FABS-8XX Series

7”, 10.1”, 12.1”, 15”, 17”, 19”, and 21.5” Food Industrial Panel PC.

User Manual

Release Date	Revision
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Revision History

Reversion	Date	Description
0.1	2017/11/29	For Preliminary Release
1.0	2018/07/06	Official Version
1.1	2018/08/30	Add LOGO+ modify FABS 812P LCD details
1.2	2018/11/13	Modify OP temperature of 21.5” High Brightness model
1.3	2019/01/23	Add Installment Attention
1.4	2019/03/18	Update Power Consumption for all models Updated Weight for all models Update Storage temperature
1.5	2020/11/03	Modify 1.2 Spec Data
1.6	2021/06/18	Modify1.2 Power Consumption data+ POE limitation chart, modify F3.2+F3.3 mark, modify 3.4 TB-528 series information Modify Figure 1.6+1.7 Add TB-528 series and UPS use limitations Modify Manual title to FABS-8XX Series

Warning!

This equipment generates, uses and can 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 his 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 to 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 inform on regarding the waste systems available. We suggest to separate electrical appliance from general trash and follow handling waste disposal systems.

FABS Series has approval through this certification for your reference:

CE

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 Getting Started

1.1 Features

- Intel® Celeron Processor N2930
- 7”/10.1”/12.1”/15”/17”/19”/21.5” Food Industrial Panel PC
- Flat front panel touch screen with IP66/IP69K grade.
- Onboard 4GB DDR3L 1600MHz
- DC 9-36V wide range power input
- Default 304 Stainless steel design, 316 Stainless Steel for option.

1.2 Specifications

	FABS-807 P/G(H)	FABS-810 P/G(H)	FABS-812 P/G(H)	FABS-815 P/G(H)	FABS-817 P/G(H)	FABS-819 P/G(H)	FABS-821 P/G(H)
System							
CPU	Onboard Intel Celeron N2930 1.83GHz Processor(2M Cache)						
Chipset	SoC						
Memory	Onboard 4GB DDR3L SDRAM						
IO 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 3-pin DC 9-36V power input terminal 1 x 2-pin connector for power on/off button **TB-528 boards (optional*) and UPS battery (optional*)**						
Storage Space							
Storage	1 x SD card slot on board 1 x 2.5” SATA HDD/SSD space (Easy Accessible, **7” models use 1.8” MO-297 SSD**)						
Expansion Slot	1 x internal Mini-PCIe slot full size 1 x SIM card holder/ Micro SD card reader						

TB-528 boards* and UPS* use limitations in FABS-8XX models:

FABS-807/808 R/P/G(H): System is not compatible with TB-528 series.

FABS-810/812R/P/G(H): System is only allowed to build in either I/O board TB-528 series or UPS battery.

FABS-815/816/817/819/821R/P/G(H): System is only allowed to build in either TB-528 PoE series or UPS battery

FABS-815/816/817/819/821R/P/G(H): System is allowed to build in TB-528 I/O board and UPS battery simultaneously.

Standard Display							
Display type	7”	10.1”	12.1”	15”	17”	19”	21.5”
Max. Resolution	800x480	1280 x 800	800 x 600 1024x768	1024 x 768	1280x1024	1280x1024	1920x1080
Max. Color	262K	16.7M	262K/16.2M	16.2M	16.7M	16.7M	16.7M
Luminance (cd/m^2)	350	350	450-SVGA 500-XGA	300	350	350	250
Contrast Ratio	400:1	800:1	1500:1-SVGA 700:1-XGA	2000:1	800:1	1000:1	3000:1
Viewing Angle	H:140 V:120	H:170 V:170	H:178/178 V:178/178	H:176 V:176	H:170 V:160	H:170 V:160	H:178 V:178
Backlight Lifetime(hrs)	50,000	25,000	50,000 30,000	70,000	30,000	50,000	30,000
High Brightness Display							
Display type	7”	10.1”	12.1”	15”	17”	19”	21.5”
Max. Resolution	800 x 480	1280 x 800	800 x 600 1024x768	1024 x 768	1280x1024	1280x1024	1920x1080
Max. Color	262K	16.7M	262K/16.2M	16.7M	16.7M	16.7M	16.7M
Luminance (cd/m^2)	1000	1000	1000	1000	1000	1000	1000
Contrast Ratio	400:1	1000:1	700:1	800:1	1000:1	1000:1	3000:1
Viewing Angle	H:140 V:130	V:170 H:170	178/178-SVGA 160/140-XGA	H:160 V:150	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	50,000
Touch Screen							
Type	Project capacitive Resistive Without Touch, Only Glass with Anti-Reflection Coating						
interface	USB over 90%(Resistive: over 80%)						
Power							
Power Input	DC 9-36V						
Power Consumption	Max:28W	Max:28W	Max:32W	Max:30W	Max:38W	Max:42W	Max:42W
Mechanical							
Construction	304 Stainless Steel Chassis / 316 Stainless Steel Chassis (Optional)						

Panel Mount	Panel Mount by optimized frame design						
VESA Mount	75x75	100x100					
Dimension (mm)	217 x 163 x 40	296 x 200 x 46.9	331 x 257 x 52	422 x 322 x 54.1	449.4 x 358.4 x 63.8	485 x 398 x 63.8	573.8 x 378.8 x 59.8
Net Weight (Kg)	1.1	2.5	3.4	5.1	6.4	7.7	8

Environmental	
Operating temperature	0~50°C(-20~60°C for option) 0~40°C (For 21.5")
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→R Model CE / FCC Class A/ EN1672-2→P(H) and G(H) Model
Operating System Support	
OS Support	Windows 10 IOT

POE Use Limitation

Model	(30W)POE+	(45W) POE++
FABS-807	n	n
FABS-810	y*	n
FABS-812	y*	y
FABS-815	y*	y
FABS-817	n	y
FABS-819	n	y
FABS-821	n	y

* 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 representative to discuss.

* y* does not apply in Linux OS.

* We suggest using 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

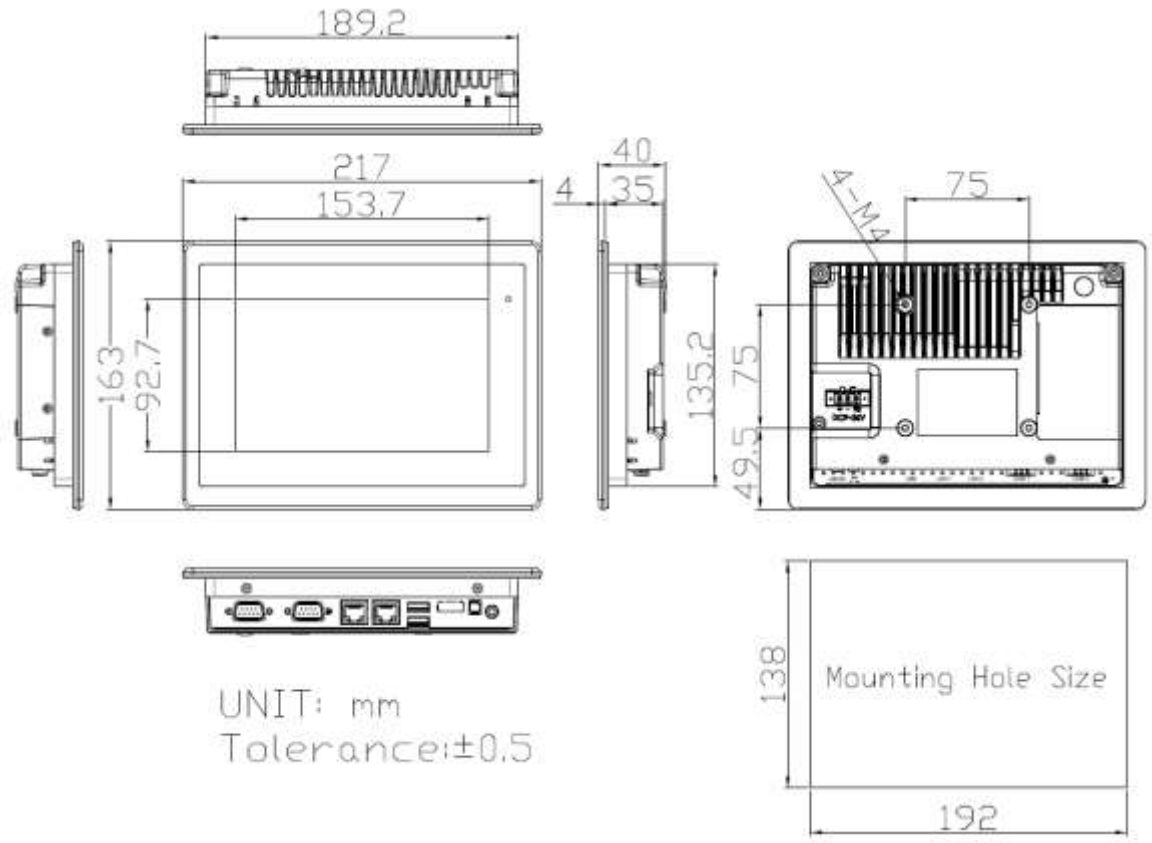


Figure 1.1: Dimensions of FABS-807P/G(H)

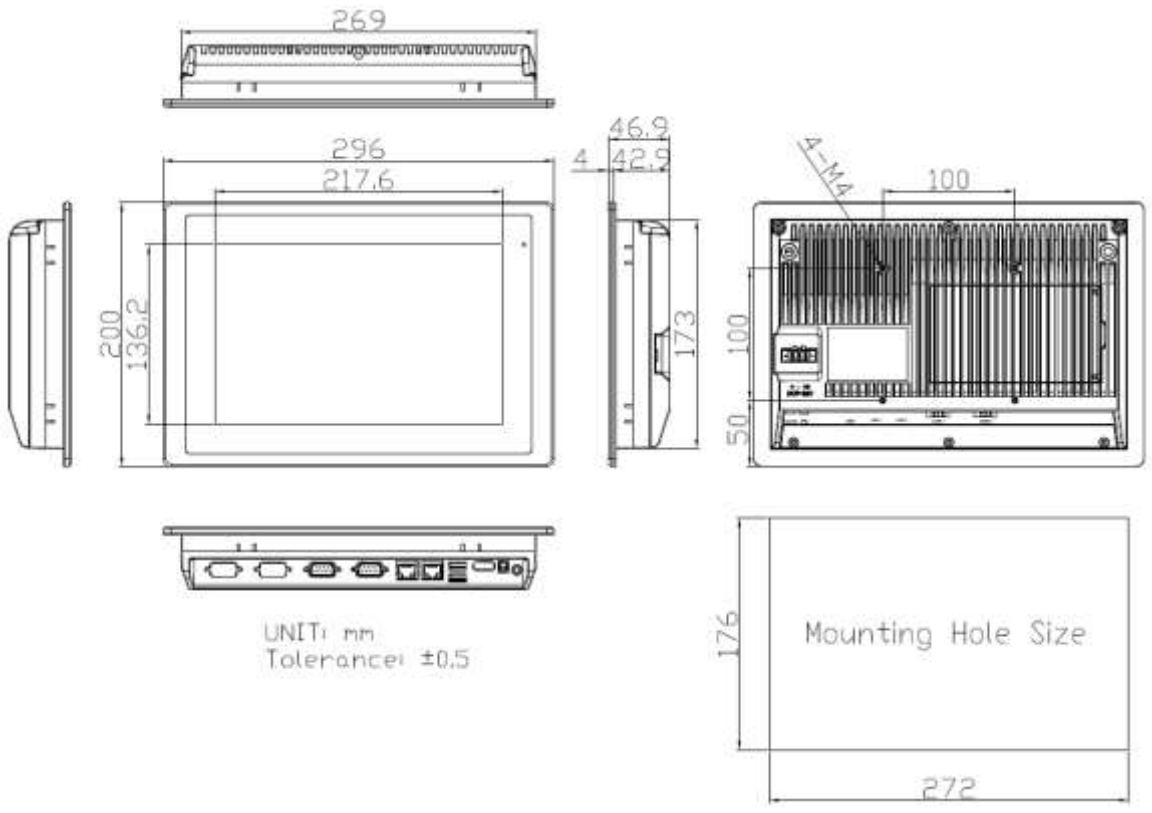


Figure 1.2: Dimensions of FABS-810P/G(H)

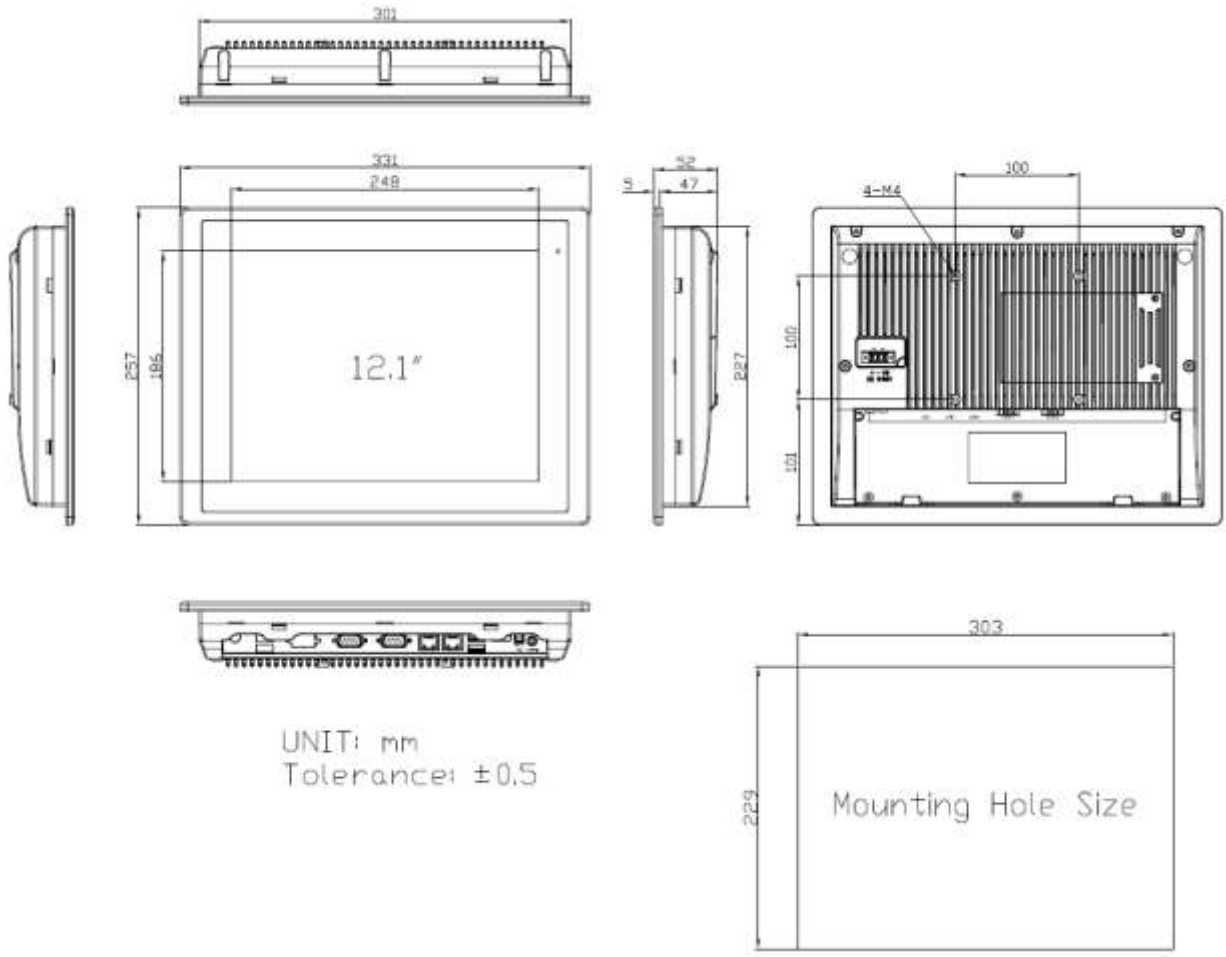


Figure 1.3: Dimensions of FABS-812P/G(H)

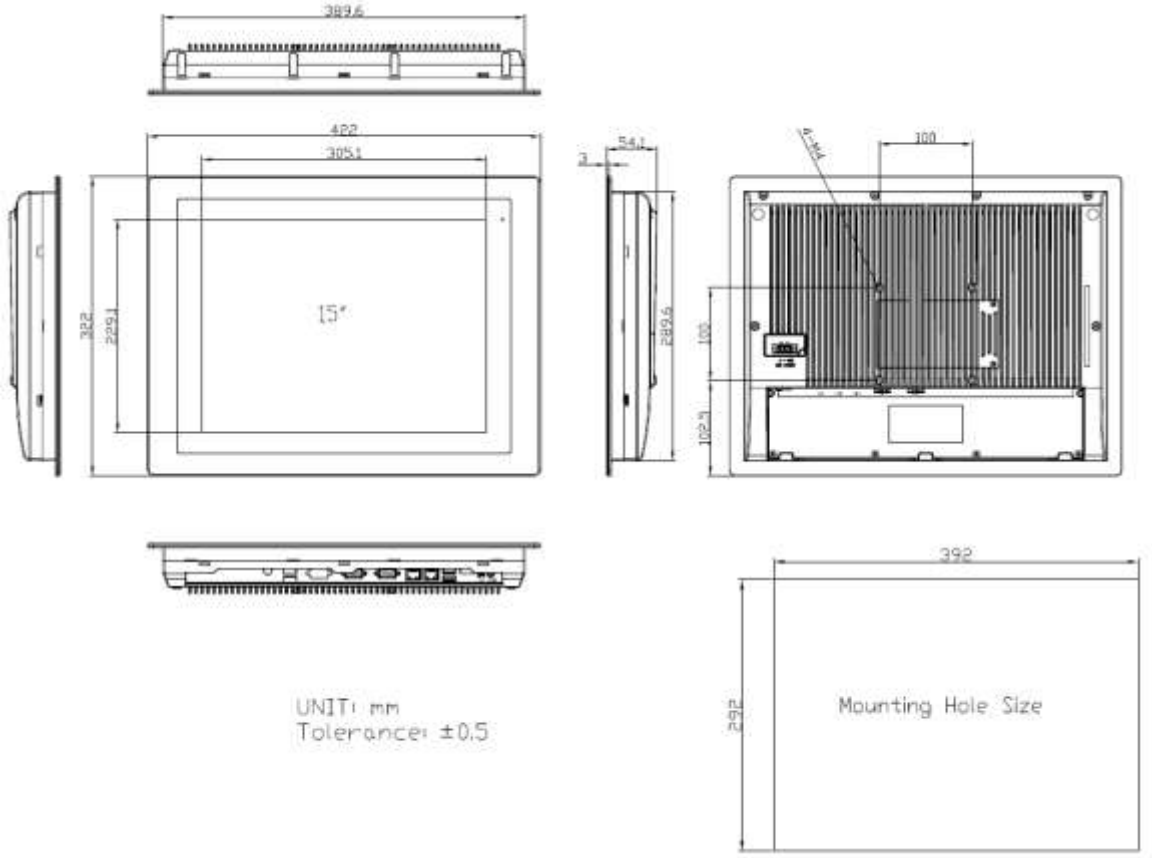


Figure 1.4: Dimensions of FABS-815P/G(H)

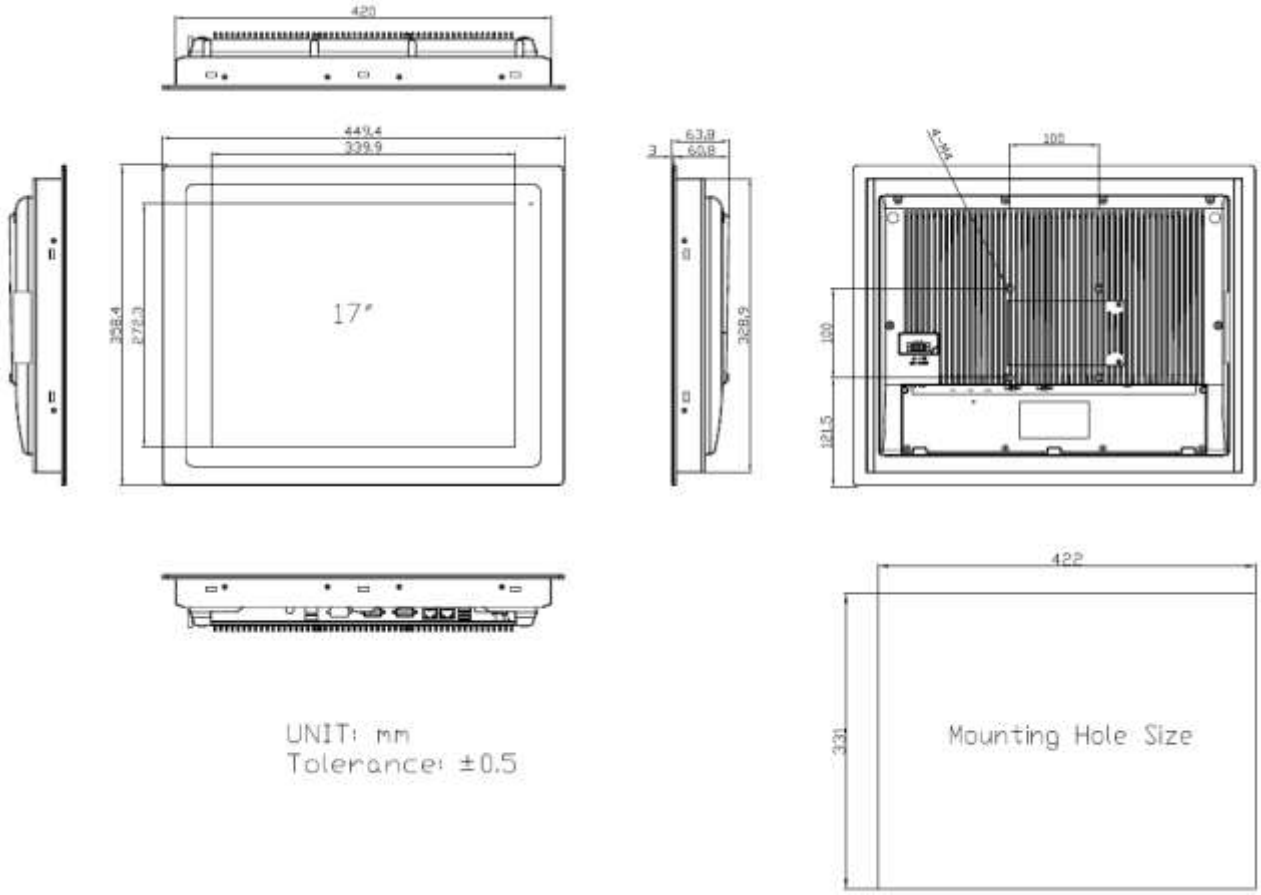


Figure 1.5: Dimensions of FABS-817P/G(H)

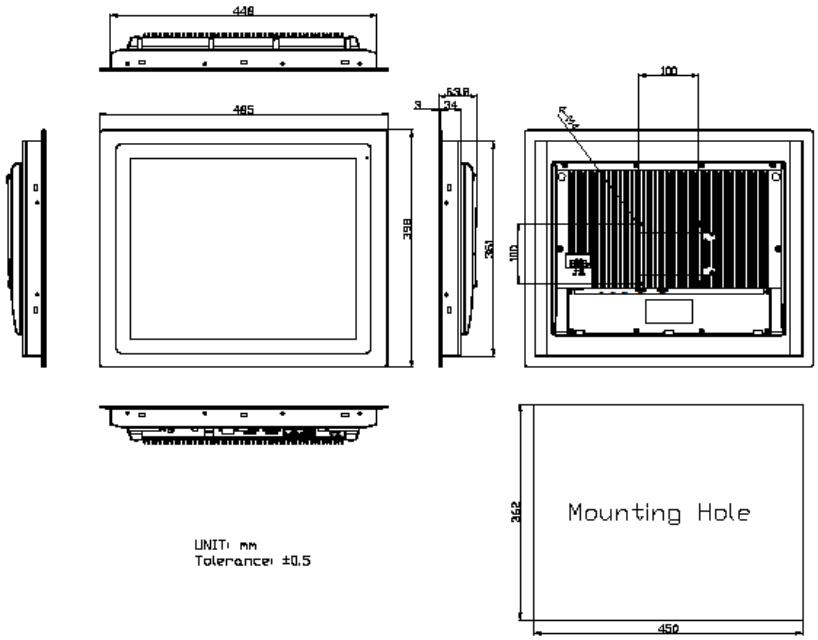


Figure 1.6: Dimensions of FABS-819P/G(H)

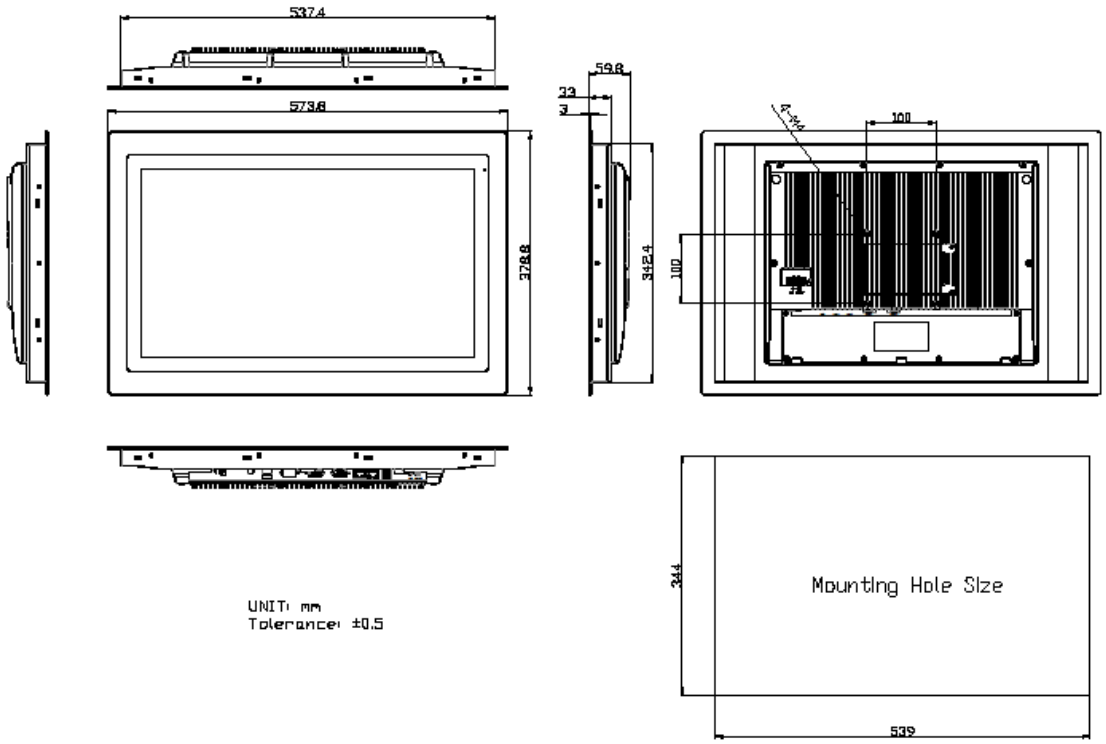
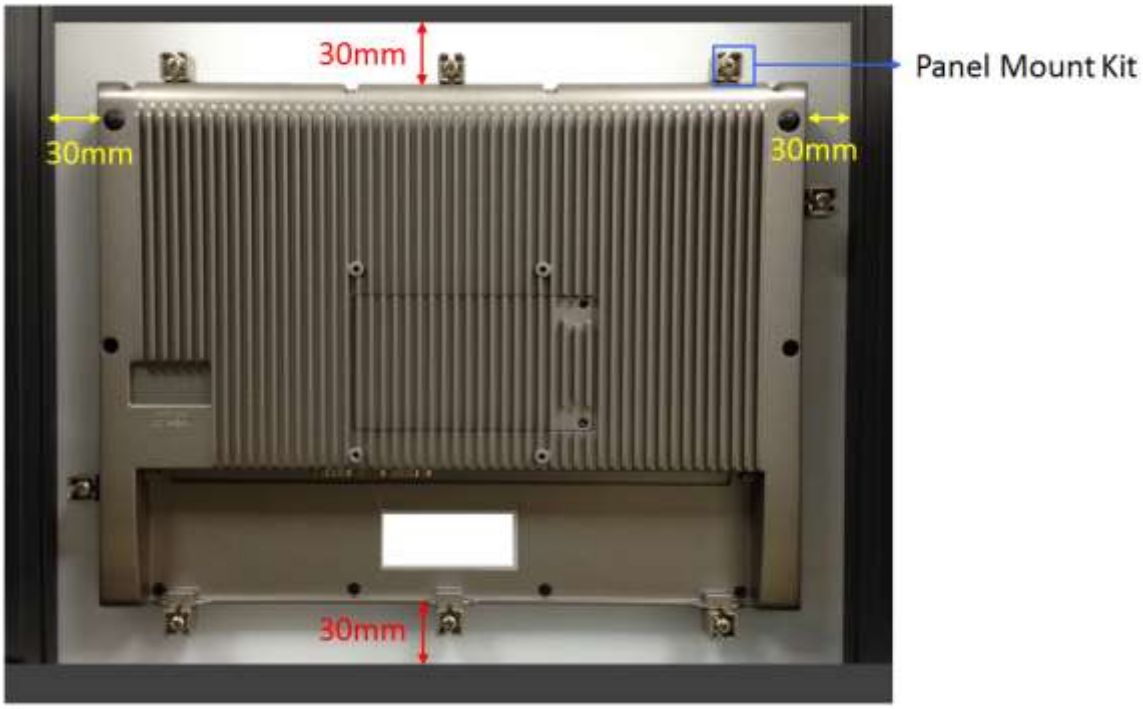


Figure 1.7: Dimensions of FABS-821P/G(H)

The mounting hole size(back side) needs keep more than 30mm space between system and wall, it is for install panel mount kit, the rules suitable for FABS series.



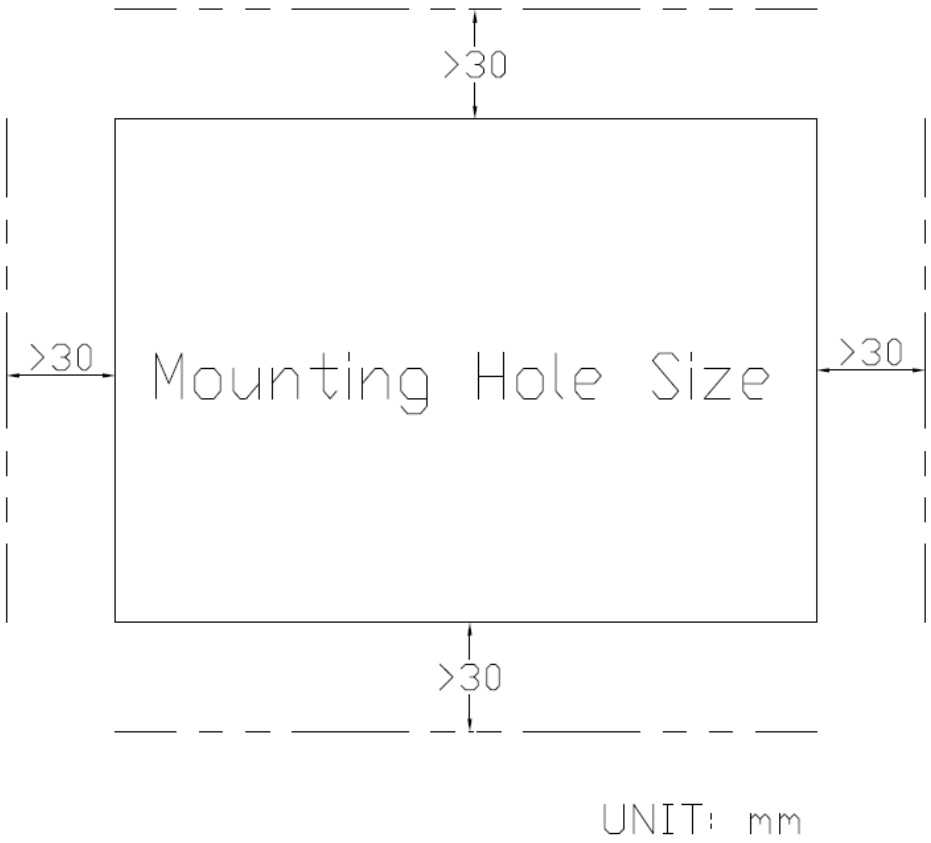


Figure 1.8: Wall thickness of mounting hole size

1.4 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 Celeron N2930 processor and supports 4GB DDR3L onboard memory. It comes with a 7”~21.5” color TFT display. There multiple I/O ports such as USB, LAN, and so on. This model 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 model supports wide range DC 9-36V power input and the front touch panel certified by IP66⁄69K degree, thus you can use it in food industrial environment and give the best in monitoring and control applications.

Figure 1.9: Front View of FABS Series

Figure 1.10: Rear View of FABS Series

Chapter 2 Installation and Comfort Guide

2.1 Adjust your monitor and posture

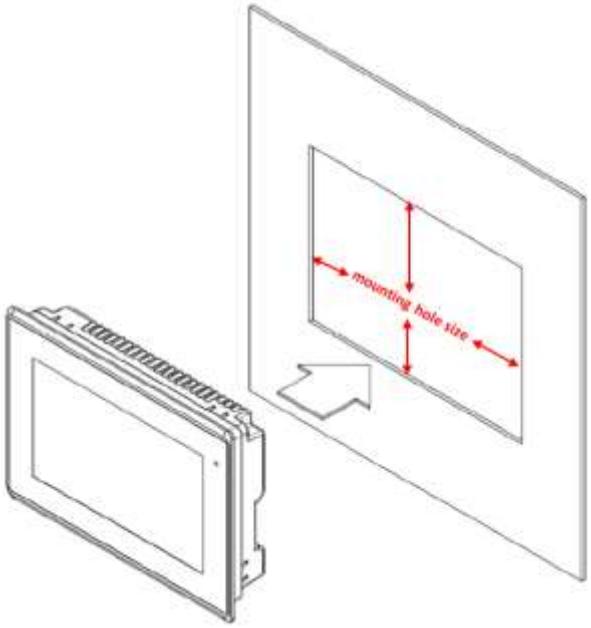
There is no one monitor placement that can keep all body parts happy all the time. Throughout the day, let the comfort of your eyes, neck, shoulders, and back help you determine how to move and when. Placement, zoom, and lighting are all important factors that affect your comfort and productivity. We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

2.2.1 Each Panel size map to different mounting hole size, please make sure it is correctly.

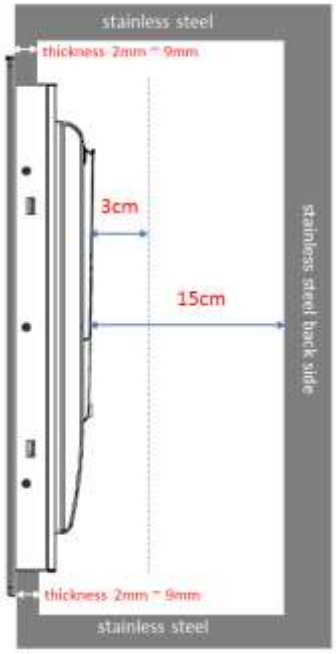


2.2.2

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

(b) If environment without any fan or air condition, 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

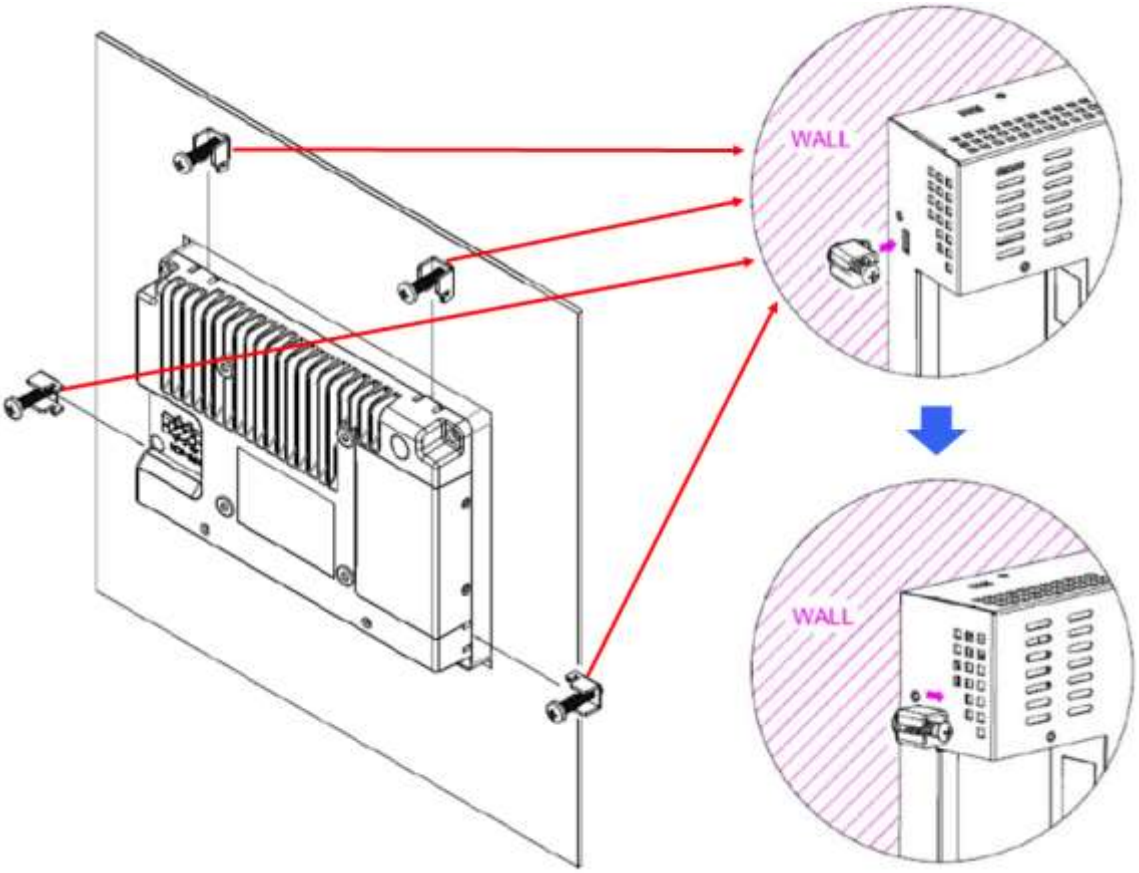


Figure 2.1: Panel Mounting of FABS Series

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.

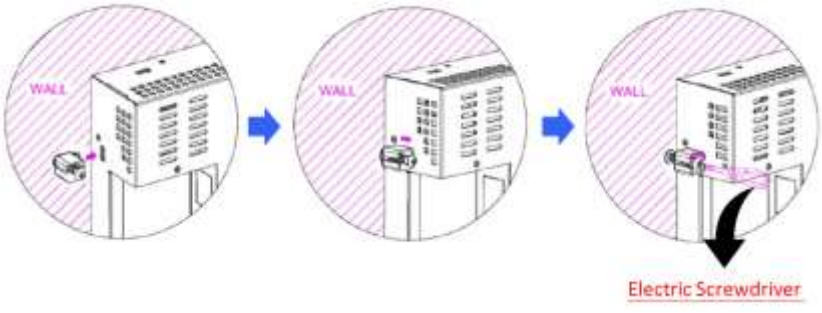
(c) High torque could cause metal wall surface bend and possible water leakage.

(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

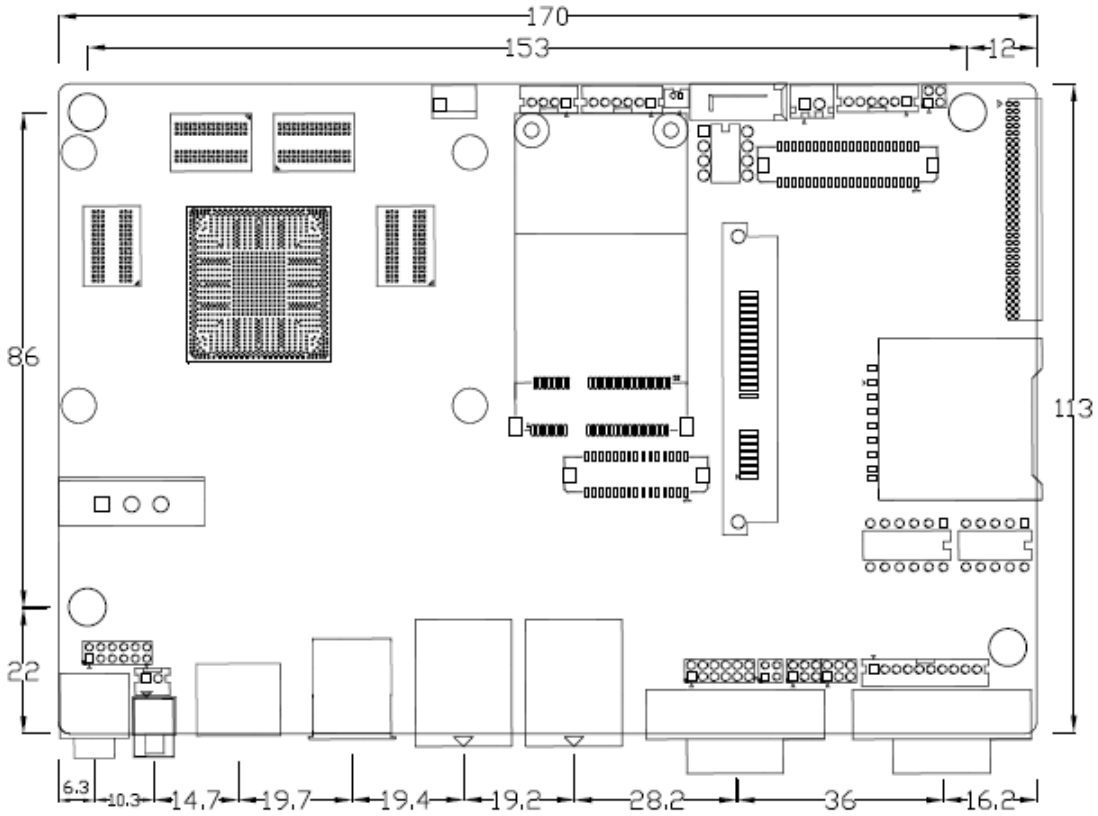
SBC-7111 is a 4" industrial motherboard developed on the basis of Intel Bay trail-I/M Processors, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual GbE ports, 4-COM ports and one Mini PCIE configuration,one VGA port, one HDMI port, one LVDS 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 Atom E3845 /1.91GHz (4cores,10W, onboard) Intel Celeron N2930 /1.83 up to 2.16GHz (4cores,option）
Chipset	SOC
Memory Support	Onboard 2GB DDR3L SDRAM (N2930,option) Onboard 4GB DDR3L SDRAM (E3845/N2930,option) Onboard 8GB DDR3L SDRAM (N2930,option)
Graphics	Intel® HD Graphics 313/854MHz (N2930) Intel® HD Graphics 542/792MHz (E3845)
Display Mode	1 x HDMI Port 1 x LVDS (18/24-bit dual LVDS)
Support Resolution	Up to 1920 x 1200 for HDMI Up to 1920 x 1200 for LVDS (PS8625)
Dual Display	HDMI + LVDS
Super I/O	ITE IT8518E Fintek F81216AD
BIOS	AMI/UEFI
Storage	1 x SATAII Connector (7Pin, option) 1 x SATAII Connector (7Pin+15Pin) 1 x SD Slot (USB2 to SD)
Ethernet	2 x PCIe Gbe LAN by Intel 82574L
USB	USB 3.0 Hub（USB5534）: 2 x USB 3.0/USB2.0 (type A)stack ports (E2_USB5/E2_USB6)

	1 x USB 2.0 for internal Touch controller (E2_USB7) 1 x USB 2.0 Pin header for CN1 (E2_USB8) USB 2.0 Hub（USB2514）: 1 x USB 2.0 Pin header for CN2 (E-USB9) 2 x USB 2.0 Pin header for CN3 (E-USB10/E-USB11) 1 x USB 2.0 for MPCIE1 (E-USB12)
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) 2 x RS422/485 header for CN2 (IT8518E/COM5/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 (BAT1/CMOS)
Audio	Support Audio via Realtek ALC662-VD HD audio codec Support Line-in, Line-out, MIC by 2x6-pin header
Keyboard /Mouse	1 x PS2 keyboard/mouse by box pin header (CN3)
Expansion Bus	1 x mini-PCI-express slot 1 x PCI-express (CN3)
Touch Ctrl	1 x Touch ctrl header for TCH1 (PM6000 for USB4 or COM6)
Power Management	Wide Range DC6V-36V input 1 x 3-pin power input connector (DC_IN1/DC6-36V) 1 x 4-pin power input connector (DC_IN2/DC12V)
Switches and LED Indicators	1 x Power on/off switch (BT1/BT2/P_SW/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 3.0/2.0 Ports (stack) 2 x RJ45 GbE LAN Ports

	1 x HDMI Port 1 x Stack audio Jack (Line out) 1 x Power on/off switch (BT1)
Temperature	Operating: -20℃ to 70℃ Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
Power Consumption	12V /0.80A (Intel Atom E3845 processor with 4GB DDR3L DRAM) 12V /0.60A (Intel Atom E3815 processor with 2GB DDR3L DRAM) 12V /0.70A (Intel Atom N2930 processor with 4GB DDR3L DRAM)
EMI/EMS	Meet CE/FCC class A



(units :mm)

Figure 3.1: Motherboard Dimensions

3.3 Jumpers and Connectors Location

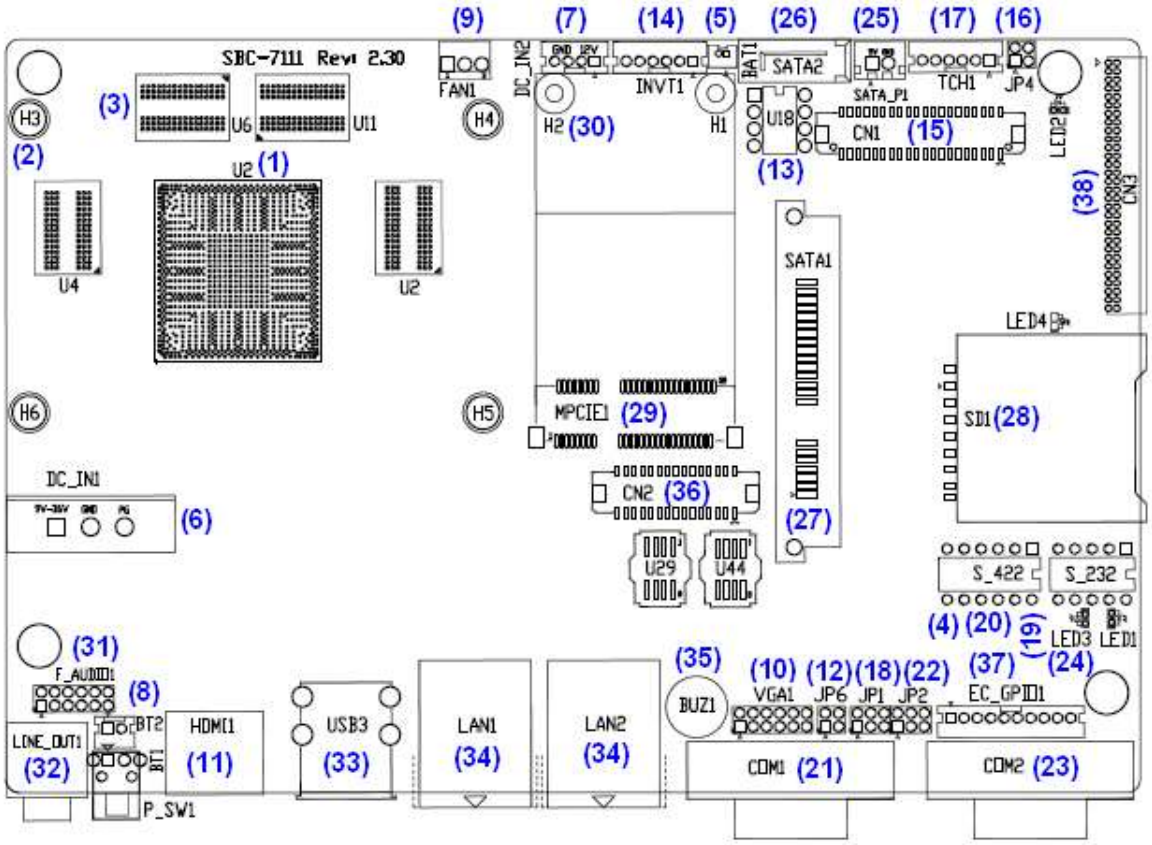


Figure 3.2: Jumpers and Connectors Location- Board Top

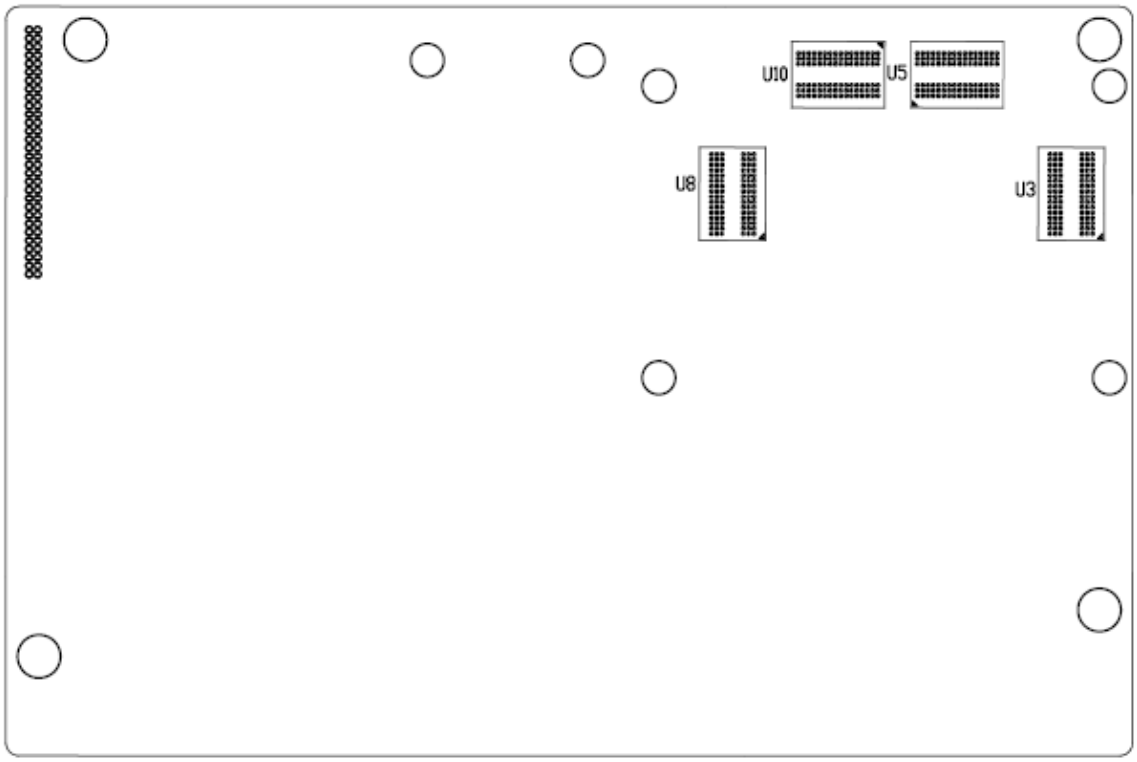


Figure 3.3: Jumpers and Connectors Location- Board Bottom

3.4 Jumpers Setting and Connectors

1. U2:

(FCBGA1170), onboard Intel Bay trail-I/M Processors.

Model	Processor				
	Number	PBF	Cores/ Threads	TDP	Remarks
SBC-7111-N2930-4G	N2930	1.83 up to 2.16GHz	4 / 4	4.5/ 7.5W	
SBC-7111-N2930-4G-SW					
SBC-7111-N2930P-4G					
SBC-7111-N2930-2G					
SBC-7111-N2930P-CN3V-2G					
SBC-7111-N2930-8G					
SBC-7111-E3845-4G	E3845	1.91GHz	4 / 4	10W	option

2. H3/H4/H5/H6 (option):

U2 Heat Sink Screw holes, four screw holes for Intel Bay trail-I/M Processors Heat Sink assemble.

3. U3/U4/U5/U6/U8/U9/U10/U11:

(FBGA96) Onboard DDR3L Memory.

Model	Memory
SBC-7111-N2930-4G	4GB
SBC-7111-N2930-4G-SW	4GB (option)
SBC-7111-N2930P-4G	4GB (option)
SBC-7111-E3845-4G	4GB (option)
SBC-7111-N2930-2G	2GB (option)
SBC-7111-N2930P-CN3V-2G	2GB (option)
SBC-7111-N2930-8G	8GB (option)

4. S-422 (PIN6):

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

S-422(Switch)	Mode
Pin6 (Off)	ATX Power
Pin6 (On)	**Auto Power on (Default)**

5. BAT1 :

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

Pin#	Signal Name
Pin1	VBAT
PIN2	Ground

6. DC_IN1:

(5.08mm Pitch 1x3 Pin Connector),DC9V~36V System power input connector.

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

Model	DC_IN1
SBC-7111-N2930-4G	180°Connector
SBC-7111-N2930-4G-SW	180°Connector
SBC-7111-N2930-2G	180°Connector
SBC-7111-N2930-8G	180°Connector
SBC-7111-E3845-4G	180°Connector
SBC-7111-N2930P-4G	45°Connector
SBC-7111-N2930P-CN3V-2G	45°Connector

7. DC_IN2 (option):

(2.0mm Pitch 1x4 Wafer Pin Header), DC12V System power input connector.

.

Pin#	Signal Name
Pin1	VCC_BAT (DC+12V input)
Pin2	VCC_BAT (DC+12V input)
Pin3	Ground
Pin4	Ground

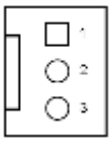
8. BT1/BT2/P_SW (option):

Power on/off button, it 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.

Model	BT1	BT2	P_SW1
SBC-7111-N2930-4G	●	●	○
SBC-7111-N2930P-4G	●	●	○
SBC-7111-N2930-2G	●	●	○
SBC-7111-N2930-8G	●	●	○
SBC-7111-E3845-4G	●	●	○
SBC-7111-N2930P-CN3V-2G	○	●	○
SBC-7111-N2930-4G-SW	○	●	●

9. FAN1(option):

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

Model	FAN1
SBC-7111-N2930-4G	○
SBC-7111-N2930-4G-SW	○
SBC-7111-N2930P-4G	○
SBC-7111-N2930P-CN3V-2G	○
SBC-7111-E3845-4G	○
SBC-7111-N2930-2G	○
SBC-7111-N2930-8G	○

10. VGA1:

(CRT 2.0mm Pitch 2x6 Pin Header), Video Graphic Array Port, Provide 2x6Pin cable to VGA Port.

Signal Name	Pin#	Pin#	Signal Name
CRT_RED	1	2	Ground

CRT_GREEN	3	4	Ground
CRT_BLUE	5	6	VGA_EN
CRT_H_SYNC	7	8	CRT_DDCDATA
CRT_V_SYNC	9	10	CRT_DDCCLK
Ground	11	12	Ground

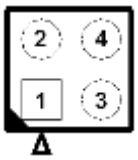
VGA hot plug setting	
VGA1(Pin Header)	Function
Pin4-Pin6(Close)	VGA Simulation Disabled
Pin4-Pin(Open)	VGA Simulation Enabled
use the 2.0mm jumper cap to close pin 4 and pin6	

11. HDMI1:

(HDMI 19P Connector), High Definition Multimedia Interface connector

12. JP6:

(2.0mm Pitch 2x2 Pin Header), LVDS jumper setting



JP6	Function (CN1)
Pin1-Pin2(Close)	Single channel LVDS
Pin1-Pin2(Open)	**Dual channel LVDS (Default)**
Pin3-Pin4(Close)	**8/24 bit (Default)**
Pin3-Pin4(Open)	6/18 bit

13. U18:

AT24C02-DIP8,The EEPROM IC (U18)is the set of LVDS resolution.

If you need other resolution settings, please upgrade U18 data.

Model	LVDS resolution
SBC-7111-N2930-4G	1280*1024 (Default)
SBC-7111-N2930-4G-SW	800*480 (option)
SBC-7111-N2930P-4G	800*600 (option)
SBC-7111-N2930P-CN3V-2G	1024*768 (option)

SBC-7111-N2930-2G SBC-7111-N2930-8G SBC-7111-E3845-4G	1920*1080 (option) ……

14. INVT1:

(2.0mm Pitch 1x6 wafer Pin Header), Backlight control connector for LVDS.

Pin#	Signal Name
1	+DC12V
2	+DC12V
3	Ground
4	Ground
5	BKLT_EN_OUT
6	BKLT_CTRL

15. CN1：

(1.25mm Pitch 2x20 Connector,DF13-40P),For 18/24-bit LVDS output connector, fully supported 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.

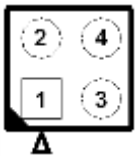
Function	Signal Name	Pin#		Signal Name	Function
LVDS	12V_S0	2	1	12V_S0	LVDS
	BKLT_EN_OUT	4	3	BKLT_CTRL	
	Ground	6	5	Ground	
	LVDS_VDD5	8	7	LVDS_VDD5	
	LVDS_VDD3	10	9	LVDS_VDD3	
	Ground	12	11	Ground	
	LA_D0_P	14	13	LA_D0_N	
	LA_D1_P	16	15	LA_D1_N	
	LA_D2_P	18	17	LA_D2_N	
	LA_D3_P	20	19	LA_D3_N	
	LA_CLKP	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	
	Ground	34	33	Ground	E2-USB8
E2-USB8	E2-USB8_P	36	35	E2-USB8_N	
	5V_S5_USB	38	37	5V_S5_USB	
Power LED	PWR_LED+	40	39	Ground	Power LED

16. JP4 (*Reserve*):

(2.0mm Pitch 2x2 Pin Header).

JP4	Function
Open 3-4(default)	-
Open 1-2(default)	-
Close 3-4(option)	Hardware Enabled



17. 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

Touch Interface setting	EC(U44) Data
TCH1(PM6000)	option A
CN1(E2-USB8)	option B

18. JP1:

(2.0mm Pitch 2x3 Pin Header),COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP1 Pin#	Function
Close 1-2	**COM1 RI (Ring Indicator) (default)**
Close 3-4	COM1 Pin9:DC+5V (option)
Close 5-6	COM1 Pin9:DC+12V (option)

19. S_232:

(Switch),COM1 jumper setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

Function	S_232 Pin# (switch)
RS232 (Default)	**ON: Pin1, Pin2, Pin3, Pin4,Pin5**
RS422 (option)	OFF: Pin1, Pin2, Pin3, Pin4,Pin5
RS485 (option)	OFF: Pin1, Pin2, Pin3, Pin4,Pin5

20. S_422:

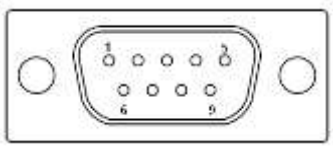
(Switch),COM1 setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

Function	S_422 Pin# (switch)
RS232 (Default)	**OFF: Pin1, Pin2, Pin3, Pin4, Pin5**
RS422 (option)	ON: Pin1, Pin2, Pin3, Pin4, Pin5
RS485 (option)	ON: Pin1, Pin2, Pin3, Pin4, Pin5

S-422(switch)	Mode
Pin6(Off)	ATX Power
Pin6(On)	**Auto Power on (Default)**

21. 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 S_232 and S_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/F81216SEC Super IO Configuration/Serial Port 1 Configuration【RS-232】	

RS422 (option):	
Pin#	Signal Name
1	422_RX+
2	422_RX-
3	422_TX-
4	422_TX+
5	Ground
6	NC
7	NC
8	NC
9	NC
BIOS Setup： Advanced/F81216SEC Super IO Configuration/Serial Port 1 Configuration【RS-422】	

RS485 (option):	
Pin#	Signal Name
1	NC
2	NC
3	485-
4	485+
5	Ground
6	NC
7	NC

8	NC
9	NC
BIOS Setup： Advanced/F81216SEC Super IO Configuration/Serial Port 1 Configuration【RS-485】	

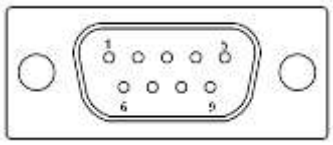
22. JP2:

(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)

23. 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)**

24. LED1,LED2,LED3,LED4 (option) :

LED1: LED STATUS. Green LED for Motherboard Power Good status.

LED2: LED STATUS. Green LED for Touch Power status.

LED3: LED STATUS. Green LED for EC Power status.

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

25. SATA_P(option):

(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.

Model	SATA_P (Wafer)
SBC-7111-N2930-4G	○
SBC-7111-N2930-4G-SW	○
SBC-7111-N2930P-4G	○
SBC-7111-N2930P-CN3V-2G	○
SBC-7111-E3845-4G	○
SBC-7111-N2930-2G	○
SBC-7111-N2930-8G	○

26. SATA2(option):

(SATA 7Pin), SATA Connectors, one SATA connector are provided, with transfer speed up to 3.0Gb/s.

Model	SATA2 (Connectors)
SBC-7111-N2930-4G	○
SBC-7111-N2930-4G-SW	○
SBC-7111-N2930P-4G	○
SBC-7111-N2930P-CN3V-2G	○
SBC-7111-E3845-4G	○
SBC-7111-N2930-2G	○
SBC-7111-N2930-8G	○

27. SATA1:

(SATA 7Pin+15Pin), SATA Connectors, one SATA connector is provided with transfer speed up to 3.0Gb/s.

28. SD1(option):

(SD card slot),Secure Digital Memory Card socket.

29. MPCIE1:

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

30. H1/H2:

MPCIE1 SCREW HOLES, H1and H2 for mini PCIe card (30mmx50.95mm) assemble.

31. F_AUDIO1:

(2.0mm Pitch 2x6 Pin Header), Front Audio, An onboard Realtek ALC662-VD 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_OUT1:

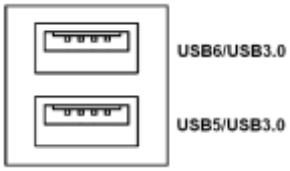
(Diameter 3.5mm Jack), HD Audio port, An onboard Realtek ALC662-VD codec is used to provide high quality audio I/O ports. Line Out can be connected to a headphone or amplifier.


Line out

Model	LINE_OUT1
SBC-7111-N2930-4G	●
SBC-7111-N2930P-4G	●
SBC-7111-N2930-2G	●
SBC-7111-N2930-8G	●
SBC-7111-E3845-4G	●
SBC-7111-N2930P-CN3V-2G	○
SBC-7111-N2930-4G-SW	●

33. USB3:

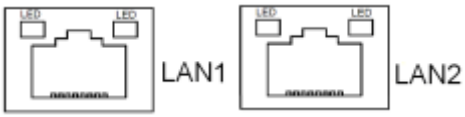
USB0/USB3：(Double stack USB type A), Rear USB connector, it provides up to two USB3.0 port,one USB2.0 port, support USB full-speed and low-speed signaling.



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.

34. LAN1/LAN2:

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



Model	RJ45(LAN1)	RJ45(LAN2)
SBC-7111-N2930-4G	●	●
SBC-7111-N2930P-4G	●	●
SBC-7111-N2930-2G	●	●
SBC-7111-N2930-8G	●	●
SBC-7111-E3845-4G	●	●
SBC-7111-N2930P-CN3V-2G	●	○
SBC-7111-N2930-4G-SW	●	●

35. BUZ1:

Onboard buzzer

36. CN2:

(DF13-30P Connector),For expand output connector, It provides eight GPIO,one 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
SOC_GPIO10	GPIO_IN2	4	3	GPIO_IN1	SOC_GPIO09
SOC_GPIO26	GPIO_IN4	6	5	GPIO_IN3	SOC_GPIO17
SOC_GPIO05	GPIO_OUT2	8	7	GPIO_OUT1	SOC_GPIO04
SOC_GPIO08	GPIO_OUT4	10	9	GPIO_OUT3	SOC_GPIO06
	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_USB09	24	23	5V_USB09	USB2.0
	E_USB9_P	26	25	E_USB9_N	
	Ground	28	27	FP_RST-	RESET
Power auto on	PWRBTN_ON	30	29	Ground	
COM5/COM6 BIOS Setup： Advanced/IT8518Super IO Configuration/Serial Port 1 Configuration【RS-485】 Advanced/IT8518Super IO Configuration/Serial Port 1 Configuration【RS-422】 Advanced/IT8518Super IO Configuration/Serial Port 2 Configuration【RS-485】 Advanced/IT8518Super IO Configuration/Serial Port 2 Configuration【RS-422】					

37. EC_GPIO1(option):

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

Pin#	Signal Name
1	Ground
2	GPA0_ONOFF
3	GPA1_SPK-
4	GPE6_BKLT-
5	GPE0_BKLT+
6	GPC3_SPK+
7	BKLT_CTRL_PWR
8	ADC6_BKLT_CTRL
9	ADC7_L_SENSE
10	3.3V

Function	EC_GPIO1
Backlight Automatic dimming	◯
Backlight manual dimming	◯

38. CN3:

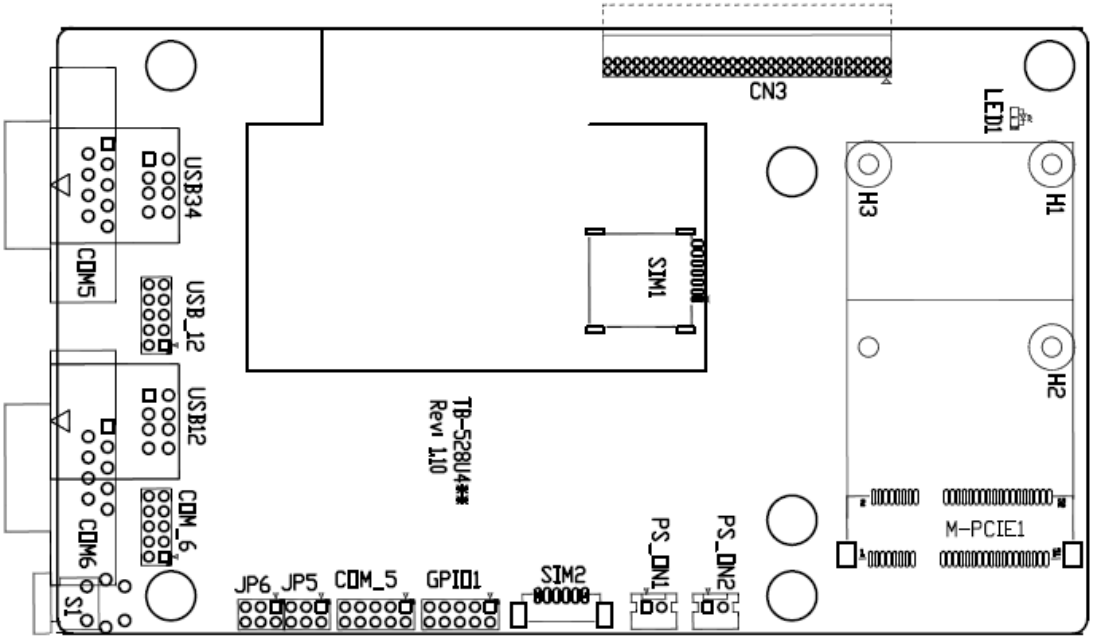
(1.27mm Pitch 2X30 Female Header),For expand output connector, it provides four GPIO, two USB 2.0, two uart, one PCIex1,one SMbus connect to the TB-528 riser Card.

Function	Signal Name	Pin#		Signal Name	Function
	5V_S5_USB	1	2	5V_S5_USB	

	5V_S5_USB	3	4	5V_S5_USB	
	USB1011_OC	5	6	PSON_ATX-	
Exp-USB10	E-USB10_N	7	8	E-USB10_P	Exp-USB10
Exp-USB11	E-USB11_N	9	10	E-USB11_P	Exp-USB11
	Ground	11	12	Ground	
Not Supported	*PS2_MSCLK*	13	14	*PS2_MSDATA*	Not Supported
	PS2_KBCLK	15	16	*PS2_KBDATA*	
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-	
GPIO23	SOC_GPIO23	35	36	SOC_GPIO22	GPIO22
GPIO25	SOC_GPIO25	37	38	SOC_GPIO24	GPIO24
	Ground	39	40	Ground	
PCIe 1X	PCIE_TX0_DN	41	42	PCIE_TX0_DP	PCIe 1X
	PCIE_RX0_DN	43	44	PCIE_RX0_DP	
	Ground	45	46	Ground	
	PCIE_REFCLK0_DN	47	48	PCIE_REFCLK0_DP	
	PCIE0_WAKE_N	49	50	PLTRST_OUT-	
SMBUS	SMB_CLK_S0	51	52	SMB_DATA_S0	SMBUS
PCIE	PCIE_CLKREQ0_N	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

Model	CN3(connector)
SBC-7111-N2930-4G	90°Connector
SBC-7111-N2930-4G-SW	90°Connector
SBC-7111-N2930-2G	90°Connector
SBC-7111-N2930-8G	90°Connector
SBC-7111-E3845-4G	90°Connector
SBC-7111-N2930P-4G	90°Connector
SBC-7111-N2930P-CN3V-2G	180°Connector

39. Expansion Boards-TB-528 Series



No.	Model	CN3 2*30P	S1	USB12 TypeA	USB34 TypeA	USB_12 2*5P	COM5 DB9	COM6 DB9	COM_5 2*5P	COM_6 2*5P	JP5 2*3P	JP6 2*3P	GPIO 2*5P	SIM1 Socket	SIM2 1*6P	M_PCIE1 52P	PS_ON1 1*2P	PS_ON2 1*2P
1	TB-528U4C2ME1P1 R110	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2	TB-528U4ME1 R110	●	●	●	●	○	○	○	○	○	○	○	●	●	○	●	●	●
3	TB-528U4 R110	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○
4	TB-528C1U2P1 R110	●	●	●	○	○	●	○	○	○	●	○	●	○	○	○	●	●
5	TB-528C1U2 R110	●	○	●	○	○	●	○	○	○	●	○	●	○	○	○	●	●
6	TB-528C2ME1 R110	●	○	○	○	○	●	●	○	○	●	●	●	●	○	●	●	●
7	TB-528C2 R110	●	○	○	○	○	●	●	○	○	●	●	○	○	○	○	○	○

CN3：

(1.27mm Pitch 2X30 Pin Header),connect to SBC-7118 CN2 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	●
USB2.0 (USB2)	●
SMBus	●
SIM	●

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), For expansion SIM Card devices.

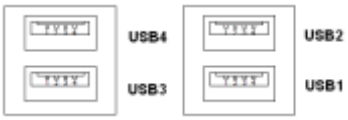
GPIO1：

(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：

(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.

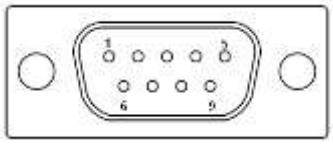
JP5：

(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：

(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：

(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

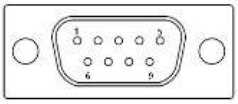
JP6：

(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：

(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：

(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：

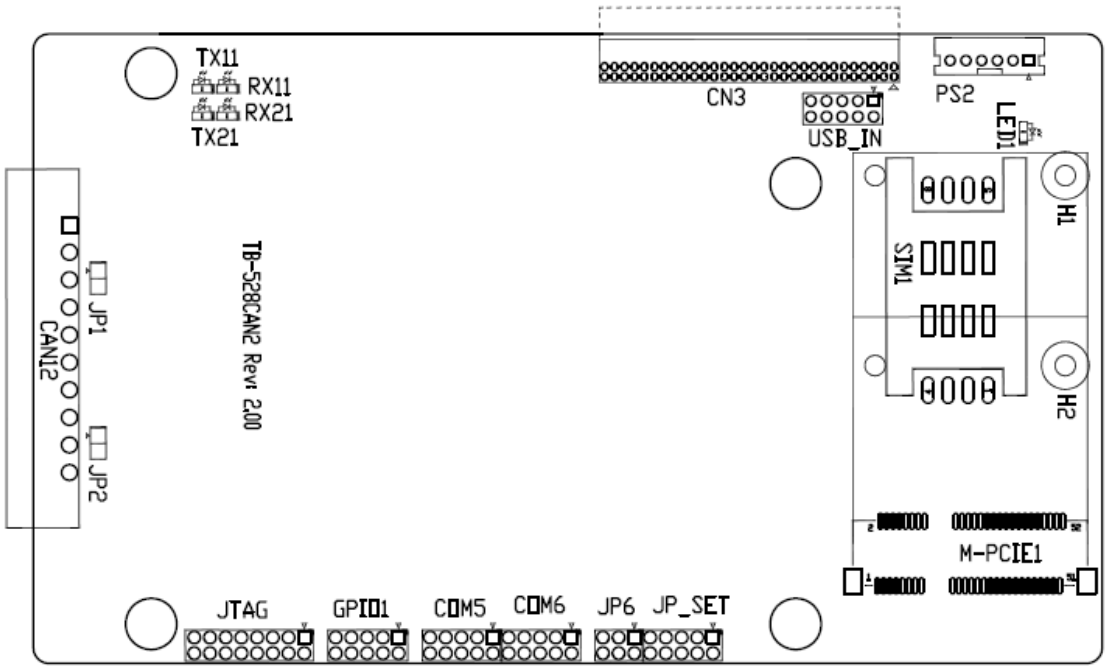
PWR BT: POWER on/off Button, it is used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

PWR LED: POWER LED status.

39-1. TB-528CAN2 R2.00:

SBC-7118 IO expansion card, providing two CAN-bus interface

TB-528CAN2 Top：



CN3：

(1.27mm Pitch 2X30 Pin Header),connect to SBC-7118 CN2 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

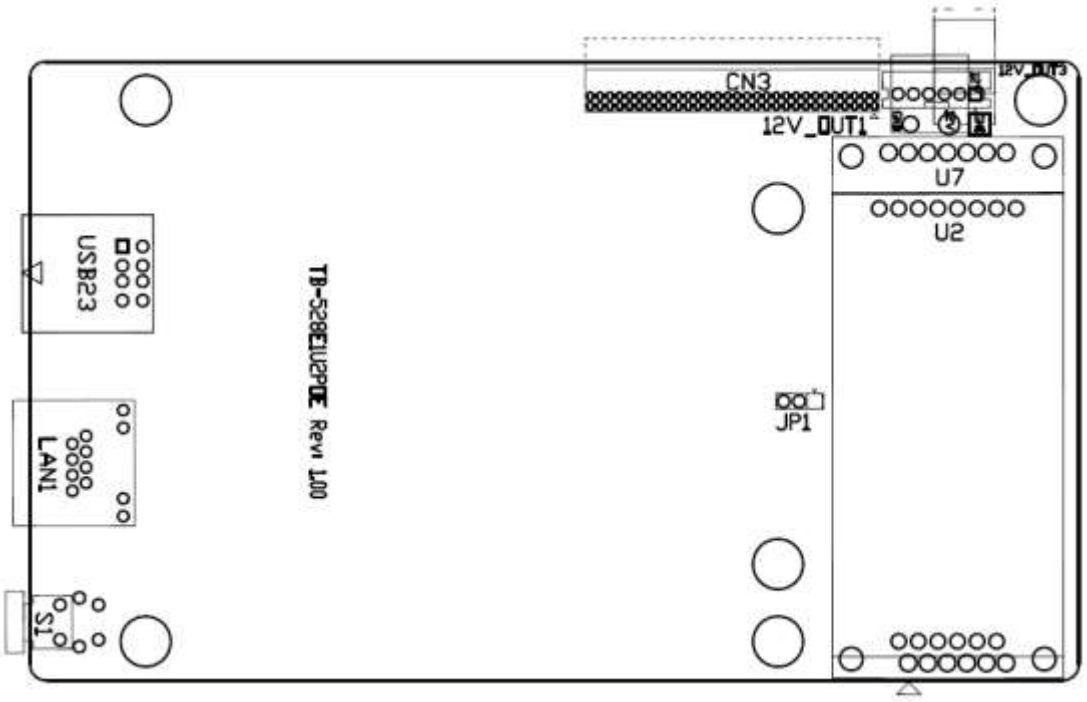
【See TB-528CAN2 Manual】

39-2. TB-528E1U2/TB-528E1U2POE/TB-528E1U2UPOE:

SBC-7111 IO expansion card, providing USB2.0 and 1xGbE Lan expansion. Can support POE(Power over Ethernet) powered device via onboard POE module

Model	USB2.0 Type-A	GbE LAN	PoE
TB-528E1U2	●	●	NA
TB-528E1U2POE	●	●	30W PD
TB-528E1U2UPOE	●	●	45W PD

TB-528E1U2POE Top：



CN3：

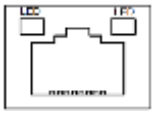
(1.27mm Pitch 2X30 Pin Header),connect to SBC-7118 CN2 pin Header.

USB2/3：

(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. Used 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

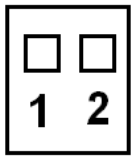
U2/U7 (Option)：

For onboard POE powered device module.

Model	PoE Module
TB-528E1U2POE	30W
TB-528E1U2UPOE	45W

12V_OUT1：

(3.96mm Pitch 1x2 Pin Header), POE DC12V Output.



Pin#	Output Voltage
1	**12V_POE**
2	**Ground**

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

Chapter 4 BIOS Setup

4.1 Operations after POST Screen

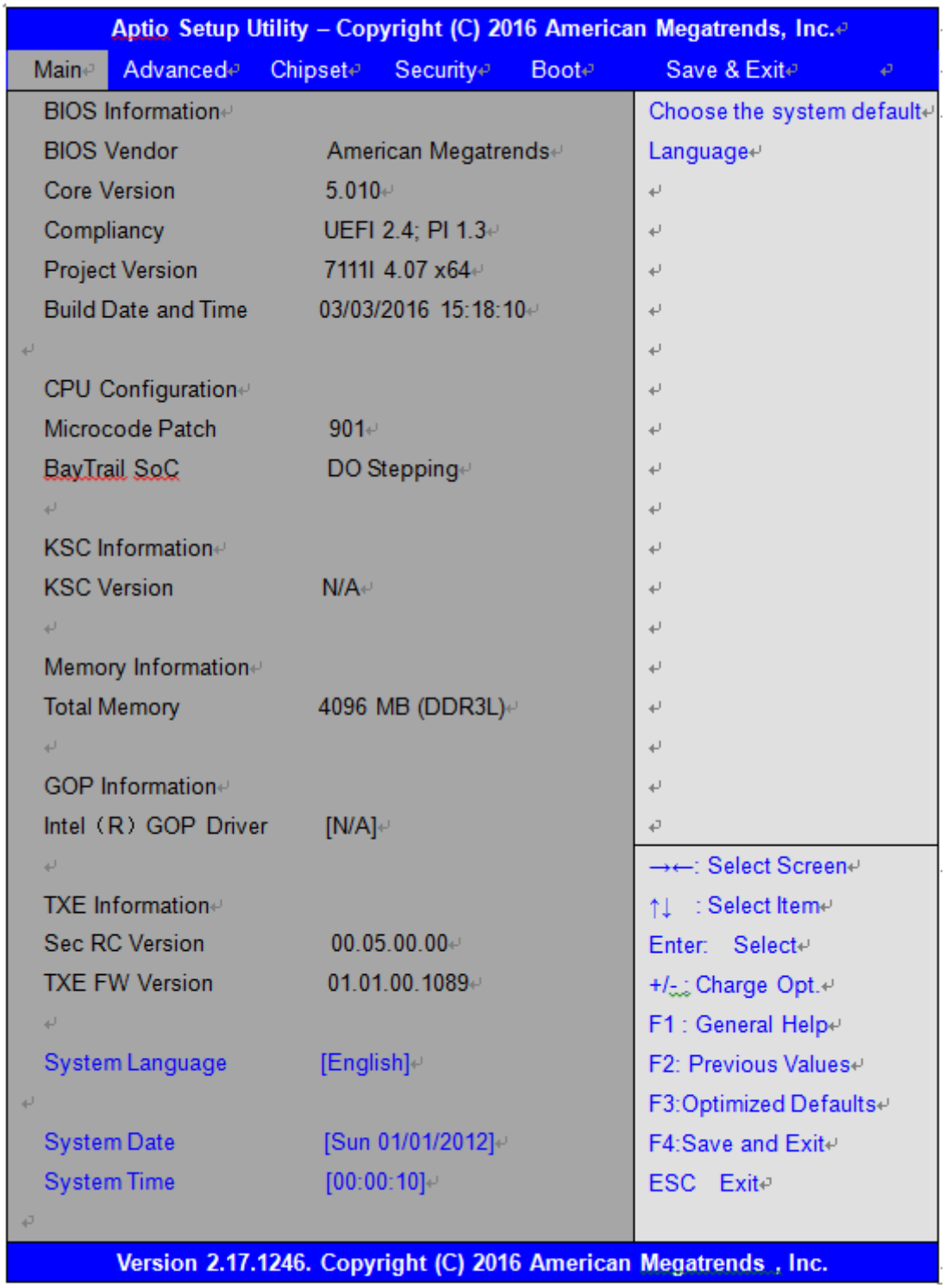
After CMOS discharge or BIOS flashing operation, press [Delete] key to enter CMOS Setup.

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



System Time:

Set the system time, the time format is:

Hour : 0 to 23

Minute : 0 to 59

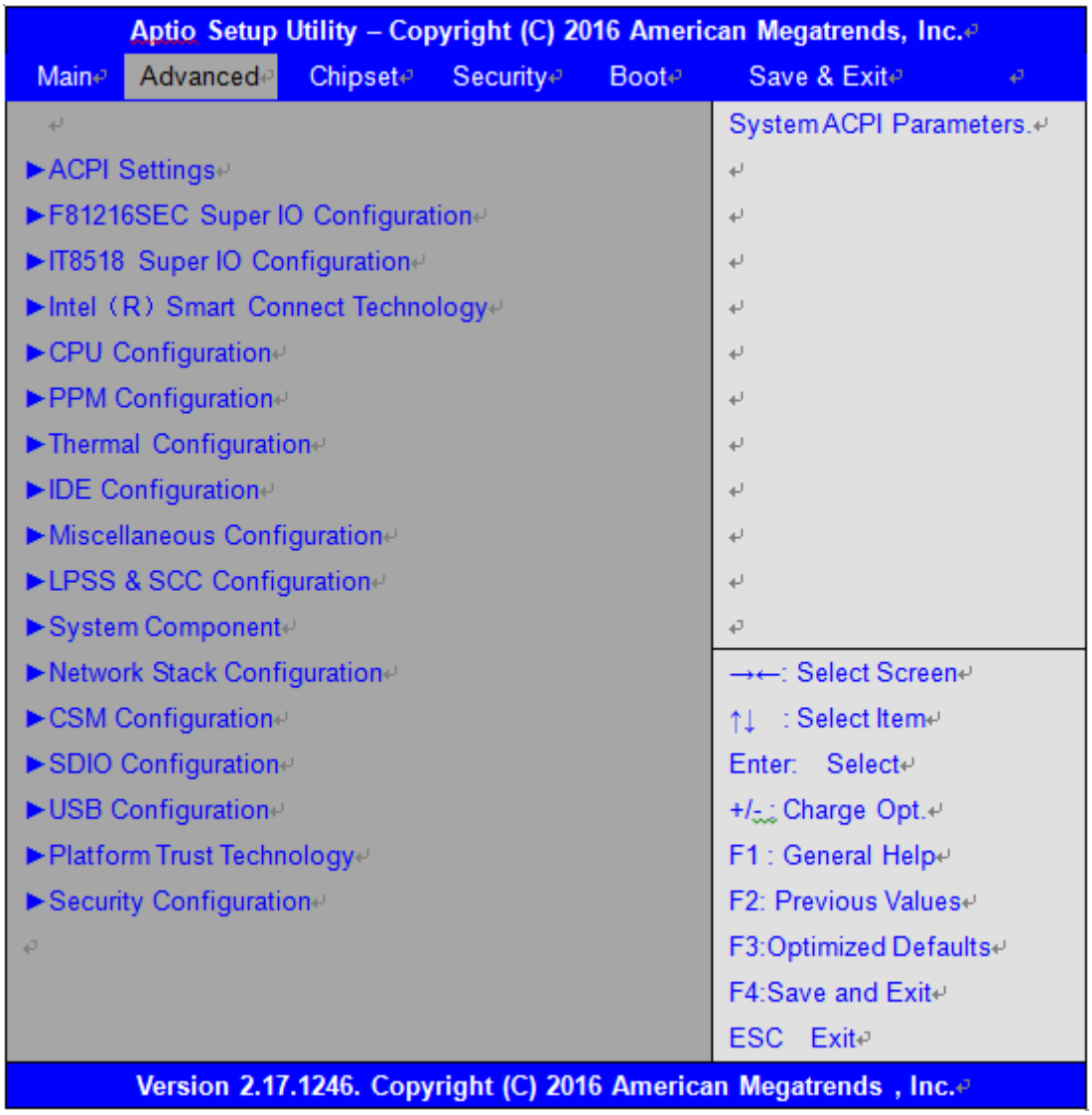
Second : 0 to 59

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



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]

4.4.2 F81216SEC Super IO Configuration

Super IO chip F81216SEC

Serial Port 1 Configuration

UART1 Mode Selection：

[RS-232]

[RS-485]

[RS-422]

Serial Port 2 Configuration

Change Settings [Auto]

Serial Port 3 Configuration

Change Settings [Auto]

Serial Port 4 Configuration

Change Settings [Auto]

4.4.3 IT8518 Super IO Configuration

Super IO chip IT8518/IT8519

Serial Port 1 Configuration

Backlight PWM Controller（COM5）：

[RS-485]

[RS-422]

Serial Port 2 Configuration (COM6)

Change Settings [Auto]

[RS-485]

[RS-422]

4.4.4 Intel® Smart Connect Technology

ISCT Support

[Disabled]

[Enabled]

4.4.5 CPU Configuration

Socket 0 CPU Information

Intel® Atom™ CPU E3845 @ 1.91GHz

CPU Signature	30679
Microcode Patch	901
Max CPU Speed	1910 MHz
Mix CPU Speed	500MHz
Processor Cores	4
Intel HT Technology	Not Supported
Intel HT-X Technology	Supported
L1 Date Cache	24KB x 4
L1 Code Cache	32KB x 4
L2 Cache	1024 KB x 2
L2 Cache	Not Present

CPU Thermal configuration

CPU Speed	1918 MHz
64-bit	Supported

Hyper-Threading:

[Enabled]

[Disabled]

Limit CPUID Maximum:

[Disabled]

[Enabled]

Execute Disable Bit:

[Enabled]

[Disabled]

Intel Virtualization Technology:

[Enabled]

[Disabled]

Power Technology

[Energy Efficient]

[Disabled]

[Custom]

4.4.6 PPM Configuration

CPU C State Report

[Enabled]

[Disabled]

Max CPU C-state

[C7]

[C6]

[C1]

SOix

[Disabled]

[Enabled]

4.4.7 Thermal Configuration Parameters

4.4.8 IDE Configuration

Serial-ATA(SATA)

[Enabled]

[Disabled]

SATA Test Mode

[Disabled]

[Enabled]

SATA Speed Support

[Gen2]

[Gen1]

SATA ODD Port

[No ODD]

[Porto ODD]

[Port1 ODD]

[Disabled]

SATA Mode

[AHCI Mode]

[IDE Mode]

Serial-ATA Port 0

[Enabled]

[Disabled]

SATA Port0 Hotplug

[Disabled]
[Enabled]

Serial-ATA Port 1

[Enabled]
[Disabled]

SATA Port1 Hotplug

[Disabled]
[Enabled]

SATA Port0
Not Present
SATA Port1
Not Present

4.4.9 Miscellaneous Configuration

4.4.10 LPSS & SCC Configuration

LPSS & SCC Configuration	[ACPI Mode]
SCC Configuration	
SCC eMMC Support	[eMMC AUTO MODE]
SCC eMMC 4.5 DDR50 Support	[Enabled]
SCC eMMC 4.5 HS200 Support	[Disabled]
eMMC Secure Erase	[Disabled]
SCC SDIO Support	[Enabled]
SCC SD Card Support	[Enabled]
SDR25 Support for SDCard	[Disabled]
SDR50 Support for SDCard	[Enabled]
MIPI HSI Support	[Disabled]
LPSS Configuration	
LPSS DMA #1 Support	[Enabled]
LPSS DMA #2 Support	[Enabled]
LPSS I2C #1 Support	[Enabled]
LPSS I2C #2 Support	[Enabled]
LPSS I2C #3 Support	[Enabled]
LPSS I2C #4 Support	[Enabled]
LPSS I2C #5 Support	[Enabled]
LPSS I2C #6 Support	[Enabled]
LPSS I2C #7 Support	[Enabled]
NFC	[Disabled]
Touch Pad	[Disabled]

I2C touch Device Address

LPSS HSUART #1 Support	[Disabled]
LPSS HSUART #2 Support	[Disabled]
LPSS PWM #1 Support	[Enabled]
LPSS PWM #2 Support	[Enabled]
LPSS SPI Support	[Enabled]

4.4.11 System Component

4.4.12 Network Stack Configuration

Network Stack	[Disabled]

4.4.13 CSM Configuration

CSM Support	[Enabled]
CSM16 Module Version	07.76
GateA20 Active	[Upon Request]
	[Always]
Option ROM Messages	[Force BIOS]
	[Keep Current]
Boot option filter	[UEFI and Legacy]
	[Legacy only]
	[UEFI only]
Network	
	[UEFI]
	[Do not launch]
	[Legacy]
Storage	
	[UEFI]
	[Do not launch]
	[Legacy]
Video	
	[Legacy]
	[UEFI]
	[Do not launch]
Other PCI devices	
	[UEFI]
	[Do not launch]
	[Legacy]

4.4.14 SDIO Configuration

4.4.15 USB Configuration

USB Configuration

USB Module Version 8.11.02

USB Devices:

1 keyboard, 2 Mice，3 Hubs

Legacy USB Support:

[Enabled]

[Disabled]

XHCI Hand-off:

[Enabled]

[Disabled]

EHCI Hand-off:

[Disabled]

[Enabled]

USB Mass Storage Driver Support

[Enabled]

[Disabled]

USB hardware delays and time-outs：

USB transfer time-out:

[20 sec]

[10 sec]

[5 sec]

[1 sec]

Device reset time-out:

[20 sec]

[10 sec]

[30 sec]

[40 sec]

Device power-up delay

[Auto]

[Manual]

4.4.16 Platform Trust Technology

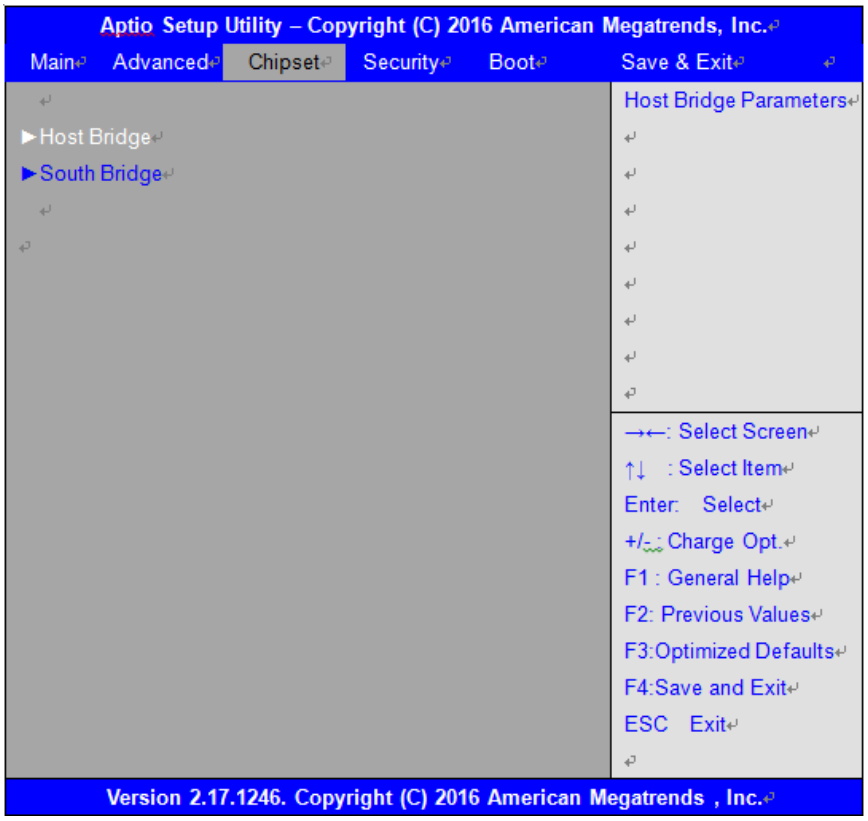
Ftpm

[Disabled]

[Enabled]

4.4.17 Security Configuration

4.5 Chipset Settings



4.5.1 Host Bridge

►Intel IGD Configuration

►IGD – LCD Control

Force Lid Status	[On]
	[Off]
BIA	[Auto]
ALS Support	[Disabled]
IGD Flat Panel	[Auto]
Pannel Scaling	[Auto]

►Memory Frequency and Timing

►Graphics Power Management Control

Memory Information	
Total Memory	4096 MB(DDR3L)
Memory Slot0	4096 MB(DDR3L)
DIMM#1	Not Present
Max TOLUD	
	[Dynamic]
	[2GB]
	[2.25GB]
	[2.5GB]

[2.75GB]
[3GB]

Backlight PWM or DC Control

[PWM]
[DC]

Backlight PWM Control

[PWM Normal by BIOS]

BIOS Control Backlight Level

[Level 7]
[Level 0]
[Level 1]
[Level 2]
[Level 3]
[Level 4]
[Level 5]
[Level 6]
[Level 8]
[Level 9]
[Level 10]
[Level 11]
[Level 12]
[Level 13]
[Level 14]
[Level 15]

LCD Minimun brightness By Knob

[0%]
[1%]
[20%]

4.5.2 South Bridge

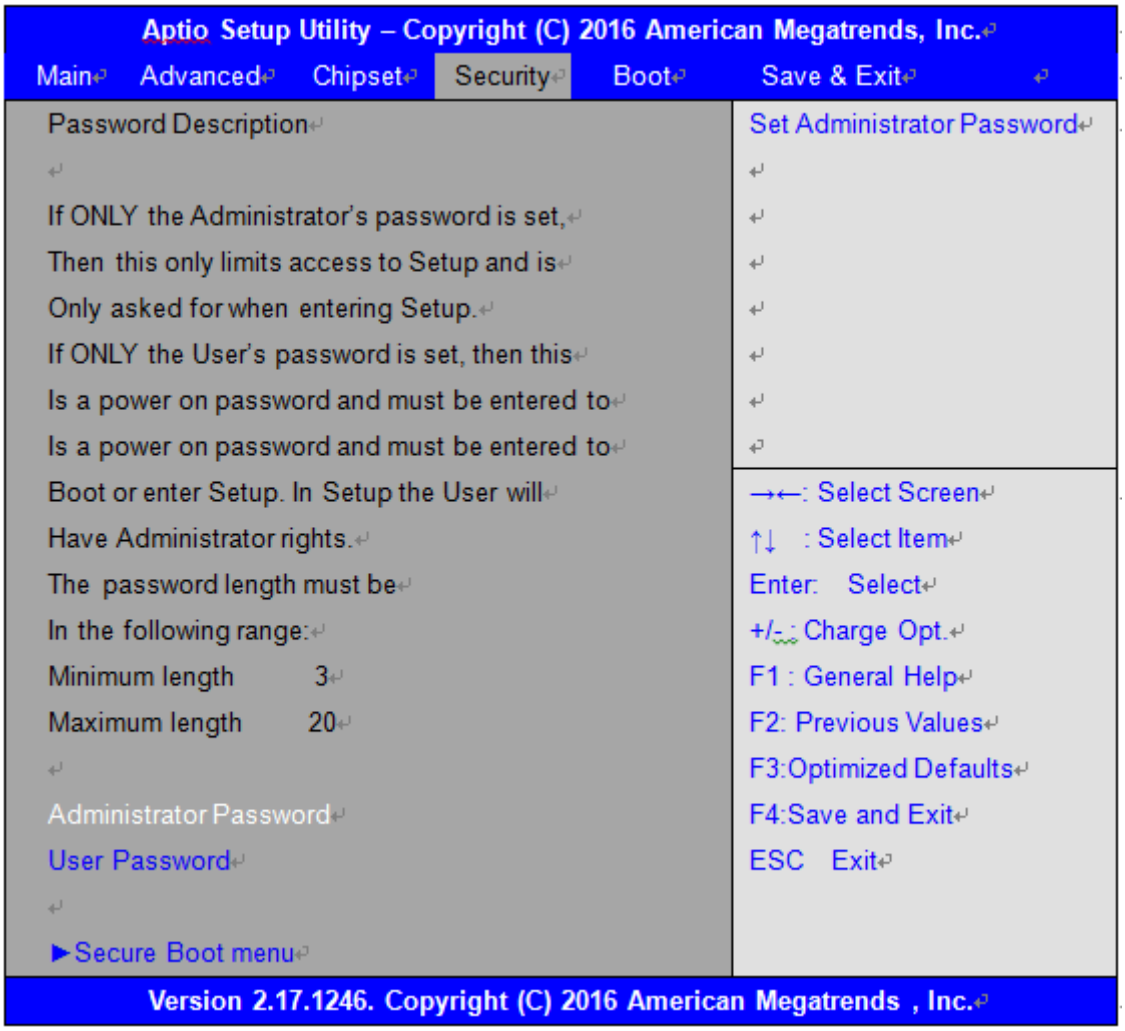
►Azalia HD Audio

►USB Configuration

USB OTG Support	[Disabled]
USB VBUS	[On]
XHCI Mode	[Smart Auto]
USB2 Link Power Management	[Enabled]
USB 2.0(EHCI) Support	[Enabled]
USB EHCI debug	[Disabled]
USB Per Port Control	[Enabled]

USB Port 0	[Enabled]
USB Port 1	[Enabled]
USB Port 2	[Enabled]
USB Port 3	[Enabled]

4.6 Security Settings



4.6.1 Administrator Password

4.6.2 User 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.

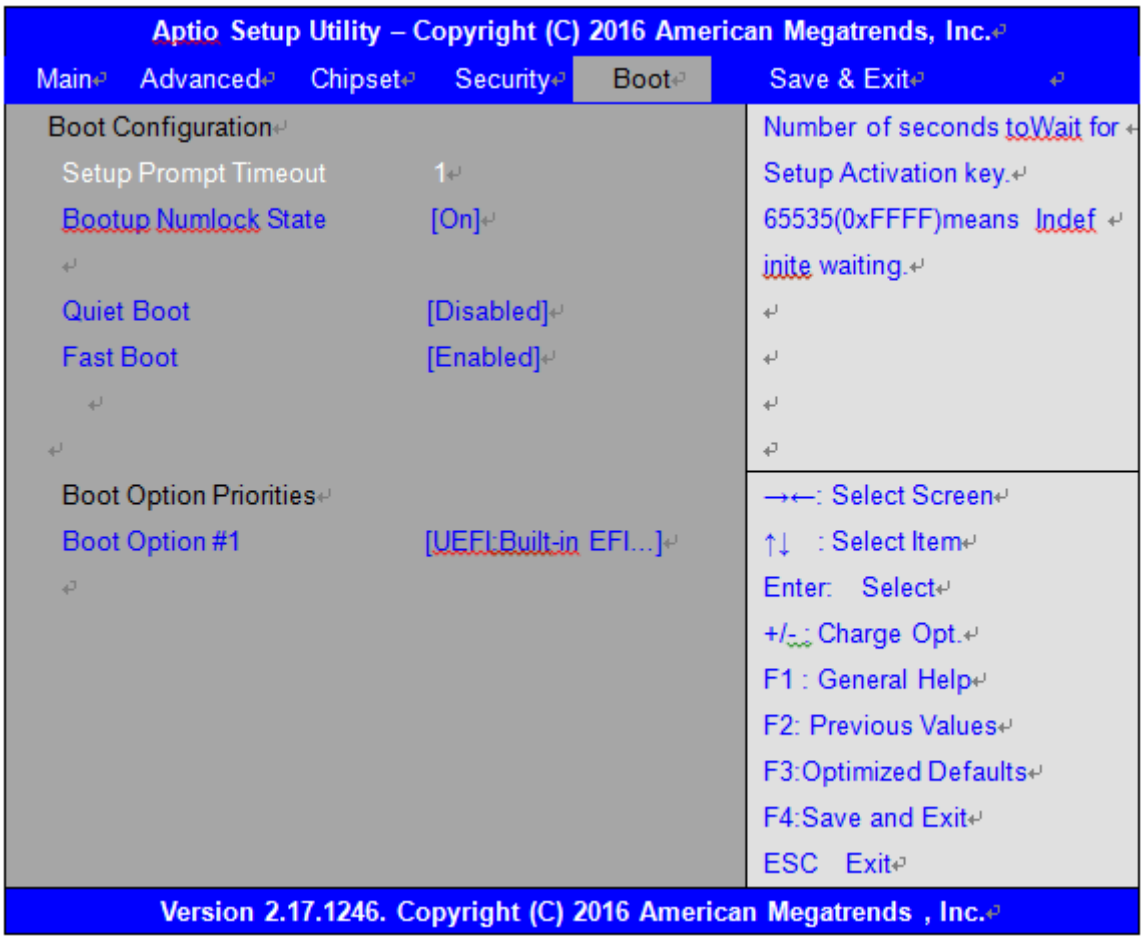
To clear the password, just press ⋖Enter⋗ key when password input window pops up. A confirmation

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



Setup Prompt Timeout [1]

Bootup Numlock State

[On]

[off]

Quiet Boot

[Disabled]

[Enabled]

Fast Boot

[Disabled]

[Enabled]

Boot Option Priorities

Boot Option #1

Sets the system boot order

Hard Drive BBS Priorities [SATA PM:*** …]

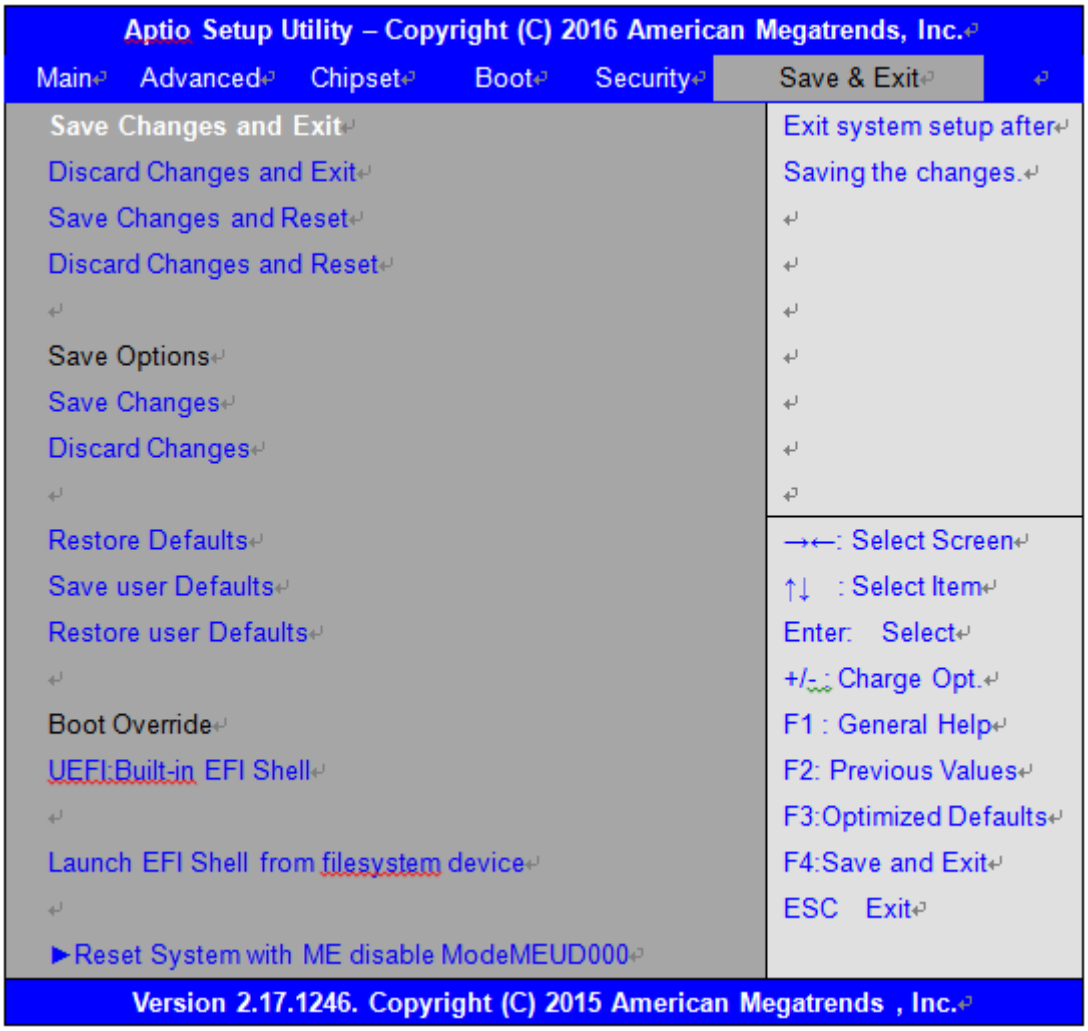
Boot Option #1

SATA PM:***…

******

Disabled

4.8 Save & Exit Settings



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

Save & reset Save Configuration and reset?

[Yes]

[No]

Discard Changes and Reset

Reset Without Saving Reset without saving?

[Yes]

[No]

Save Changes

Save Setup Values Save configuration?

[Yes]

[No]

Discard Changes

Load Previous Values Load Previous Values?

[Yes]

[No]

Restore Defaults

Load Optimized Defaults Load optimized Defaults?

[Yes]

[No]

Save user Defaults

Save Values as User Defaults Save configuration?

[Yes]

[No]

Restore user Defaults

Restore User Defaults Restore User Defaults?

[Yes]

[No]

Launch EFI Shell from filesystem device

WARNING Not Found

[ok]

Reset System with ME disable ModeMEUD000

ME will runs into the temporary disable mode, Ignore if ME Ignition FWMEUD001.

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.

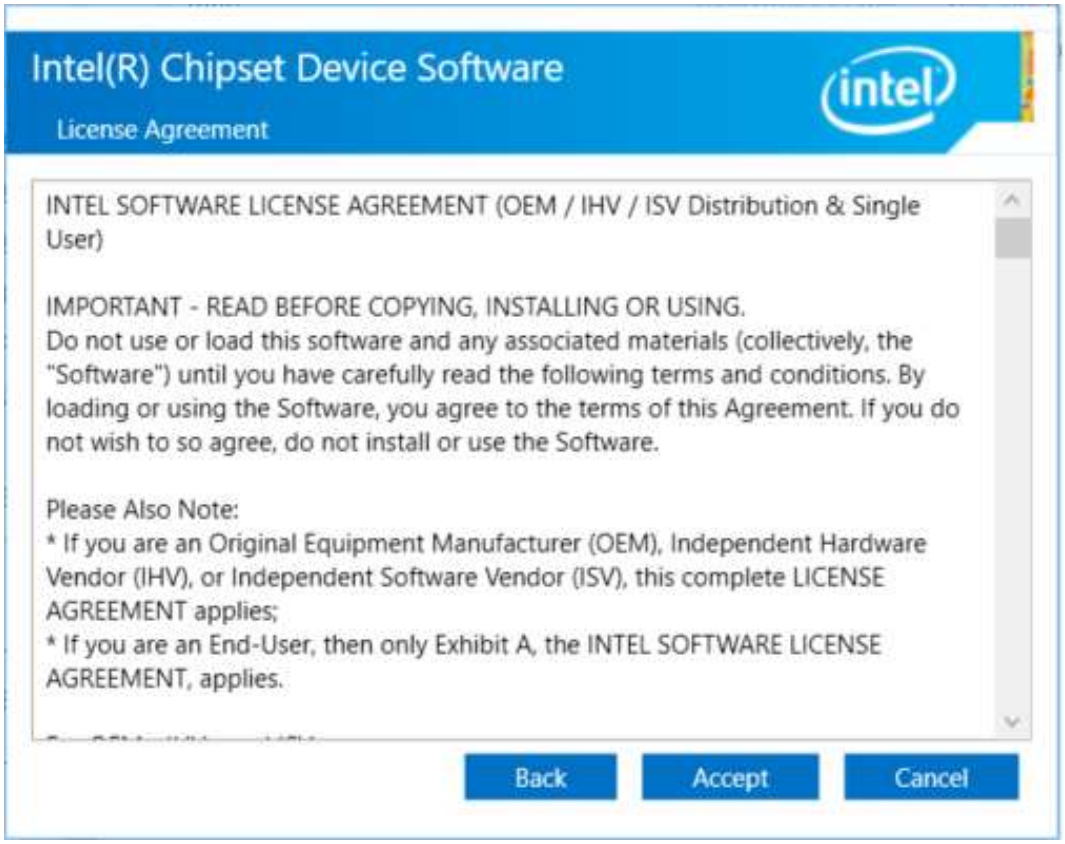
5.1 Intel® AtomTM SoC Chipset

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

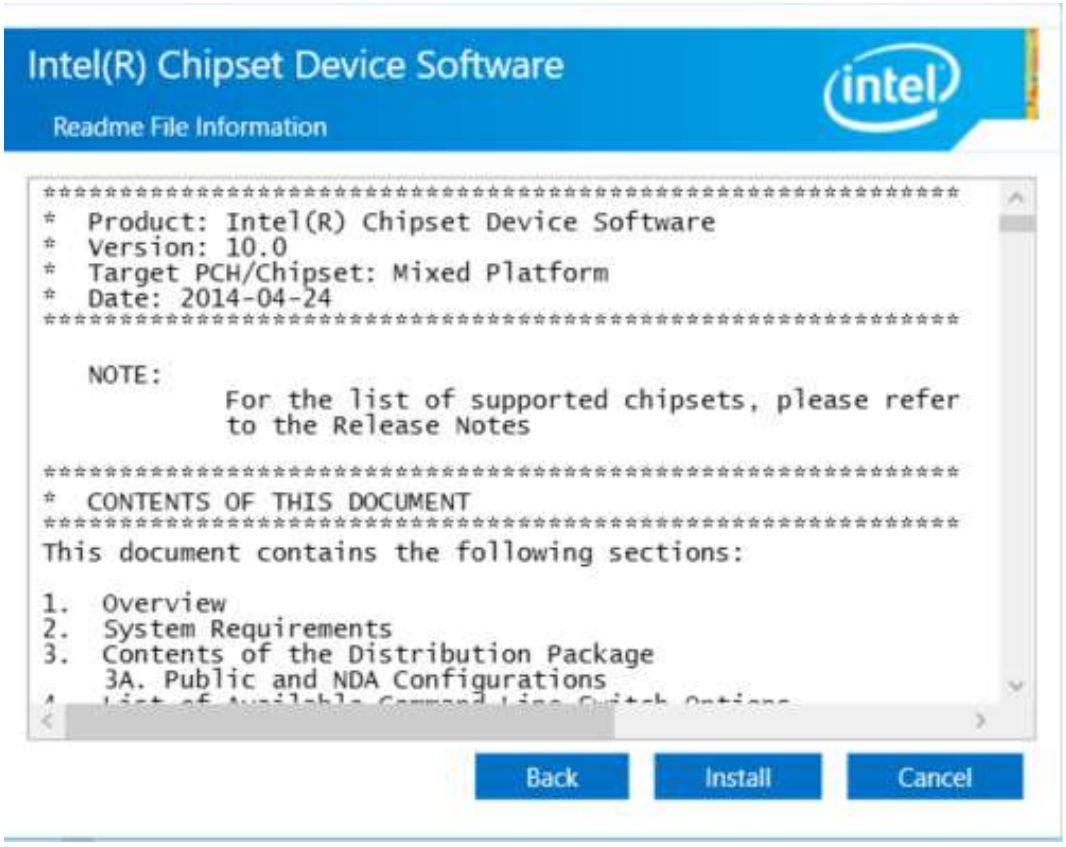
Step 1. Select **Intel® Atom™ SoC Chipset** from the list

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.



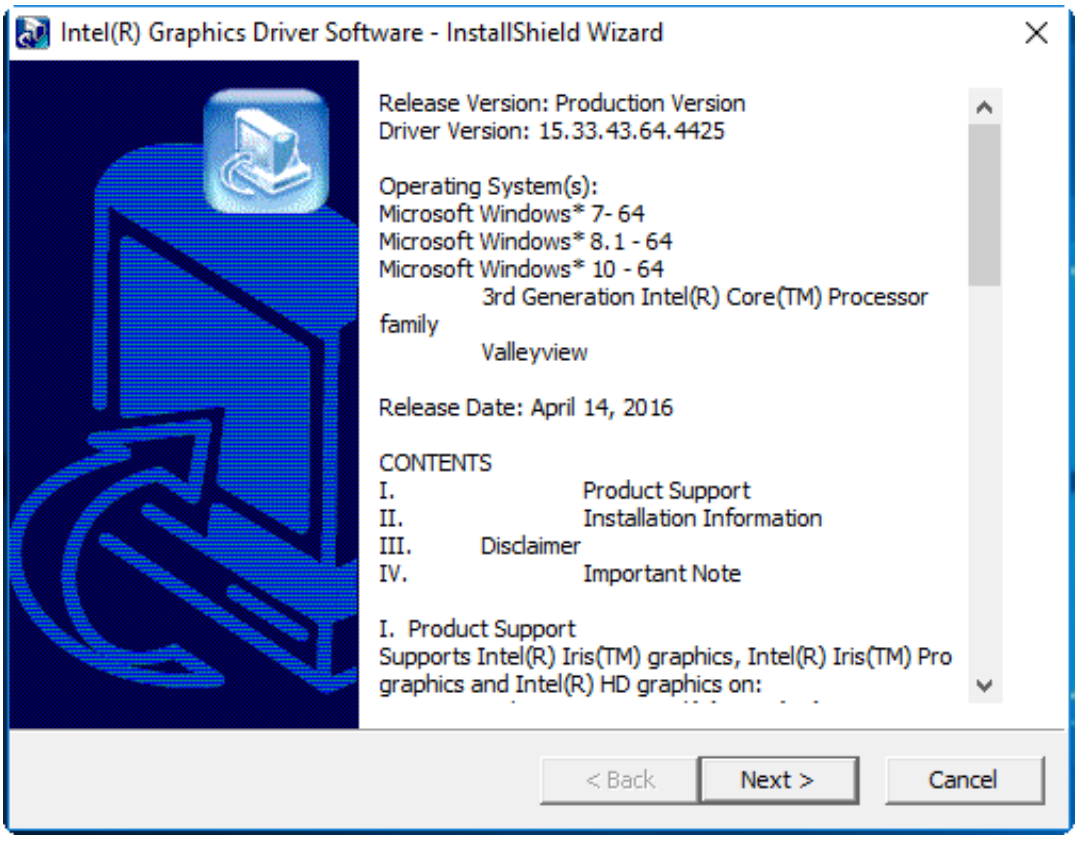
Step 5. Click **Finish** to exit the wizard.

5.2 Intel® VGA Chipset

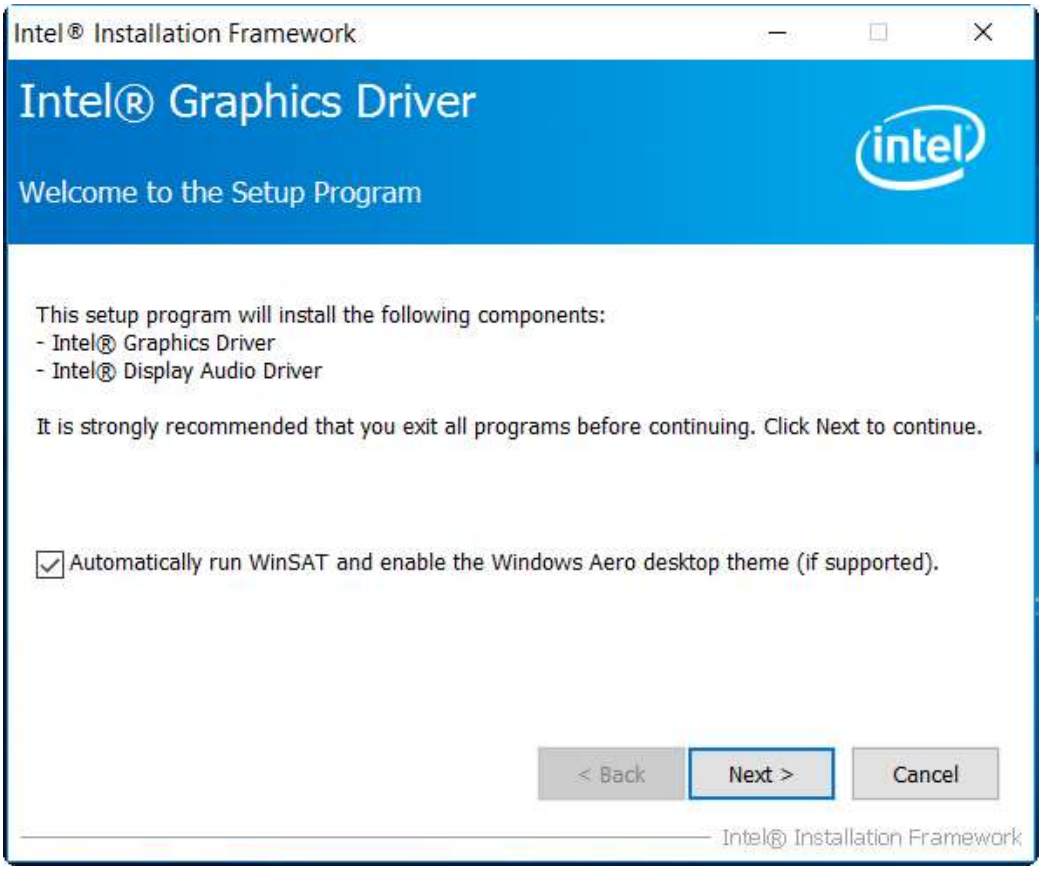
To install the Intel® VGA Chipset, please follow the steps below.

Step 1. Select **Intel® VGA Chipset** from the list**.**

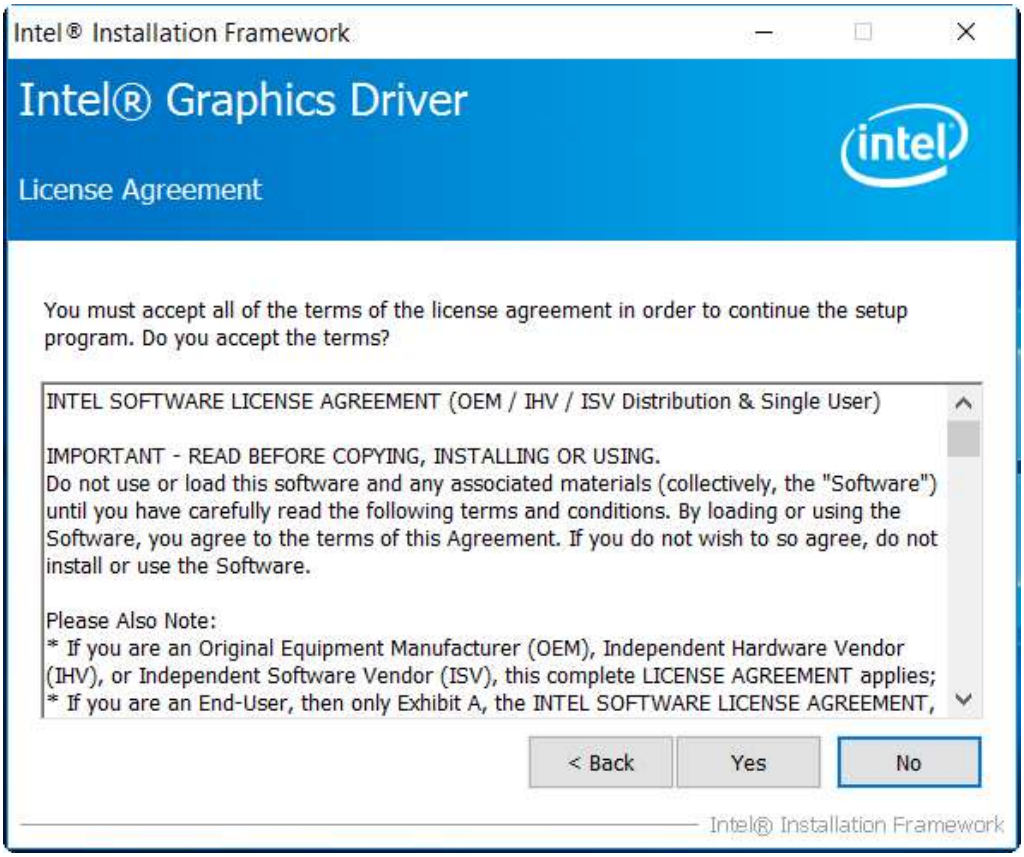
Step 2. . Click **Next.**



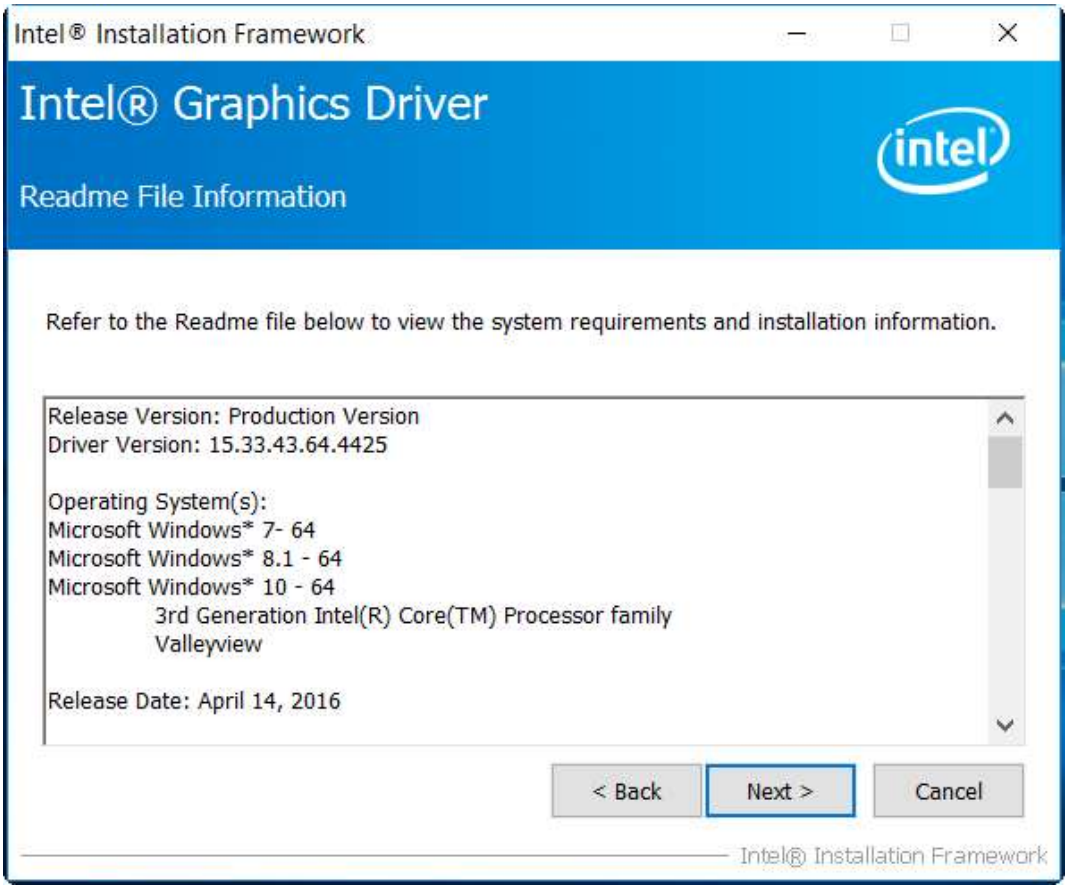
Step 3. Choose **automatically run** function and Click **Next** to setup program.



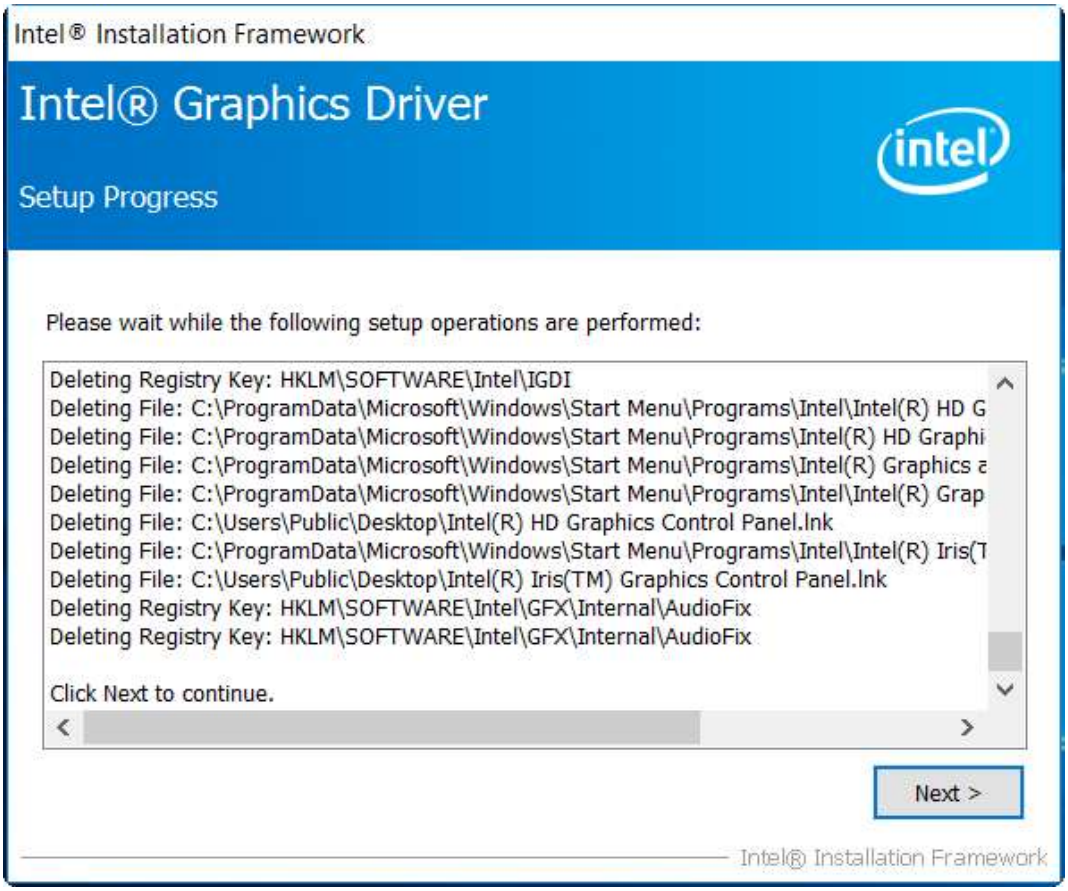
Step 4. Read the license agreement. Click **Yes** to accept all of the terms of the license agreement.



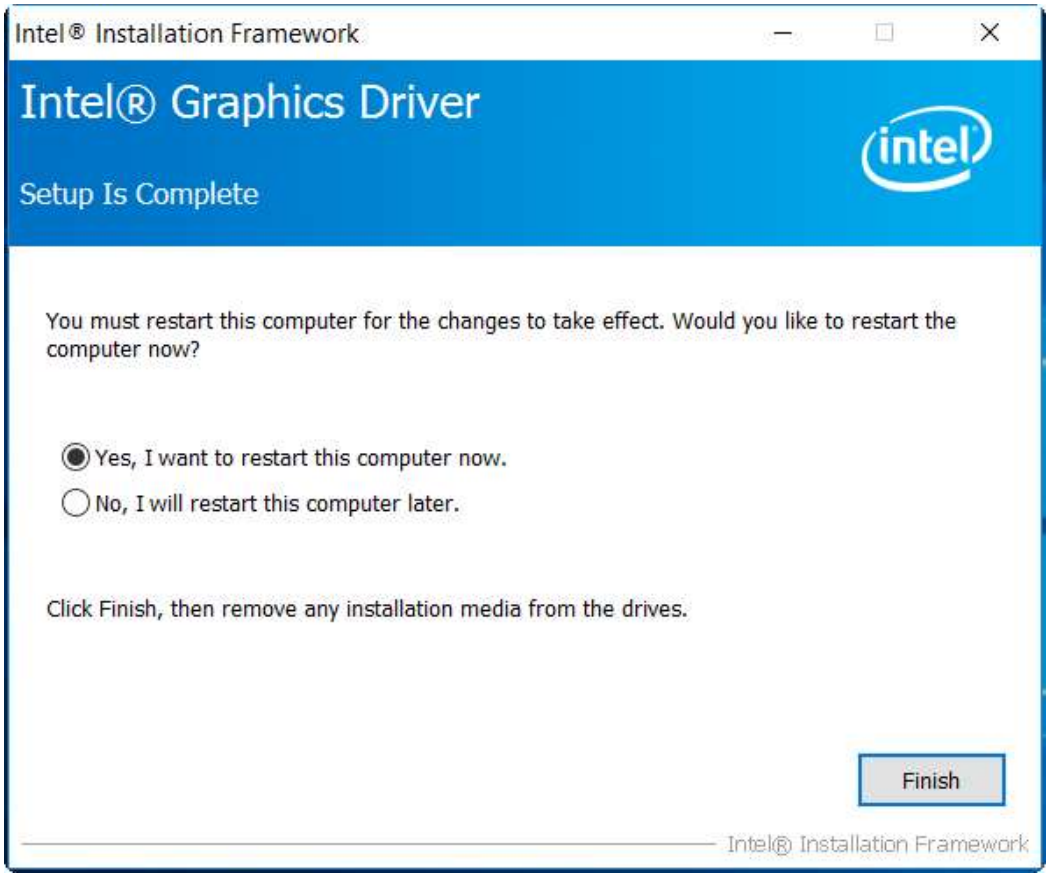
Step 5. Click **Next** to continue.



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.

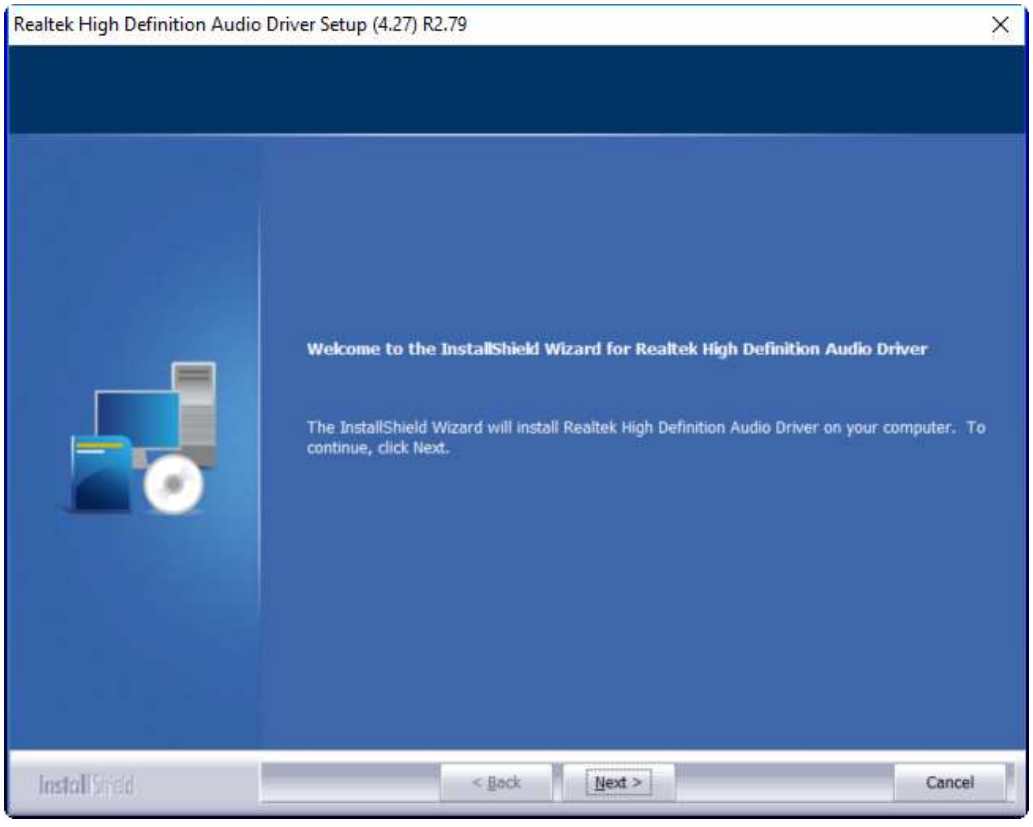


5.3 Realtek ALC662 HD Audio Driver Installation

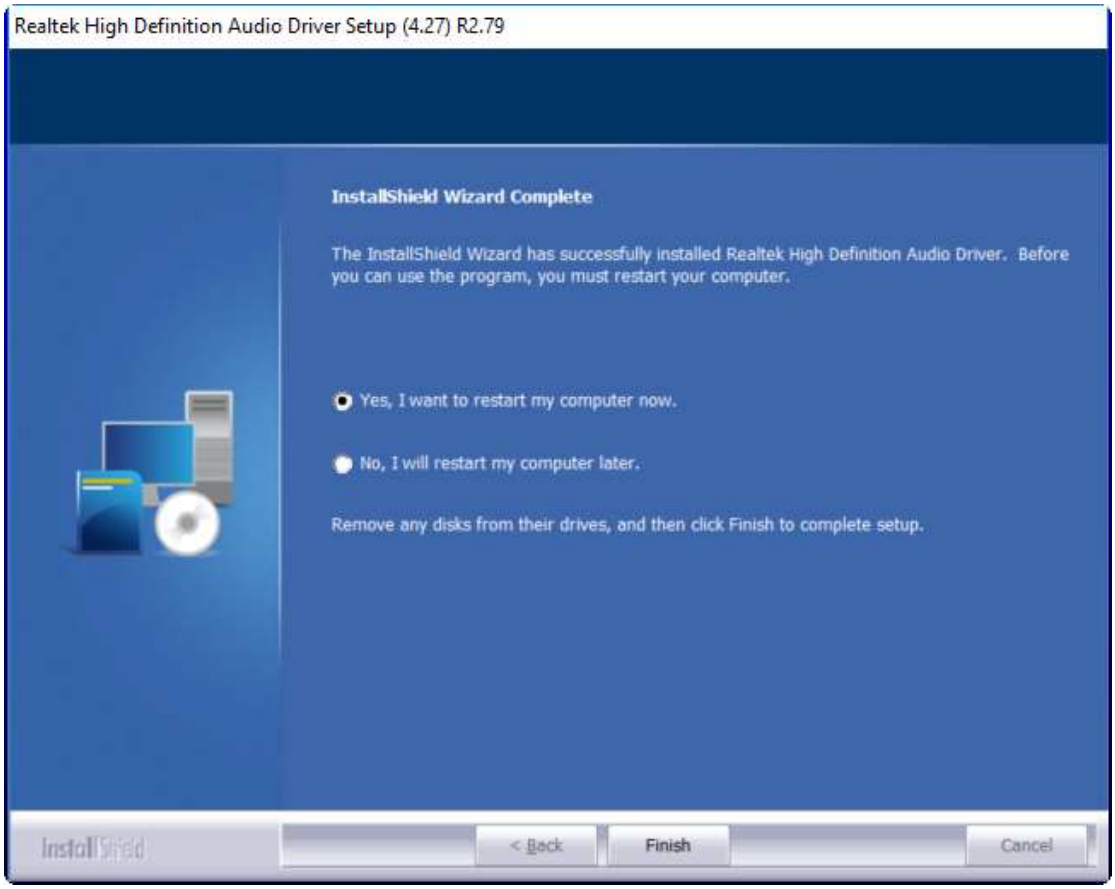
To install the Realtek ALC662 HD Audio Driver, please follow the steps below.

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.

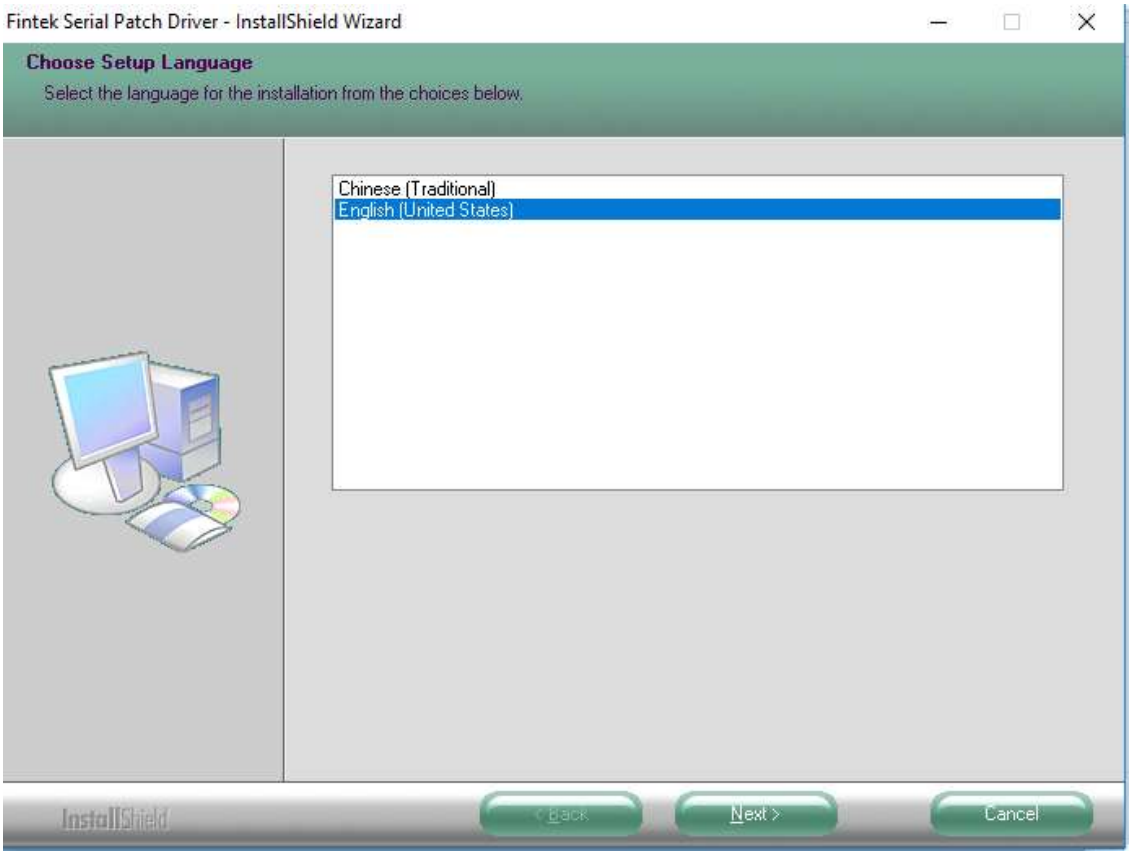


5.4 Com Driver

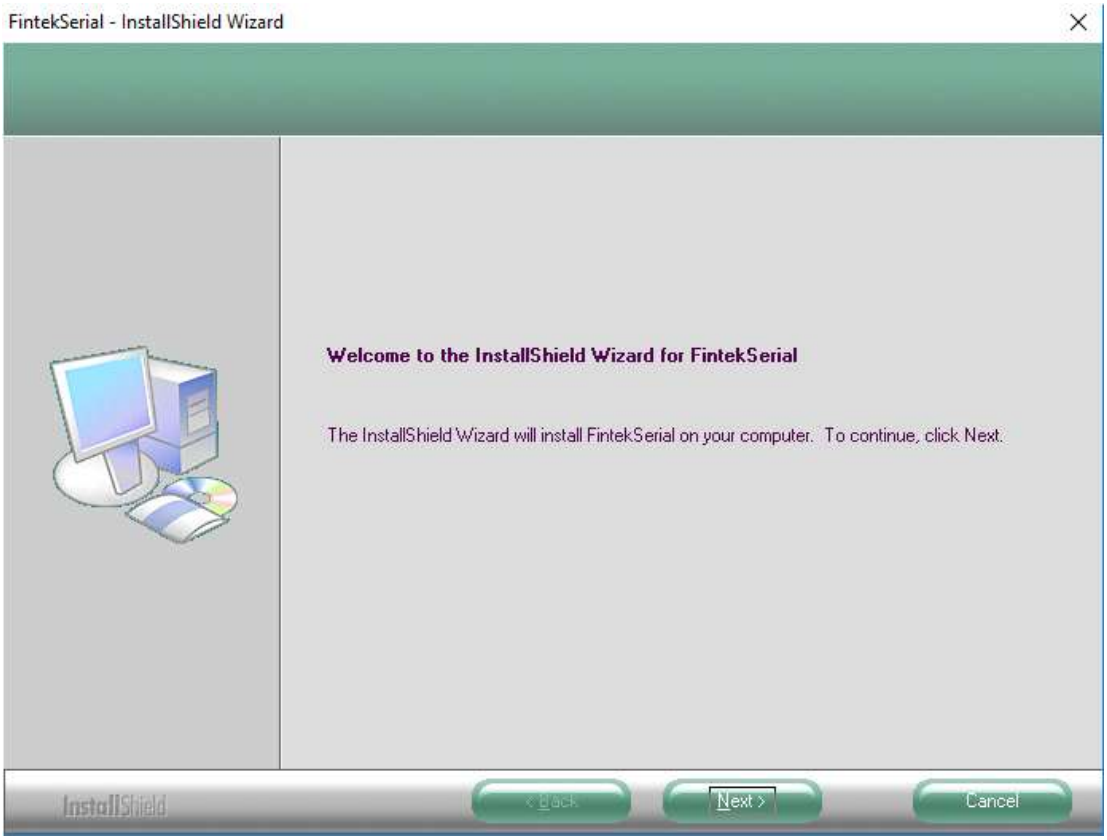
To install the Com Driver, please follow the steps below.

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

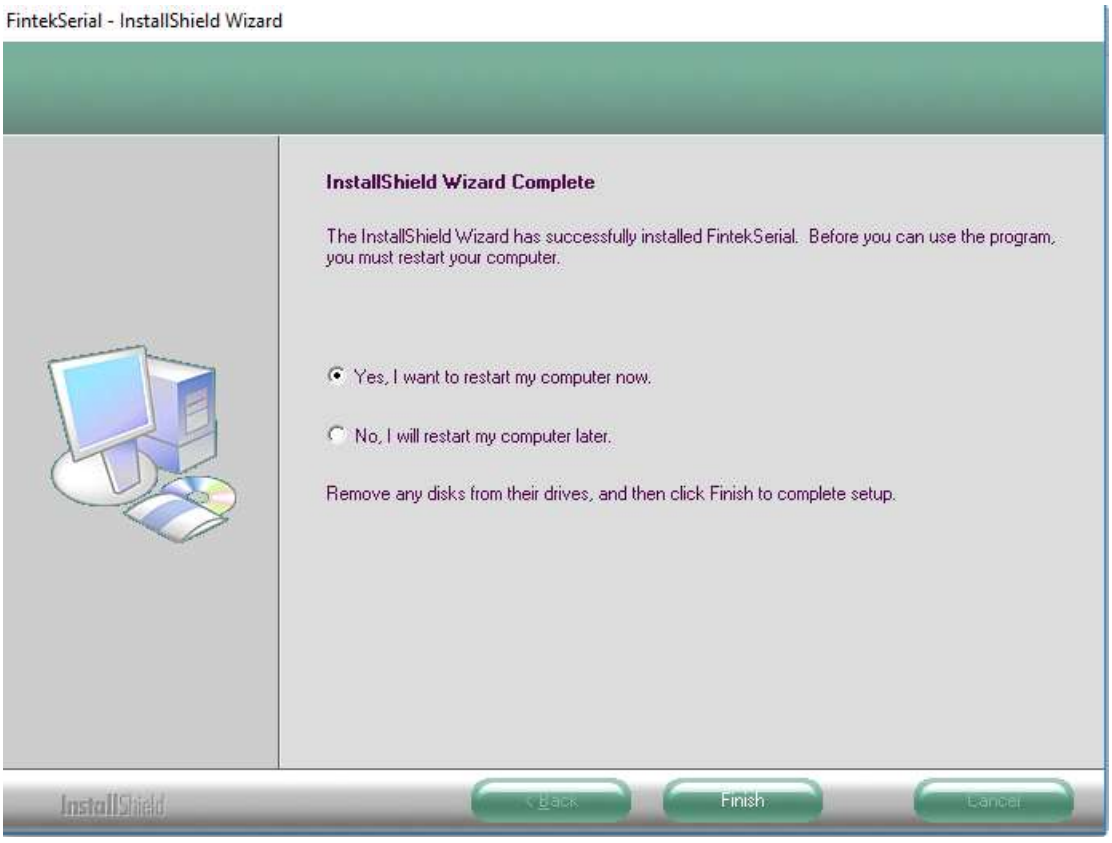
Step 2. Select setup language you need. Click **Next** to continue.



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.

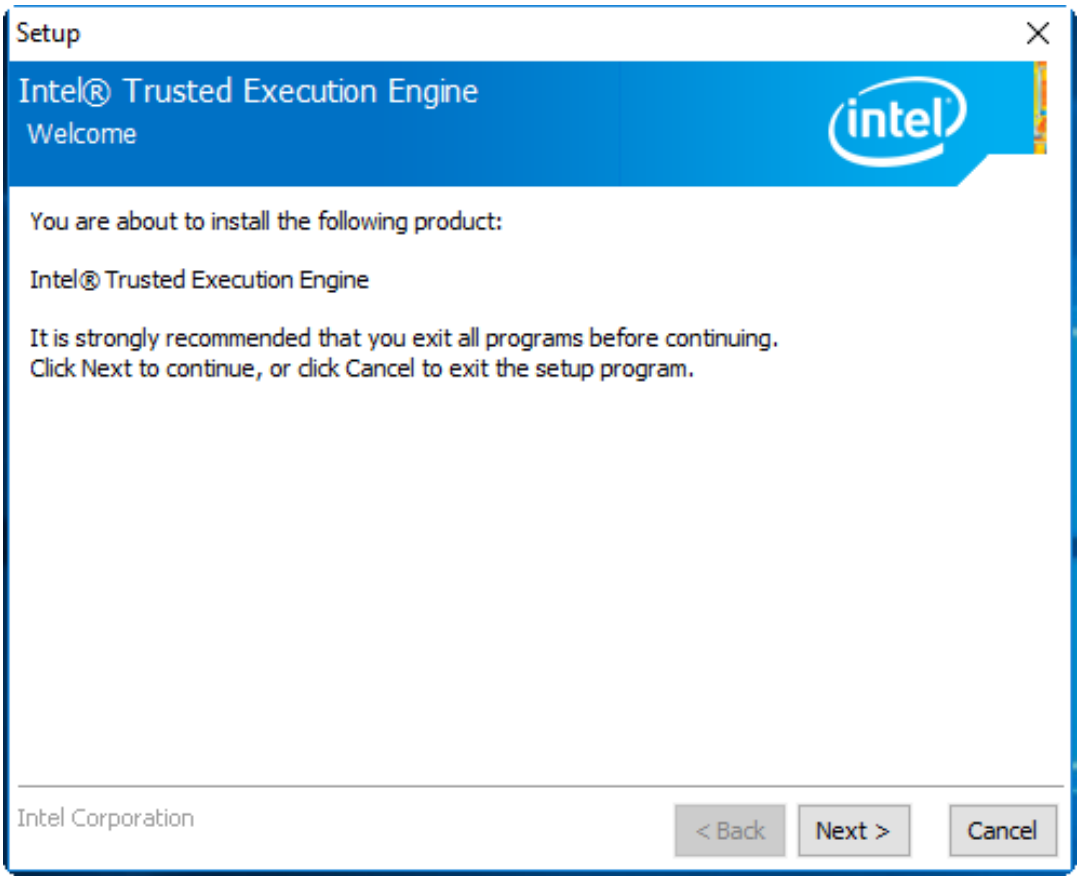


5.5 Intel_TXE(Win) Driver

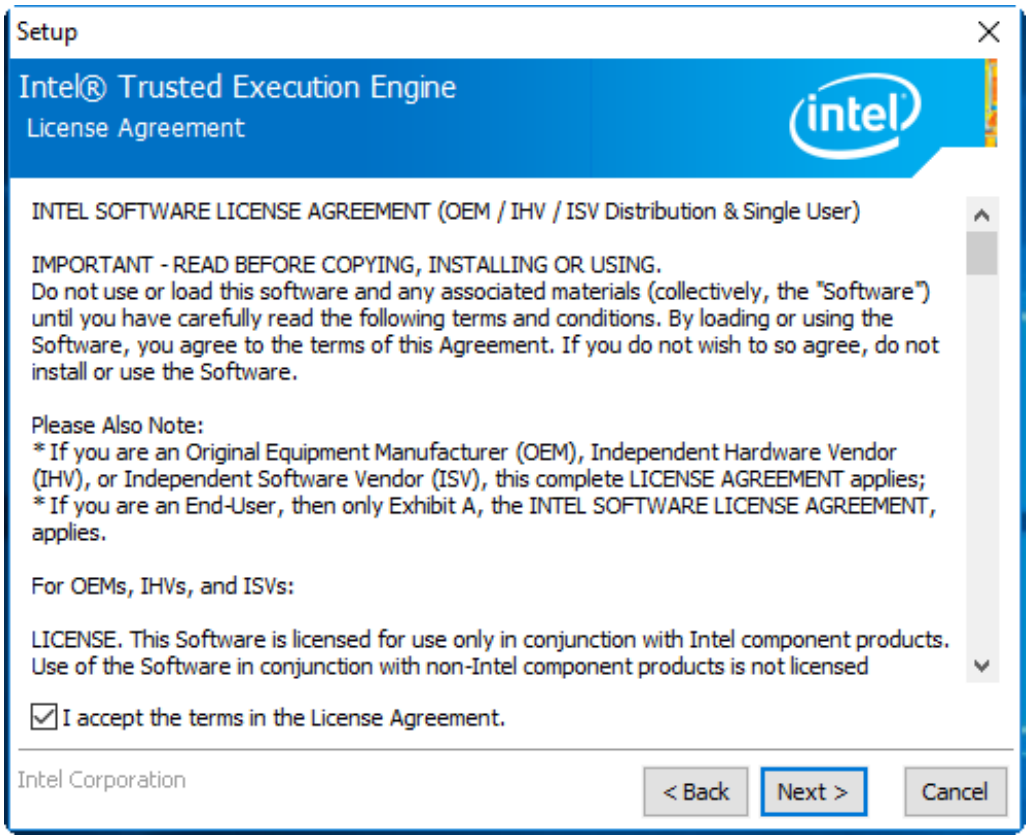
To install the Intel_TXE(Win) Driver, please follow the steps below.

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

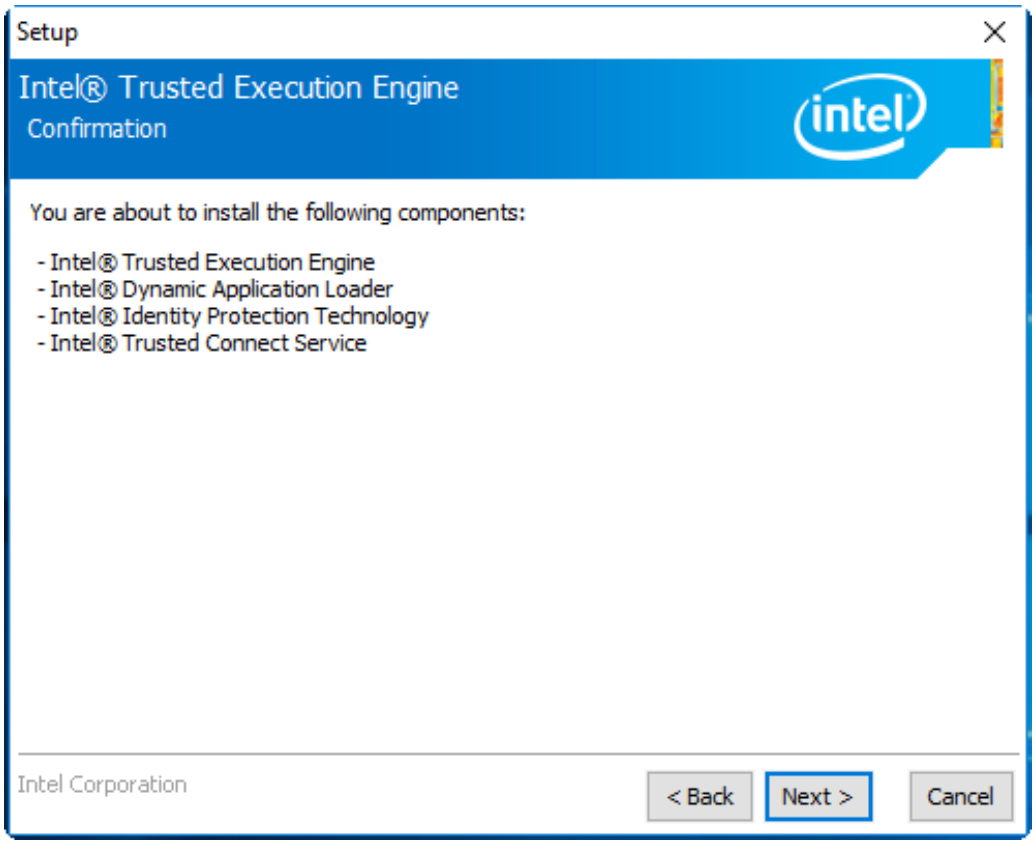
Step 2. Click **Next** to continue.



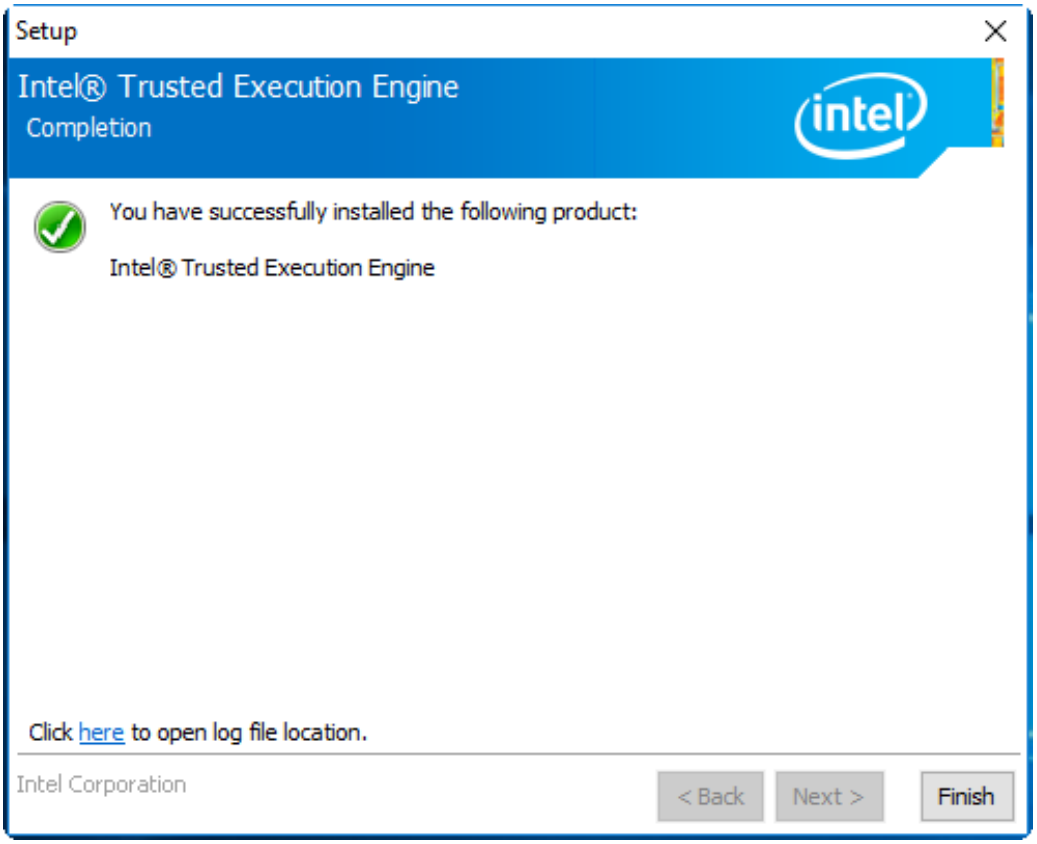
Step 3. Read the license agreement. Choose **Accept** and click **Next** to accept all of the terms of the license agreement.



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



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



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.