VIPAC-8XX

Intel Celeron N2930 Expandable Fanless PANEL PC

User Manual

Release Date	Revision
Oct.2019	V1.4

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Revision History

Reversion	Date	Description
1.0	2017/09/22	Official Version
1.1	2018/01/25	● Modify PCIe information. ● Renew product images.
1.2	2018/07/30	● Modify motherboard chapter: PCIE_1X information
1.3	2018/12/28	● Modify front bezel information
1.4	2019/10/25	● Renew photos, dimensions and mechanical information

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.

Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

Caution

Risk of explosion if the battery is replaced with an incorrect type.
Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

Packing List

Accessories (as ticked) included in this package are:
☐ Adaptor ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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Chapter 1 Getting Started

1.1 Features

- 15”, 15.6”, 17”, 21.5” TFT LCD panel PC
- Intel Celeron® N2930 Processor
- Modular concept (OPS) and fanless design(VIPAC-8xx)
- Support Project capacitive/RTW/ AR glass touch
- Front bezel IP66 design
- 2 x Expansion slot and 1 x 2.5”SATA HDD space
- Support WIFI, Bluetooth, Speaker
- Support panel mount
- Support DC 9~36V power input; and AC input can be option

1.2 Specifications

	VIPAC-815 P/R/G(H)	VIPAC-816 P/R/G(H)	VIPAC-817 P/R/G(H)	VIPAC-821 P/R/G(H)
System				
Processor	Onboard Intel Celeron N2930 Processor (2M Cache,1.83GHz)			
System Chipset	SoC			
System Memory	2 x 204-pin SO-DIMM up to 8GB DDR3L 1333MHz			
Outside I/O				
Front I/O Ports	4 x USB 3.0 type A 2 x GbE LAN RJ-45 1 x RS-232/422/485 DB-9, COM1(default RS-232) 1 x RS-232 DB-9, COM2 1 x RS-422/485 DB-9, COM3(default RS-485) 1 x Line-out/1 x Mic-in 1 x VGA by DB-15 1 x HDMI with cover 1 x System LED indication at front 2 x LED indicators for HDD/system 1 x Power switch on/off 1 x 3-pin terminal block for DC power input 1 x 2-pin Terminal block for external power switch 1 x Power Switch On/Off			
Option Function	4 x USB 2.0 type A			

	2 x DB-9 COM port 1 x 8-bit GPIO(3 in/out/VCC/GND) 2 x 2W Speaker			
Storage				
Storage	1 x 2.5” SATA HDD space			
Watchdog timer				
Watchdog timer	System reset, programmable via software from 1 to 255 seconds			
Expansion				
Expansion Slots	1 x Mini-PCIe slot full size (PCIe/USB/SATA, SATA by default) 1 x Mini-PCIe slot half size (PCIe/USB, PCIe by default) 1 x SIM slot for option 1 x PCI and 1 x PCIe x 1 slot 1 x WIFI/Bluetooth/LTE and antenna at rear side for option			
LCD				
Display type	15” color TFT LCD	15.6” color TFT LCD	17” color TFT LCD	21.5” color TFT LCD
Max. Resolution	1024 x 768	1366 x 768 1920 x 1080	1280 x 1024	1920 x 1080
Max. Color	16.7M	16.7M	16.7M	16.7M
Luminance (cd/m^2)	420	300	350	250
Contrast Ratio	800:1	500:1	1000:1	3000:1
Viewing Angle (H)/(V)	160/160 (160/140)	160/160	170/170	178/178
Backlight Lifetime	50,000 hrs	50,000 hrs	50,000 hrs	30,000 hrs
LCD (High brightness)				
Display type	15” color TFT LCD	15.6” color TFT LCD	17” color TFT LCD	21.5” color TFT LCD
Max. Resolution	1024 x 768	1366 x 768	1280 x 1024	1920 x 1080
Max. Color	262K/16.2M	16.7M	16.7M	16.7M
Luminance (cd/m^2)	1000	1000	1000	1000
Contrast Ratio	800:1	500:1	1000:1	3000:1
Viewing Angle (H)/(V)	160/150	160/160	170/160	178/178
Backlight Lifetime	30,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs
Touch				
Type	Project Capacitive RTW Glass			
Interface	USB			
Light Transmission	Over 90% for PCT Over 80% for RT			

Power				
Power Input	DC 9~36V			
Power Consumption	MAX: 33.4W	MAX: 34.5W	MAX: 42W	MAX: 42.5W
Mechanical				
Front bezel	Aluminum die-casting front bezel			
Rear bezel	Steel metal chassis			
Dimension	410 x 310 x 90 mm	412 x 277 x 90 mm	439 x 348 x 90 mm	557 x 362 x 90 mm
Net Weight	6.3 Kg	6.5 kg	7 kg	8.5 kg
Mounting type	Panel mount			
Environmental				
Operating Temperature	0~50 °C			
Storage Temperature	-30~70 °C			
Storage Temperature	10%~95%@ 40°C, non-condensing			
Certificate	CE / FCC Class A			
Operating System Support				
OS Support	Windows 7 Pro for Embedded, Windows Embedded Standard 7, Windows Embedded 8.1 Industry Pro, Windows Embedded 8 Standard, Window 10 IoT 2016			

1.3 Dimensions

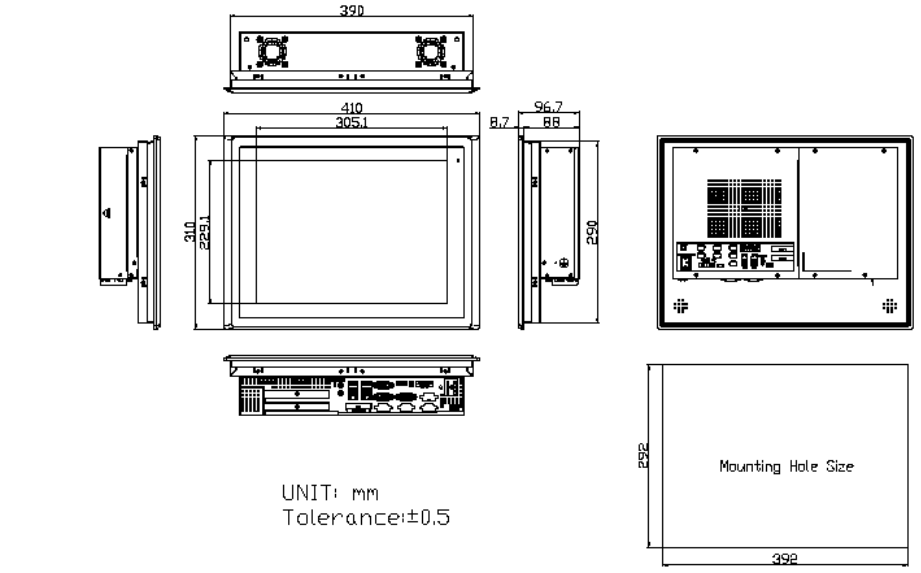


Figure 1.1: Dimensions of VIPAC-815

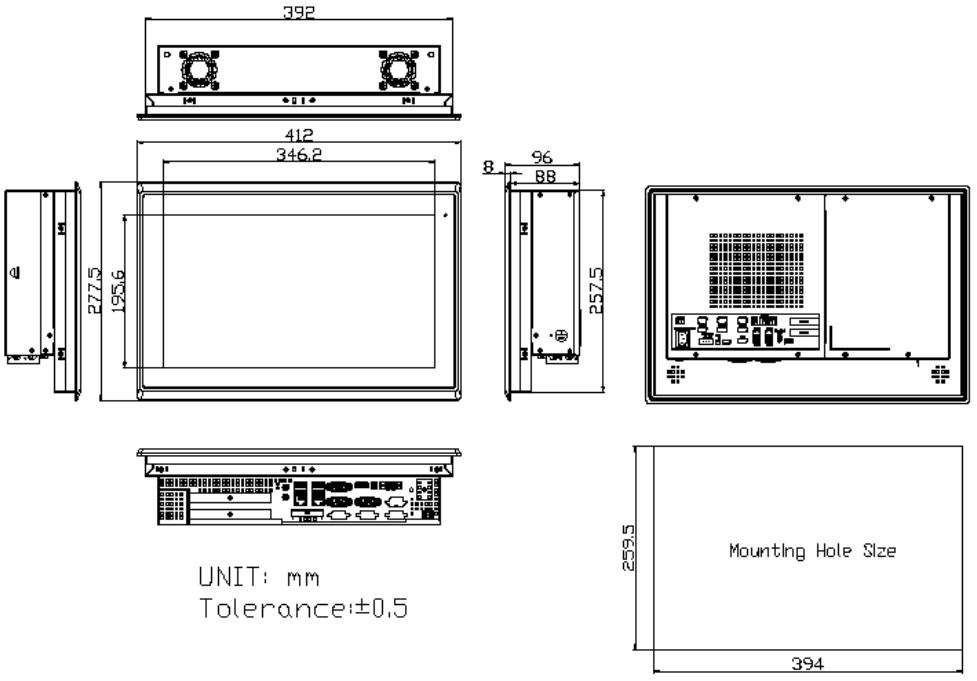


Figure 1.2: Dimensions of VIPAC-816

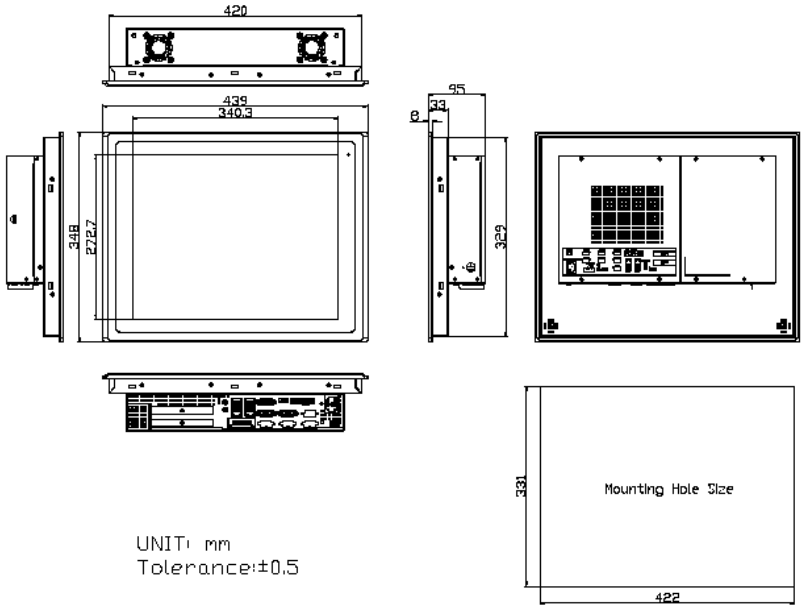


Figure 1.3: Dimensions of VIPAC-817

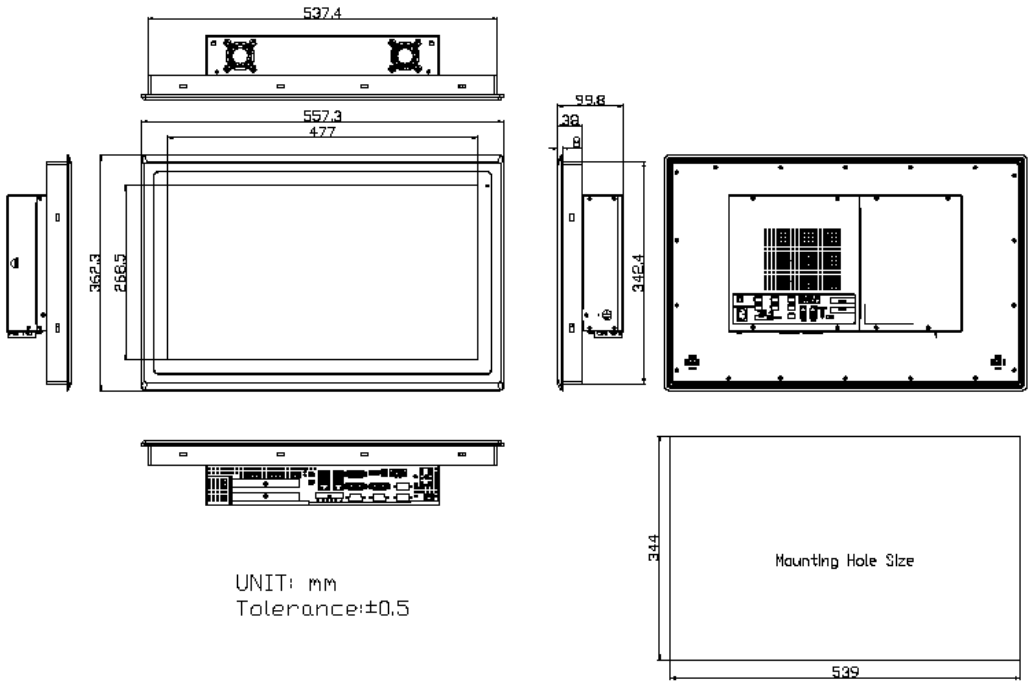


Figure 1.4: Dimensions of VIPAC-821

1.4 Brief Description of VIPAC-8XX Series

The VIPAC-8XX comes with full metal chassis, while front bezel adopts IP66 Aluminum die-casting design. These systems are powered by Intel Celeron N2930 1.83GHz processor and supports 2 x SO-DIMM DDR3L up to 8G memory, and it has 2 x speakers at the side to meet the ability for critical utilizations. Besides, it features abundant I/O ports such as 4 x USB 3.0, 1 x VGA, 2 x LAN, 1 x line out, 1 x mic-in, 3 x COM ports, and so on; and 2x expansion slots which offer the expandability to integrate versatile applications. Provide projected capacitive, resistive touch screen and anti-reflection glass screen, wide range DC 9~36V power input, AT/ATX model and panel mount. These systems are rich I/O alternative to get preparation for intelligent automation panel PC.

Figure 1.5: Front View of VIPAC-815 / 817

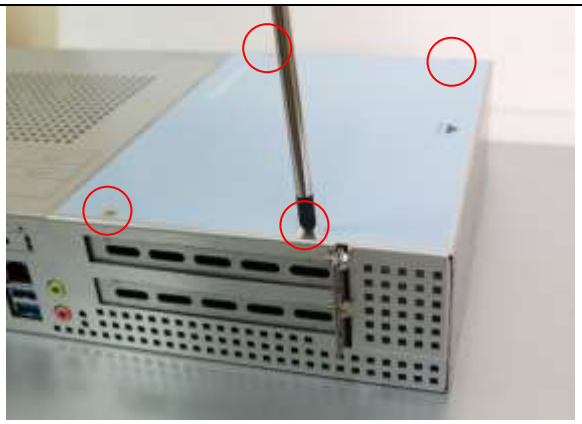
Figure 1.6: Front View of VIPAC-816 / 821

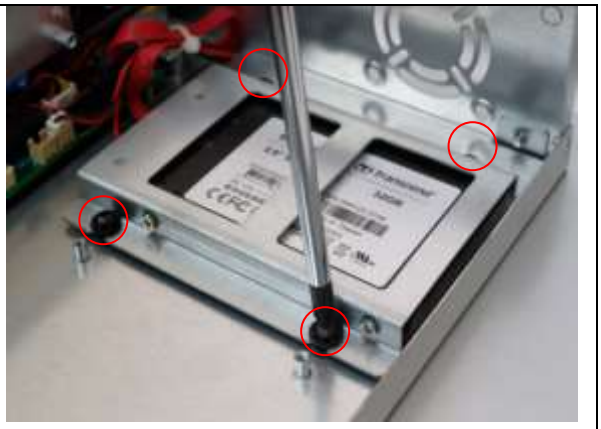
Figure 1.7: Rear View of VIPAC-815/816

Figure 1.8: Rear View of VIPAC-817

Figure 1.9: Rear View of VIPAC-821

1.5 Installation of HDD

Step 1 There are 4 screws to deal with when enclosing or removing the chassis. Gently remove 4 screws.	
Step 2 Remove the chassis.	

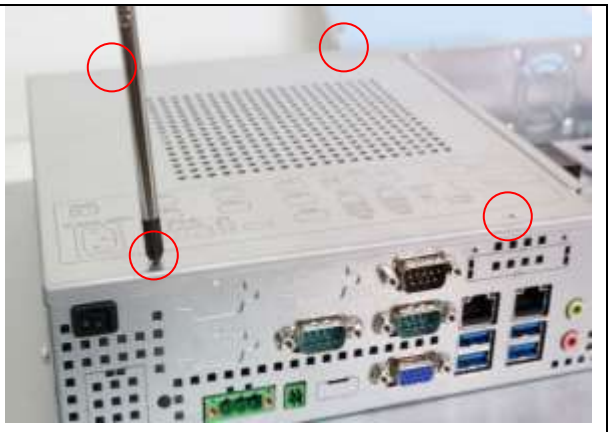
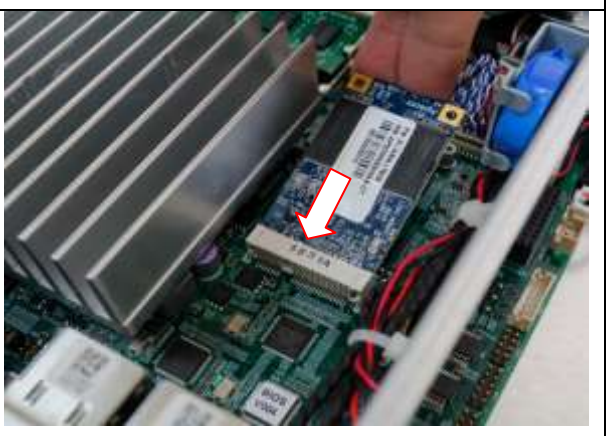
Step 3 There are 4 screws around HDD bay, you can remove screws of HDD.	
Step 4 You can remove HDD by unscrewing 4 screws in the HDD bracket, and pull out the HDD.	

1.6 Installation of PCIe card

Step 1 There are 2 PCIe slot on the bottom side. Gently remove 2 screws on side.	
Step 2 Remove the bracket on the bottom.	

Step 3 You can insert PCIe card to expansion model function. **(PCIe Card maximum size can support 135mm(W) x 185mm(L) x 20.32mm(1 slot))**	

1.7 Installation of mSATA SSD

Step 1 There are 4 screws to deal with when enclosing or removing the chassis. Gently remove 4 screws.	
Step 2 Remove the chassis.	
Step 3 You can insert mSATA SSD card to expansion storage.	

Step 4 You can use 2 screws to fasten SSD card to motherboard.	

Chapter 2 Motherboard

2.1 Motherboard Specifications

Specifications	
Board Size	170mm x 170mm
CPU Support	Intel Celeron N2930 up to 2.16GHz
Chipset	SOC
Memory Support	2x SO-DIMM (204pins), up to 8GB DDR3L 1333MHz FSB
Graphics	Integrated Intel HD Graphics 313/854 MHz (N2930)
Display Mode	1x HDMI interface 1x DB15 VGA interface (or 2x6 Pin header) 1x 18/24 bit dual channel LVDS interface
Support Resolution	Up to 1920 x 1200 for HDMI Up to 1920 x 1200 for VGA Up to 1920 x 1200 for LVDS (PS8625)
Three Display	HDMI + VGA HDMI + LVDS（option) VGA + LVDS（option)
Super I/O	Nuvoton NCT6106D
BIOS	AMI/UEFI BIOS
Storage	2x SATAII Connector (7Pin)
Ethernet	2x GbE ports by RJ-45 with intel 82583V controller
USB	4x USB 3.0 (type A) stack ports (HUB/USB30) 3x USB 2.0 box Pin header for MIO1 (E_USB9/E_USB10/E_USB11) 1x USB 2.0 box Pin header for MIO2 (E_USB12) 1x USB 2.0 for M-PCIE1 (USB2)
Serial	1x RS232/422/485 port, DB9 connector for external (COM1)

	pin 9 w/5V/12V/Ring select 1x RS232 port, DB9 connector for external (COM2) pin 9 w/5V/12V/Ring select 1x RS232 header for internal (COM5) 1x RS232 header for internal (COM6), pin 9 w/5V/12V select I/O Card TB-523 (option): 1x 422/485 select header for internal MIO1 (COM3) 1x RS232/422/485 select header for internal MIO1 (COM4)
Digital I/O	8-bit digital I/O by Pin header by MIO2 4-bit digital Input 4-bit digital Output
Battery	Support CR2477 Li battery by 2-pin header (1000mAh)
Audio	Support Audio via Realtek ALC269-X HD audio codec Support Line-out, MIC by Jack（AUDIO1） Line in/Line out/Mic by 2 x 6 Pin header （F_AUDIO1） 1x 4Pin Wafer Connector,Amplifier 2 channel output (SPK1)
Keyboard /Mouse	PS2 K/B and Mouse by MIO2 1x PS/2 keyboard 1x PS/2 mouse
LPT	1x LPT Port by Pin header (LPT1)
Touch Ctrl	1x Touch ctrl header for TCH1 (PM6000 for USB4)
Power Management	1x 3-pin power input connector (Wide range DC+9V~36V) 1x 1*4-pin power DC12V output connector (DC_OUT) 1x 2*2-pin power DC12V output connector (ATX12V_IN)
Switches and LED Indicators	Power on/off switch by BT1 or MIO1 or MIO2 Reset switch by MIO2 Power LED status by MIO1 or LED2 HDD LED status by LED2
Expansion	1x mini PCIe slot (full,PCIe/USB2.0/LPC/SMbus) 2x PCI-express x1 extend by 4x10 pin socket (PCIE_1X) 1x CRT 2x6 Pin Header
Temperature	Operating: -20℃ to 70℃ Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
Power Consumption	12V/0.70A (Intel N2930 2.16 GHz Processor with 2GB DDR3L/HDD)
EMI/EMS	Meet CE/FCC class A

2.2 Motherboard Layout

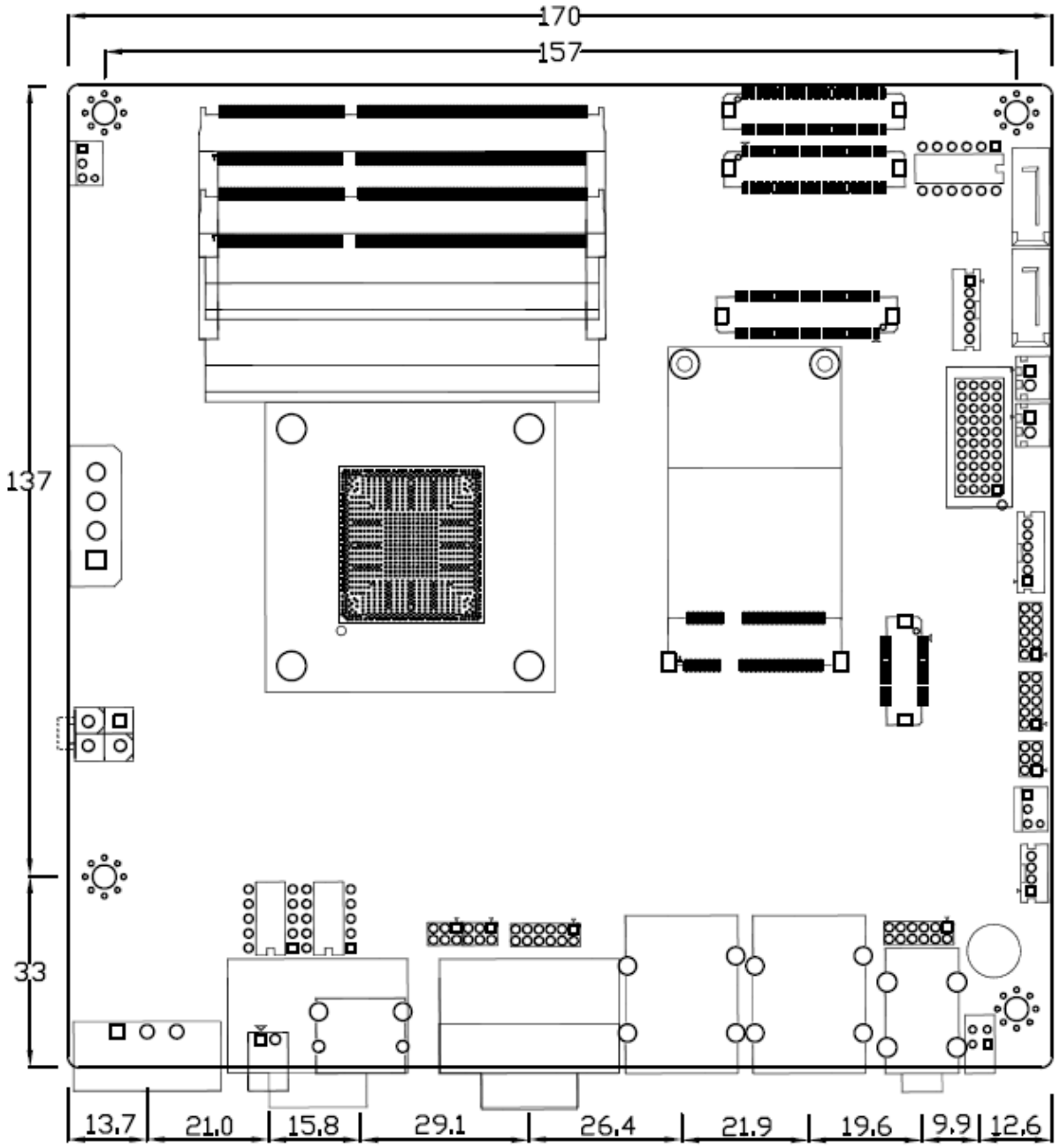


Figure 2.1: Motherboard ASB-M7102 Layout

2.3 Jumpers and Connectors Location

Board Top

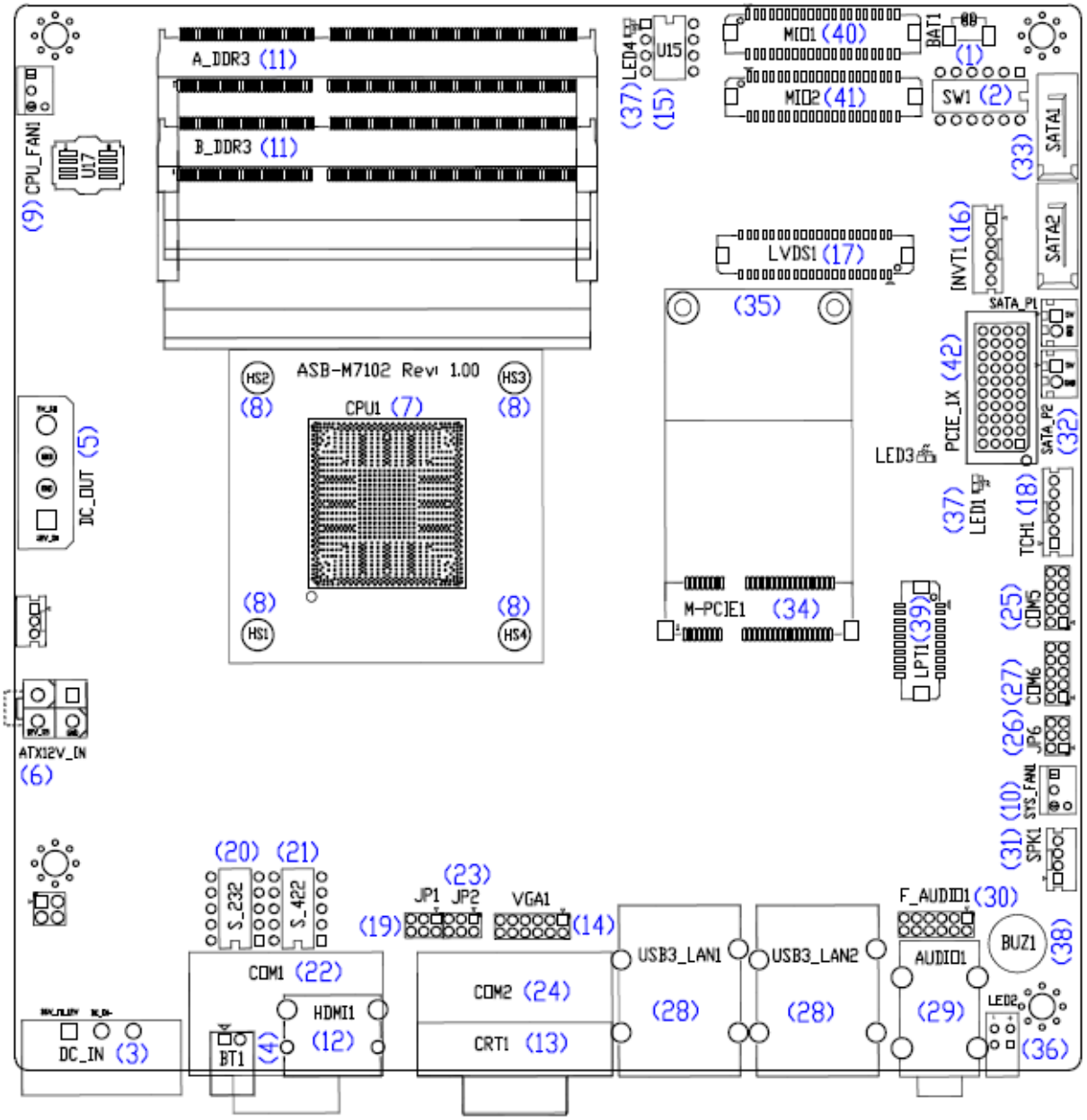


Figure 2.2: Motherboard top draw of ASB-M7102

Board Bottom

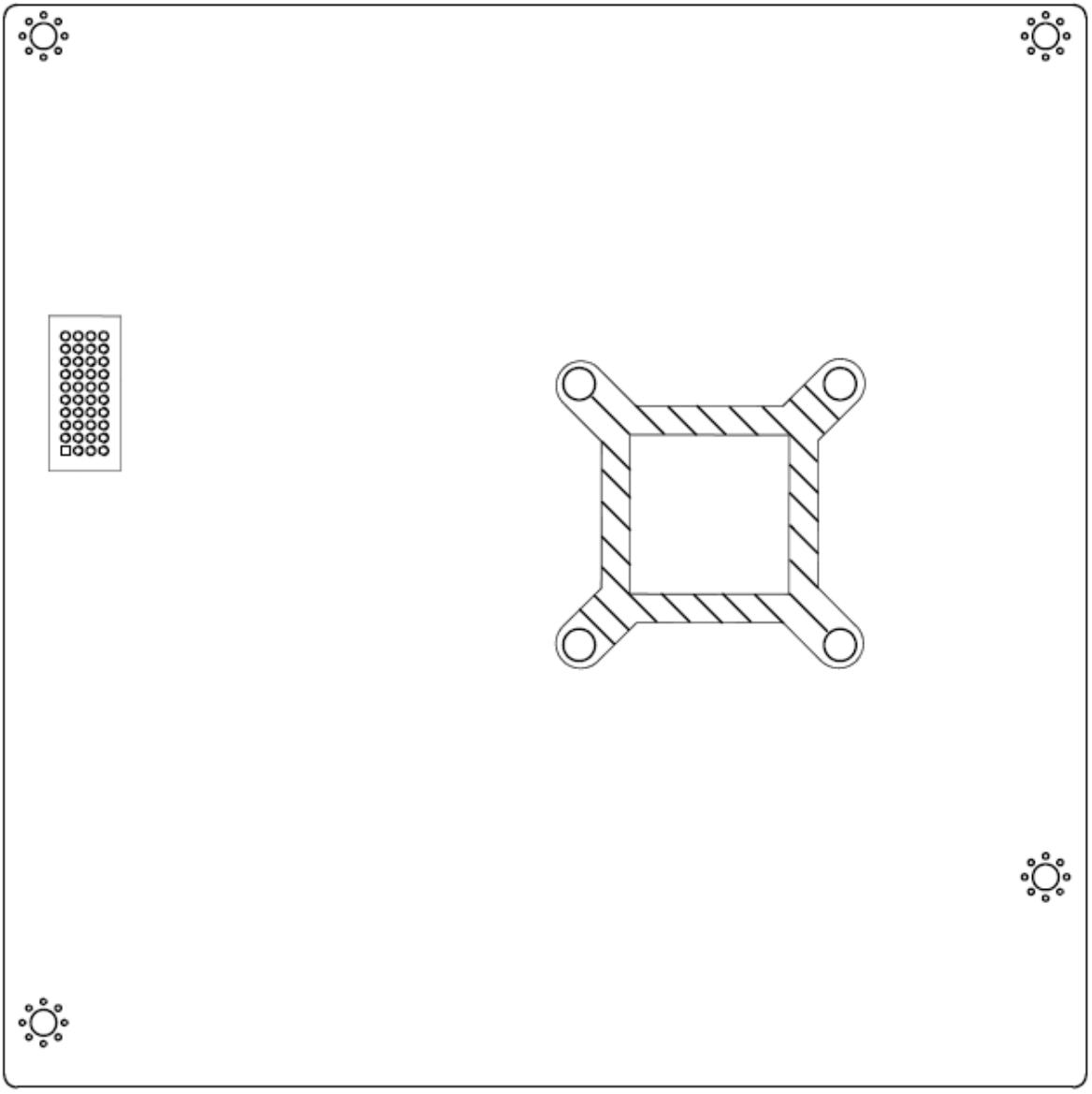


Figure 2.3: Motherboard bottom draw of ASB-M7102

2.4 Jumpers Setting and Connectors

1. BAT1 :

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

Pin#	Signal Name
Pin1	Ground
Pin2	VCC_RTC

2. SW1(1,2,6):

(Swich),ATX Power and Auto Power on jumper setting**.**

SW1	Mode
Pin1 on	**Auto Power on (Default)**
Pin1 off	ATX Power (option)
Pin6 on	Default

CMOS clear swich, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

SW1	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, use the swich to Pin2 on for about 3 seconds then move the swich Pin2 off.
c) Power on the system again.
d) When entering the POST screen, press the <DEL> key to enter CMOS Setup Utility to load optimal defaults.
e) After the above operations, save changes and exit BIOS Setup.

3. DC_IN:

(5.08mm Pitch 1x3 Pin Connector),DC9V ~ DC36V System power input connector。

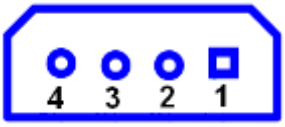
Pin#	Power Input（DC_IN）
Pin1	DC+9V~36V
Pin2	Ground
Pin3	FG

4. BT1:

Power on/off button, They are 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.

5. DC_OUT:

(1x4 Pin Connector),DC+12V and DC+5V System power **output** connector.



Pin#	Power output
Pin1	DC+12V（DC12V_S0）
Pin2	Ground
Pin3	Ground
Pin4	DC+5V(DC5V_S0)

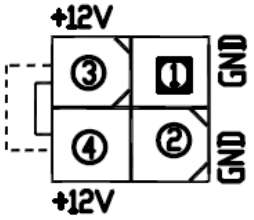
Note:

DC+5V Output current of the connector must not be above 0.5A.

DC+12V Output current of the connector must not be above 1A.

6. ATX12V_IN(option):

(5.50mm Pitch 2x2 Pin Connector),DC12V System power output connector。



Pin#	Power output
Pin1	Ground
Pin2	Ground
Pin3	DC12V_S5
Pin4	DC12V_S5

Note:

DC+12V Output current of the connector must not be above 1A.

7. CPU1:

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

	Processor

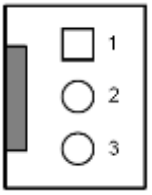
Model	Number	PBF	Cores/ Threads	TDP	Remarks
ASB-M7102-N2930	N2930	2.16GHz	4 / 4	4.5/7.5W	

8. HS1/HS2/HS3/HS4(CPU SCREW HOLES):

CPU FAN SCREW HOLES, Four screw holes for fixed CPU Cooler assemble.

9. CPU_FAN1:

(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.



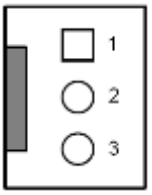
Pin#	Signal Name
1	Ground
2	VCC
3	Rotation detection

Note:

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

10. SYS_FAN1:

(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.

11. A_DDR3,B_DDR3:

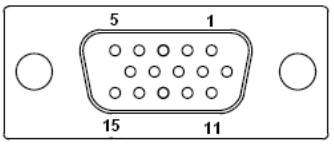
(SO-DIMM 204Pin socket), DDR3L memory socket, the socket is located at the top of the board and supports 204Pin 1.35V DDR3L 1333MHz FSB SO-DIMM memory module up to 8GB.

12. HDMI1:

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

13. CRT1:

(CRT Connector DB15),Video Graphic Array Port, provide high-quality video output.



14. 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

15. U15(option):

AT24C02-DIP8,The EEPROM IC（U15）is the set of LVDS resolution.
If you need other resolution settings, please upgrade U15 data.

Model	LVDS resolution
ASB-M7102T-N2930	1280*1024 (Default)
	800*480（option）
	800*600（option）
	1024*768（option）
	1920*1080（option）
	……

16. INVT1(option):

(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

17. LVDS1(option**)**：

(1.25mm Pitch 2x20 Connector,DF13-40P),For 18⁄24-bit LVDS output connector,Fully supported by Parad PS8625(DDI1 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.

Signal Name	Pin#	Pin#	Signal Name
VDD5	2	1	VDD5
Ground	4	3	Ground
VDD3	6	5	VDD3
LB_D0_N	8	7	LA_D0_N
LB_D0_P	10	9	LA_D0_P
Ground	12	11	Ground
LB_D1_N	14	13	LA_D1_N
LA_D1_P	16	15	LA_D1_P
Ground	18	17	Ground
LB_D2_N	20	19	LA_D2_N
LB_D2_P	22	21	LA_D2_P
Ground	24	23	Ground
LB_CLK_N	26	25	LA_CLK_N
LB_CLK_P	28	27	LA_CLK_P
Ground	30	29	Ground
LVDS_DDC_DATA	32	31	LVDS_DDC_CLK
Ground	34	33	Ground
LB_D3_N	36	35	LA_D3_N
LB_D3_P	38	37	LA_D3_P
NC	40	39	NC

SW1：(Swich),18bit or 24bit LVDS setting	
SW1	Mode
Pin3 on	Single Channel LVDS

Pin3 off	Dual Channel LVDS
Pin4 on	18bit LVDS
Pin4 off	24bit LVDS

Model	LVDS1 / TCH1
ASB-M7102T-N2930	●
ASB-M7102B-N2930	○

18. 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

SW1	PM6000（TCH1）
Pin5 OFF	Enable
Pin2 ON	Disable

19. 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 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM1 Pin9 = +5V/1A (option)
Close 5-6	COM1 Pin9 = +12V/1A (option)

20. 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

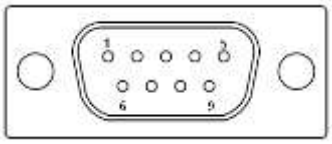
21. S_422:

(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

22. 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/NCT6106D 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/ NCT6106D 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/ NCT6106D Super IO Configuration/Serial Port 1 Configuration【RS-485】	

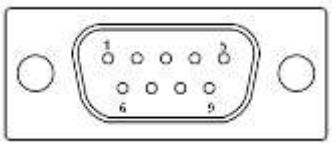
23. JP2:

(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 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM2 Pin9 = +5V/1A (option)
Close 5-6	COM2 Pin9 = +12V/1A (option)

24. 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)**

25. COM5:

(2.0mm Pitch 2X5 Pin Header),COM5 Port, standard RS232 ports 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

26. JP6:

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

JP2 Pin#	Function
Close 1-2	**COM6 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM6 Pin9 = +5V/1A (option)
Close 5-6	COM6 Pin9 = +12V/1A (option)

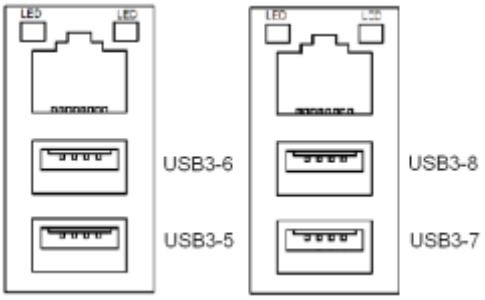
27. COM6:

(2.0mm Pitch 2X5 Pin Header),COM6 Port, standard RS232 ports 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

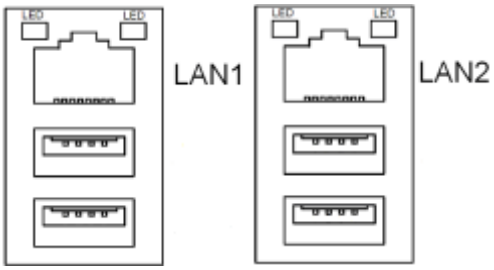
28. USB3_LAN1/USB3_LAN2:

USB3-5/USB3-6/USB3-7/USB3-8：(Double stack USB typeA),Rear USB connector, it provides up to 4 USB3.0 ports,USB 3.0 allows data transfers up to 5.0Gb/s ,support USB2.0 and full-speed and low-speed signaling.



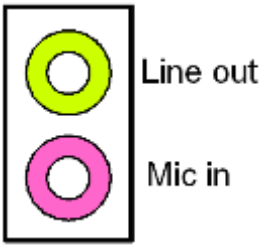
Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.
If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

LAN1/LAN2: (RJ45 Connector), Rear LAN port, Two standard 10/100/1000M RJ-45 Ethernet ports are provided. Used Intel 82583V chipset.



29. AUDIO1:

(Diameter 3.5mm Three stack Jack), High Definition Audio port, An onboard Realtek ALC269-X codec is used to provide high quality audio I/O ports.



30. F_AUDIO1:

(2.0mm Pitch 2x6 Pin Header), Front Audio, An onboard Realtek ALC269-X 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	LINE_JD
LINE-IN-L	7	8	LINE-IN-R
MIC-IN-L	9	10	MIC-IN-R
GND_AUD	11	12	MIC1_JD

31. 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

32. SATA_P1,SATA_P2:

(2.5mm Pitch 1x2 Wafer Pin Header), Two onboard 5V output connectors are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V_S0
2	Ground

Note:

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

33. SATA1,SATA2:

(SATA 7P), SATA Connectors, Two SATA connectors are provided, SATA2 transfer speed up to 3.0Gb/s.

34. M-PCIE1:

(Socket 52Pin),mini PCIe socket, it is located at the top, it supports mini PCIe devices with USB2.0 and LPC bus and SMBUS and PCIe signal. MPCIe card size is 30 x 50.95mm.

Function	Support
Mini PCie	●
LPC bus	●
SMbus	●
USB2.0（CPU）	●

35. H2,H3:

M-PCIE1 SCREW HOLES, H2 and H3 for mini PCIE card (30mmx50.95mm) assemble.

36. LED2：

LED STATUS. Green LED for Motherboard Standby Power Good status, Yellow LED for HDD status.

37. LED1/LED2:

LED1 STATUS. Green LED for Motherboard Power status.

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

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

38. BUZZER1:

Onboard buzzer.

39. LPT1:

(DF13-20P Connector),,a standard 20 pin parallel port is provided to connect parallel peripherals as required.

Signal Name	Pin#	Pin#	Signal Name
Ground	2	1	Ground
LPT_AFD-	4	3	LPT_STB
LPT_ERR-	6	5	LPT_D0
LPT_INIT-	8	7	LPT_D1
LPT_SLIN-	10	9	LPT_D2
LPT_D4	12	11	LPT_D3
LPT_D6	14	13	LPT_D5
LPT_ACK-	16	15	LPT_D7
LPT_PE	18	17	LPT_BUSY
+5V_S0	20	19	LPT_SLCT

40. MIO1:

(DF13-40P Connector),For expand output connector, It provides one RS232 port,one RS422 or RS485 ports, three USB ports, one power led, one power button, via a dedicated cable connected to **TB-523 MIO1.**

Function	Signal Name	Pin#		Signal Name	Function
COM3 (RS422 or RS485)	485+ 422TX+	2	1	422_RX+	COM3 (RS422)
	485- 422TX-	4	3	422_RX-	
WLAN LED	3P3V_S0	6	5	Ground	
	WLAN_LED-	8	7	NC	
	5V_S5	10	9	5V_S5	
COM4 (RS232)	RXD4	12	11	DCD4-	COM4 (RS232)
	DTR4-	14	13	TXD4	
	DSR4-	16	15	Ground	
	CTS4-	18	17	RTS4-	
	5V_S5	20	19	RI4-	
USB2.0 (E_USB10)	5V_USB1011	22	21	5V_S5	
	E_USB10_N	24	23	E_USB9_N	USB2.0 (E_USB9)
	E_USB10_P	26	25	E_USB9_P	
	Ground	28	27	Ground	
	Ground	30	29	Ground	
Power LED	Power LED+	32	31	5V_USB1011	
	Power LED-	34	33	E_USB11_N	USB2.0

Power Button	FP_PWRBTN	36	35	E_USB11_P	(E_USB11)
	Ground	38	37	Ground	
Power Auto on	AUTO_PSON-	40	39	NC	

BIOS Setup：
Advanced/ NCT6106D Super IO Configuration/Serial Port 3 Configuration:

[RS-485 Mode]

[RS-422 Mode]

41. MIO2:

(DF13-30P Connector),Front panel connector.

Function	Signal Name	Pin#		Signal Name	Function
HDD LED	HDD_LED+	2	1	HDD_LED-	HDD LED
Power Button	Ground	4	3	USB12_OC-	
	FP_PWRBTN	6	5	NC	
RESET	Ground	8	7	FP_RESET-	RESET
BUZZER	BUZZER-	10	9	BUZZER+	BUZZER
SOC_GPIOs_4	GPIO_OUT1	12	11	GPIO_IN1	SOC_GPIOs_9
SOC_GPIOs_5	GPIO_OUT2	14	13	GPIO_IN2	SOC_GPIOs_10
SOC_GPIOs_6	GPIO_OUT3	16	15	GPIO_IN3	SOC_GPIOs_17
SOC_GPIOs_8	GPIO_OUT4	18	17	GPIO_IN4	SOC_GPIOs_26
	5V_S5_USB	20	19	Ground	
PS/2 MOUSE	PS2_MSDATA	22	21	PS2_KBDATA	PS/2 KB
	PS2_MSCLK	24	23	PS2_KBCLK	
	5V_S5_USB	26	25	5V_S5_USB	
	NC	28	27	NC	
	NC	30	29	NC	
	Ground	32	31	Ground	
USB2.0 (E_USB12)	5V_S5_USB	34	33	5V_S5_USB	
	E_USB12_N	36	35	NC	
	E_USB12_P	38	37	NC	
	Ground	40	39	Ground	

Note:

When connecting LEDs and buzzer and USB, pay special attention to the signal polarity. Make sure that the connector pins have a one-to-one correspondence with chassis wiring, or it may cause boot up failure.

42. PCIE_1X (option)**:**

(4x10 Pin connector), Riser Card expansion connector. Can expand support or two PCIeX1 Signal.

ASB-M7102T：PCIE_1X connector in the top.
ASB-M7102B：PCIE_1X connector in the Bottom.

MODEL	PCIE_1X	PCIE(3) Signal	PCIE(4) Signal
ASB-M7102T-XX	Top	● (default)	●
ASB-M7102B-XX	Bottom	● (default)	●
BIOS SETUP: PCIe3 option: External PCIe 1x Onboard mini-PCIe			

Riser Card	Function	ASB-M7102B	ASB-M7102T
TB-526E11	Pcie 1x slot x1	●	X
TB-526E12	Pcie 1x slot x2	●	X
TB-525E11	Pcie 1x slot x1	X	●
TB-525E12	Pcie 1x slot x2	X	●
TB-560E12	PCIe 1x slot x2	X	●
TB-560AP1E11	PCIe 1x slot x1 PCI slot x1	X	●
Note: Please correctly assemble the riser card, otherwise it will burn out the motherboard! If you do not know how to assemble, please contact technical support!			

Chapter 3 BIOS Setup

3.1 Operations after POST Screen

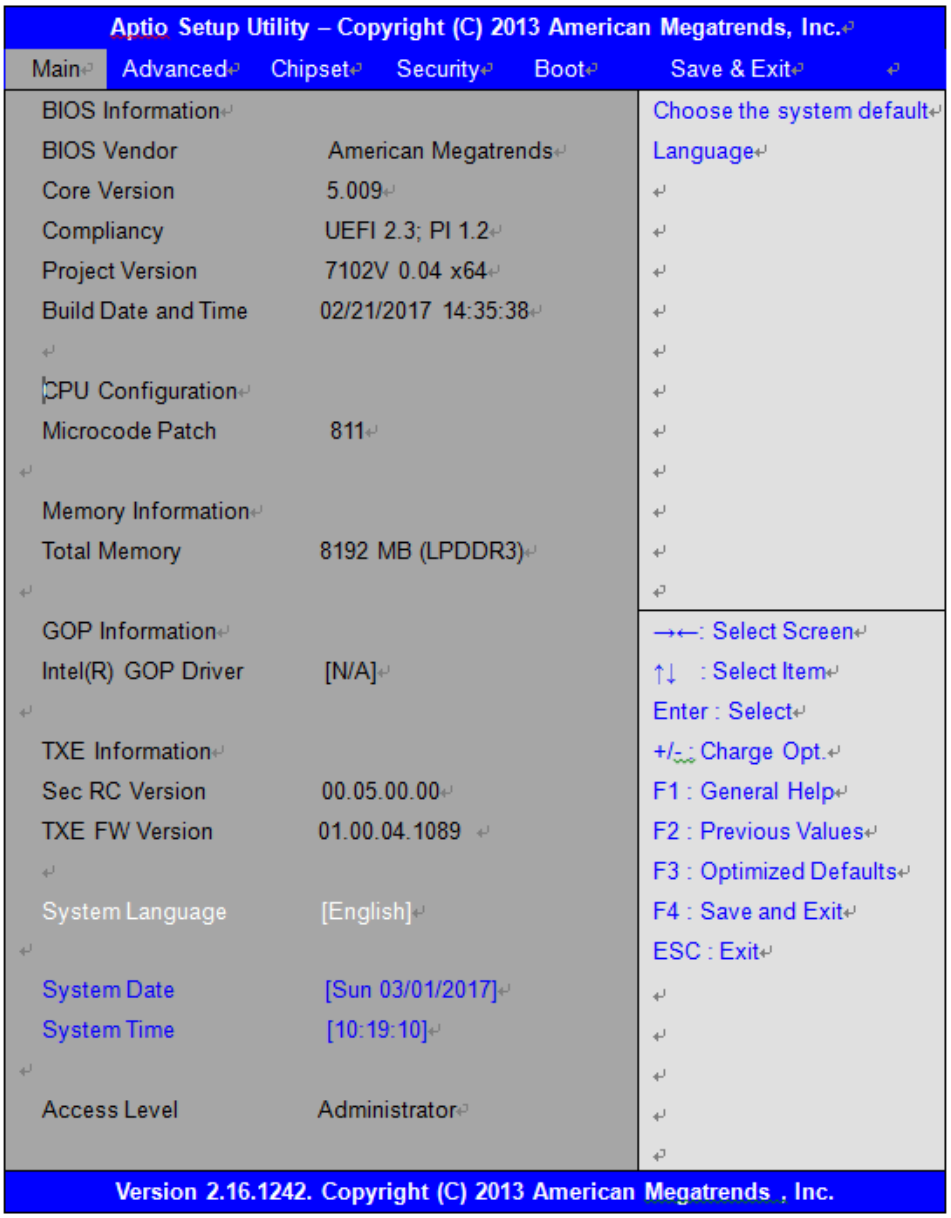
After CMOS discharge or BIOS flashing operation,.Press [Delete] key to enter CMOS Setup.

After optimizing and exiting CMOS Setup

3.2 BIOS SETUP UTILITY

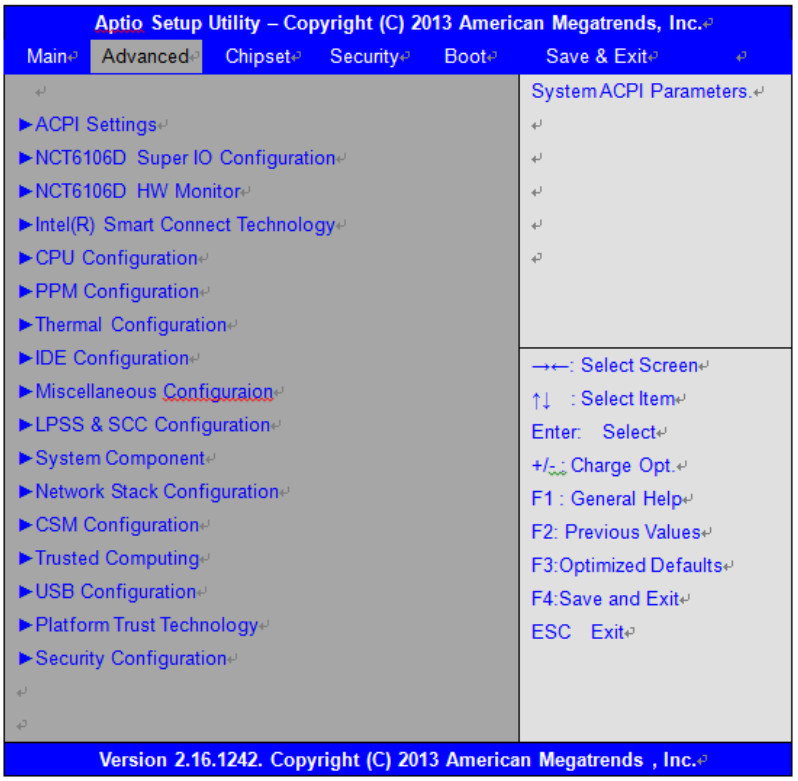
Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.

3.3 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

3.4 Advanced Settings



3.4.1 ACPI Settings

Enable ACPI Auto Configuration:

[Disabled]
[Enabled]

Enable Hibernation:

[Enabled]
[Disabled]

ACPI Sleep State:

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

Lock Legacy Resources:

[Disabled]
[Enabled]

3.4.2 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]
[IO=3F8h； IRQ=4]

[IO=3F8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2F8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=3E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

COM1 Mode Selection

[RS-232]
[RS-485]
[RS-422]

Serial Port 2 Configuration
Serial port

[Enabled]
[Disabled]

Device Settings IO=2F8h;IRQ=3;

Change Settings

[Auto]
[IO=2F8h ;IRQ=3]
[IO=3F8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2F8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=3E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

Serial Port 3 Configuration
Serial port

[Enabled]
[Disabled]

Device Settings IO=3E8h;IRQ=5;

Change Settings

[Auto]
[IO=3E8h;IRQ=7]
[IO=3E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2F0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

COM3 Mode Selection

[RS-485]
[RS-422]

Serial Port 4 Configuration
Serial port

[Enabled]
[Disabled]

Device Settings IO=2E8h； IRQ=3；

Change Settings

[Auto]
[IO=2E8h;IRQ=7]
[IO=3E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2F0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

Serial Port 5 Configuration
Serial port

[Enabled]
[Disabled]

Device Settings IO=2E8h； IRQ=4；

Change Settings

[Auto]
[IO=2E0h;IRQ=7]
[IO=3E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2F0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

Serial Port 6 Configuration
Serial port

[Enabled]
[Disabled]

Device Settings IO=2E0h； IRQ=3；

Change Settings

[Auto]
[IO=2F0h;IRQ=7]
[IO=3E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E8h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2F0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

[IO=2E0h ;IRQ=3,4,5,6,7,9,10,11,12 ;]

Parallel Port Configuration
Parallel Port

[Enabled]

Device Settings IO=378h ;IRQ=6 ;

Change Settings

[Auto]
[IO=378h ;IRQ=5]

[IO=378h ;IRQ=5,6,7,9,10,11,12]

[IO=278h ;IRQ=5,6,7,9,10,11,12]
[IO=3BCh ;IRQ=5,6,7,9,10,11,12]

Device Mode

[STD Printer Mode]
[SPP Mode]
[EPP-1.9 and SPP Mode]
[EPP-1.7 and SPP Mode]
[ECP Mode]
[ECP and EPP 1.9 Mode]
[ECP and EPP 1.7 Mode]

3.4.3 NCT6106D HW Monitor

Pc Health Status

System Temperature	：+26 C
CPU Fan Speed	：N/A
VCORE	：+0.840 V
12V	：+11.960V
5V	：+5.160V
1.35V	：+1.376V

3.4.4 Intel(R) Smart Connect Technology

ISCT Support

[Enabled]
[Disabled]

3.4.5 CPU Configuration

Socket 0 CPU Information

Intel(R) Celeron(R) CPU J1900 @ 1.99GHz

CPU Signature 30678
Microcode Patch 811
Max CPU Speed 1990MHz
Min CPU Speed 1334MHz
Processor Cores 4
Intel HT Technology Not Supported
Intel VT-x Technology Supported

L1 Data Cache 24KB x 4
L1 Code Cache 32KB x 4
L2 Cache 1024KB x 2
L3 Cache Not Present

CPU Thermal Configuration
DTS

[Enabled]
[Disabled]

CPU Speed 2001MHz
64-bit Supported

Active Processor Cores

[All]
[1]

Limit CPUID Maximum

[Disabled]
[Enabled]

Execute Disable Bit

[Enabled]
[Disabled]

Hardware Prefetcher

[Enabled]
[Disabled]

Adjacent Cache Line Prefetch

[Enabled]
[Disabled]

Intel Virtuallzation Technology

[Enabled]
[Disabled]

Power Technology

[Energy Efficient]
[Disable]
[Custom]

3.4.6 PPM Configuration

EIST

[Enabled]
[Disabled]

CPU c state Report

[Enabled]
[Disabled]

Max CPU C-state

[C7]
[C6]
[C1]

SOix

[Enabled]
[Disabled]

3.4.7 Thermal Configuration Parameters

Critical Trip Point [90C]
Passive Trip Point [85C]

Dynamic Platform&Thermal Framework
DPTF

[Disabled]
[Enabled]

CPU Sensor Participant
Critical [70C]
Passive [60C]
Ambient Sensor Participant
Critical [70C]
Passive [60C]
DDR Sensor Participant
Critical [70C]
Passive [60C]

Super Debug [Disabled]
Current Logical Processor [Disabled]
Start P-State [P0]
Step size [25%]
Power Control Setting [CORE offlining]
Performance Control Setting [CORE offlining]
DPPM [Enabled]

3.4.8 IDE Configuration

Serial-ATA(SATA)

[Enabled]
[Disabled]

SATA Test Mode

[Enabled]
[Disabled]

SATA Speed Support

[Gen2]
[Gen1]

SATA ODD Port

[No ODD]
[Port0 ODD]
[Port1 ODD]

SATA Mode

[AHCI Mode]
[IDE Mode]

Serial-ATA Port 0

[Enabled]
[Disabled]

SATA Port0 HotPlug

[Enabled]
[Disabled]

Serial-ATA Port 1

[Enabled]
[Disabled]

SATA Port1 HotPlug

[Enabled]
[Disabled]

SATA Port 0
Not Present

SATA Port1
Not Present

3.4.9 Miscellaneous Configuration

High Precision Timer **[Enabled]**
[Disabled]

Boot Timer with HPET Timer

[Enabled]
[Disabled]

PCI Express Dynamic Clock Gating

[Enabled]
[Disabled]

OS Selection

[Windows 8.X]
[Android]
[Windows 7]

3.4.10 LPSS & SCC Configuration

LPSS & SCC Devices Mode

[ACPI mode]
[PCI mode]

SCC Configuration
SCC eMMC Support

[Disabled]
[Enabled]

eMMC Secure Erase

[Disabled]
[Enabled]

SCC SDIO Support

[Disabled]
[Enabled]

SCC SD Card Support

[Disabled]
[Enabled]

SDR25 Support for SDCard [Disabled]
DDR50 Support for SDCard [Disabled]
MIPI HSI Support

[Disabled]
[Enabled]

LPSS Configuration
LPSS DMA #1 Support

[Disabled]
[Enabled]

LPSS DMA #2 Support

[Disabled]
[Enabled]

LPSS I2C #1 Support

[Disabled]
[Enabled]

LPSS I2C #2 Support

[Disabled]
[Enabled]

LPSS I2C #3 Support

[Disabled]
[Enabled]

LPSS I2C #4 Support

[Disabled]
[Enabled]

LPSS I2C #5 Support

[Disabled]
[Enabled]

LPSS I2C #6 Support

[Disabled]
[Enabled]

LPSS I2C #7 Support

[Disabled]
[Enabled]

I2C touch Device Address

[AUTO]
[0x4B]
[0x4A]

LPSS HSUART #1 Support

[Disabled]
[Enabled]

LPSS HSUART #2 Support

[Disabled]
[Enabled]

LPSS PWM #1 Support

[Disabled]
[Enabled]

LPSS PWM #2 Support

[Disabled]
[Enabled]

LPSS SPISupport

[Disabled]
[Enabled]

3.4.11 System Component

PMIC Configuration
PMIC ACPI OBJECT

[Disabled]
[Enabled]

PNP Setting

[Disabled]
[AUTO]
[AX STEPPING]
[BX STEPPING]

Witt Setting

[Disabled]
[Enabled]

3.4.12 Network Stack Configuration

Network Stack

[Disabled]
[Enabled]

CSM Configuration

Compatibility Support Module Configuration

CSM Support

[Disabled]
[Enabled]

CSM16 Module Version 07.74

GateA20 Active

[Upon Request]
[Always]

Option ROM Messages

[Force BIOS]
[Keep Current]

INT19 Trap Response

[Immediate]
[Postponed]

Boot option filter

[UEFI and Legacy]
[Legacy only]
[UEFI only]

Option ROM execution

Network

[Do not launch]
[UEFI]
[Legacy]

Storage

[Do not launch]
[UEFI]
[Legacy]

Video

[Do not launch]
[UEFI]
[Legacy]

Other PCI devices

[UEFI]
[Legacy]

3.4.13 Trusted Computing

Configuration
Security Device Support

[Disabled]
[Enabled]

Current Status Information
NO Securtiy Device Found

3.4.14 USB Configuration

USB Module Version 8.11.01

USB Devices:
1 Drive,1 Keyboard,1 Mouse,3Hubs
Legacy USB Support

[Disabled]
[Enabled]

XHCI Hand-off

[Disabled]
[Enabled]

EHCI Hand-off

[Disabled]
[Enabled]

USB Mass Storage Driver Support

[Disabled]
[Enabled]

USB hardware delays and time-outs:
USB transfer time-out

[1 sec]
[5 sec]
[10 sec]
[20 sec]

Device reset time-out

[10 sec]
[20 sec]
[30 sec]
[40 sec]

Device power-up delay

[Auto]
[Manual]

Mass Storage Devices:
KingstonDT 101 G2 1.00

[Auto]
[Floppy]
[Forced FDD]
[Hard Disk]
[CD-ROM]

3.4.15 Platform Trust Technology

TPM Configuraion
fTPM

[Disabled]
[Enabled]

3.4.16 Security Configuration

Intel(R) TXE Configuration
TXE

[Disabled]
[Enabled]

TXE HMRFPO

[Disabled]
[Enabled]

TXE Firmware Update

[Disabled]
[Enabled]

TXE EOP Message

[Disabled]
[Enabled]

TXE Unconfiguration Perform

Intel(R) Anti-Theft Technology Configuration
Intel(R) AT

[Disabled]
[Enabled]

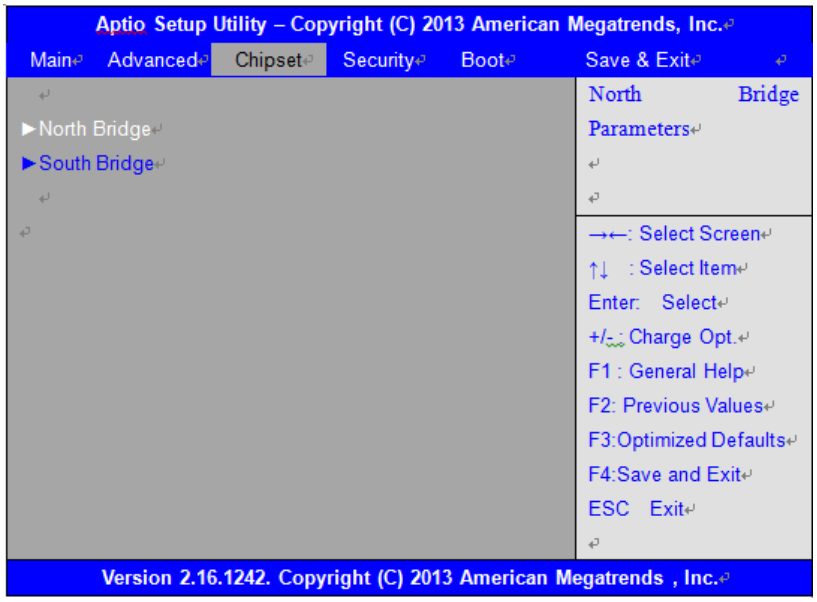
Intel(R) AT Platform PBA

[Disabled]
[Enabled]

Intel(R) AT Suspend Mode

[Disabled]
[Enabled]

3.5 Chipset Settings



3.5.1 North Bridge

►Intel IGD Configuration

GOP Configuration

GOP Driver

[Enabled]

[Disabled]

Intel IGD Configuration

Integrated Graphics Device

[Enabled]

[Disabled]

IGD Turbo Enable

[Enabled]

[Disabled]

Primary Display [IGD]

GFX Boost

[Enabled]

[Disabled]

PAVC [LITE Mode]

DVMT Pre-Allocated [64M]

DVMT Total Gfx Mem [256MB]

Aperture Size [256MB]

DOP CG

[Enabled]

[Disabled]

GTT Size [2MB]

IGD Thermal

[Enabled]

[Disabled]

Spread Spectrum clock

[Enabled]

[Disabled]

ISP Enable/Disable

[Enabled]
[Disabled]

ISP PCI Device Selection

[Enabled]
[Disabled]

Vcc,Vnn Configuration for Power state2:
Vcc_Vnn Config for Power state2

[Enabled]
[Disabled]

►IGD-LCD Control
Force Lid Status

[Off]
[On]

BIA [Auto]
ALS Support

[Enabled]
[Disabled]

IGD Flat Panel [Auto]
Panel Scaling [Auto]

►Graphics Power Management Control
Graphics Power Management Control
RC6(Render Standby)

[Enabled]
[Disabled]

Memory Information
Total Memory 8192 MB(LPDDR3)
Memory Slot0 8192 MB(LPDDR3)
Memory Slot2 Not Present

BIOS Control Backlight Level **[Level 7]**
Max TOLUD **[Dynamic]**

3.5.2 South Bridge

►Azalia HD Audio
Audio Configuration
LPE Audio Support

[Enabled]
[Disabled]

Audio Controller

[Enabled]
[Disabled]

Azalia VCi Enable

[Enabled]
[Disabled]

Azalia Docking Support Enable

[Enabled]
[Disabled]

Azalia PME Enable

[Enabled]
[Disabled]

Azalia HDMI Codec

[Enabled]
[Disabled]

HDMI Port B

[Enabled]
[Disabled]

HDMI Port C

[Enabled]
[Disabled]

►USB Configuration

USB OTG Support

[Enabled]
[Disabled]

USB VBUS

[On]
[Off]

XHCI Mode [Smart Auto]

USB2 Link Power Management

[Enabled]
[Disabled]

USB 2.0(ENCI) Support [Disabled]

USB Per Port Control

[Enabled]
[Disabled]

USB Port 0

[Enabled]
[Disabled]

USB Port 1

[Enabled]
[Disabled]

USB Port 2

[Enabled]
[Disabled]

USB Port 3

[Enabled]
[Disabled]

►PCI Express Configuration

PCI Express Port 0

[Enabled]
[Disabled]

Hot Plug

[Enabled]
[Disabled]

Speed	[Auto]
Extra Bus Reserved	1
Reserved Memory	10
Reserved Memory Alignment	1
Prefetchable Memory	10
Prefetchable Memory Alignment	1
Reserved I/O	4

PCI Express Port 1

[Enabled]
[Disabled]

Hot Plug

[Enabled]
[Disabled]

Speed	[Auto]
Extra Bus Reserved	0
Reserved Memory	10
Reserved Memory Alignment	1
Prefetchable Memory	10
Prefetchable Memory Alignment	1
Reserved I/O	4

PCI Express Port 2

[Enabled]
[Disabled]

Hot Plug

[Enabled]
[Disabled]

Speed	[Auto]
Extra Bus Reserved	0
Reserved Memory	10
Reserved Memory Alignment	1
Prefetchable Memory	10
Prefetchable Memory Alignment	1
Reserved I/O	4

PCI Express Port 3

	[Enabled]
	[Disabled]
Hot Plug	
	[Enabled]
	[Disabled]
Speed	[Auto]
Extra Bus Reserved	0
Reserved Memory	10
Reserved Memory Alignment	1
Prefetchable Memory	10
Prefetchable Memory Alignment	1
Reserved I/O	4

3.6 Security Settings

3.6.1 Administrator Password

3.6.2 User Password

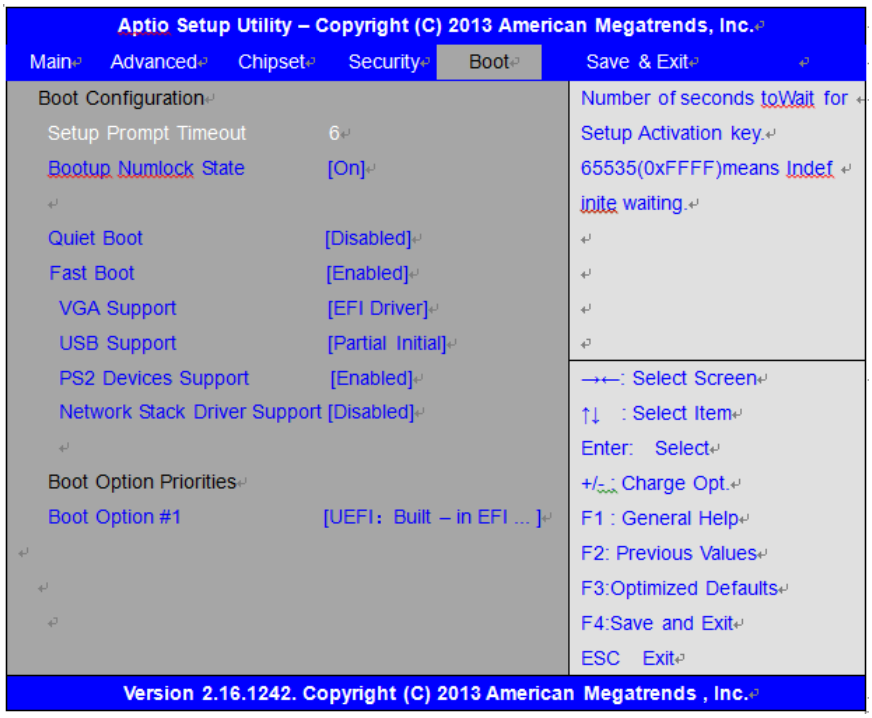
Type the password with up to 20 characters and then press ⋖Enter⋗ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ⋖Enter⋗ key. You may press ⋖Esc⋗ key to abandon password entry operation.

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.

3.7 Boot Settings



Setup Prompt Timeout [6]

Bootup Numlock State

[On]

[off]

Quiet Boot

[Disabled]

[Enabled]

Fast Boot

[Disabled]

[Enabled]

VGA Support

[Auto]

[EFI Driver]

USB Support

[Disabled]

[Full Initial]

[Partial Initial]

PS2 Devices Support

[Disabled]

[Enabled]

Network Stack Driver Support

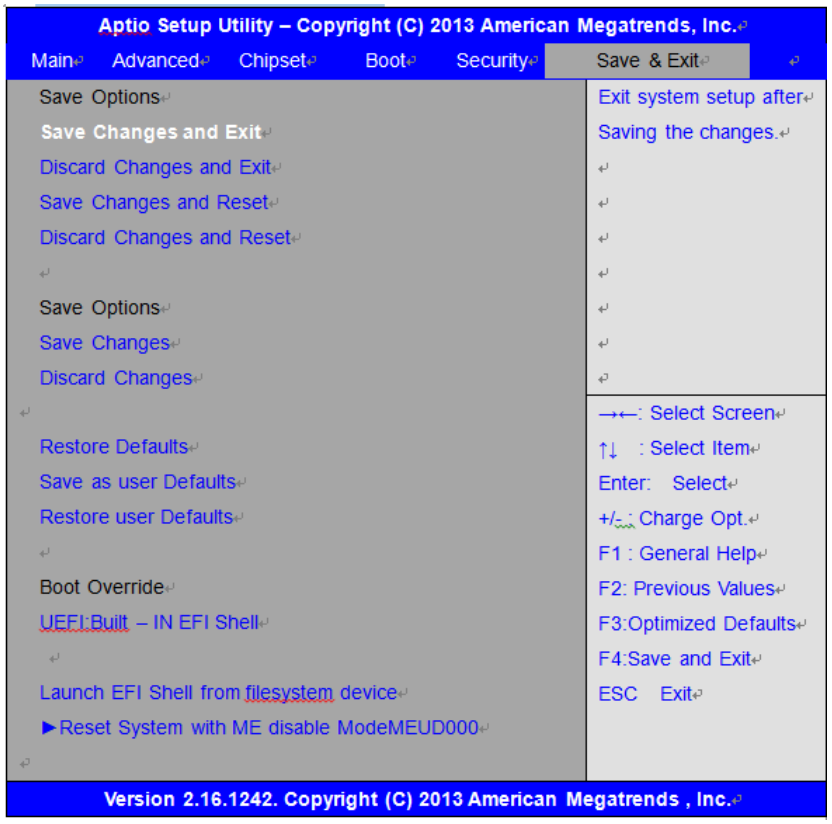
[Disabled]

[Enabled]

Boot Option Priorities

Boot Option #1 [UEFI:Built – in EFI …]

3.8 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
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
UEFI:Built – in EFI Shell

Launch EFI Shell from filesystem device
WARNING Not Found

[ok]

Reset System with ME disable ModelMEUD000

Chapter 4 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 chipset driver, VGA driver, Audio driver, and TXE 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.

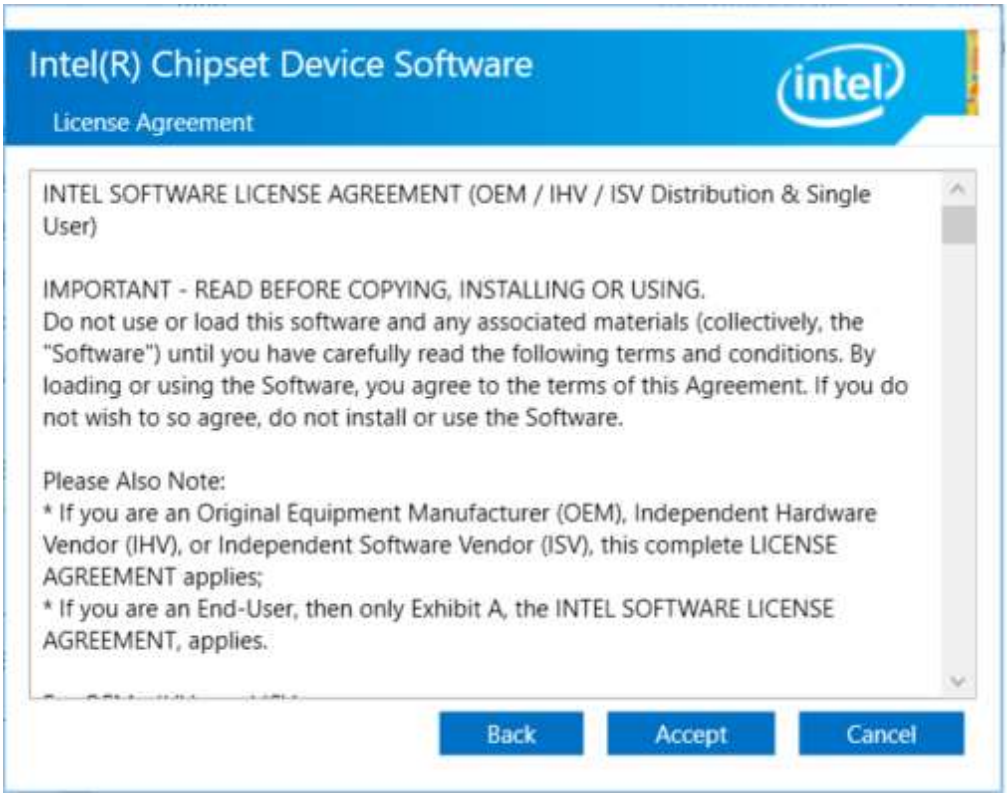
4.1 Intel(R) AtomTM SoC Chipset

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

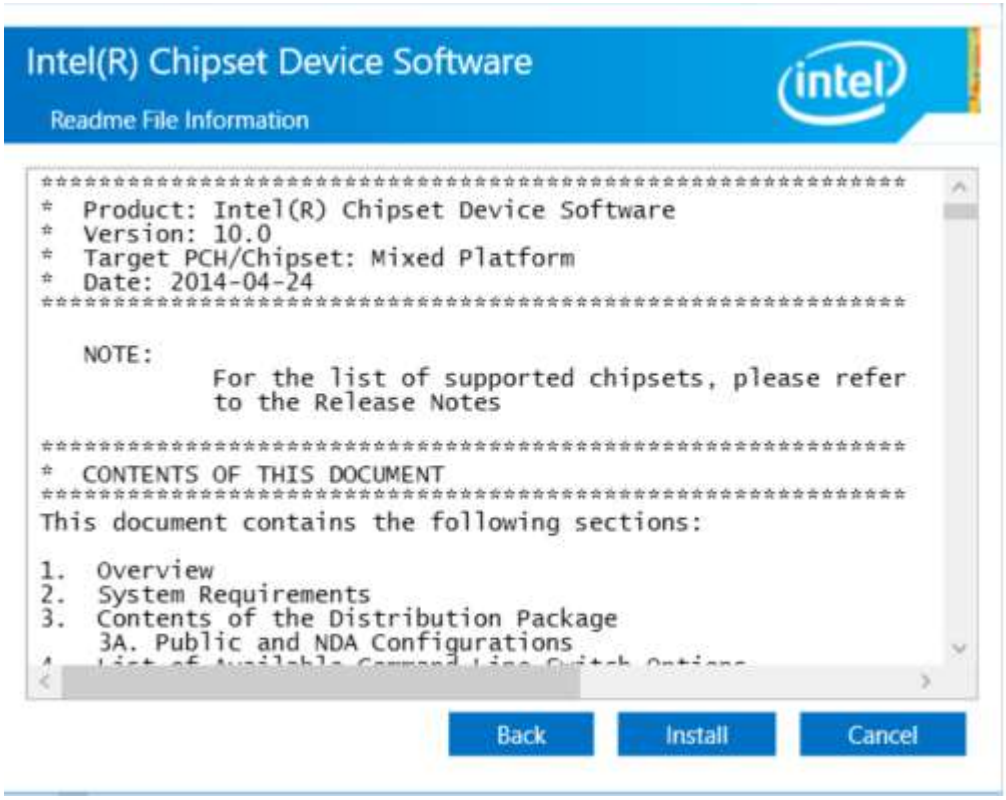
Step 1. Select **Intel (R) AtomTM SoC Chipset** from the list

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.



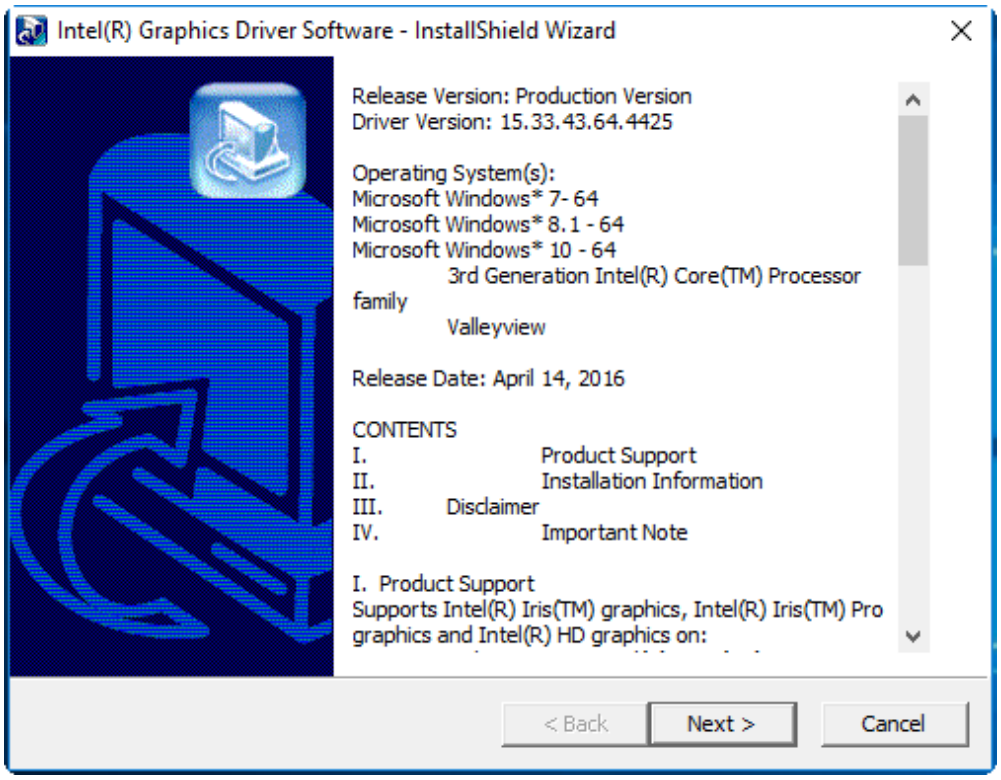
Step 5. Click **Finish** to exit the wizard.

4.2 Intel(R) VGA Chipset

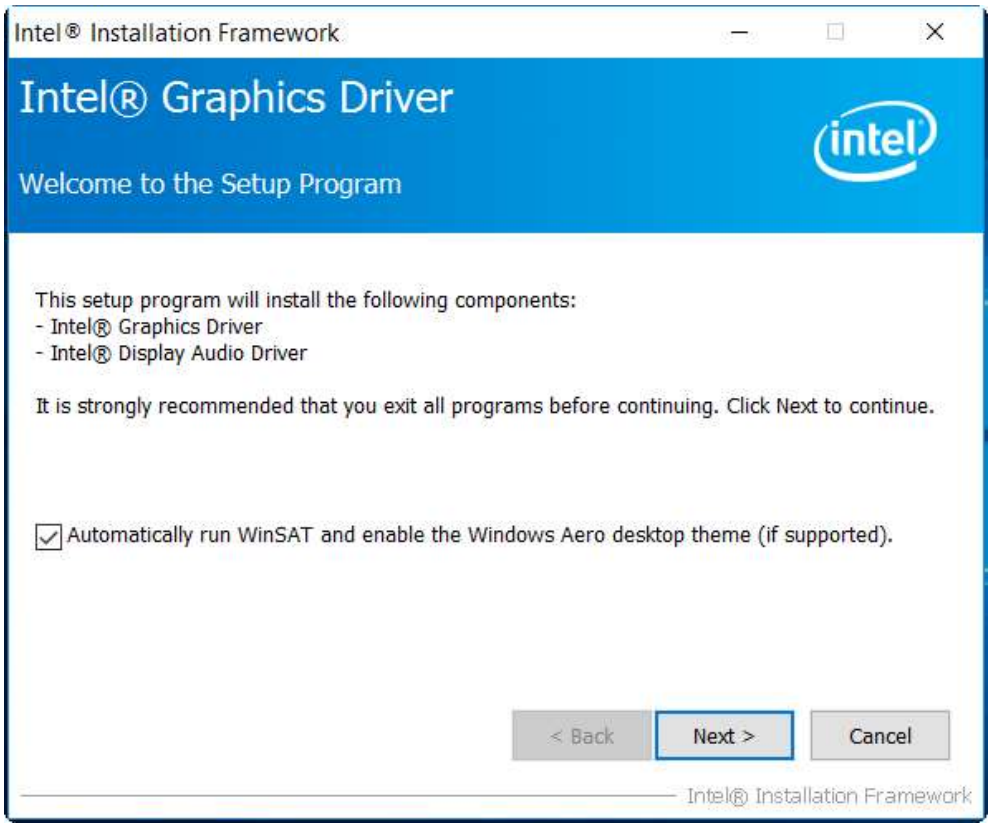
To install the Intel (R) VGA Chipset, please follow the steps below.

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

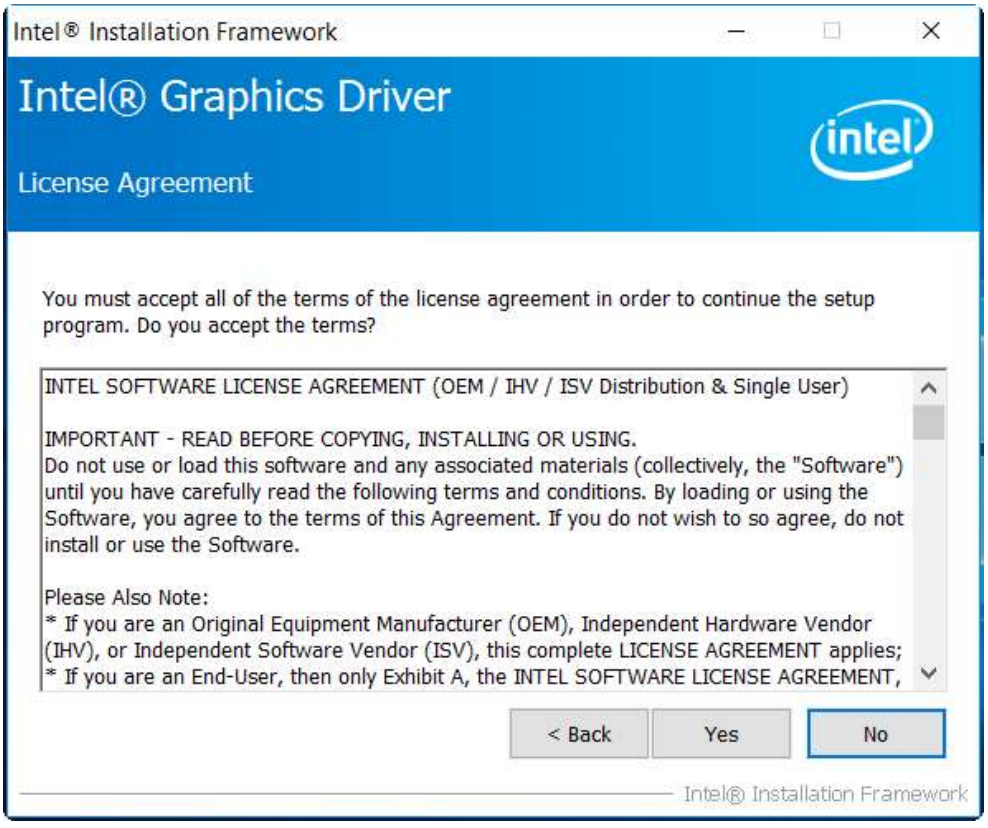
Step 2. . Click **Next.**



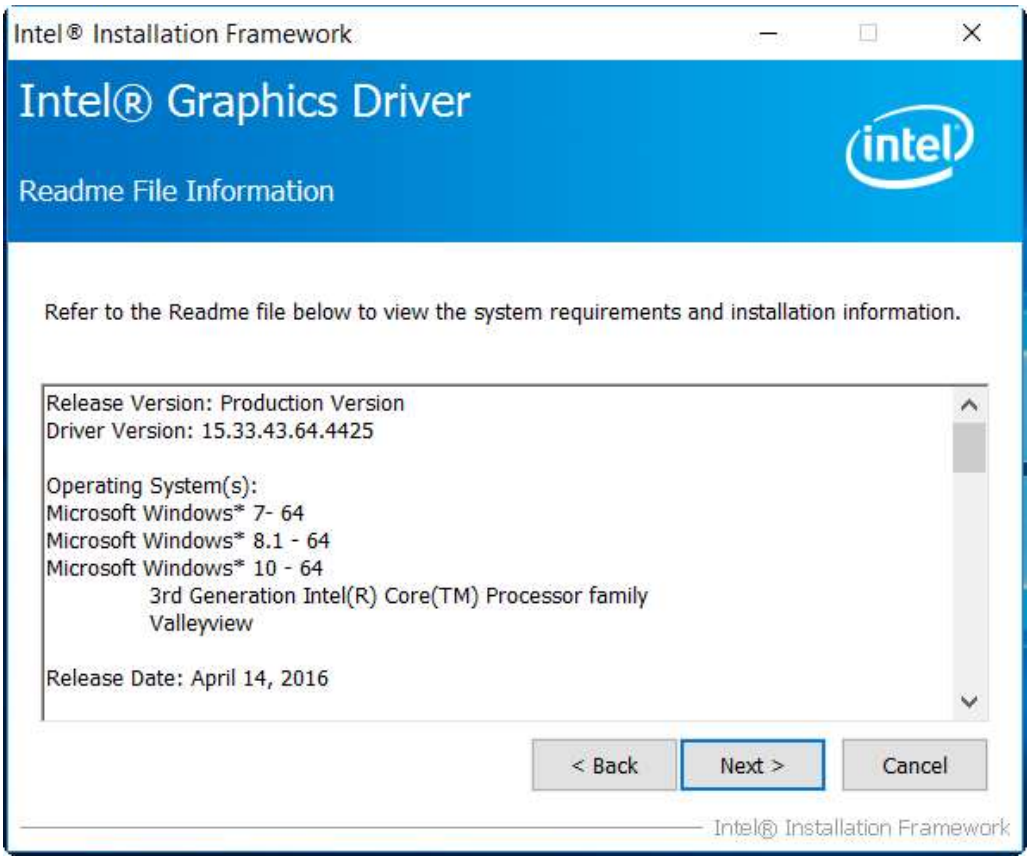
Step 3. Choose **automatically run** function and Click **Next** to setup program.



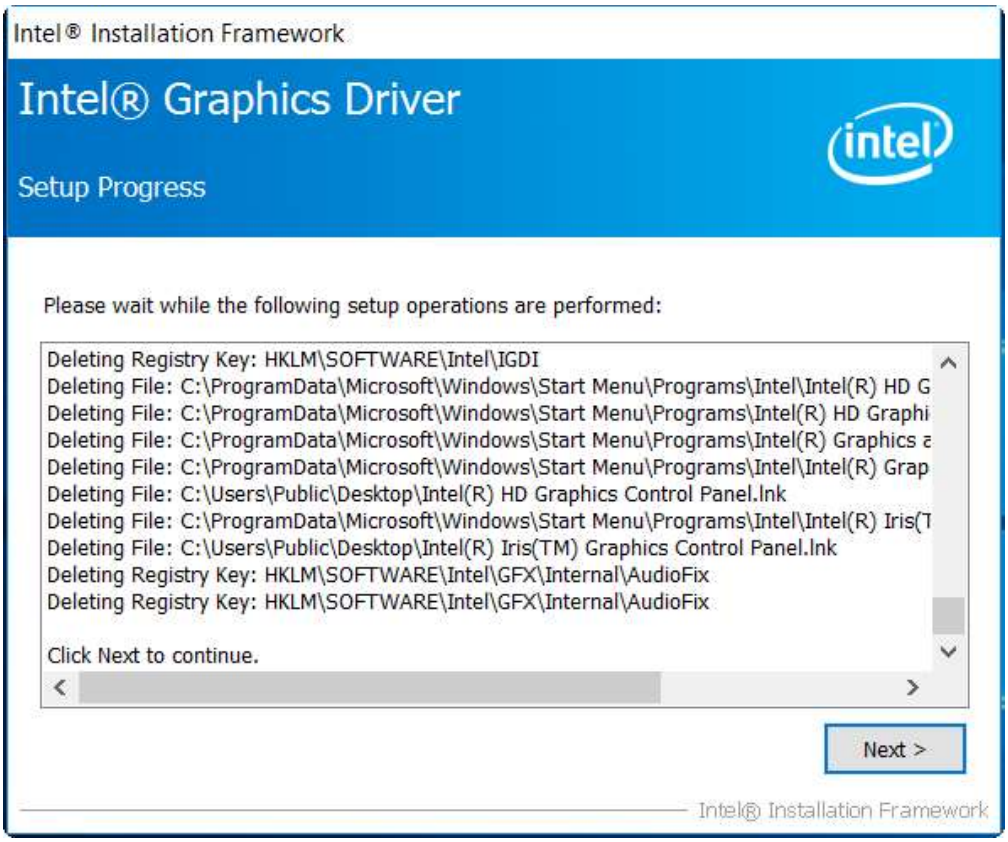
Step 4. Read the license agreement. Click **Yes** to accept all of the terms of the license agreement.



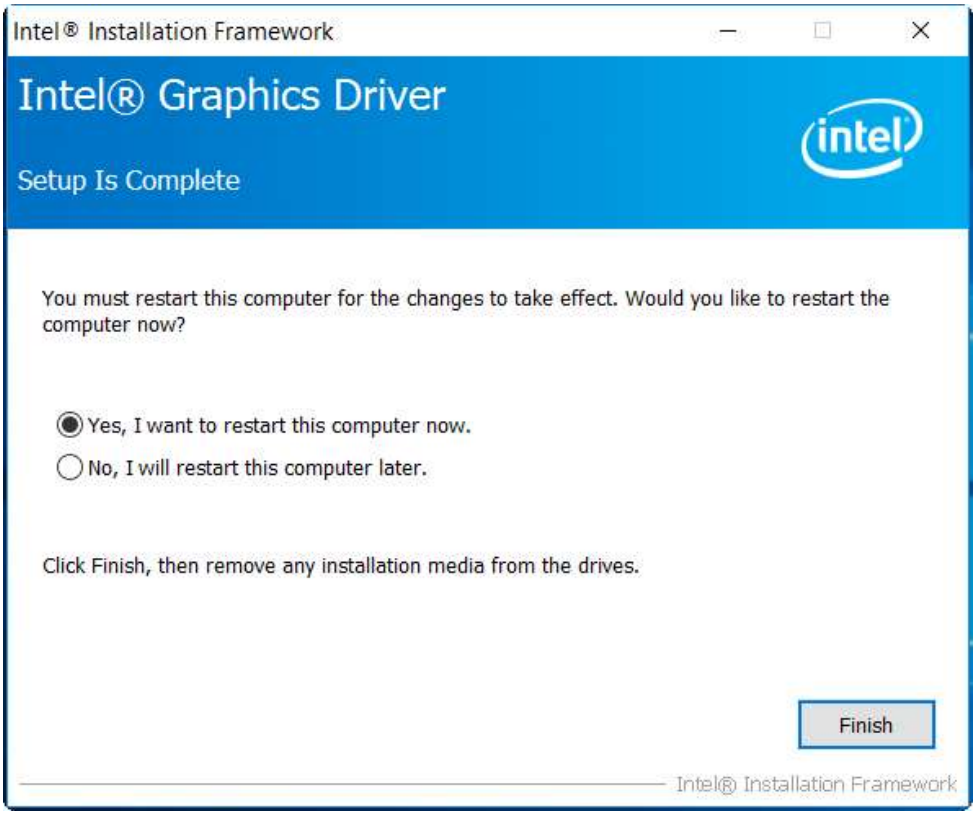
Step 5. Click **Next** to continue.



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.

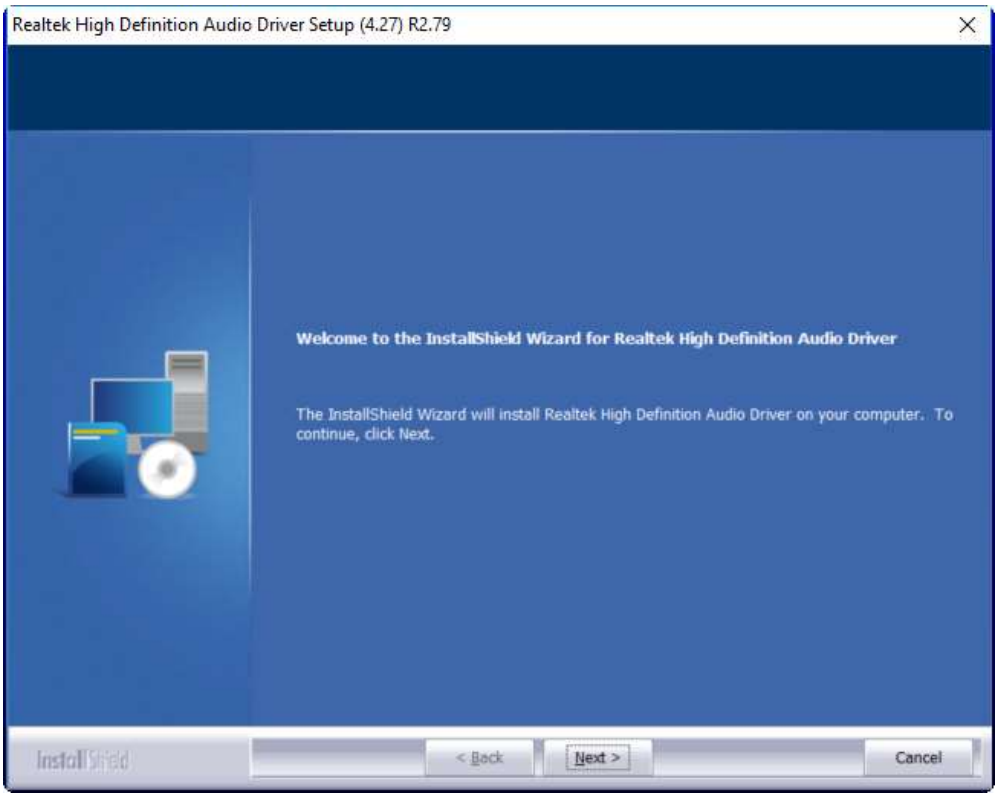


4.3 Realtek ALC662 HD Audio Driver Installation

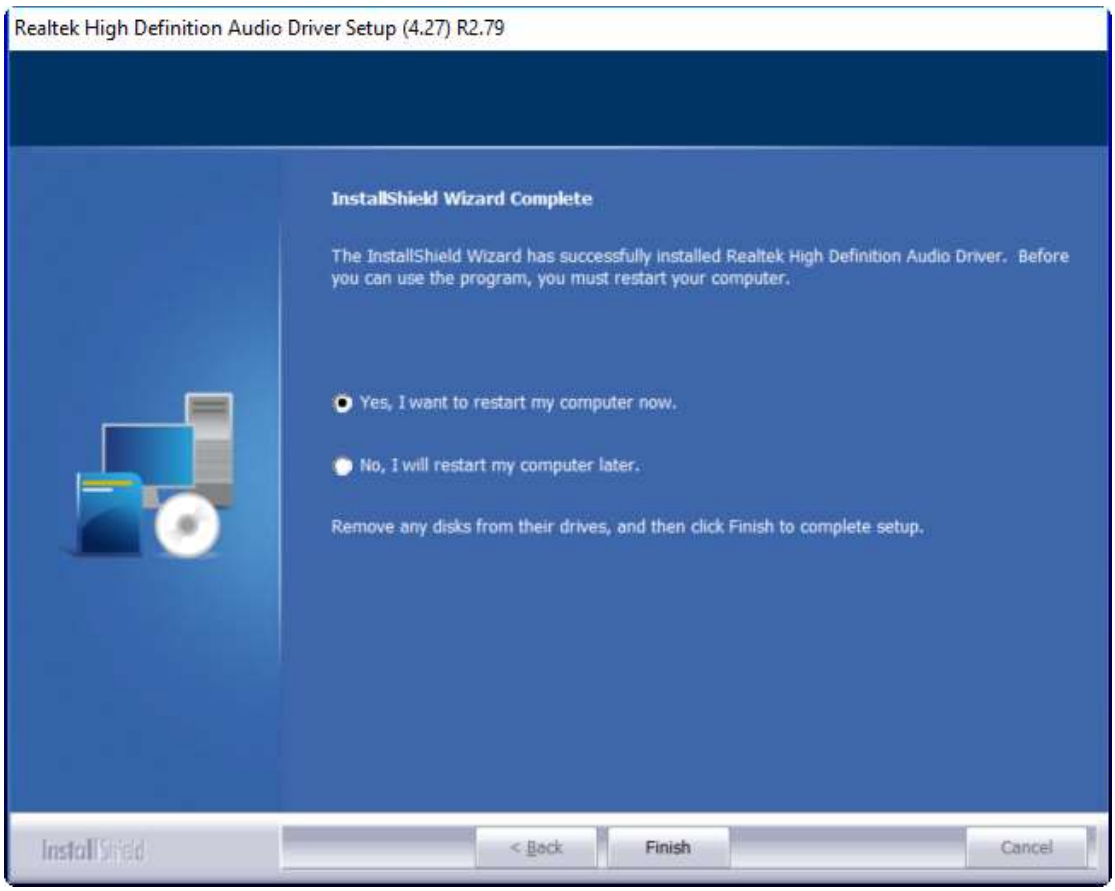
To install the Realtek ALC662 HD Audio Driver, please follow the steps below.

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.

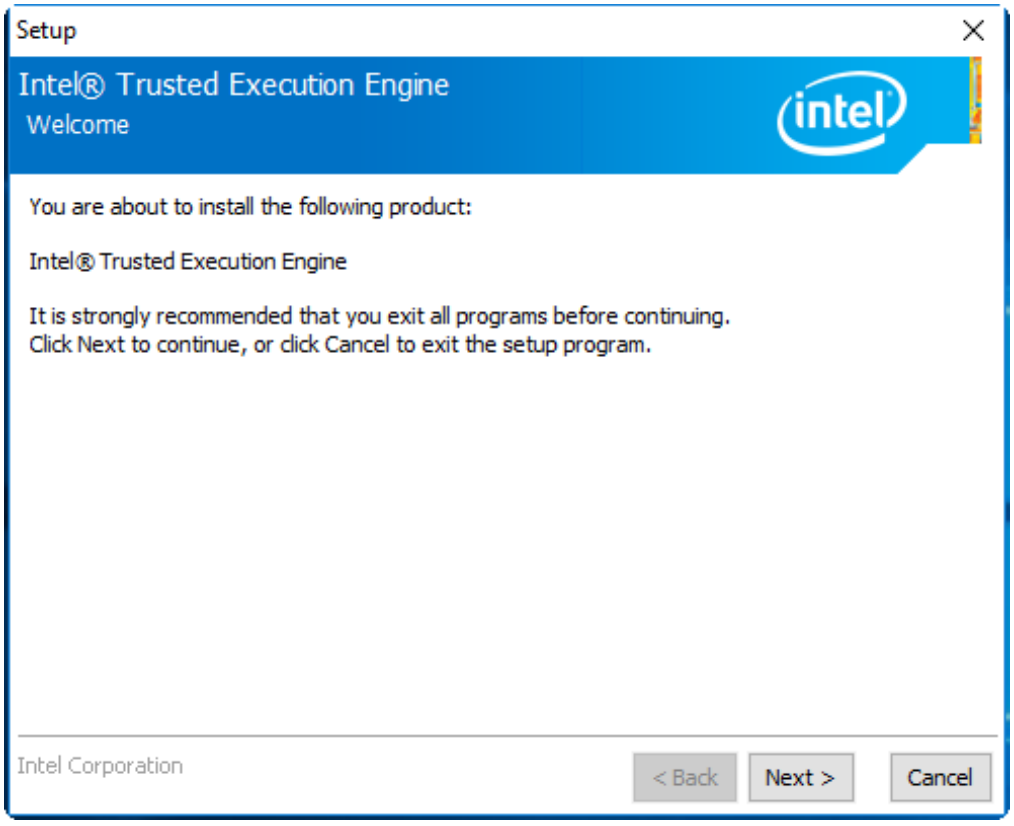


4.4 Intel_TXE(Win) Driver

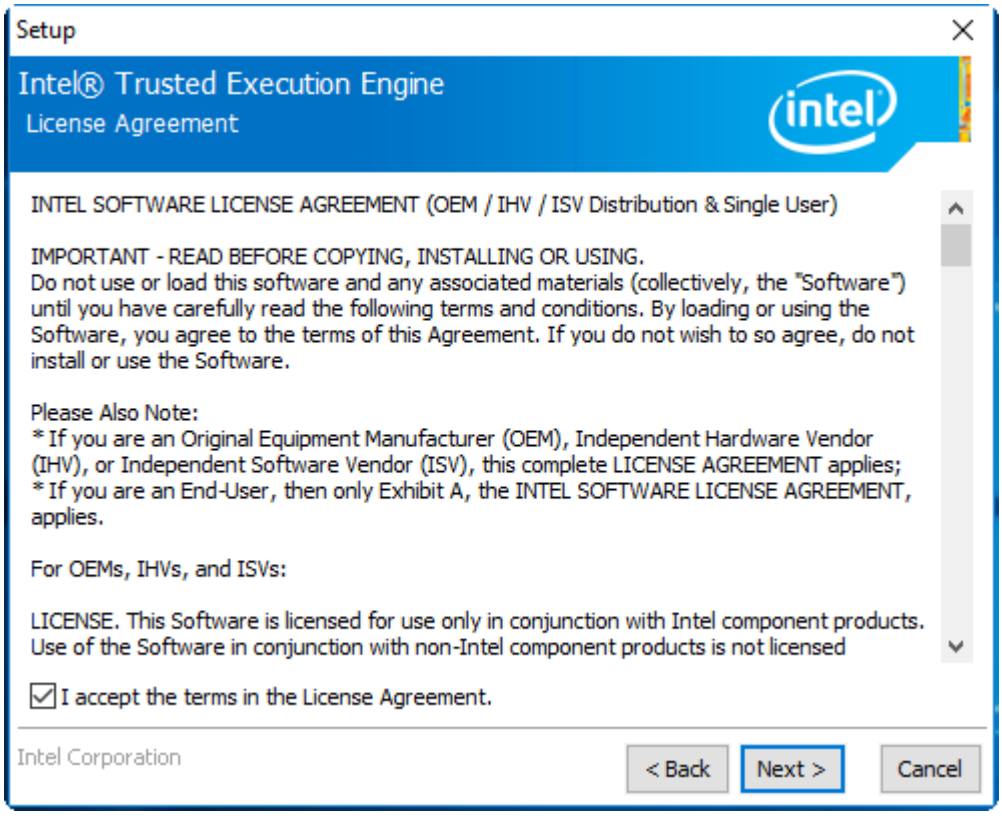
To install the Intel_TXE(Win) Driver, please follow the steps below.

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

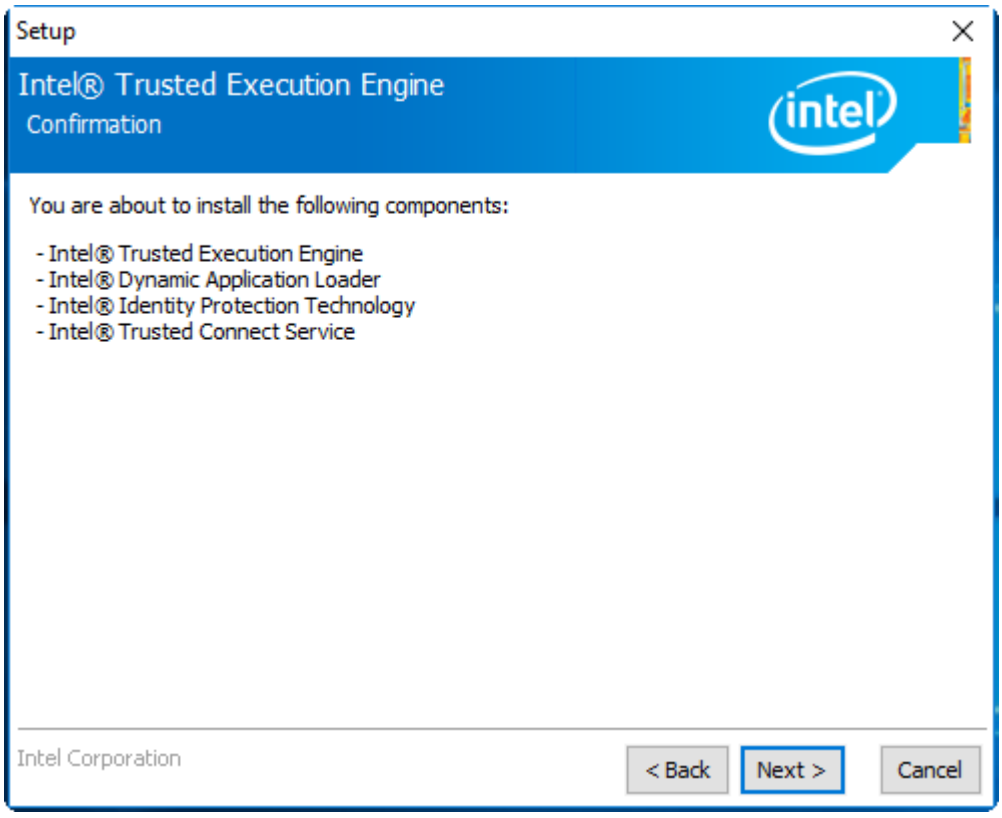
Step 2. Click **Next** to continue.



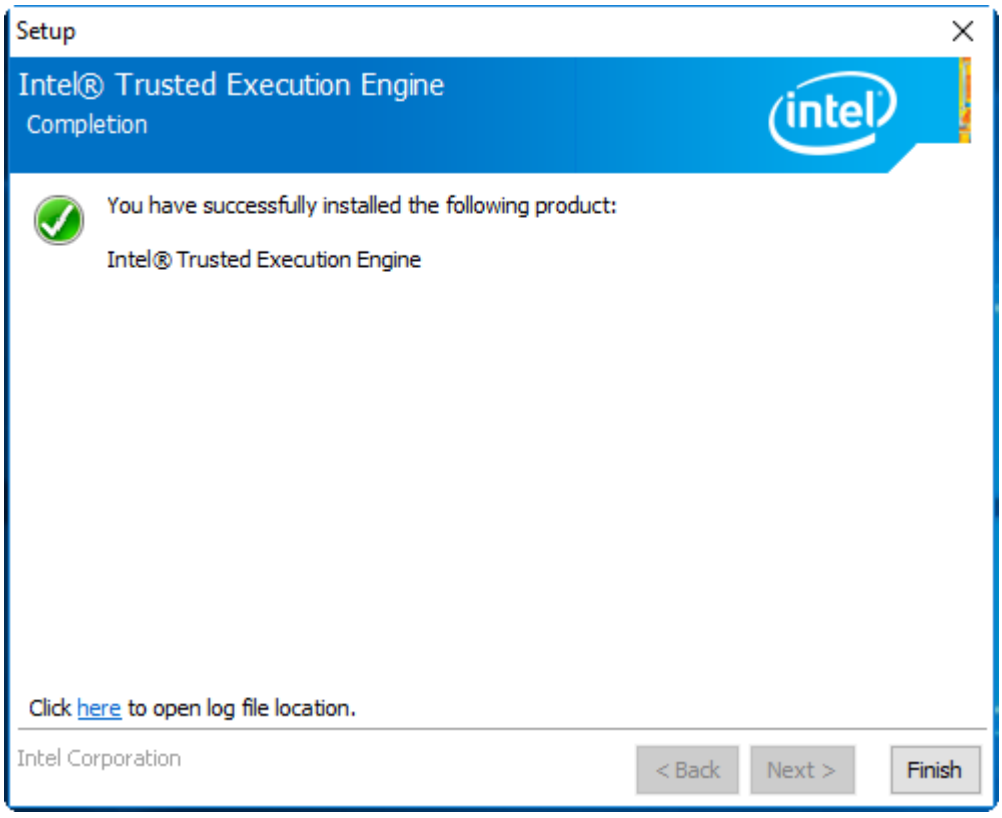
Step 3. Read the license agreement. Choose **Accept** and click **Next** to accept all of the terms of the license agreement.



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



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



Chapter 5 Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your touch screen work with different operating systems.

5.1 Windows 8.1/10 Universal Driver Installation for PenMount 6000 Series

Before installing the Windows 8.1/10 driver software, you must have the Windows 8.1/10 system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

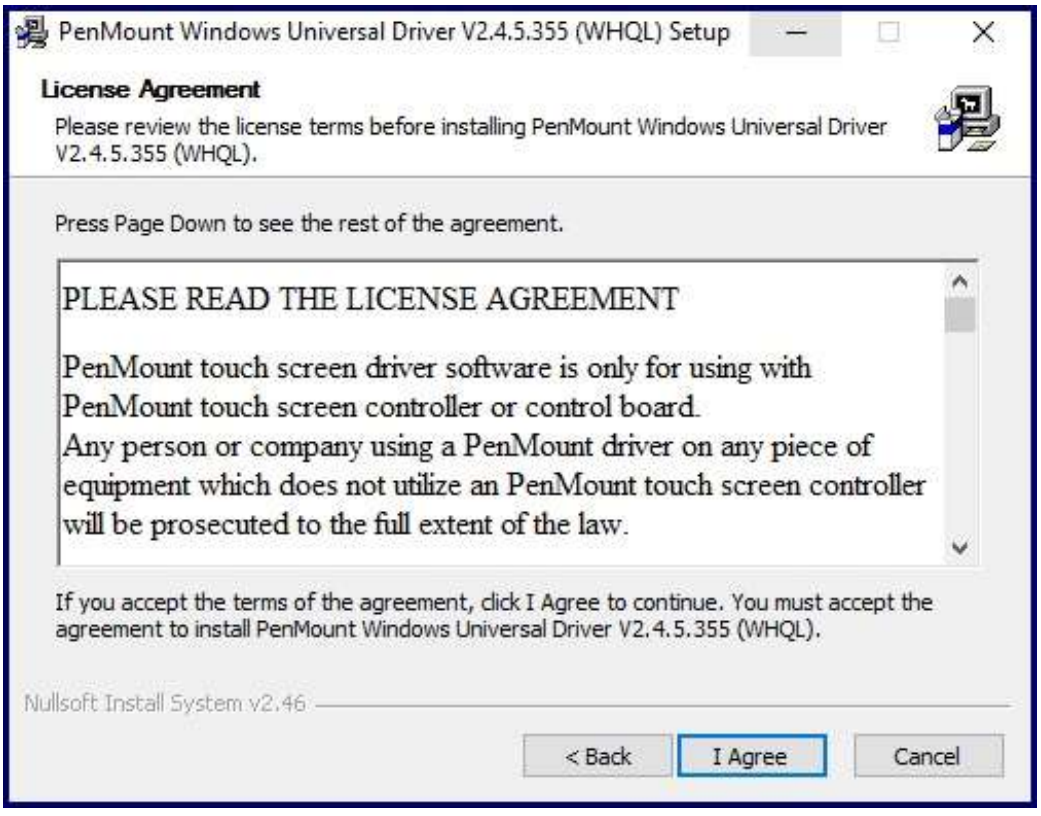
Resistive Touch

If you have an older version of the PenMount Windows 7 driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 7 driver.

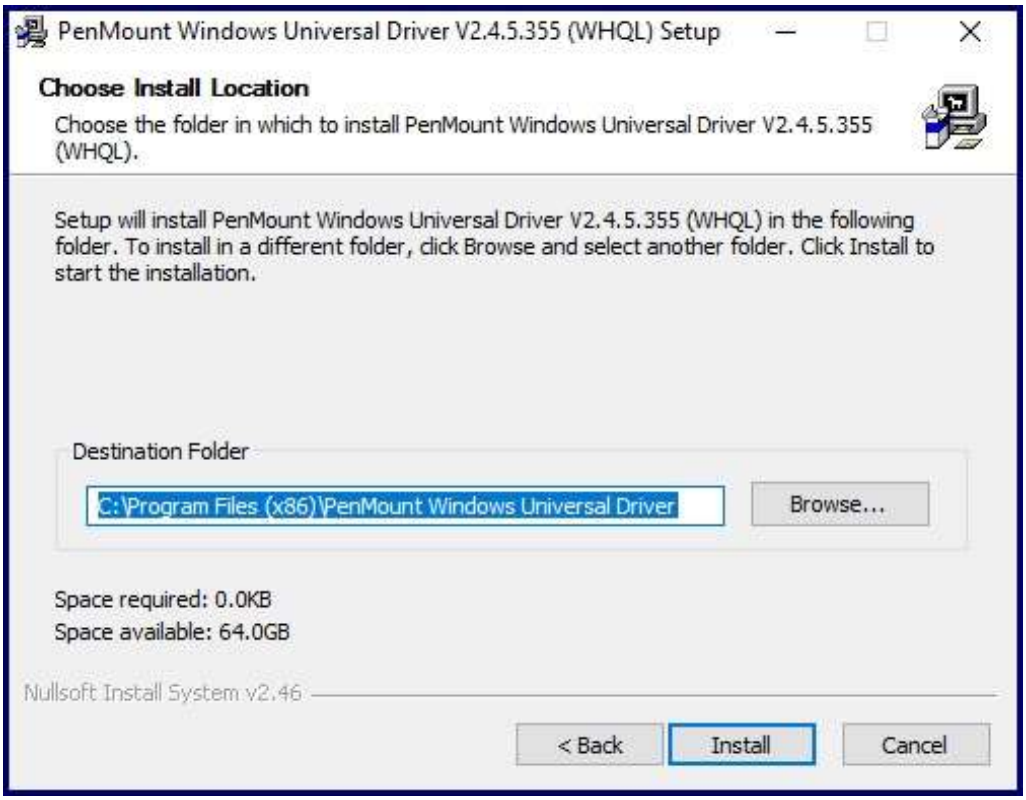
Step 1. Insert the product CD, the screen below would appear. Click **Touch Panel Driver** from the list.

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

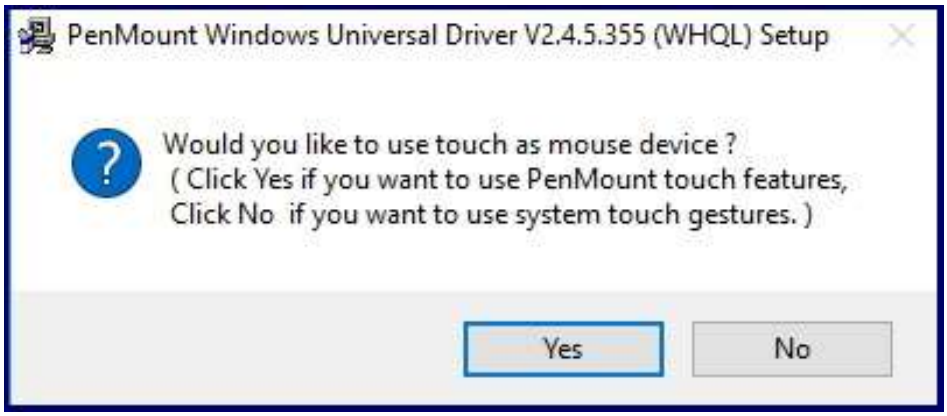
Step 4. Read the license agreement. Click **I Agree** to agree the license agreement.



Step 5. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



Step 6. Click **Yes** to continue.



Step 7. Click **Finish** to complete installation.

5.2 Software Functions

Resistive Touch

Upon rebooting, the computer automatically finds the new 6000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

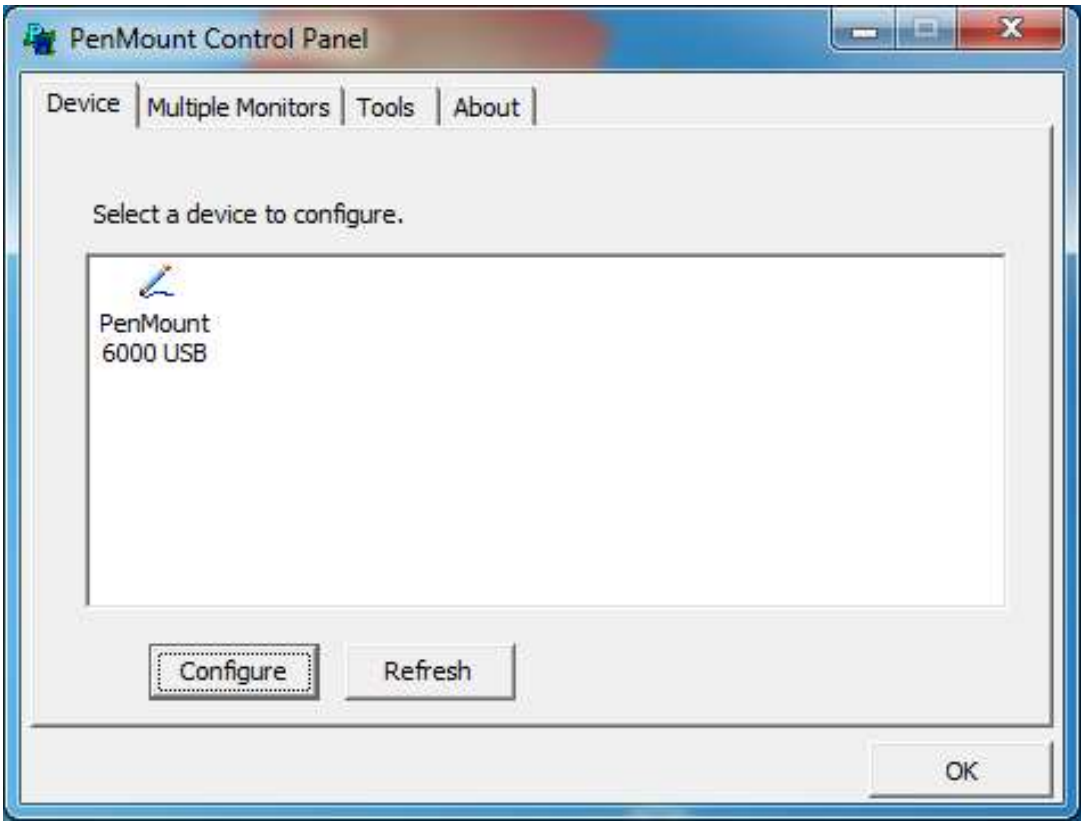
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel(Resistive Touch)

The functions of the PenMount Control Panel are **Device, Multiple Monitors** ,**Tools** and **About**, which are explained in the following sections.

Device

In this window, you can find out that how many devices be detected on your system.

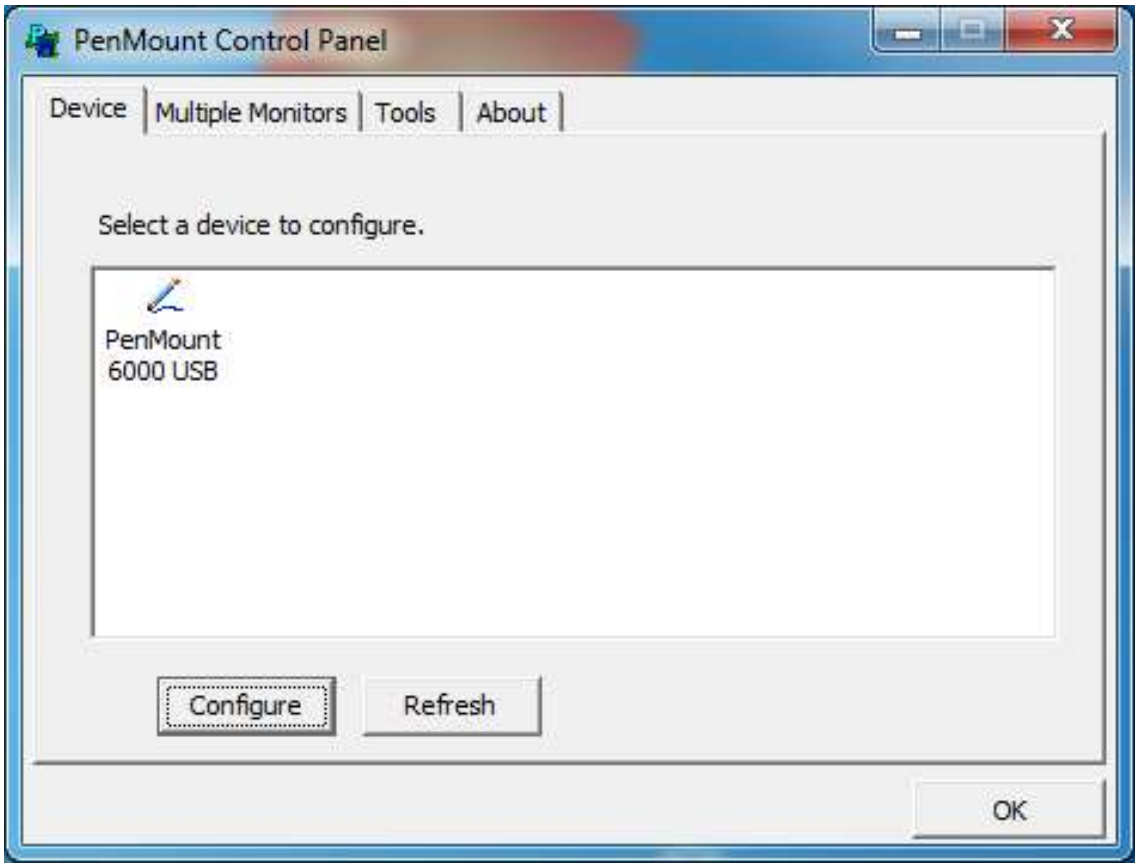


Calibrate

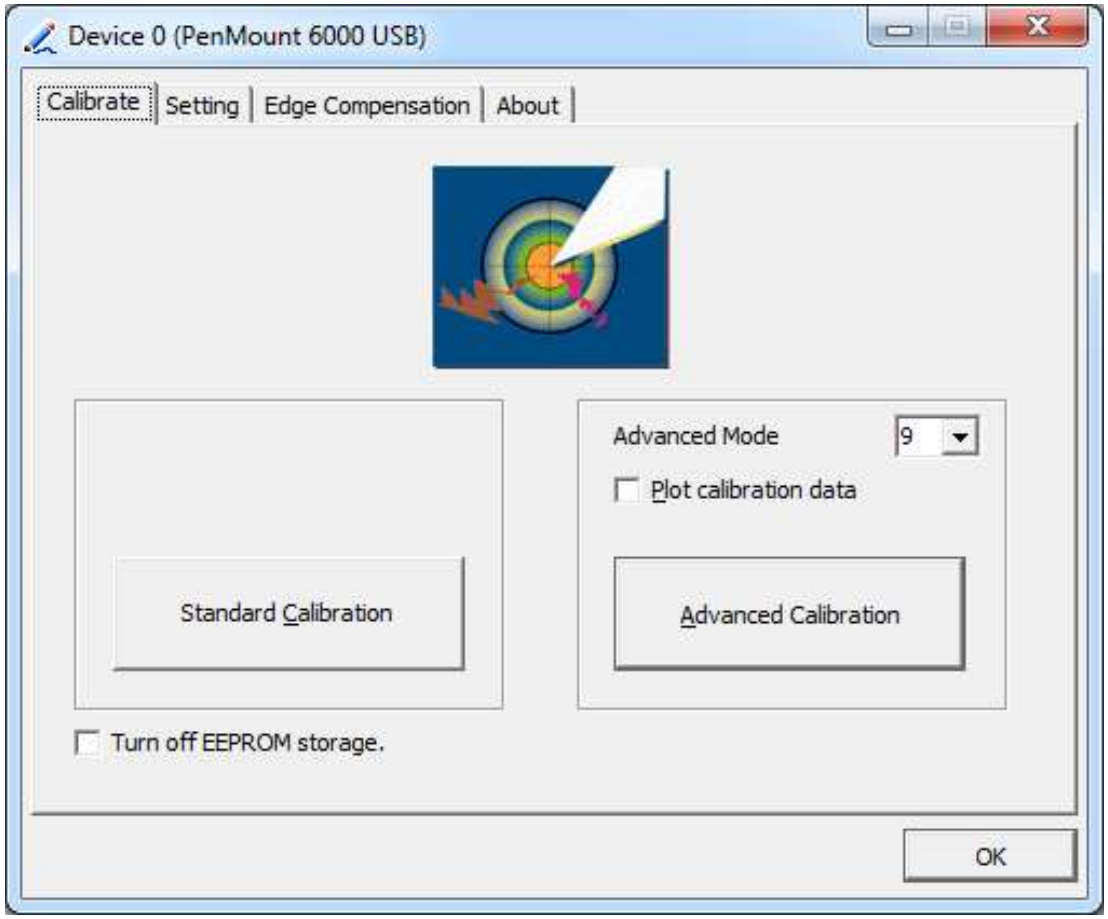
This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

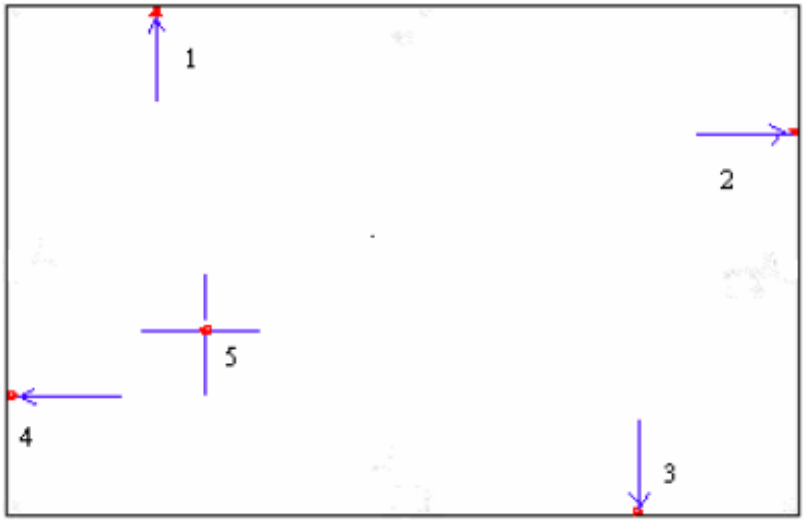
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC’.**

Step 1. Please select a device then click “Configure”. You can also double click the device too.



Step 2. Click "**Standard Calibration**" to start calibration procedure

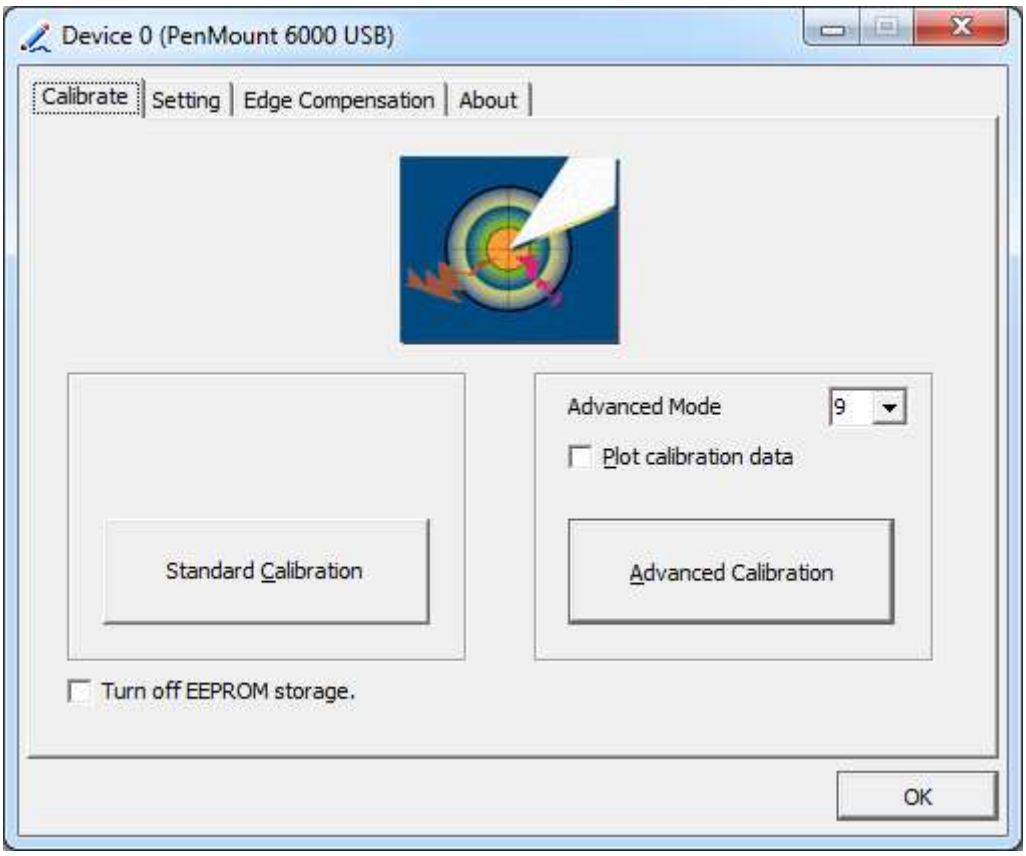




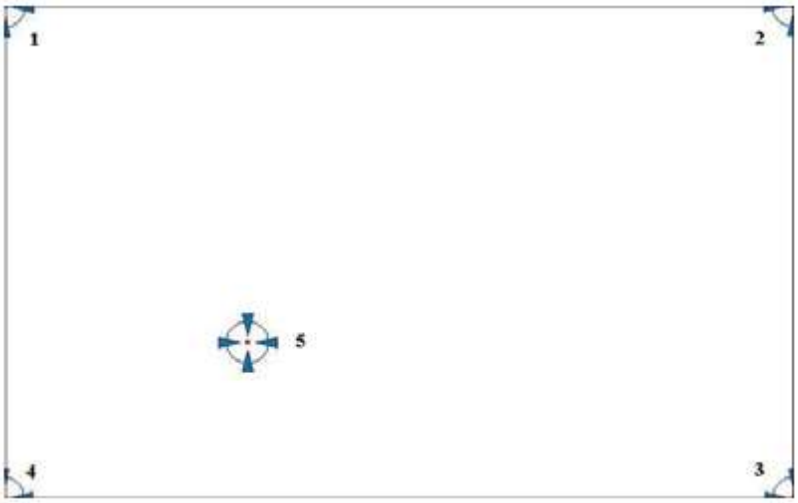
NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for

greater accuracy. Please follow the step as below:

Step 3. Select **Device** to calibrate, then you can start to do **Advanced Calibration**.



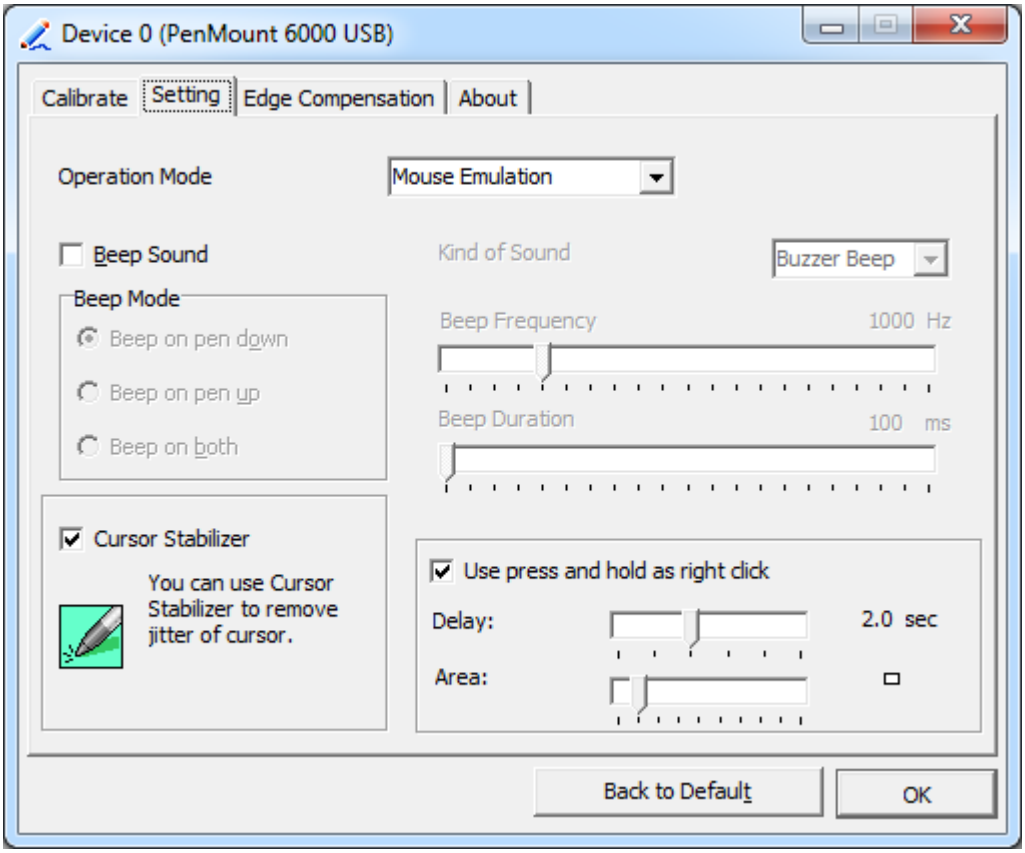
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



Plot Calibration Data	**Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after**

	calibration.
Turn off EEPROM storage	**The function disable for calibration data to write in Controller. The default setting is Enable.**

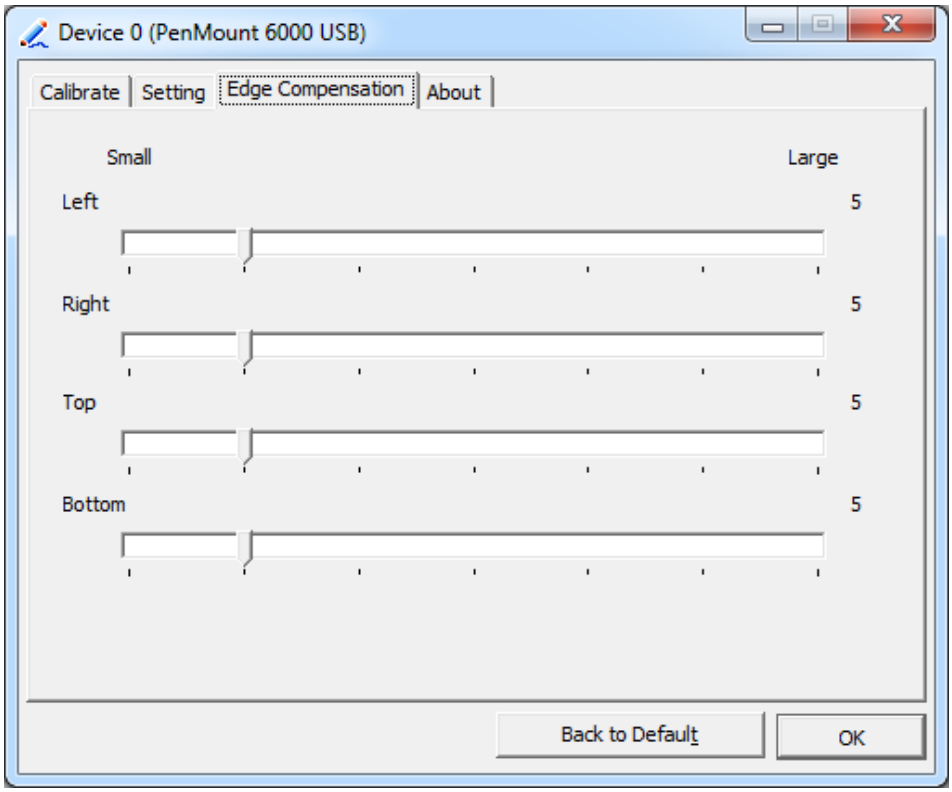
Setting



Touch Mode	**This mode enables and disables the mouse's ability to drag on-screen icons – useful for configuring POS terminals.** **Mouse Emulation – Select this mode and the mouse functions as normal and allows dragging of icons.** **Click on Touch – Select this mode and mouse only provides a click function, and dragging is disables.**
Beep Sound	**Enable Beep Sound – turns beep function on and off** **Beep on Pen Down – beep occurs when pen comes down** **Beep on Pen Up – beep occurs when pen is lifted up** **Beep on both – beep occurs when comes down and lifted up** **Beep Frequency – modifies sound frequency** **Beep Duration – modifies sound duration**
Cursor Stabilizer	**Enable the function support to prevent cursor shake.**
Use press and hold as right click	**You can set the time out and area for you need.**

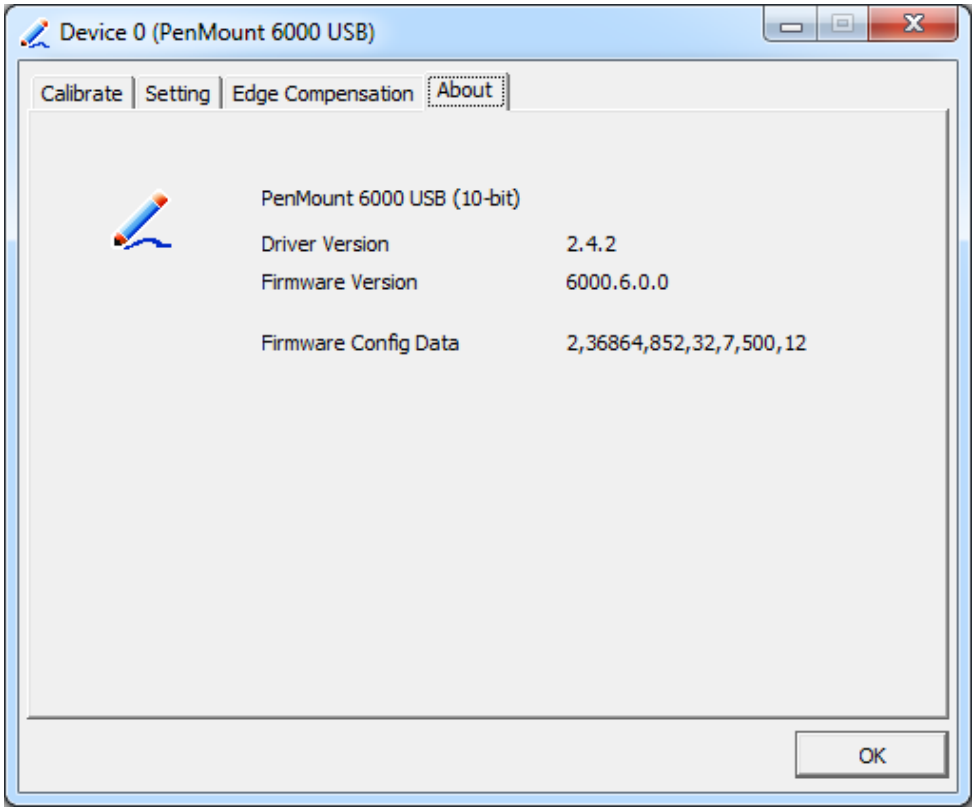
Edge Compensation

You can use Edge Compensation to calibrate more subtly.



About

This panel displays information about the PenMount controller and driver version.



Multiple Monitors

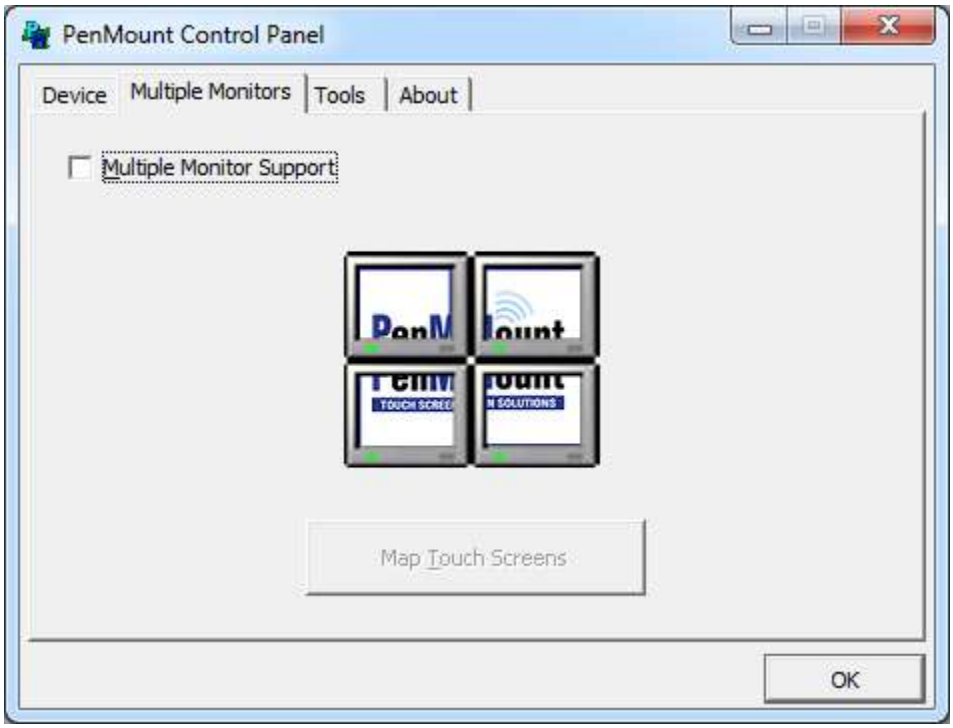
Multiple Monitors support from two to six touch screen displays for one system. The PenMount drivers for Windows 7/8/8.1 support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the USB interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors support the following modes:

Windows Extends Monitor Function
Matrox DualHead Multi-Screen Function
nVidia nView Function

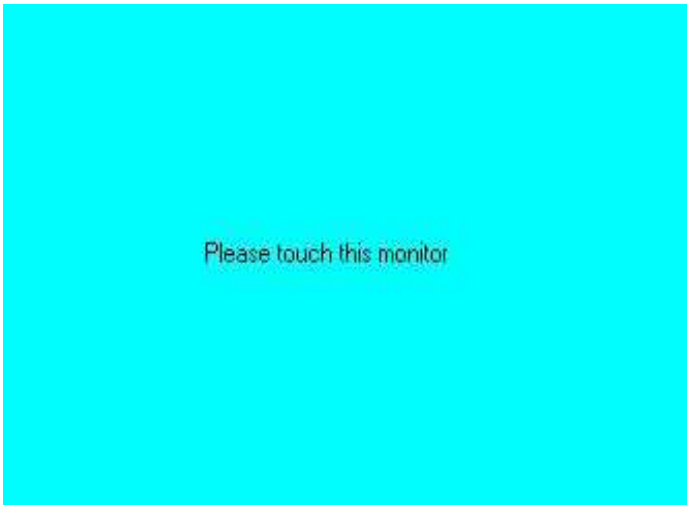
NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Enable the multiple display function as follows:

1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



2. When the mapping screen message appears, click **OK.**
3. Touch each screen as it displays “Please touch this monitor”. Following this sequence and touching each screen is called **mapping the touch screens.**



4. Touching all screens completes the mapping and the desktop reappears on the monitors.
5. Select a display and execute the “Calibration” function. A message to start calibration appears. Click **OK.**

6. “Touch this screen to start its calibration” appears on one of the screens. Touch the screen.
7. “Touch the red square” messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

NOTES:

1. If you use a single VGA output for multiple monitors, please do not use the **Multiple Monitor** function. Just follow the regular procedure for calibration on each of your desktop monitors.
2. The Rotating function is disabled if you use the Multiple Monitor function.
3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens,** so the system understands where the displays are.

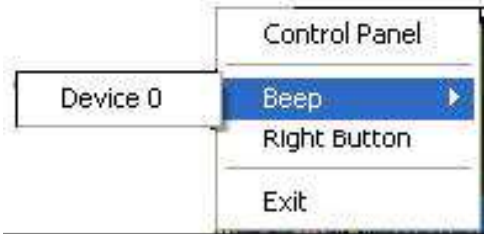
About

This panel displays information about the PenMount controller and this driver version.

PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 7/8/8.1 system when you turn on PenMount Monitor in PenMount Utilities.

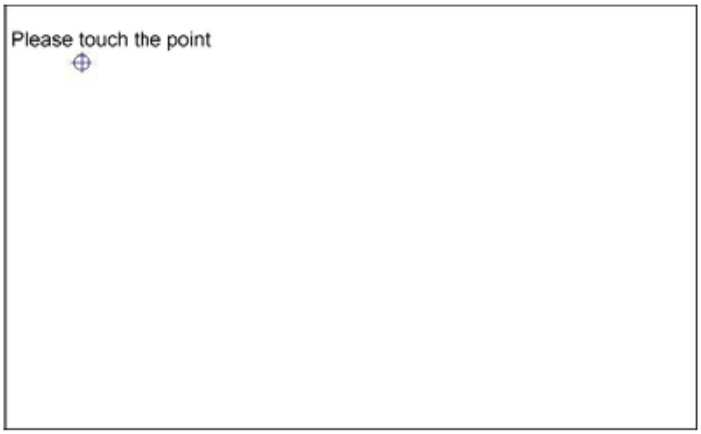
PenMount Monitor has the following function



Control Panel	**Open Control Panel Windows**
Beep	**Setting Beep function for each device**
Right Button	**When you select this function, a mouse icon appears in the right-bottom of the screen.**  **Click this icon to switch between Right and Left Button functions.**
Exit	**Exits the PenMount Monitor function.**

Configuring the Rotate Function

1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



NOTE: The Rotate function is disabled if you use Monitor Mapping