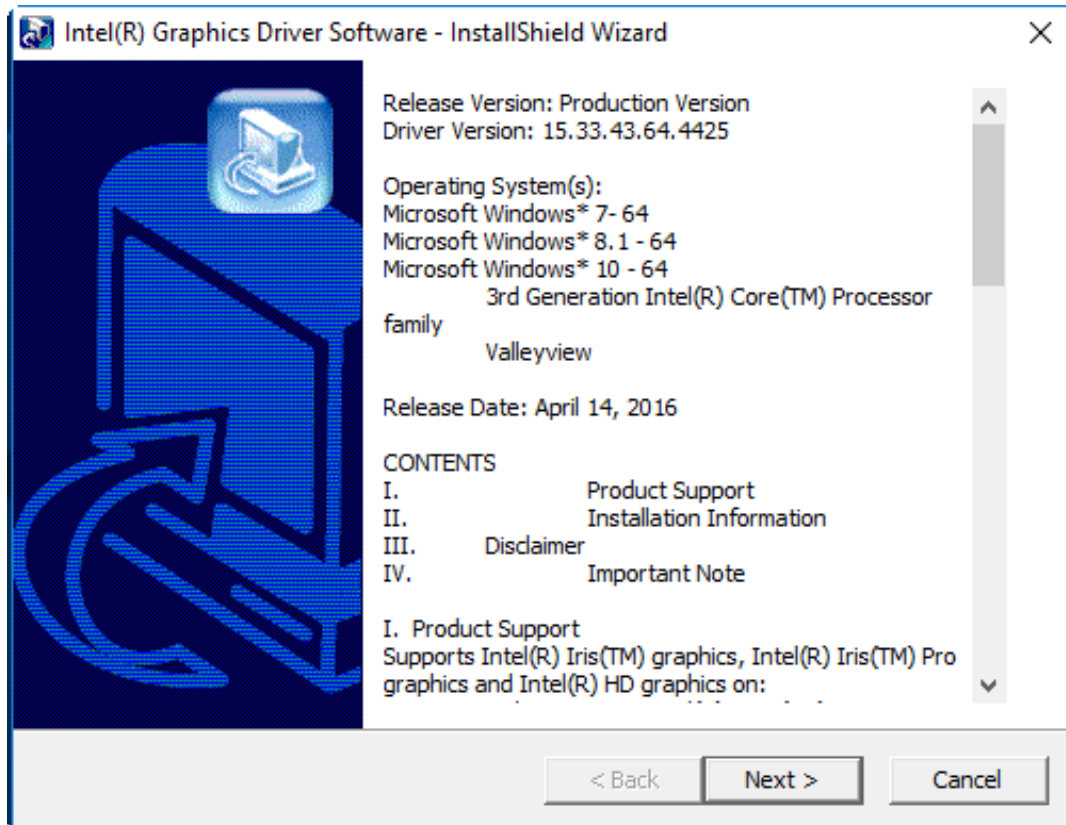
Step 2. . Click **Next.**

Step 3. Choose **automatically run** function and Click **Next** to setup program.
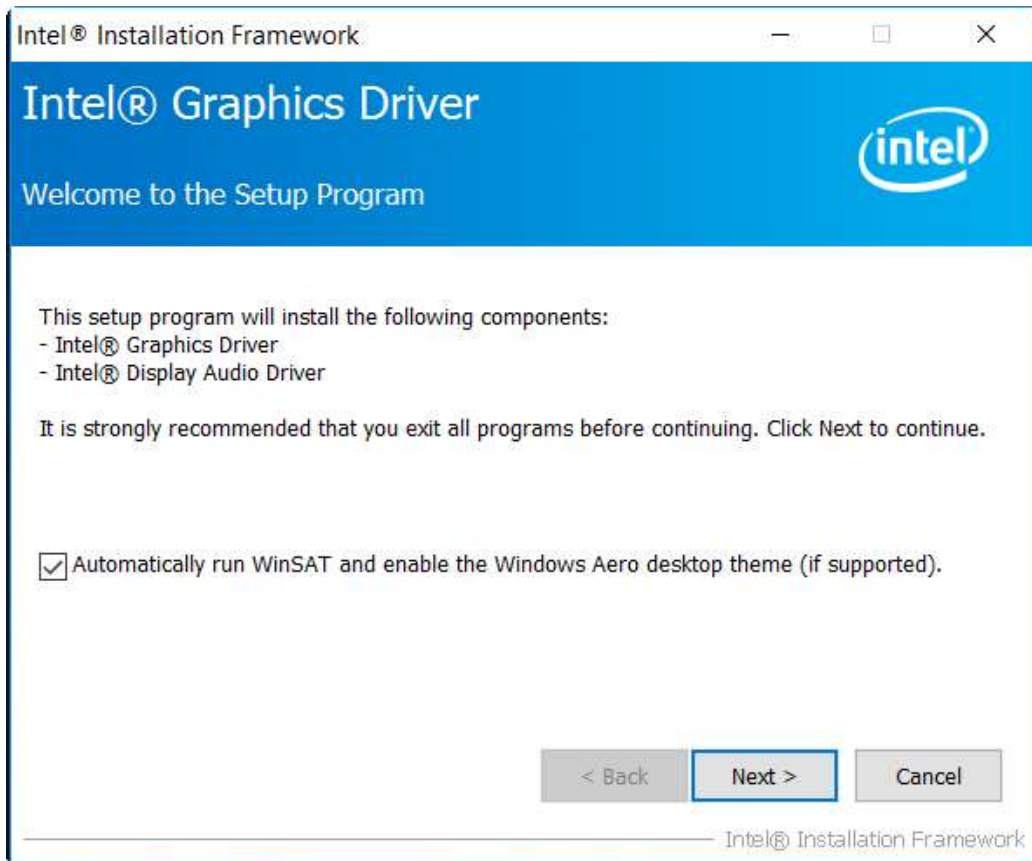
Step 4. Read the license agreement. Click **Yes** to accept all of the terms of the license agreement.
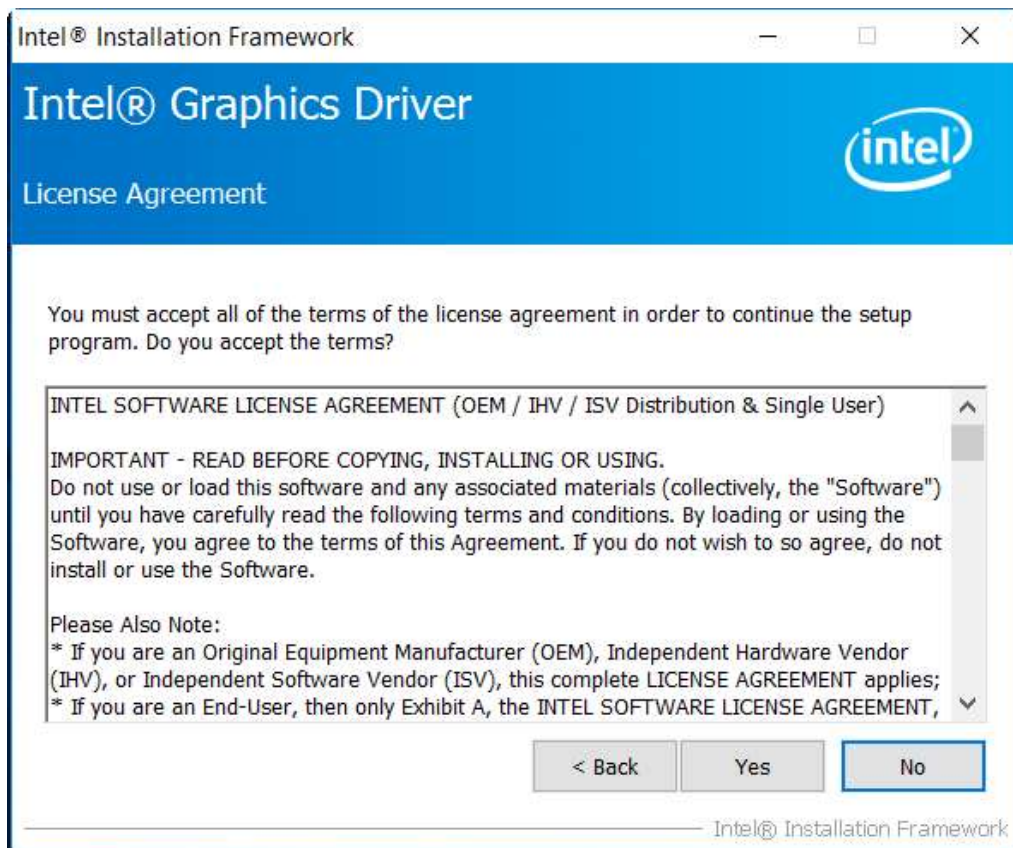
Step 5. Click **Next** to continue.
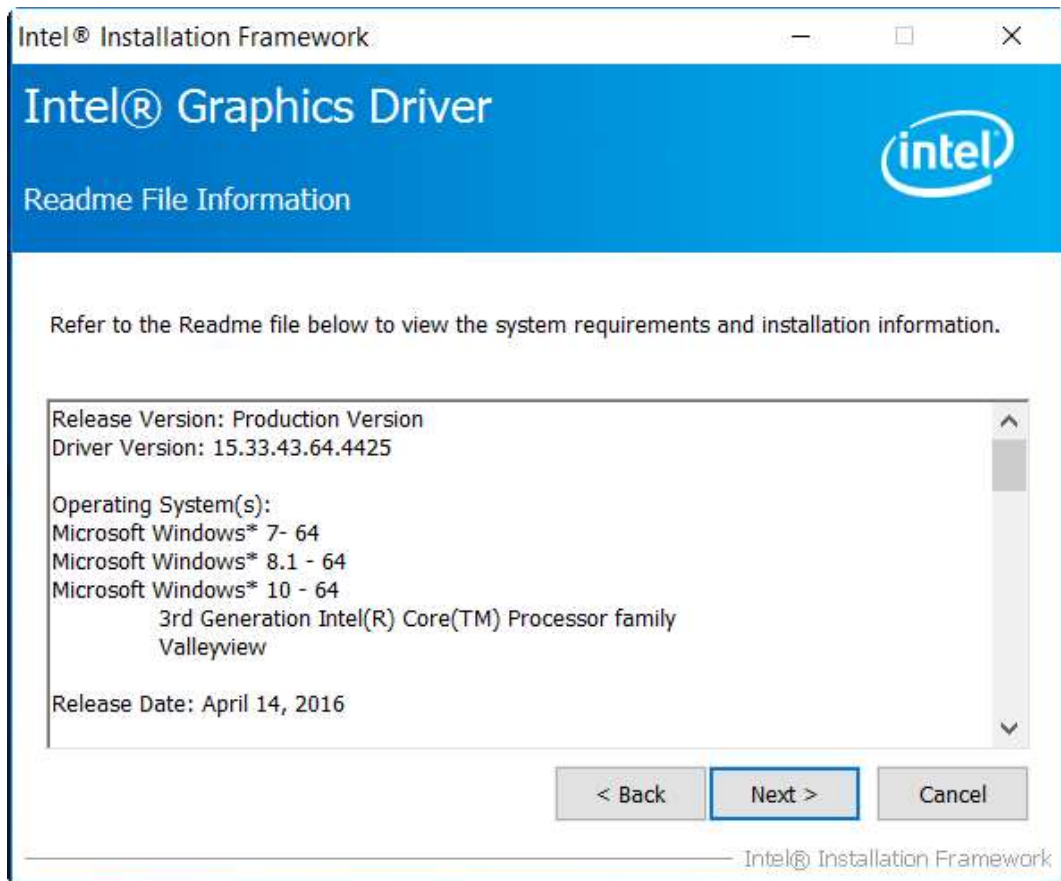
Step 6. Click **Next** to continue.
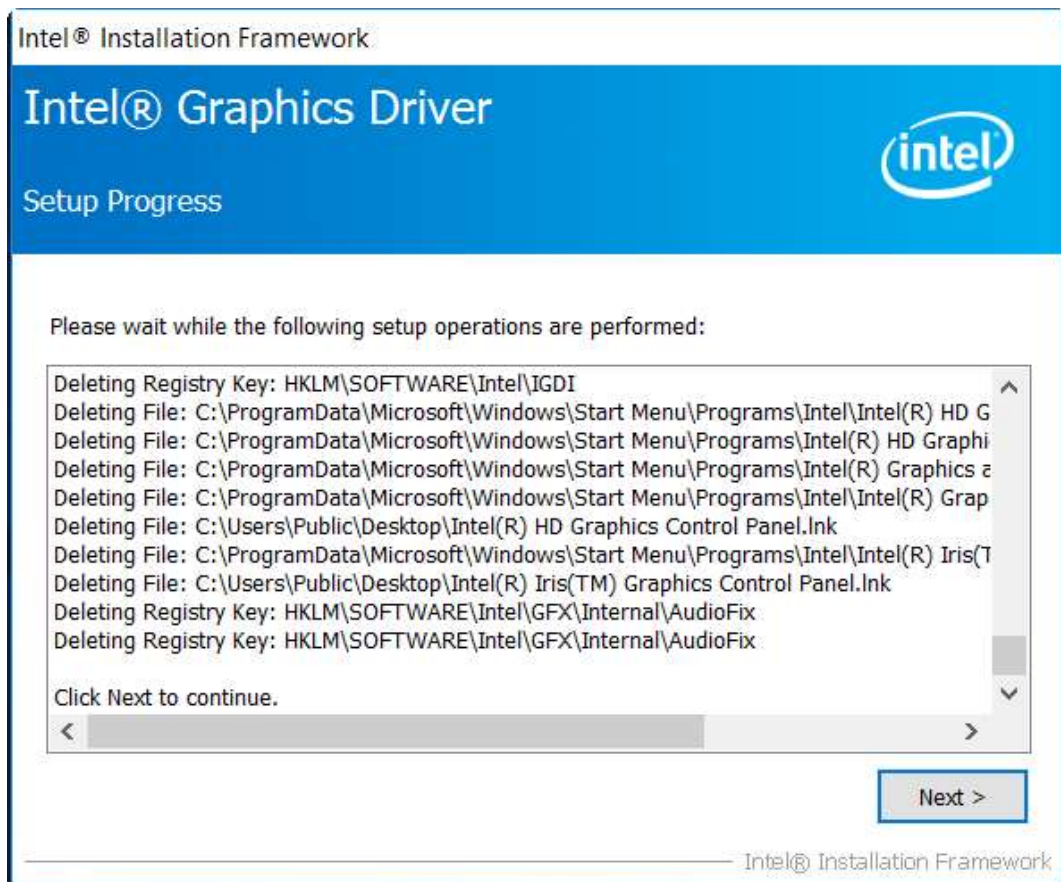
Step 7. Select **Yes, I want to restart this computer now**.　Click **Finish**, then remove any installation media from the drives.

Intel® Installation Framework

Intel® Graphics Driver

Setup Is Complete

(intel)

You must restart this computer for the changes to take effect. Would you like to restart the computer now?

◉ Yes, I want to restart this computer now.

○ No, I will restart this computer later.

Click Finish, then remove any installation media from the drives.

Finish

Intel® Installation Framework
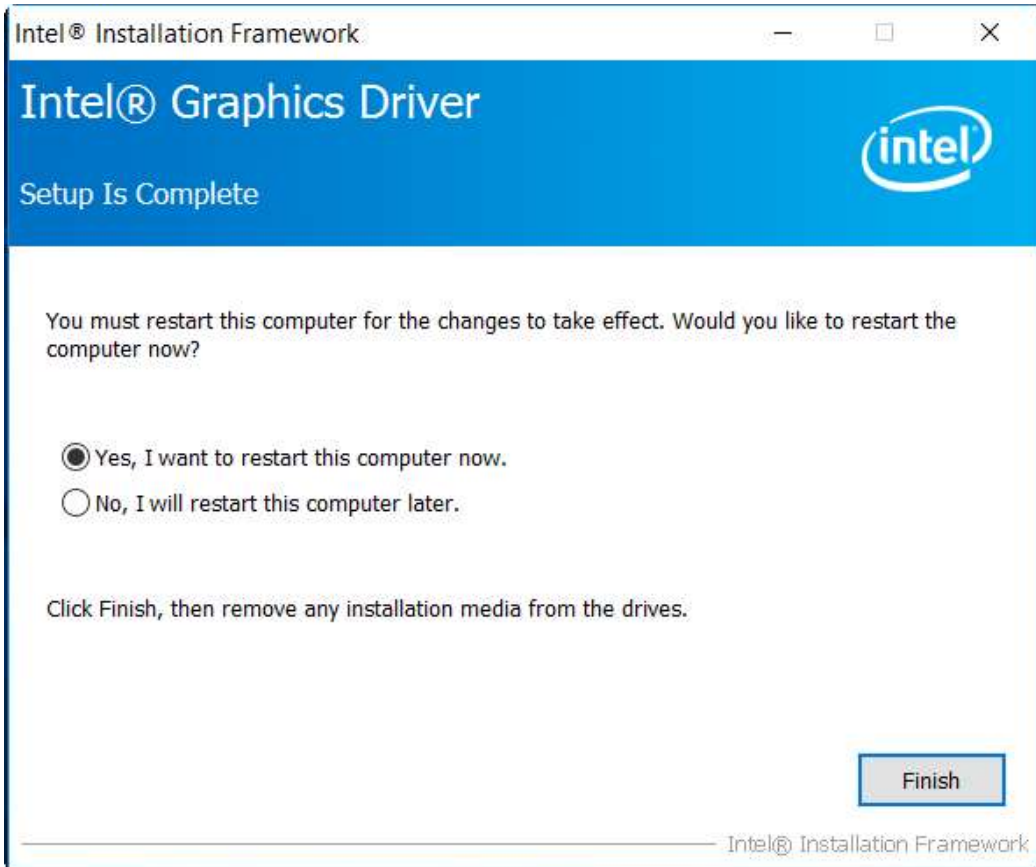
5.3. Realtek ALC662 HD Audio Driver Installation

To install the Realtek ALC662 HD Audio Driver, please follow the steps below.

Step 1. Select **Realtek AL662 HD Audio Driver** from the list

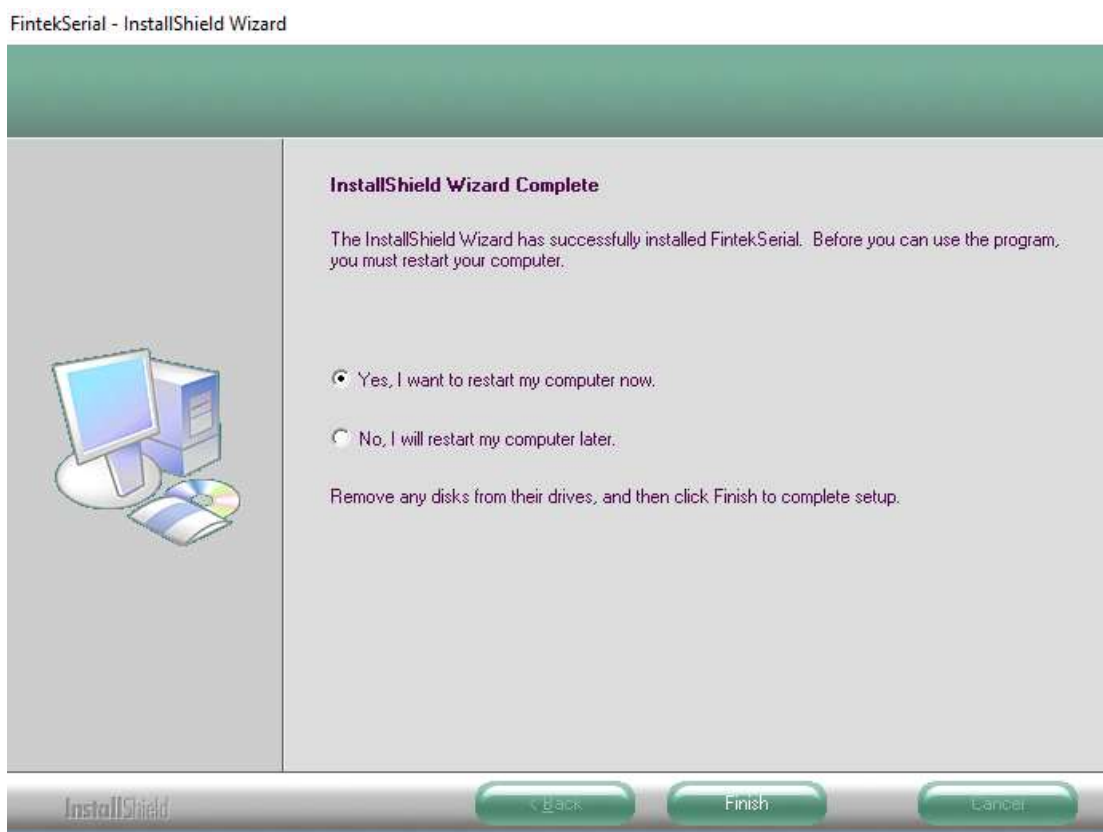**Step 2.** Click **Next** to continue.
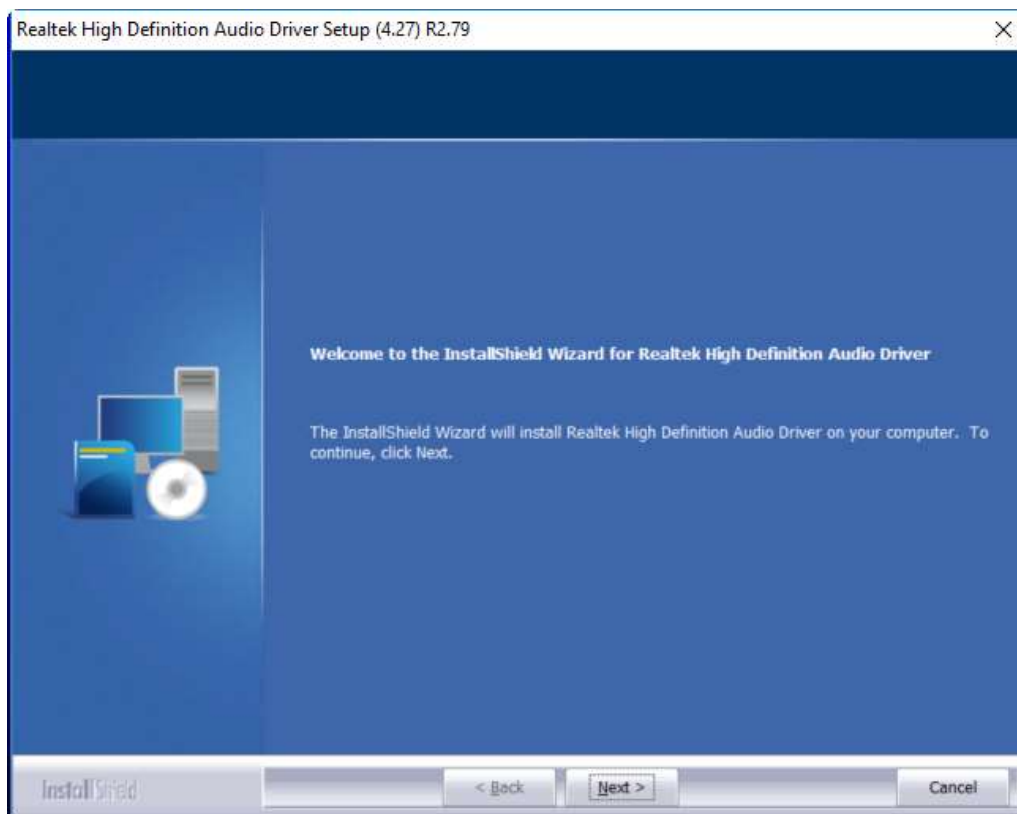
Step 3. Click **Yes, I want to restart my computer now**.　Click **Finish** to complete the installation.

Realtek High Definition Audio Driver Setup (4.27) R2.79

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.

○ Yes, I want to restart my computer now.

○ No, I will restart my computer later.

Remove any disks from their drives, and then click Finish to complete setup.

InstallShield   < Back   Finish   Cancel
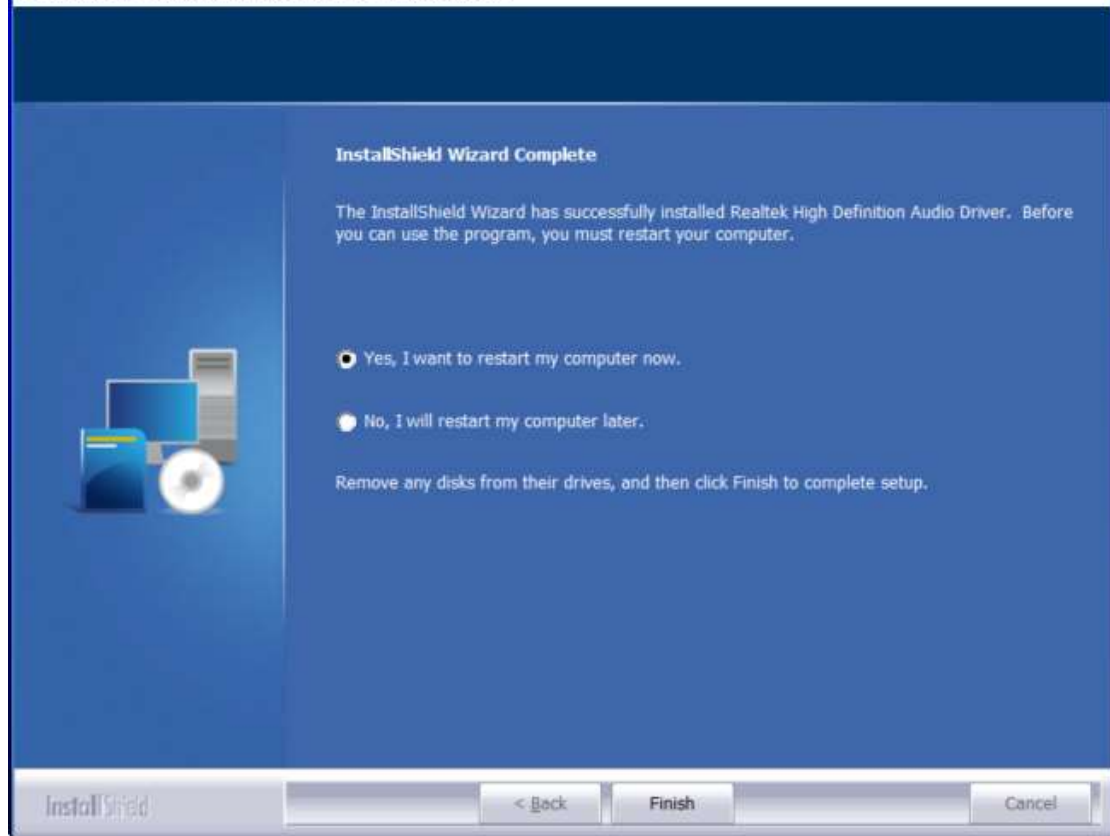
5.4. Com Driver

To install the Com Driver, please follow the steps below.

Step 1. Select **Com Driver** from the list

Step 2. Select setup language you need. Click **Next** to continue.
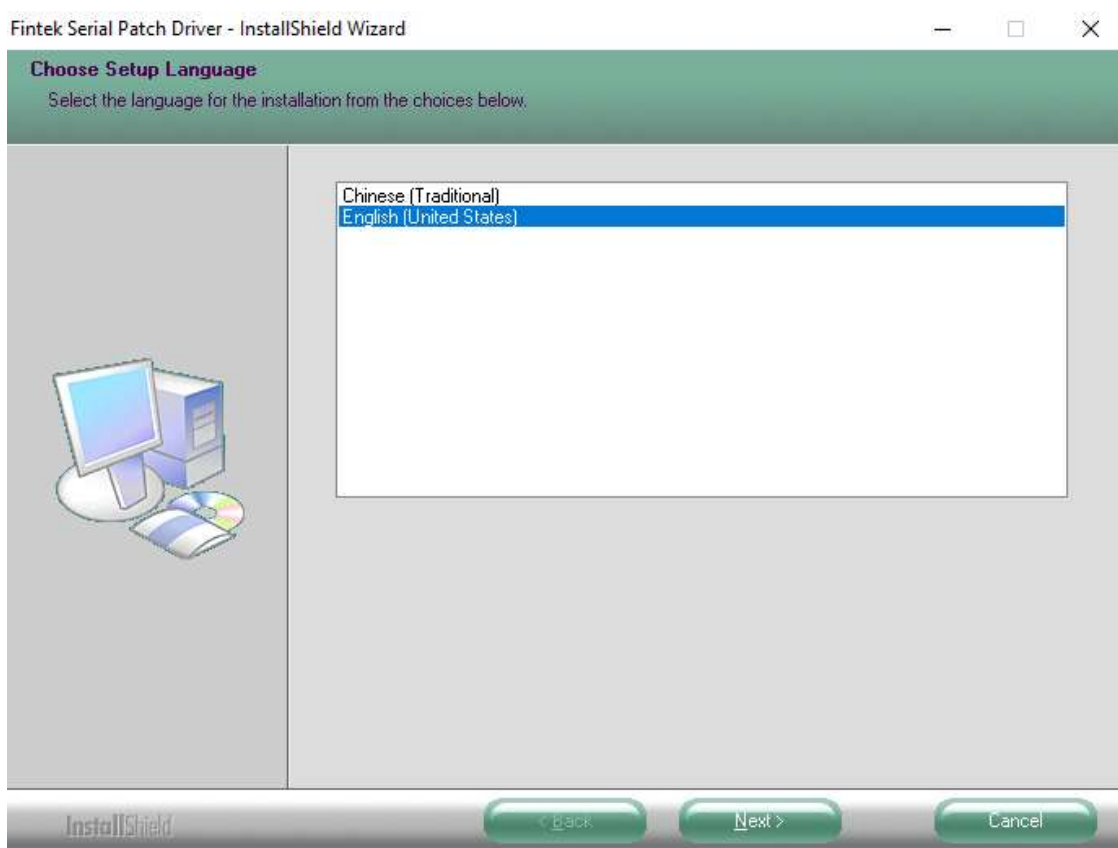
Step 3. Click **Next** to begin the installation.
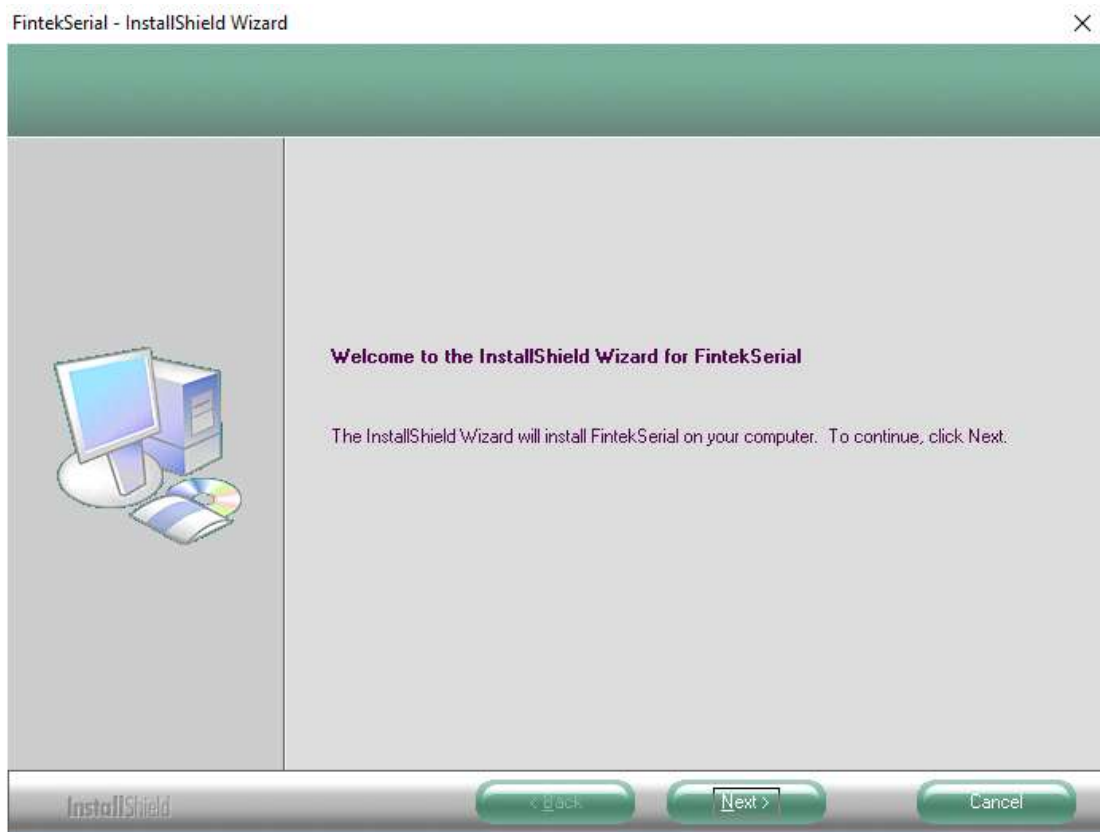
Step 4. Choose **Yes, I want to restart my computer now**. Click **Finish** to complete the installation.
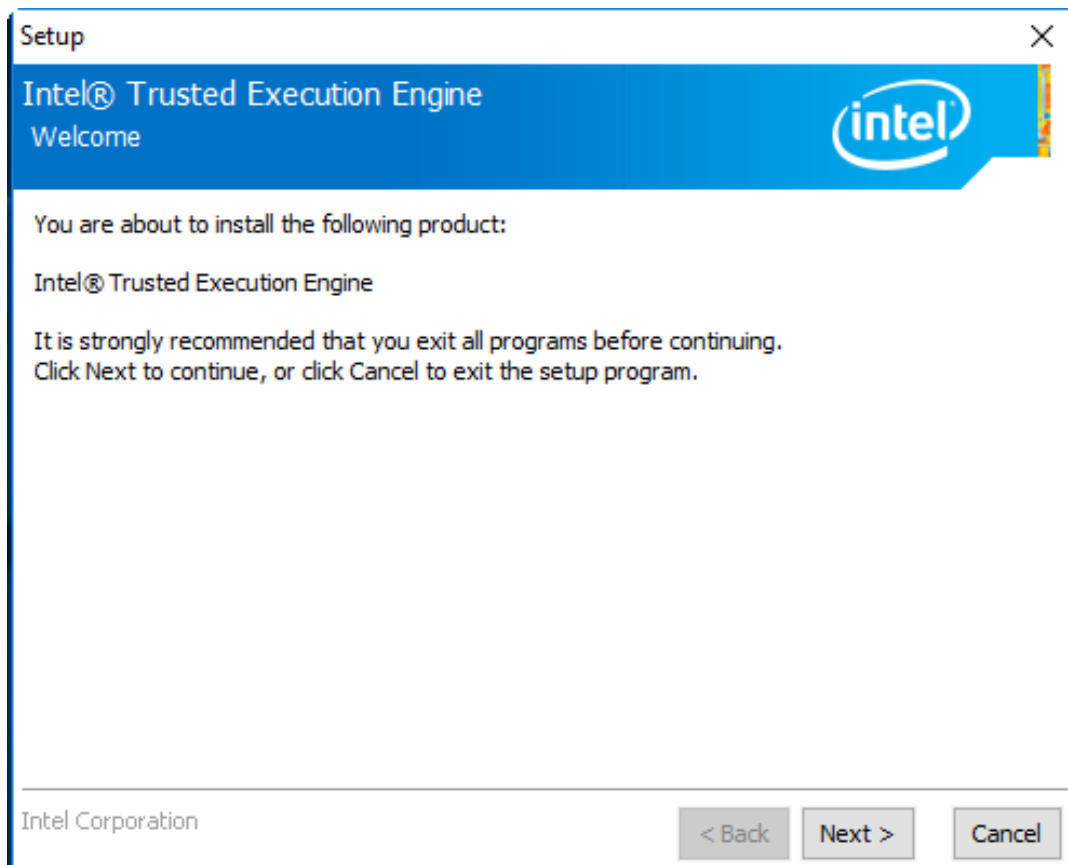
5.5. Intel_TXE(Win) Driver

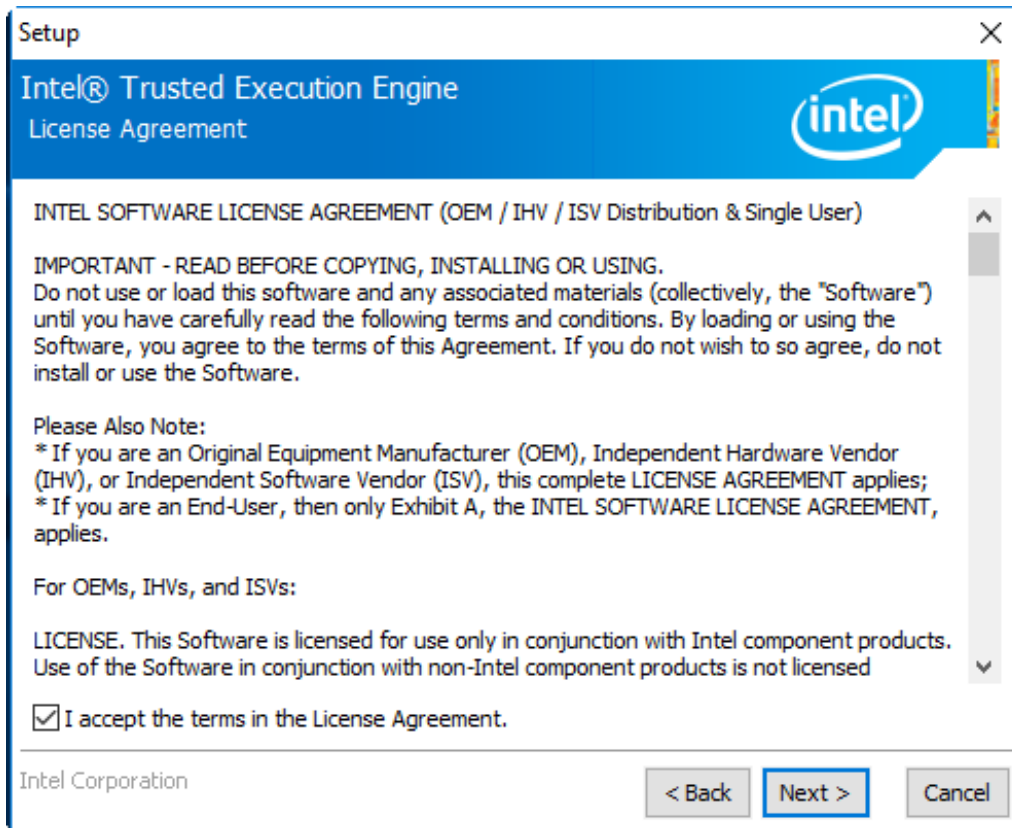To install the Intel_TXE(Win) Driver, please follow the steps below.

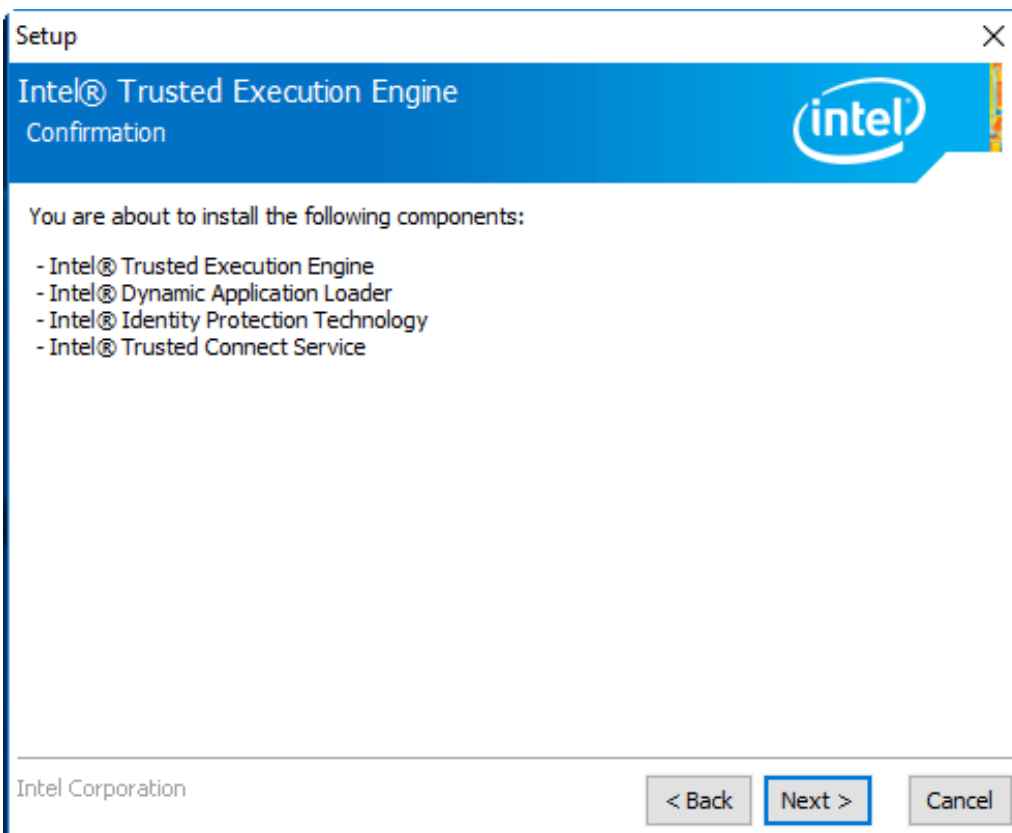**Step 1.** Select **Intel_TXE(Win) Driver** from the list

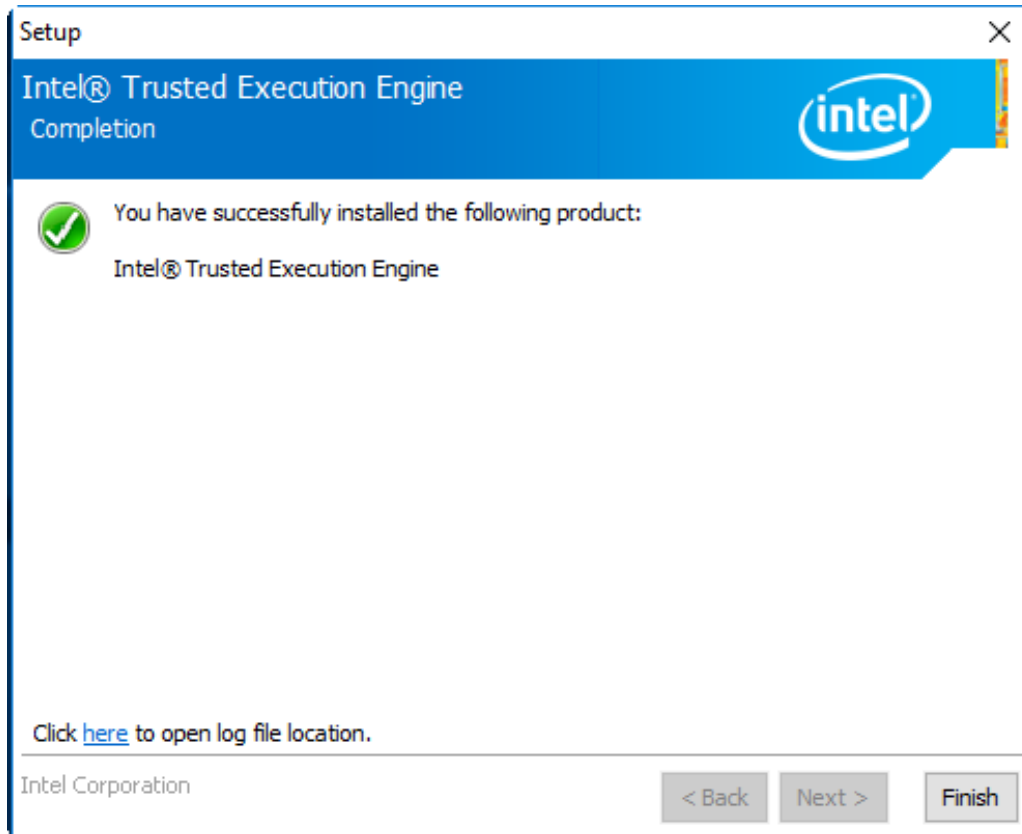**Step 2.** Click **Next** to continue.

Step 3. Read the license agreement. Choose **Accept** and click **Next** to accept all of the terms of the license agreement.

Step 4. Click **Next** to continue.

Step 5. Click **Finish** to complete the installation.

Setup

Intel® Trusted Execution Engine
Completion

(intel)

✓ You have successfully installed the following product:

Intel® Trusted Execution Engine

Click here to open log file location.

Intel Corporation   < Back   Next >   Finish

Chapter 6. Cleaning Guideline

Unplug the product before you cleaning. If your mechanical cleaning is necessary, please refer the information below to avoid product damaging during cleaning.

• Keep the surface clean. Remove cleaners and food residue immediately. Always avoid the return of food stuff splashes to the production process.

• Keep surface of product being properly ventilated.

• If mechanical cleaning is necessary, do not use cleaning equipment made of metal.

  – Use brushes made of plastic or natural materials, or a microfiber pad.

  – Use plenty of water or we suggest using 75% alcohol of medical to clean or disinfect the surface.

  – Make sure that the cleansing agent is completely removed without any residue.

• Make sure surface is not damaged: Do not damage the device during operation, or by cleaning or repairing it using hard tools, in particular tools made of corrodible materials.

• Immediately remove any stains or rust and new rust spots with a mild detergent in order to prevent from any further corrosion.

• Rinse the part thoroughly and keep product dry after you cleaned it.