Stainless steel PC PVS series

Celeron J1900

VESA – desktop resistive and capacitive touchscreen

User's manual

Version 3.9

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Chapter 3: Installation and wiring

Chapter 4: Hardware upgrade

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Chapter 1: Preface

1.1 Safety rules

All the PC PVS series have been designed and built taking into account all the issues associated with an industrial environment such as that where it is necessary to ensure the operation of the system in the presence of vibration, moisture, dust and critical heat conditions.
Only skilled staff must make any job on the device, only after having fully read and understood the safety instructions.
Before installing and using the device, note the following precautions:

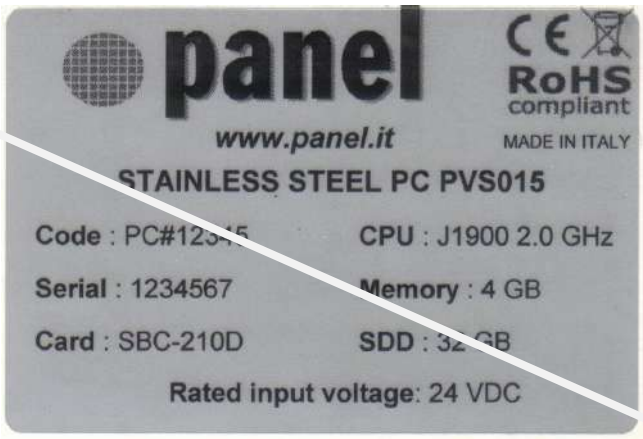
- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- To prevent electrical shock or equipment damage, unplug the power cord from the power supply prior to installing or wiring the PC.
- Do not disassemble or modify the Panel PC. Doing so may cause a fire or an electric shock.
- All tasks such as the installation, commissioning and servicing of devices are only permitted to be carried out by qualified personnel. Qualified personnel are those familiar with the transport, mounting, installation, commissioning and operation of devices who also have the appropriate qualifications. National accident prevention regulations must be observed.

1.2 Product checking

Preliminary operations to be made as soon as you receive the PANEL product:

- Check if the packing hasn't undergone any damage due to transport.
- Verify if the packing contents correspond to the delivery note.

The product model, code and serial number are shown on the identification plate which is positioned on the rear.



If serious damages or inconsistency are found between the packing contents and the delivery note, please contact the PANEL SRL sales department immediately.
It's advisable to keep the original packing in order to use it for possible transports back in assistance.

1.3 Package contents

The following items are included in the PVS unit's package. Before using the PVS, please check that all items listed.

PVS DC power supply
Qty 1 VESA Mount PVS
Qty 1 Recovery DVD
Qty 1 Supply connector
Qty * Signal connector

PVS AC power supply
Qty 1 VESA Mount PVS
Qty 1 Recovery DVD
Qty 1 Supply connector
Qty * Signal connector

*The quantity of signal connectors depend by I/O configuration

1.4 Declaration of conformity

CE Mark, product complies with all applicable directives and their harmonized EN standards.

CE

Doc. Int. Panel: 29102014

The products herewith complies to the requirements of:
- Low voltage directive 2006/95/EC
- EMC Directive 2004/108/EC
- RoHS Directive 2011/65/EU
- Carries CE marking

- EMC: EN 55022:2010 Class B
- EMC: EN 55024:2010 Class B
- LVD: EN 60950-1:2006+A11:2009+A1:2010+A12:2011
- LVD: EN 62311:2015
- LVD: EN 62479:2010

- RoHS EN 50581:2012

- Energy Use: Regulation (EC) no. 617/2013
- Energy Use: Regulation (EC) EN 62623:2013

1.5 Warranty and RMA

Panel manufactures new products that are in accordance with industry standard. Panel warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by Panel.
PANEL will engage to repair or eventually replace, at its discretion, the whole device or its components, which show construction defects or malfunction if these are pointed out in writing during the warranty period.
The warranty is limited to the repairing of the defective product at our headquarters or, according to PANEL indisputable judgment, to the replacement of the product itself.
The product under warranty must reach our headquarters equipped with the indication of the anomaly found and with the relevant authorization number (RMA form). PANEL, doesn't carry out any repair of products if this has not been previously authorized by the company itself.
The transport charges must be borne by the customer.
Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems at Panel RMA Service.
Contact Panel service at: ute@panel.it

1.6 Technical Support and Assistance

About technical support and assistance, visit Panel's website at www.panel.it

Chapter 2: Technical data

2.1 Introduction

Stainless steel Industrial PC totally waterproof and dustproof, IP67 protection grade, ideal for food, pharmaceuthical, marine applications and wherever an high hygienic protection grade is required.
The PVS series is totally Fanless.

2.2 Products specifications

Models		PVS015	PVS017		
Technology construction		Resistive touchscreen			
Display size		15"	17"		
Resolution		1024x768	1280x1024		
Brightness		500 cd/m²	350 cd/m²		
Contrast		1500:1	1000:1		
Max colors		16.7 millions	16.7 millions		
Touchscreen		Five wires resistive			
FM board J1900	**Chipset**	Intel Bay trail			
	CPU	Celeron Quad Core J1900 2.0 GHz			
	RAM	up to 8GB DDR3L DDR3L sodimm 1600 MHz			
	I/O ports	1x RS232 1x RS232/422/485	1x VGA 4x USB 2.0	2x Gigabit LAN 2x USB 3.0	1x HDMI 1x line out
	Expansions	1x Mini PCI-E full size		1x Mini PCI-E half size	
Storage	**C-Fast cards**	-------			
	SSD	32, 64, 128, 256 GB size: 2.5”			
Operating system	**Full**	Windows 7 Professional / Ultimate, 8.1, 10 LTSB 2016, Linux			
	Embedded	Windows 7 Embedded, Windows 8.1 Industry Pro			
Mounting		Desktop or VESA 100 mount			
Protection grade		IP 67			
Dimensions (WxHxD) mm		412x335x70	457x387x70		
Weight		6,7 Kg	7 Kg		
Rated input voltage		24 VDC		110 – 230 VAC	
Input voltage limits		9…..36 VDC		90…..264 VAC	
Typical Power		23 W	28 W		
Operating Temperature		0° ÷ 50 °C			
Cooling Type		Fanless			
Conformity		CE			

Models		PVS015	PVS017	PVS024	
Technology construction		Capacitive touchscreen			
Display size		15"	17"	24"	
Resolution		1024x768	1280x1024	1920x1080	
Brightness		500 cd/m²	350 cd/m²	300 cd/m²	
Contrast		1500:1	1000:1	5000:1	
Max colors		16.7 millions	16.7 millions	16.7 millions	
Touchscreen		Projected capacitive			
FM board J1900	**Chipset**	Intel Bay trail			
	CPU	Celeron Quad Core J1900 2.0 GHz			
	RAM	up to 8GB DDR3L DDR3L sodimm 1600 MHz			
	I/O ports	1x RS232 1x RS232/422/485	1x VGA 4x USB 2.0	2x Gigabit LAN 2x USB 3.0	1x HDMI 1x line out
	Expansions	1x Mini PCI-E full size		1x Mini PCI-E half size	
Storage	**C-Fast cards**	-------			
	SSD	32, 64, 128, 256 GB full size			
Operating system	**Full**	Windows 7 Professional / Ultimate, 8.1, 10 LTSB 2016, Linux			
	Embedded	Windows 7 Embedded, Windows 8.1 Industry Pro			
Mounting		Desktop or VESA 100 mount			
Protection grade		IP 67			
Dimensions (WxHxD) mm		412x335x70	457x387x70	672x439x72	
Weight		6,7 Kg	7 Kg	10 Kg	
Rated input voltage		24 VDC		110 – 230 VAC	
Input voltage limits		9…..36 VDC		90…..264 VAC	
Typical Power		23 W	27 W	40 W	
Operating Temperature		0° ÷ 50 °C			
Cooling Type		Fanless			
Conformity		CE			

2.3 Resistive touchscreen specifications

Scope: The specification is for Five-Wire Analog Resistive touch panel.

Features
(1) Type: Five-Wire Analog Resistive
(2) Input Mode: Stylus or Finger

Environmental Characteristics
(1) Operation temperature: -10 °C ~ +70 °C; Humidity 20% RH ~ 80% RH Non Condensing
(2) Storage temperature: -40 °C ~ +80 °C; Humidity 10% RH ~ 85% RH Non Condensing

Optical Characteristics
Transparency: 80% ± 3% (Measured by BYK-Gardner)
Haze: 8% ± 3%

Electrical Characteristics
Loop resistance: X:20~500Ω, Y:20 ~ 500Ω
Linearity: X≦1.5%, Y≦1.5%
Chattering: ≦15ms
Insulation: ≧20 MΩ/25V (DC)
Endurance: No acting damage at DC 50V/60 sec.

Mechanical Characteristics
Operating force specifications: Stylus=R0.8; Condition: ≦50g
Impact: 3.0 mm DIA. Steel Ball/9g Height=30 cm
Static Load: 500g within 10cm² area for 30 sec
Hardness: 3H pencil, pressure 1N/45°
Speeling: 800g by vertical 90°

Reliability
High temperature /Humidity: 70 °C /90% RH, 500 hrs, normal environment for 4 hrs
High temperature: 70 °C / 500 hrs allow panel stays in normal environment for 4 hrs
Low temperature: -40 °C / 500 hrs allow panel stays in normal environment for 4 hrs
Thermal Cycle: -40 °C ~70 ℃ [60 min./cycle] *100 cycles normal environment for 4 hrs

Durability
Knock Test: 35,000,000 times

5-Wire USB Touch Panel Controller

Power Requirements: D.C.+5V (100mA typical,50mV peak to peak maximum ripple and noise)
Operating Temperature: -25 to 85 ℃
Storage Temperature: -25 to 85 ℃
Relative Humidity: 95% at 60 ℃, RH Non-condensing
Interface: USB: 1.1 Full Speed
Resolution: 2048x2048 resolution
Report rate: USB: Max. 200 points/sec
Response time: Max. 20 ms
MTBF: 200,000 hrs

2.4 Capacitive touchscreen specifications

Scope: The specification is for projected capacitive touchscreen

Features
Type: Projected capacitive
Input Mode: Finger

Environmental Characteristics
Operation temperature: -20 °C ~ +70 °C; Humidity 20% RH ~ 85% RH Non Condensing
Storage temperature: -40 °C ~ +80 °C; Humidity 10% RH ~ 90% RH Non Condensing

Optical Characteristics
Transparency: 90% ± 3% (Measured by BYK-Gardner)
Haze: < 2%

Electrical Characteristics
Linearity: X≦1.0%, Y≦1.0%
Insulation: ≧100MΩ/25V(DC)
Response: According to Integration time of controller

Mechanical Characteristics
Total Thickness: 2.45±0.30 mm
Operating force specifications: Finger=≦10g
Impact: 25.0 mm DIA. Steel Ball/67g, height=30 cm, 1 time, impact at center area
Static Load: 5000g within 10cm area for 30 sec
Hardness: 7H pencil, pressure 750g/45°
Tail peeling: 800g/cm by vertical 90° for 30sec

Reliability
Constant temperature /Humidity: 70°C X 90%RH, 120 hrs and normalized for 4 hrs
Heat cycle: 70°C /120 hrs and normalized for 4 hrs
Cold cycle: -40°C /120 hrs and normalized for 4 hrs
Thermal Cycle: -40°C ~80℃ [60 min./cycle] *10 cycles and normalized for 4 hrs

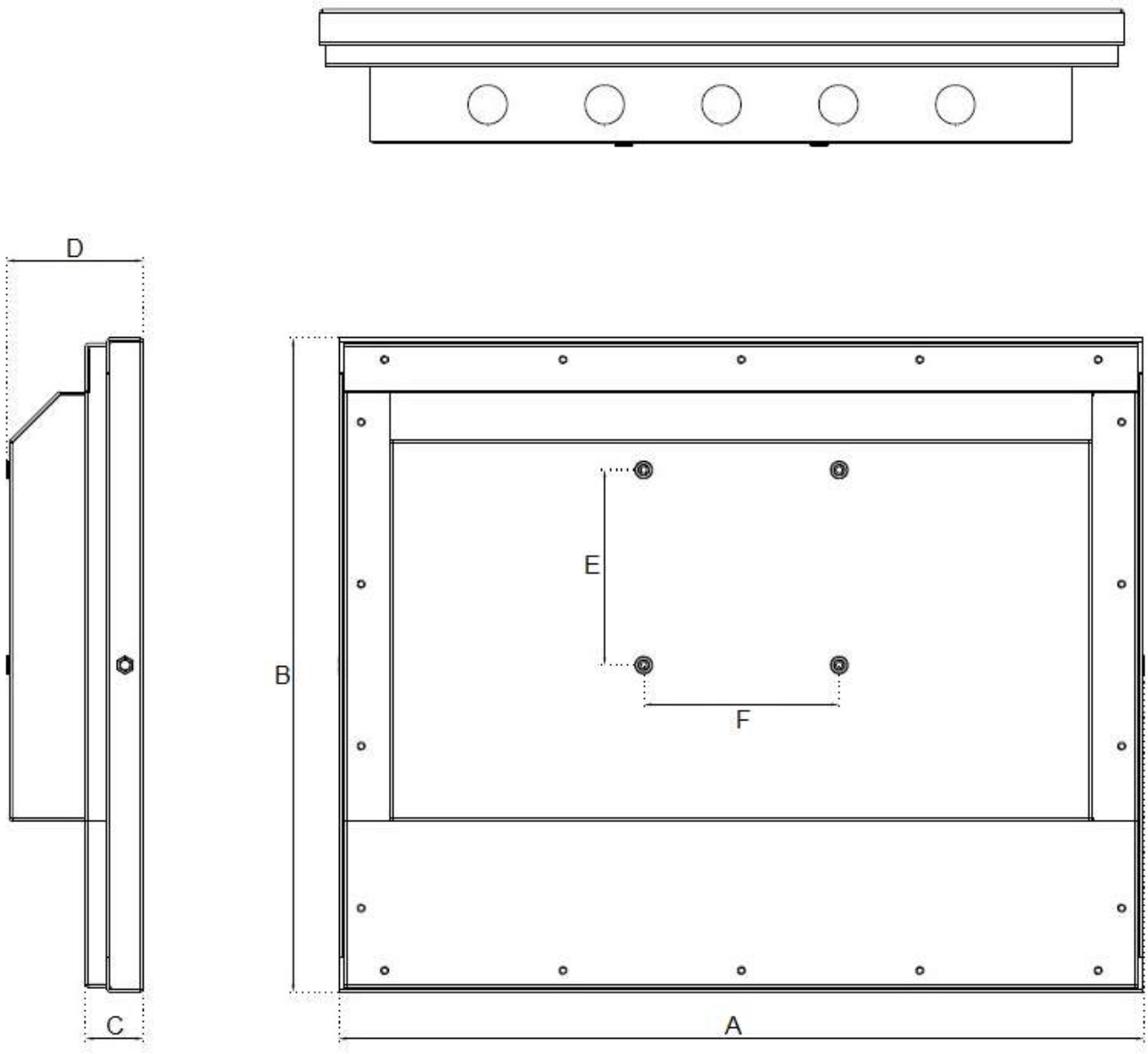
Durability
Knock Test: 100,000,000 times

Projected capacitive touch controller

Tecnology: allow 10 finger multi-touch
Power Requirements: 3.5V~5.5V typical 5V, 100mA max.
Operating Temperature: -25 to 85 ℃
Storage Temperature: -25 to 85 ℃
Relative Humidity: 95% at 60 ℃, RH Non-condensing
Interface: USB: 1.1 Full Speed
Resolution: 4096×4096 resolution
Report rate: USB: Max. 100 points/sec
Response time: Max. 25 ms
MTBF: 200,000 hrs

2.5 Mechanical dimensions

PVS VESA 100 display unit



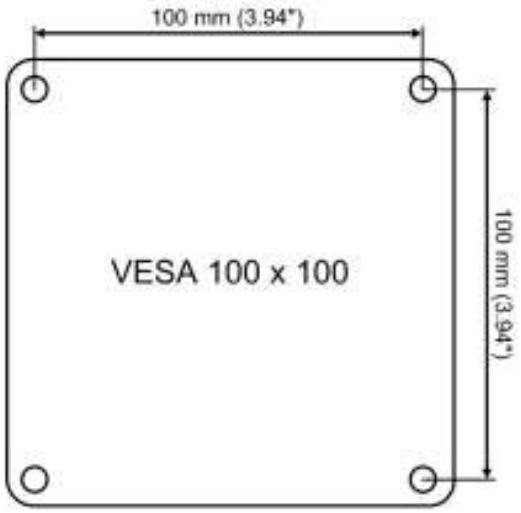
All dimensions are specified in mm

Display size	Model	A	B	C	D	E	F
15.0" resistive or capacitive touch	PVS015	412	335	30	70	100	100
17.0" resistive or capacitive touch	PVS017	457	387	30	70	100	100
24.0" resistive or capacitive touch	PVS024	672	439	33	72	100	100

2.6 VESA mounting

VESA: you can attach a commercial-type arm or wall-mount adapter using the arm mounting holes (VESA 100 mm specification) at the back of this product. Attach the four (4) M4 attachment screws. The torque required for these screws is 0.7 to 0.8 N•m.

VESA® stands for Video Electronics Standards Association, an international non-profit corporation which represents more than 100 corporate members worldwide, and sets industry-wide interface standards for computing environments. Panel agreed on the VESA standard, and all his LCD monitors come with the VESA 100 mounting hole pattern, which means a hole pattern on the back of the monitor: 100 mm x 100 mm (3.94x3.94 inches).



2.7 Chemical and solvent resistance

Resistive touchscreen overlay
The touch screen is resistant to exposure to the following chemicals with no visible signs of damage based on the below dipping times.

Chemicals	Conc. (%)	Dipping Time (H)
Ammonia	2.0	1
Caustic Soda	5.0	0.5
Hydrochloric Acid	2.5	10
Nitric Acid	2.5	1
Sulfuric Acid	5.0	2
Acetic Acid	10.0	10
Ethanol	50.0	10
Methanol	50.0	10
Gasoline	100.0	10
Kerosene	100.0	10
Acetone	100.0	1
Toluene	100.0	1
Solution of salt	3.0	10
Boil Water	100.0	0.25
Detergent (Kao Mypet)	as it is	10
Artificial Perspiration (JIS K6772)	100.0	10

The panel overlay is **not** resistant to the following chemicals:

Concentrated mineral acids
Concentrated caustic solution
High pressure steam at over 100 °C
Benzyl alcohol
Methylene chloride

Projected capacitive touchscreen
The touch panel is securely affixed onto the frontal glass. The glass is much more resistant to corrosion than most materials, so much so that it is easy to think of it as corrosion-proof.

Chapter 3: Installation and wiring

3.1 Connecting DC power

Warning!
All supplied power must be disconnected before removing device covers or components or installing/removing accessories, hardware or cables.
The power cable must be disconnected from the device and from the voltage supply.
Verify the correct rated input 24 VDC, input voltage limits 9…..36 VDC.
The DC cable connector is supplied with PVS.

3.2 Connecting AC power

Warning!
All supplied power must be disconnected before removing device covers or components or installing/removing accessories, hardware or cables.
The power cable must be disconnected from the device and from the voltage supply.
Verify the correct rated input 110 - 230 VAC, input voltage limits 90…..264 VAC.
The AC cable connector is supplied with PVS.

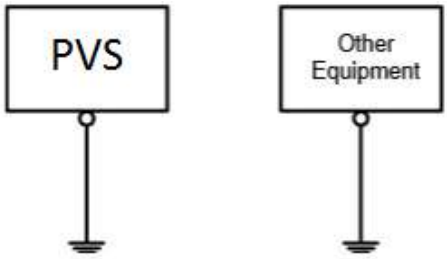
3.3 Functional ground

Grounding concept Functional ground is a current path of low impedance between electrical circuits and ground. It is used, for example, to improve immunity to disturbances and not necessarily as a protective measure. It therefore serves only to deflect disturbances, not to provide any kind of protection against electric shock.
This device comes equipped with two functional ground connections:

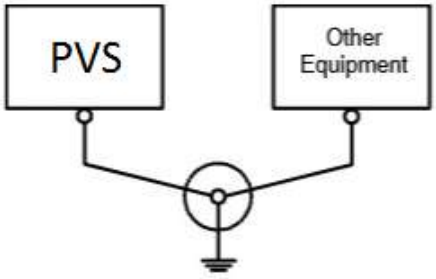
- Power supply
- Ground connection

To guarantee safe conductance of electric disturbances, the following points must be observed:
The device must be connected to the central grounding point in the control cabinet using the shortest route possible.
All data cables connected to the device must be shielded.
For between the line and ground, select a power supply that is low in noise. If there is an excess amount of noise, connect an insulating transformer.
To increase the noise resistance quality of the power cord, simply twist each power wire before attaching the ring terminal. To avoid excess noise, make the power cord as short as possible.
This section describes the precautions for grounding the PVS unit:

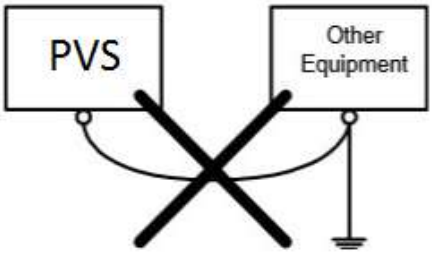
1) Exclusive grounding (BEST)



2) Exclusive grounding (OK)



3) Common grounding (NOT OK)



Important!

The motherboard ground and others devices is connected with PVS ground.

Chapter 4: Hardware upgrade

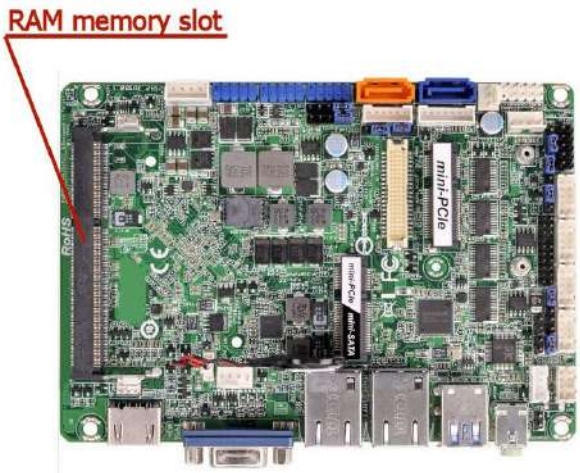
4.1 Removing the rear cover

Warning!
Disconnect the power supply to the Panel PC (disconnect the power cable).
Isolate the system from all potential sources of electrical power!.
Discharge any electrostatic charge on the ground connection

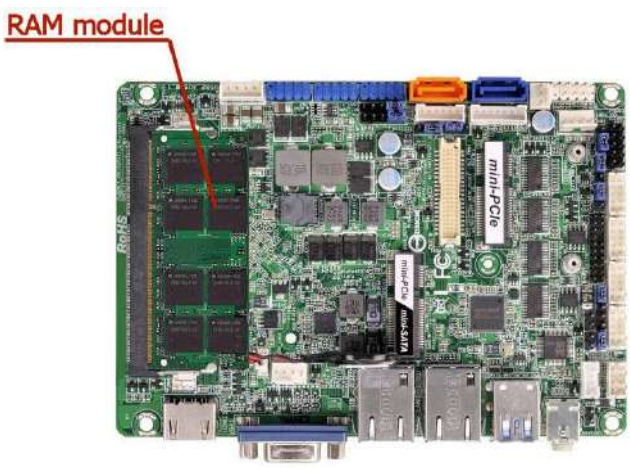
Unscrew all the screws used to hold the rear cover in place, and remove the rear cover.

Internal view

4.2 RAM installation



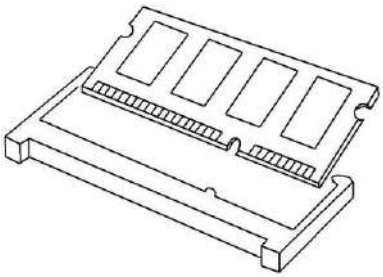
RAM slot installation area



RAM mounting

SO-DIMM slot supports one 204-pin DDR3 (Double Data Rate 3) single channel DDR3L SDRAM only.

1) Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.

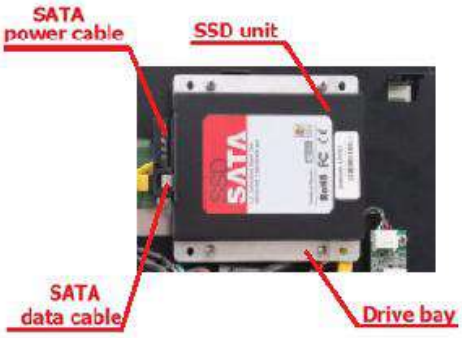


The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

2) Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

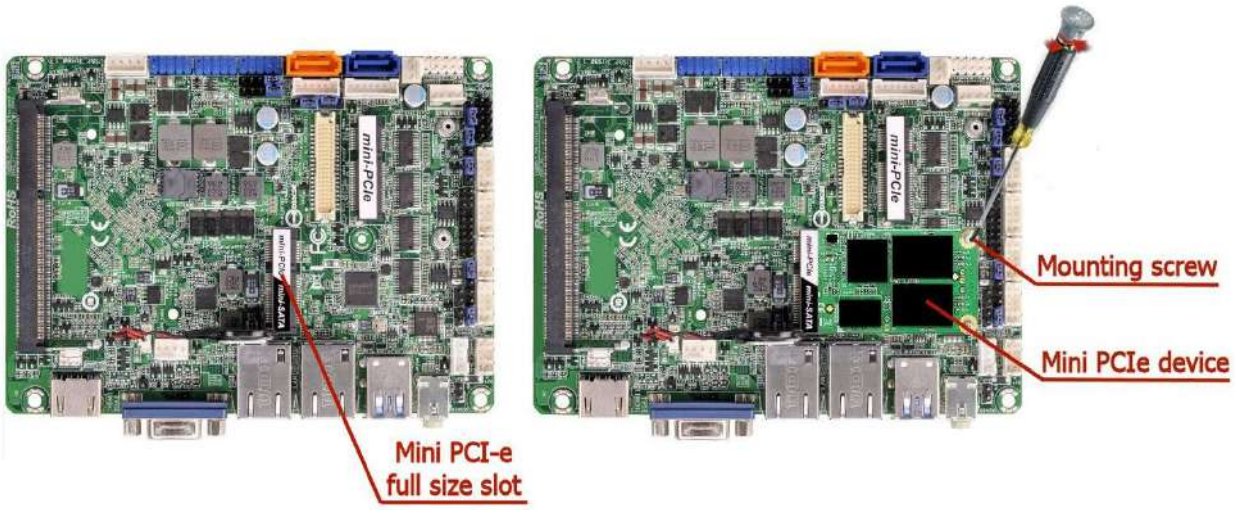
4.3 HDD-SSD installation

SATA SSD installation area



Unscrew the four screws marked above then unplug the two SATA cables.
On the rear of the drive bay there are further four screws that lock the SSD unit.

4.4 Mini PCI-E installation



Mini PCI-E socket installation area

MINI PCI-E1/2 mounting

There is 1 mini-PCIe slot and 1 mini-PCIe/mini-SATA slot on this motherboard.

mini-PCIe half size slot:

MINI_PCIE1 (mini-PCIe slot; half size) is used for PCI Express mini cards.

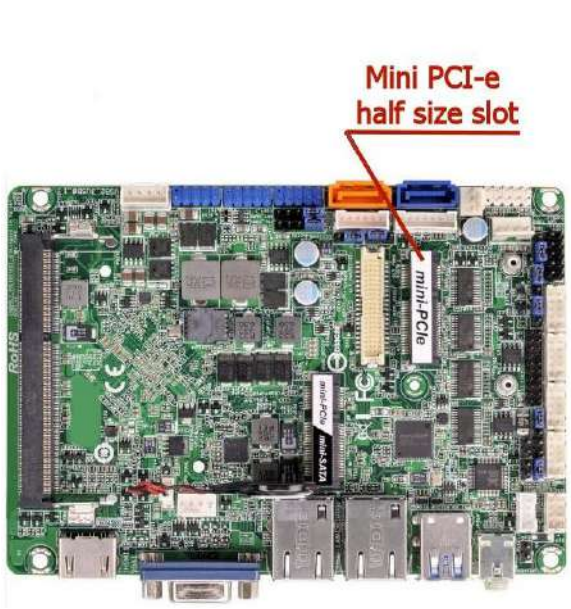
mini-PCIe/mini-SATA full size slot:

MINI_PCIE2 (mini-PCIe/mini-SATA slot; full size) is used for PCI Ex-press mini cards or m-SATA cards

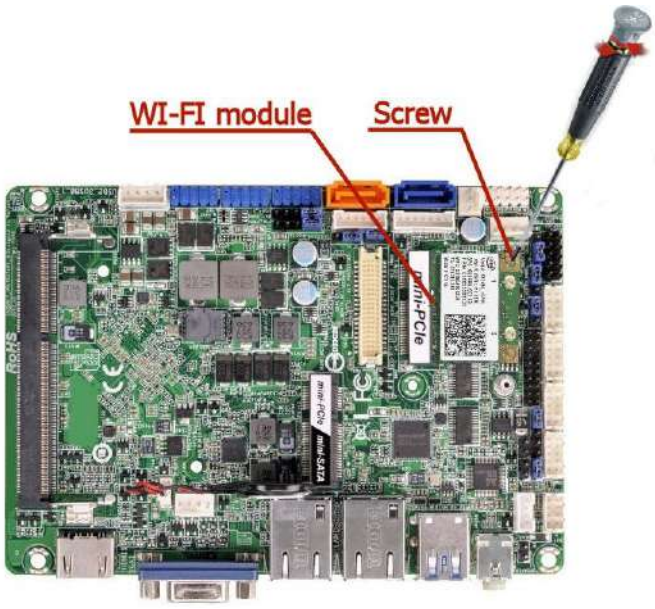
Installing an expansion card

1) Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
2) Remove the system unit cover (if your motherboard is already installed in a chassis).
3) Remove the bracket facing the slot that you intend to use. Keep the screws for later use.
4) Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5) Fasten the card to the chassis with screws.
6) Replace the system cover

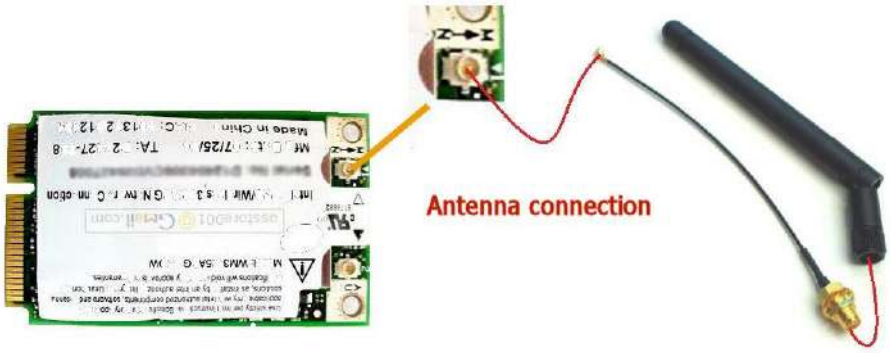
4.5 WI-FI installation



WI-FI module installation area



WI-FI module mounting

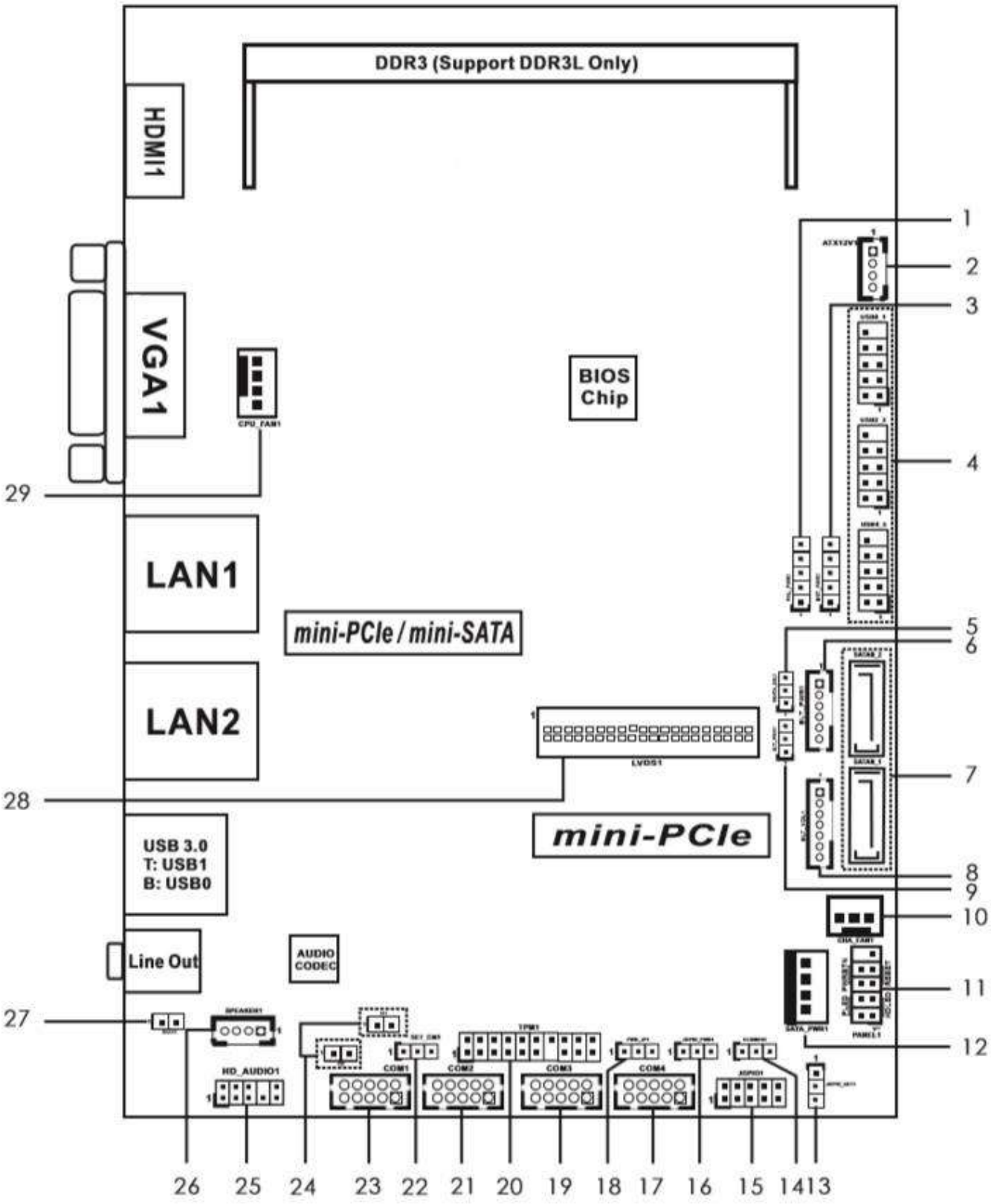


Installing an expansion card

1) Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
2) Remove the system unit cover (if your motherboard is already installed in a chassis).
3) Remove the bracket facing the slot that you intend to use. Keep the screws for later use.
4) Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5) Fasten the card to the chassis with screws.
6) Connect the antenna cable to the main connector of the device:
7) Replace the system cover

Chapter 5: jumpers and connectors

5.1 Motherboard layout

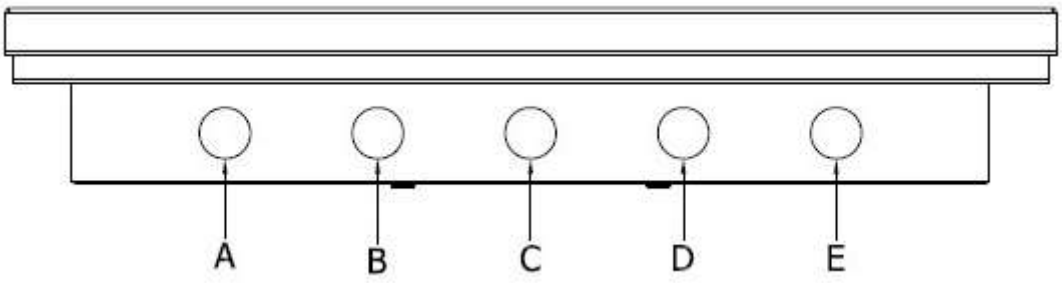


List of all motherboard connectors and headers:

1 : Panel Power Selection (PNL_PWR1)
2 : ATX Power Connector
3 : Backlight Power Selection (BKT_PWR1)
4 : USB2.0 Headers (USB0_1, USB2_3, USB4_5)
5 : m-SATA Selection
6 : Inverter Power Control Wafer (BLT_PWR1)
7 : SATA2 Connectors (SATAII_1, SATAII_2)
8 : Backlight & Amp Volume Control (BLT_VOL1)
9 : Backlight Control Level (BLT_PWM1)
10 : 3-Pin Chassis FAN Connector
11 : System Panel Header
12 : SATA Power Output Connector
13 : GPIO Default Setting
14 : Clear CMOS Header
15 : Digital Input / Output Pin Header
16 : Digital Input / Output Power Select
17 : COM Port Header (COM4)
18 : ATX/AT Mode Selection
19 : COM Port Header (COM3)
20 : TPM Header
21 : COM Port Header (COM2)
22 : COM1 Pin9 PWR Setting
23 : COM Port Header (COM1)
24 : Chassis Intrusion Headers (CI1, CI2)
25 : Front Panel Audio Header
26 : 3W Audio AMP Output Wafer
27 : 2-Pin Buzzer Header
28 : LVDS Panel Connector
29 : 4-Pin CPU FAN Connector

5.2 PVS I/O connectors

PVS units I/O connectors

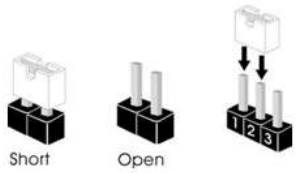


A – POWER CONNECTOR
B – CONNECTOR *
C – CONNECTOR *
D – CONNECTOR *
E – CONNECTOR *

*Connectors quantity and I/O connections depend by customer configurations

5.3 Motherboard jumpers setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.



Jumper N°14 of the motherboard
CLEAR CMOS

CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

Default PVS factory setting 1-2

Jumper N°16 of the motherboard
Digital Input/Output PWR Select

Default PVS factory setting 1-2

Jumper N°18 of the motherboard
ATX/AT Mode Selection

Default PVS factory setting 1-2

Jumper N°1 of the motherbord
Panel Power Selection (LCD_VCC)

1-2: +3V
2-3: +5V
3-4: +5V
4-5: +12V

Default PVS015 factory setting 1-2
Default PVS017, PVS024 factory setting 2-3

Jumper N°3 of the motherbord
Backlight Power Selection

1-2: +5V
2-3: +12V
3-4: +12V
4-5: DC_IN Power

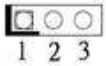
Default PVS factory setting 3-4

Jumper N°9 of the motherbord
Backlight Control Level

1-2: +3V
2-3: +5V

Default PVS factory setting 1-2

Jumper N°22 of the motherbord
COM1 Pin9 PWR Setting



1-2: +5V
2-3: +12V

Default PVS factory setting 1-2

Jumper N°5 of the motherbord
m-SATA Selection

1-2: SATAII_2 + mini-PCIe
2-3: mSATA,
SATAII_2 no function

Default PVS factory setting 2-3
Default PVS factory setting 1-2 for SATAII_2 + mini-PCIe
Default PVS factory setting 2-3 for m-SATA (SATAII_2 no function)

Jumper N°13 of the motherbord
GPIO Default Setting

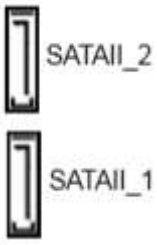
1-2: Pull-High
2-3: Pull-Low

Default PVS factory setting 1-2

5.4 Onboard headers and connectors

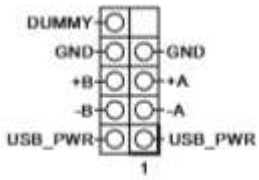
Warning!
Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

Connectors N°7 of the motherbord
SATA2 Connectors



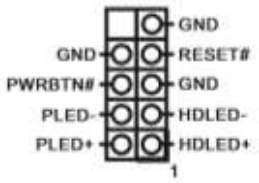
These two Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

Headers N°4 of the motherbord
USB 2.0 Headers



There are three USB 2.0 headers on this motherboard.

Headers N°11 of the motherbord
System Panel Header



This header accommodates several system front panel functions.

Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the sys-tem is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assign-ments are matched correctly.

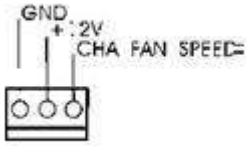
Default PVS factory setting: not connected

Connector N°26 of the motherbord
3W Audio AMP Output Wafer

PIN	Signal Name
1	SPK L-
2	SPK L+
3	SPK R+
4	SPK R-

Default PVS factory setting: not connected

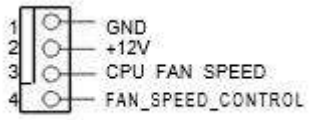
Connector N°10 of the motherbord
Chassis Fan Connector



Please connect the fan cable to the fan connector and match the black wire to the ground pin

Default PVS factory setting: not connected

Connector N°29 of the motherbord
CPU Fan Connector



Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

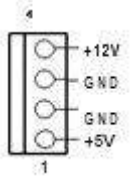
Default PVS factory setting: not connected

Connector N°2 of the motherbord
ATX Power Connector (Input 9V-36V)

Please connect a DC power supply (9V-36V) to this connector.
1-4 : GND
2-3 : DC Input

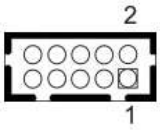
Default PVS factory setting: connected

Connector N°12 of the motherbord
SATA Power Output Connector



Default PVS factory setting: connected

Headers N°23, 21, 19, 17 of the motherbord
N°23 COM1 Port Header
N°21 COM1 Port Header
N°19 COM1 Port Header
N°17 COM1 Port Header



PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name	PIN	Signal Name
10	DUMMY	8	CCTS#	6	DDSR#	4	DDTR#	2	RRXD
9	DUMMY	7	RRTS#	5	GND	3	TTXD	1	DDCD#

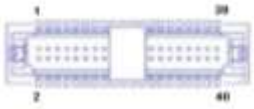
This motherboard supports RS232/422/485 on COM1 port. Please refer to below table for the pin definition. In addition, COM1 port (RS232/422/485) can be adjusted in BIOS:
setup utility > Advanced Screen > Super IO Configuration.

COM1 Port Pin Definition

PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	RX+	N/A
3	TXD	TX+	RTX+
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	NA/+5V/+12V	N/A	N/A

Default PVS factory setting: COM1

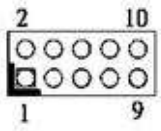
Connector N°28 of the motherbord
LVDS Connector



PIN	Signal Name	PIN	Signal Name
1	LCD_VCC	2	LCD_VCC
3	+3V	4	N/A
5	N/A	6	LVDS_A_DATA0#
7	LVDS_A_DATA0	8	GND1
9	LVDS_A_DATA1#	10	LVDS_A_DATA1
11	GND6	12	LVDS_A_DATA2#
13	LVDS_A_DATA2	14	GND2
15	LVDS_A_DATA3#	16	LVDS_A_DATA3
17	GND7	18	LVDS_A_CLK#
19	LVDS_A_CLK	20	GND3
21	LVDS_B_DATA0#	22	LVDS_B_DATA0
23	GND8	24	LVDS_B_DATA1#
25	LVDS_B_DATA1	26	GND4
27	LVDS_B_DATA2#	28	LVDS_B_DATA2
29	DPLVDD_EN	30	LVDS_B_DATA3#
31	LVDS_B_DATA3	32	GND5
33	LVDS_B_CLK#	34	LVDS_B_CLK
35	GND9	36	CON_LBKLT_EN
37	CON_LBKLT_CTR	38	LCD_BLT_VCC
39	LCD_BLT_VCC	40	LCD_BLT_VCC

Default PVS factory setting: connected

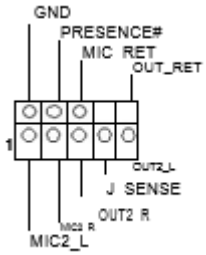
Header N°15 of the motherbord
Digital Input/Output Pin Header



PIN	Signal Name	PIN	Signal Name
1	SIO_GP24	2	SIO_GP20
3	SIO_GP25	4	SIO_GP21
5	SIO_GP26	6	SIO_GP22
7	SIO_GP27	8	SIO_GP23
9	JGPIO_PWR	10	GND

Default PVS factory setting: not connected

Header N°25 of the motherbord
Front Panel Audio Header



Default PVS factory setting: not connected

Connector N°8 of the motherbord
Backlight & Amp Volume Control

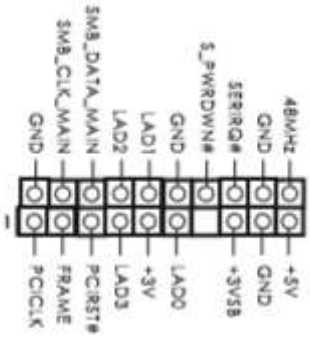
Default PVS factory setting: not connected

Connector N°6 of the motherbord
Inverter Power Control Wafer

PIN	Signal Name
1	GND
2	GND
3	CON_LBKLT_CTL
4	CON_LBKLT_EN
5	LCD_BLT_VCC
6	LCD_BLT_VCC

Default PVS factory setting: connected

Header N°20 of the motherbord
TPM Header



This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

Default PVS factory setting: not connected

Header N°24 of the motherbord
Chassis Intrusion Headers

This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design.

Default PVS factory setting: not connected

Header N°27 of the motherbord
Buzzer Header

Default PVS factory setting: not connected

Chapter 6: BIOS setup

6.1 Introduction

This section explains how to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines. If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Warning!
Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

6.2 BIOS menu bar

Menu Bar The top of the screen has a menu bar with the following selections:

Main	- To set up the system time/date information
Advanced	- To set up the advanced UEFI features
H/W Monitor	- To display current hardware status
Security	- To set up the security features
Boot	- To set up the default system device to locate and load the Operating System
Exit	- To exit the current screen or the UEFI SETUP UTILITY

6.3 Function keys

Please check the following table for the function description of each functional key.

◄ ►	- Moves cursor left or right to select Screens
▲ ▼	- Moves cursor up or down to select items
- / +	- To change option for the selected items
[Enter]	- To bring up the selected screen
[F1]	- To display the General Help Screen
[F7]	- Discard changes
[F9]	- To load optimal default values for all the settings
[F10]	- To save changes and exit the UEFI SETUP UTILITY
[F12]	- Print screen
[ESC]	- To jump to the Exit Screen or exit the current screen

6.4 Main menu

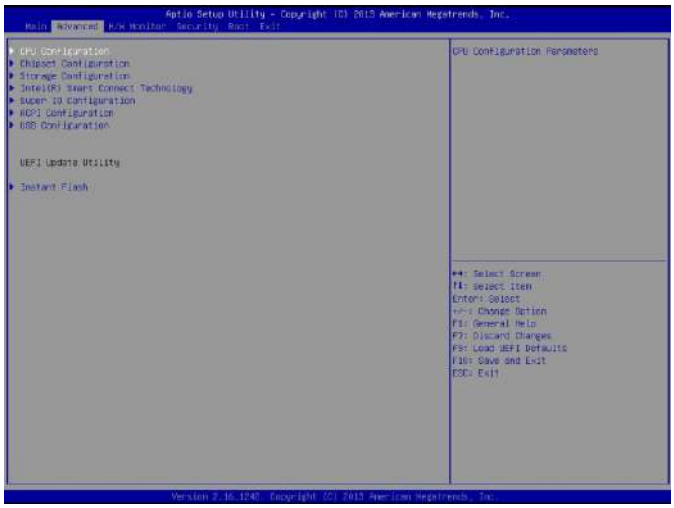
When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview:

Default PVS factory setting: local system date and time

6.5 Advanced menu

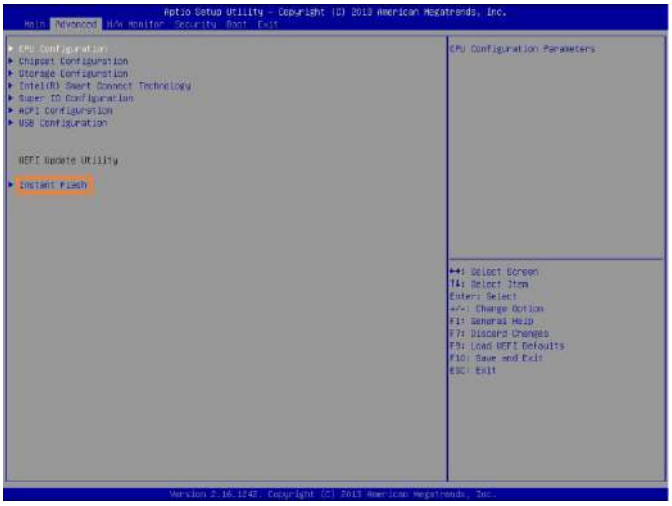
In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Intel Smart Connect Technology, Super IO Configuration, ACPI Configuration and USB Configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



6.6 Instant flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just save the new BIOS UEFI file to one USB pendrive and select this function. You can update your BIOS in a few clicks without preparing an additional floppy diskette or use other complicated flash utility. Please be noted that the USB flash drive or hard drive must use formatted as FAT32/16/12 file system. If you execute Instant Flash utility, the app will show the correct UEFI file and their respective information.

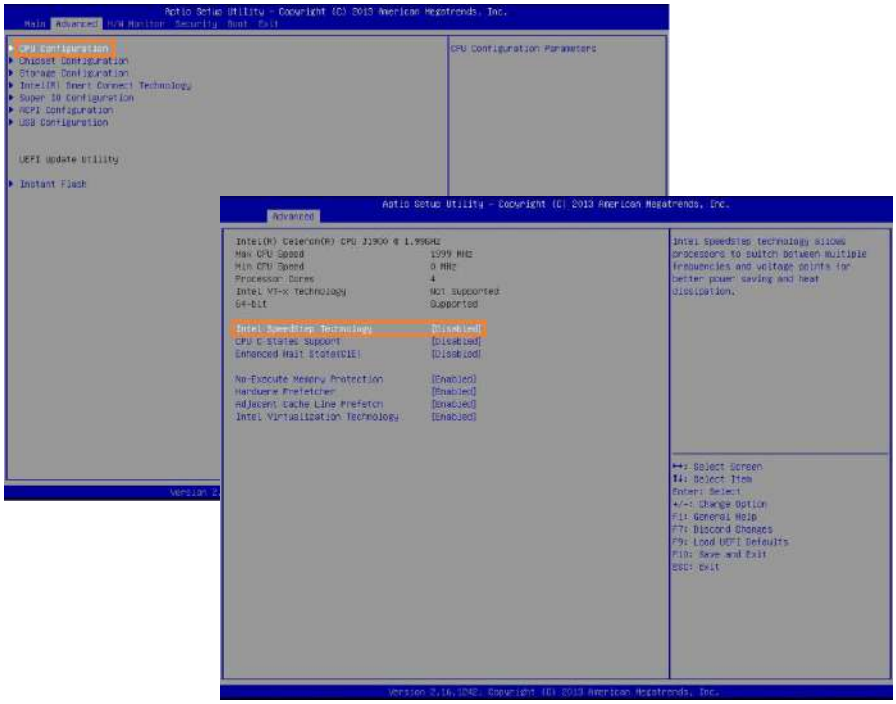


Warning!
Please don't switch off or reboot the system during BIOS refreshing! By doing so, you will cause serious damage to your system.

The system will auto-detect whether the usb pendrive disk contains the relevant files. If there is no problem, the Instant Flash utility will begin auto-refreshing and ask to reboot when the BIOS update is done .

6.7 CPU configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



Intel SpeedStep Technology
Intel SpeedStep technology is Intel's new power saving technology. Pro-cessors can switch between multiple frequencies and voltage points to en-able power saving. The default value is [Disabled]. Configuration options:

[Enabled] and [Disabled]. If you install Windows® 7/8/10 and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.

Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

Default PVS factory setting: Disabled

CPU C States Support
Enable CPU C States Support for power saving. It is recommended to keep C3 enabled, C6 and C7 disabled.

Default PVS factory setting: Disabled

Enhanced Halt State (C1E)
Enable or disable Enhanced Halt State (C1E) for lower power consumption.

Default PVS factory setting: Disabled

No-Excute Memory Protection
No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute code.

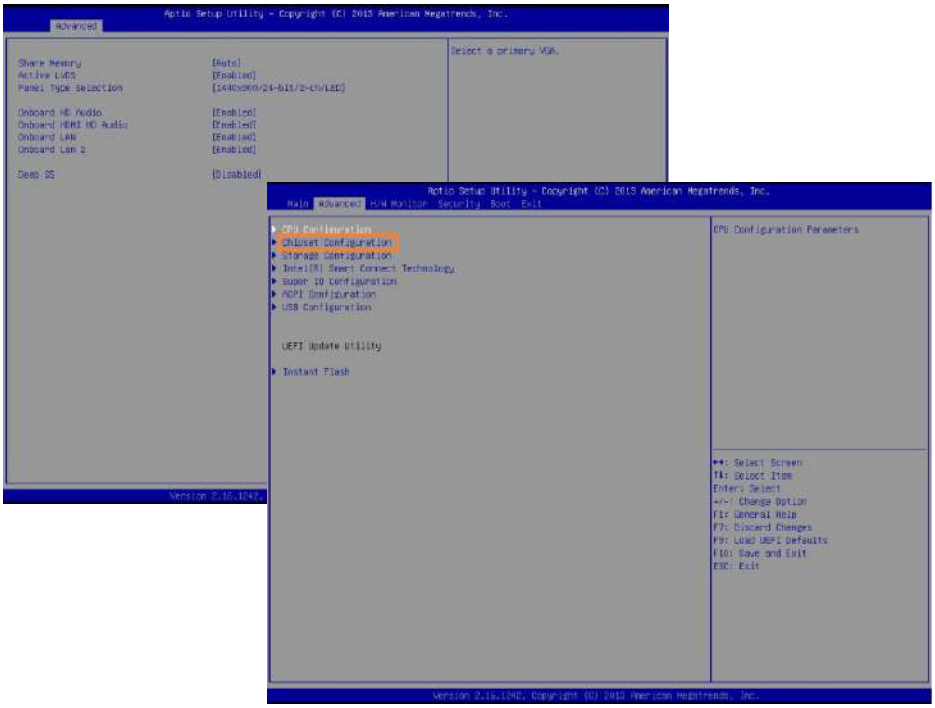
Default PVS factory setting: Enabled

Intel virtualization technology
When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology.

Default PVS factory setting: Enabled

6.8 Chipset configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



Share Memory
Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

Default PVS factory setting: Enabled

Active LVDS
Use this to enable or disable the LVDS. The default value is [Enabled].

Default PVS factory setting: Enabled

Panel Type Selection
Use this to select the display resolution.

Default PVS015 factory setting: 1024x768/24-bit/1-ch/LED
Default PVS017 factory setting: 1280x1024/24-bit/2-ch/LED
Default PVS024 factory setting: 1920x1080/24-bit/2-ch/LED

Onboard HD Audio
Select [Enabled] or [Disabled] for the onboard HD Audio feature.

Default PVS factory setting: Enabled

Onboard HDMI HD Audio
This allows you to enable or disable the Onboard HDMI HD Audio feature.

Default PVS factory setting: Enabled

Onboard LAN
This allows you to enable or disable the Onboard LAN feature.

Default PVS factory setting: Enabled

Onboard LAN 2
This allows you to enable or disable the Onboard LAN 2 feature.

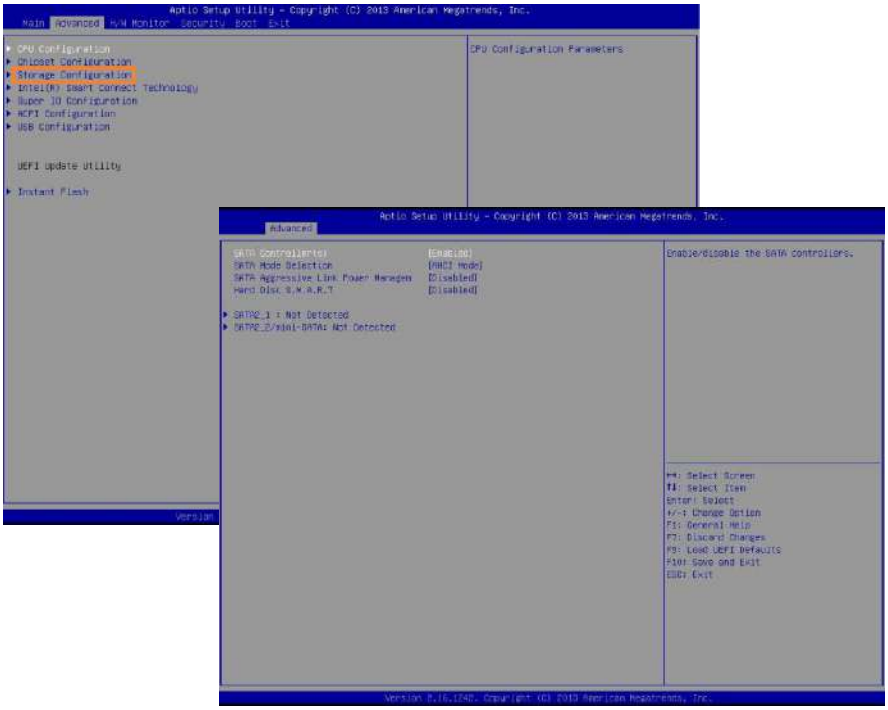
Default PVS factory setting: Enabled

Deep S5
This allows you to enable or disable Deep S5

Default PVS factory setting for Windows OS: Disabled
Default PVS factory setting for Linux OS: Auto

6.9 Storage configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



SATA Controllers
Use this item to enable or disable the SATA Controller feature.

Default PVS factory setting: Enabled

SATA Mode Selection
Use this to select SATA mode. Configuration options: [IDE Mode] and [AHCI Mode].
AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk perfor-mance but IDE mode does not have these advantages.

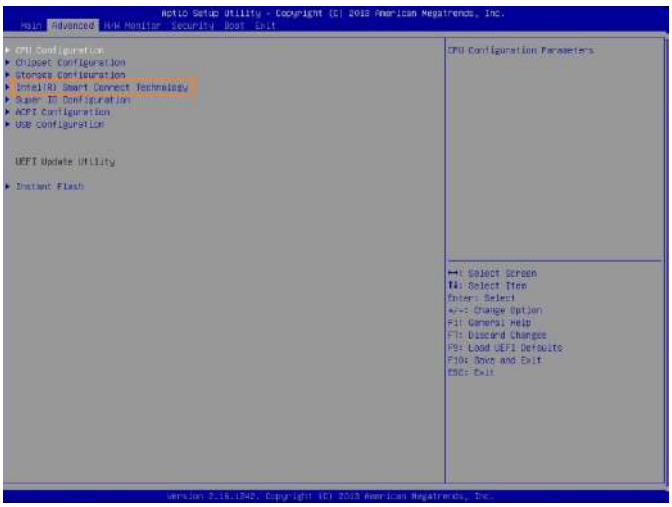
Default PVS factory setting: IDE Mode

Hard Disk S.M.A.R.T.
Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analy-sis, and Reporting Technology) feature.
Configuration options: [Disabled] and [Enabled].

Default PVS factory setting: Disabled

6.10 Intel Smart Connect Technology

Warning!
Setting wrong values in this section may cause the system to malfunction.

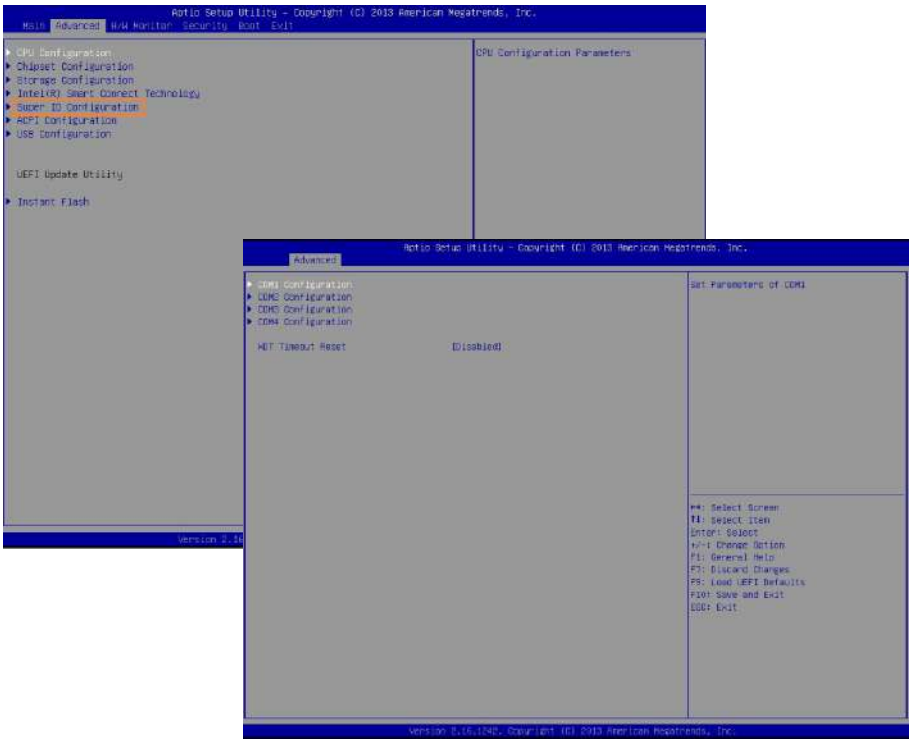


Intel(R) Smart Connect Technology
Use this item to enable or disable Intel(R) Smart Connect Technology. Intel(R) Smart Connect Technology keeps your e-mail and social networks, such as Twitter, Facebook, etc. updated automatically while the computer is in sleep mode.

Default PVS factory setting: Disabled

6.11 Super IO configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



COM1 Configuration
Use this to set parameters of COM1. Select COM1 port type: [RS232], [RS422] or [RS485].
In RS485 mode, the auto flow control function is supported for all UART.
When enabled, i twill automatically drive RTS# pin to logic high or low for flow control. To make this RS485 auto flow control function work, please be noted that the parity and stop-bit settings has to be one of the following three settings:

1) 8 data bits + 1 parity bit + 1 stop bit
2) 8 data bits + 1 parity bit + 2 stop bit
3) 8 data bits + 2 stop bits

Default PVS factory setting: [RS232]

COM2 Configuration
Use this to set parameters of COM2.

Default PVS factory setting: Disabled

COM3 Configuration
Use this to set parameters of COM3.

Default PVS factory setting: Disabled

COM4 Configuration
Use this to set parameters of COM4.

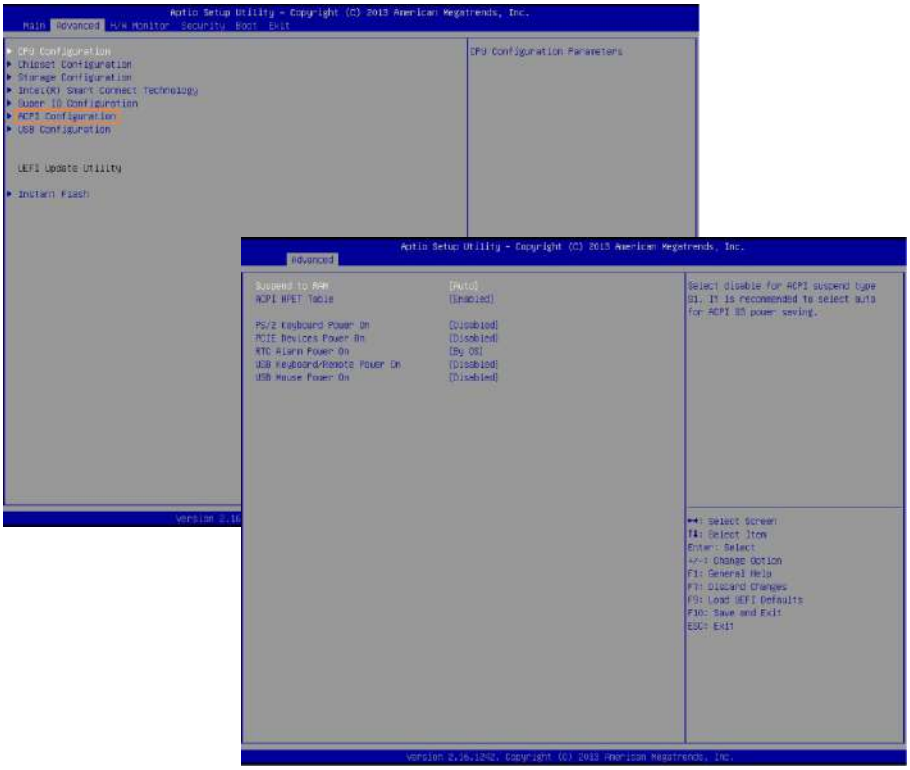
Default PVS factory setting: Disabled

WDT Timeout Reset
This allows users to enable/disable the Watch Dog Timer timeout to reset system.

Default PVS factory setting: Disabled

6.12 ACPI configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



Suspend to RAM
Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

Default PVS factory setting: Auto

ACPI HPET Table
Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

Default PVS factory setting: Enabled

PCIE Devices Power On
Use this item to enable or disable PCIE devices to turn on the system from the power-soft-off mode.

Default PVS factory setting: Disabled

RTC Alarm Power On
Use this item to enable or disable RTC (Real Time Clock) to power on the system.

Default PVS factory setting: By OS

USB Keyboard/Remote Power On
Use this item to enable or disable USB Keyboard/Remote to power on the system.

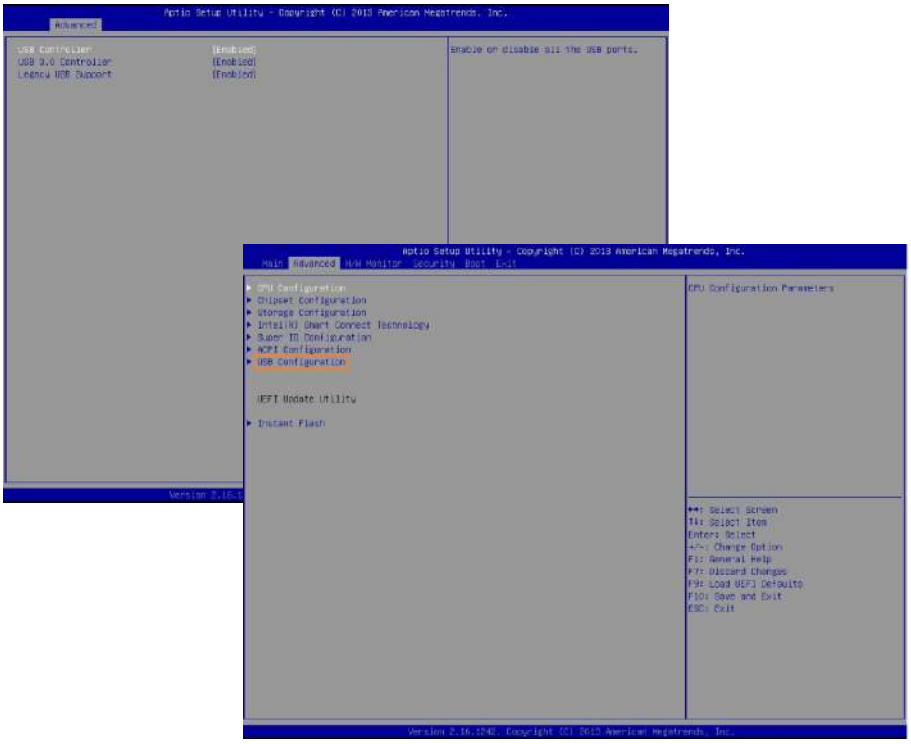
Default PVS factory setting: Disabled

USB Mouse Power On
Use this item to enable or disable USB Mouse to power on the system.

Default PVS factory setting: Disabled

6.13 USB configuration

Warning!
Setting wrong values in this section may cause the system to malfunction.



USB 3.0 Controller
Use this item to enable or disable the use of USB 3.0 controller. There are four configuration options: [Enabled], [Auto] [Disabled], and [Smart Auto].

[Enabled] - Enables support
[Auto] - Enables legacy support if USB devices are connected.
[Smart Auto] - USB devices are allowed to use only under UEFI setup and Windows/Linux.

Default PVS factory setting: Auto

Legacy USB Support
Use this option to select legacy support for USB devices.

Default PVS factory setting: Enabled

6.14 Hardware Health Event Monitoring Screen

Warning!
Setting wrong values in this section may cause the system to malfunction.

CPU_FAN1 Setting
This allows you to set CPU fan 1's speed. Configuration options: [Full On] and [Automatic Mode].

Default PVS factory setting: [Full On].

CHA_FAN1 Setting
This allows you to set chassis fan 1's speed. Configuration options: [Full On] and [Automatic Mode].

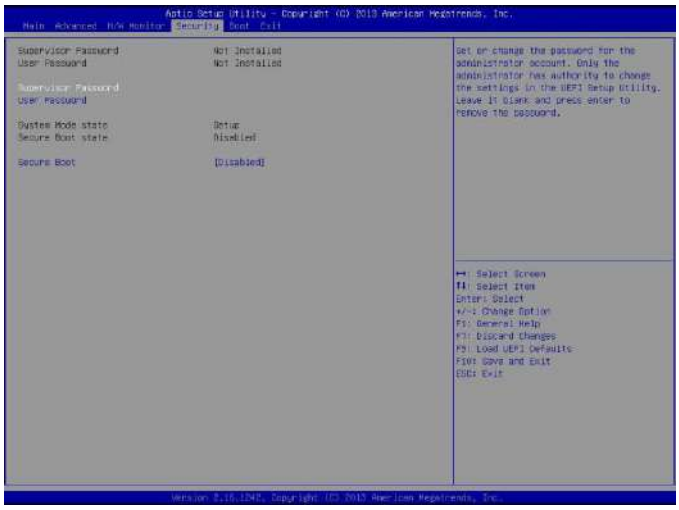
Default PVS factory setting: [Full On].

Case Open Feature
This allows you to enable or disable case open detection feature. The default is value [Disabled].

Default PVS factory setting: Disabled

6.15 Security menu

Warning!
Setting wrong values in this section may cause the system to malfunction.



In this section, you may set, change or clear the supervisor/user password for the system:

Supervisor Password
Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Default PVS factory setting: Blank

User Password
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

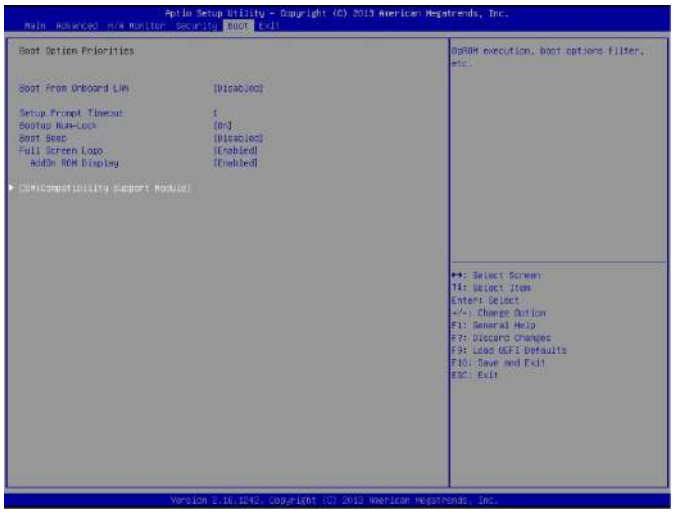
Default PVS factory setting: Blank

Secure Boot
Enable to support Windows 8 and 10 Secure Boot.

Default PVS factory setting: Disabled

6.16 Boot menu

Warning!
Setting wrong values in this section may cause the system to malfunction.



In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.

Fast Boot
[Fast mode] - optimize the loading time buti s impossible to boot from an USB storage device.
[Ultra fast] - minimize the loading time. This feature is supported only by Windows 8 and 10.

Default PVS factory setting: Disabled

Boot From Onboard LAN
Use this item to enable or disable the Boot From Onboard LAN feature.

Default PVS factory setting: Disabled

Setup Prompt Timeout
This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

Bootup Num-Lock
If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Default PVS factory setting: On

Boot Beep
Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

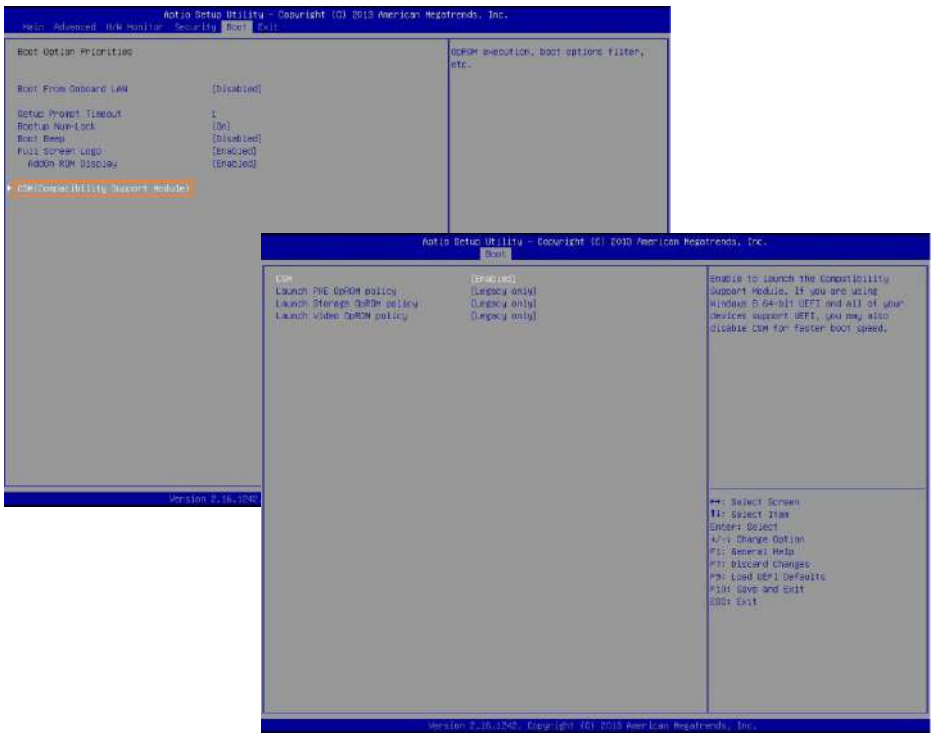
Default PVS factory setting: Disabled

Full Screen Logo
Use this item to enable or disable OEM Logo.

Default PVS factory setting: [Enabled].

6.17 CSM (compatibility support module)

Warning!
Setting wrong values in this section may cause the system to malfunction.



CSM
CSM Enable to launch the Compatibility Support Module. If you are using Windows 8 or 10 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Default PVS factory setting: [Enabled]

Launch PXE OpROM Policy
[UEFI only] - To run those that support UEFI option ROM only.
[Legacy only] - To run those that support legacy option ROM only.

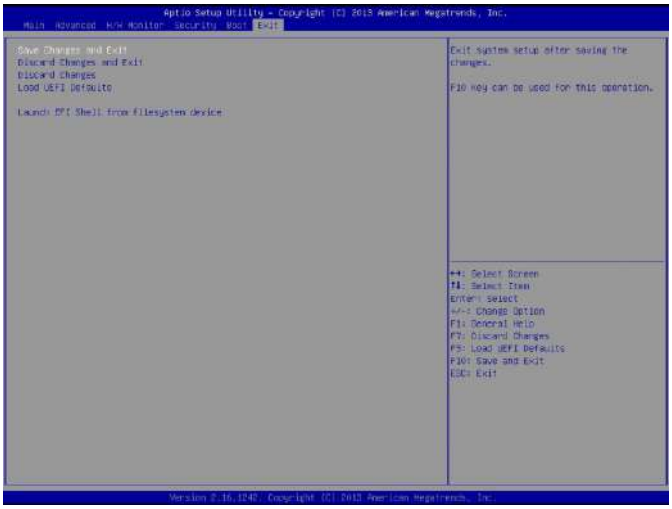
Default PVS factory setting: [Legacy only]

Launch Video OpROM Policy
[UEFI only] - To run those that support UEFI option ROM only.
[Legacy only] - To run those that support legacy option ROM only.

Default PVS factory setting: [Legacy only]

6.18 Exit menu

Warning!
Setting wrong values in this section may cause the system to malfunction.



Save Changes and Exit
When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit
When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes
When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

Load UEFI Defaults
Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device
Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

Chapter 7: System setup

7.1 Installing operating system

The PVS series are supplied together with suitable CERTIFICATE OF AUTHENTICITY (COA) related to the operating system you asked for.
The Certificate of Authenticity is the element ensuring the originality of the operating system.
The identification data concerning the type and serial number (PRODUCT KEY) are shown on the label on the side of the device.

The product key code printed on the authenticity certificate, must be specified every time you install the software. No product key is needed for embedded OS and linux.

Warning!
The removal or loss of the authenticity certificate implies the forfeiture of the operating system license contract. Using the software without regular license is a legal offence.

This motherboard supports Microsoft® Windows® operating systems: 7 / 8 / 10 (32 bit and 64 bit editions), Windows Embedded 7 / 8 and different Linux distros.
Because motherboard settings and hardware options may vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for additional informations.

7.2 Recovery DVD

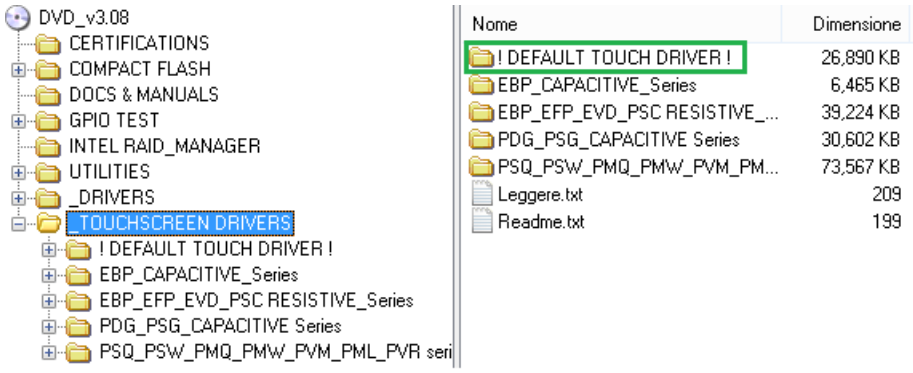
Panel supply for every product nr. 1 recovery DVD for the complete setup of the system. This DVD can contain the entire operating system if the customer bought first the licence, or only the device drivers of any motherboard we assembly. This DVD contains also utilities, users manuals, certifications.

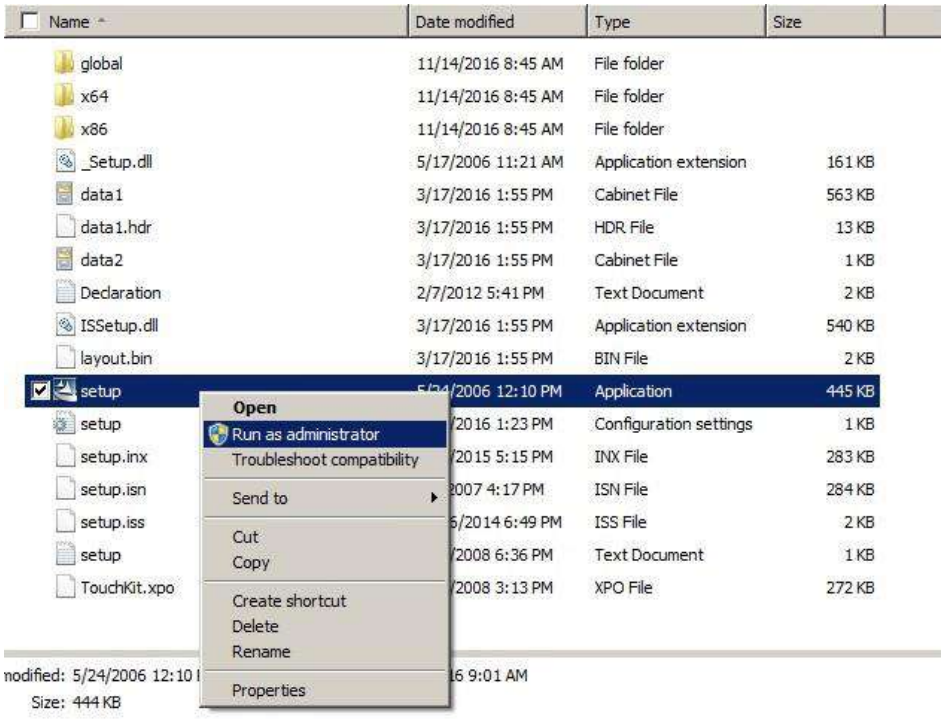
The setup of the drivers is fully automatic only if you bought the operating system.
If not, in order to install the OS you must refer to the recovery DVD in the PVS folder file.

7.3 Resistive touchscreen driver and calibration

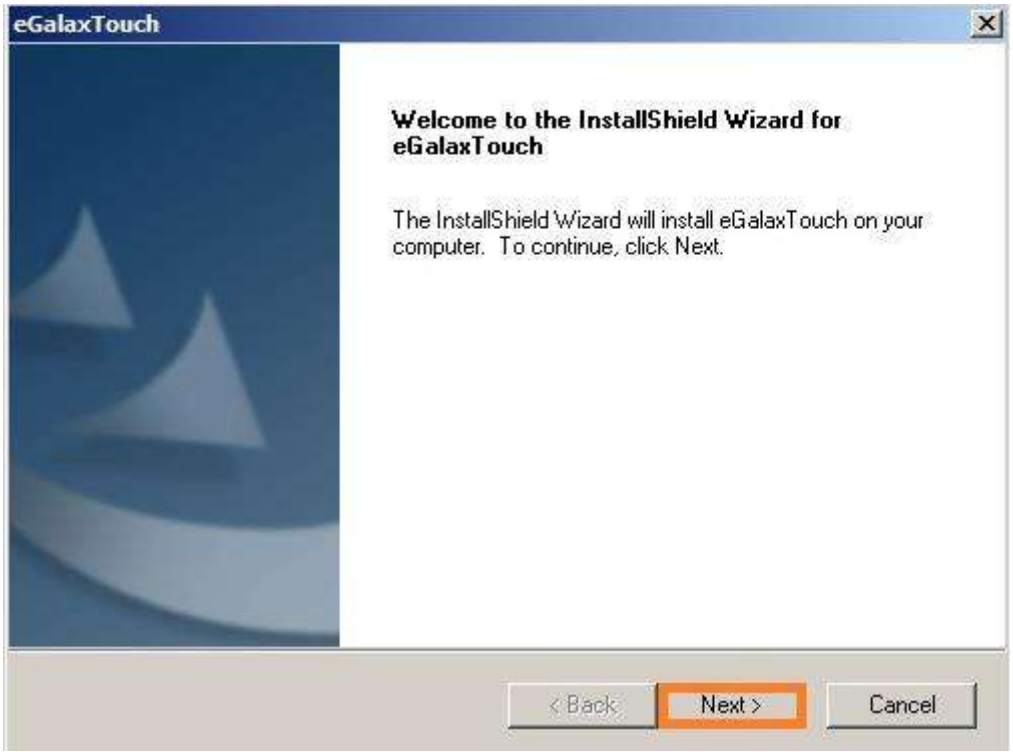
PVS resistive touchscreen devices are equipped with a touch controller that supports hardware calibration. As a result, devices are pre-calibrated when delivered. This is an advantageous feature when replacing devices of the same model or type since it avoids having to recalibrate the new device. If is needed to install or recalibrate the touch, follow this procedure.

In order to install the touchscreen driver you must refer to the recovery DVD in the touchscreen folder file .

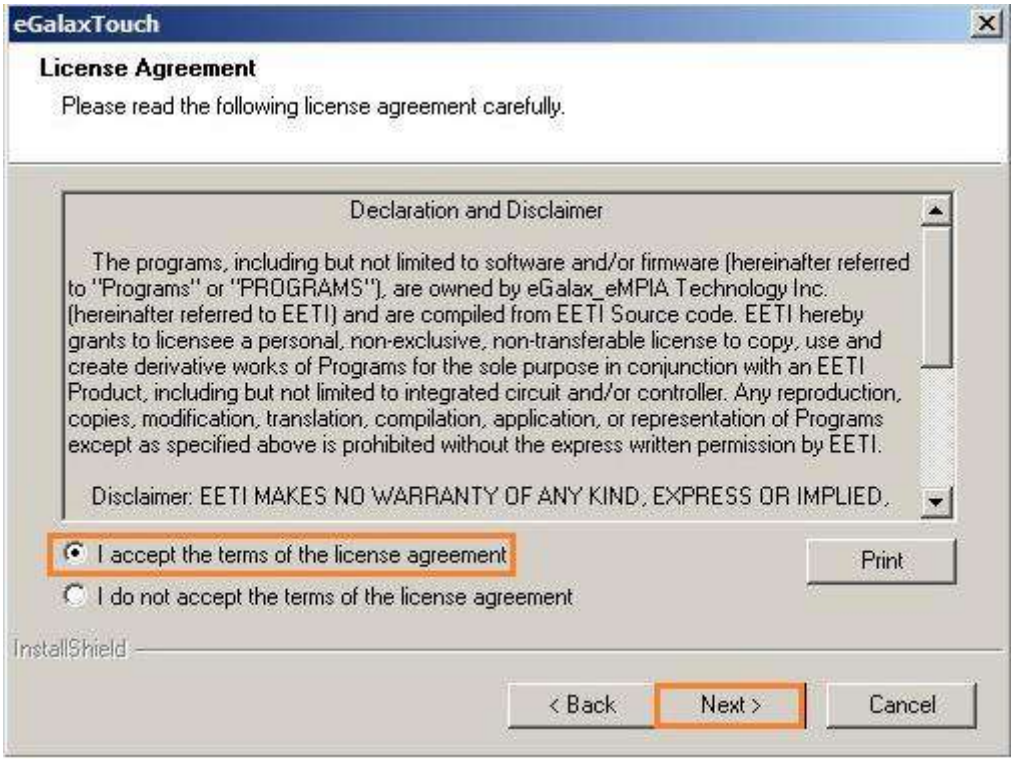




Right mouse click on the "**setup**" and choose "**Run as administrator**"

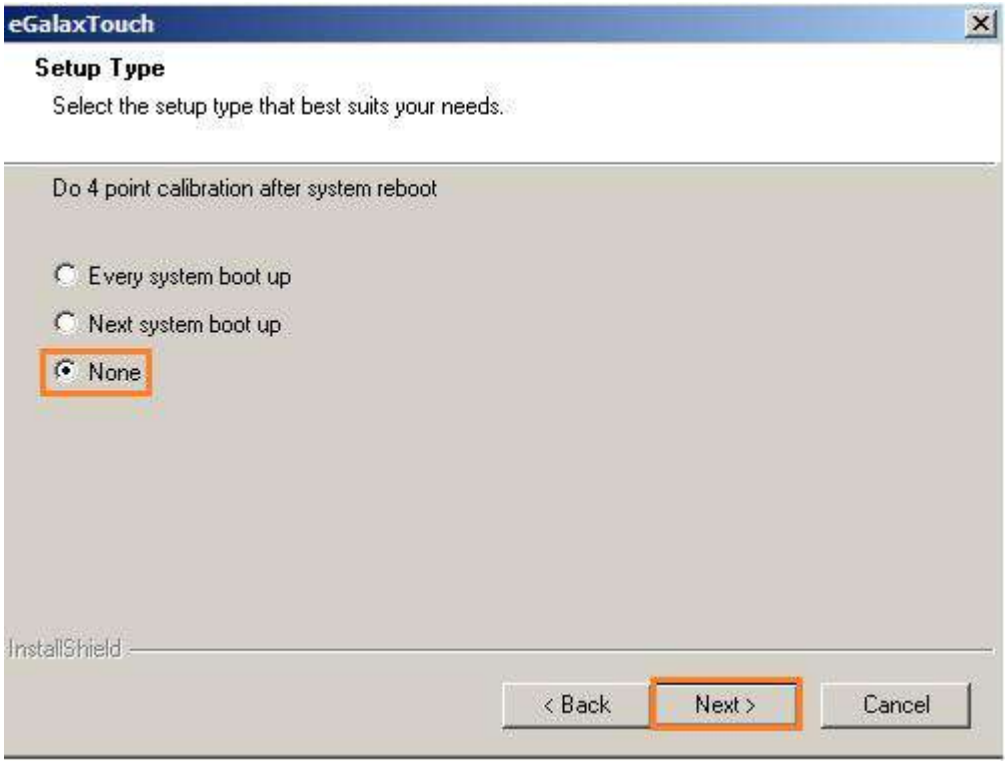


Click **Next** to continue the installation

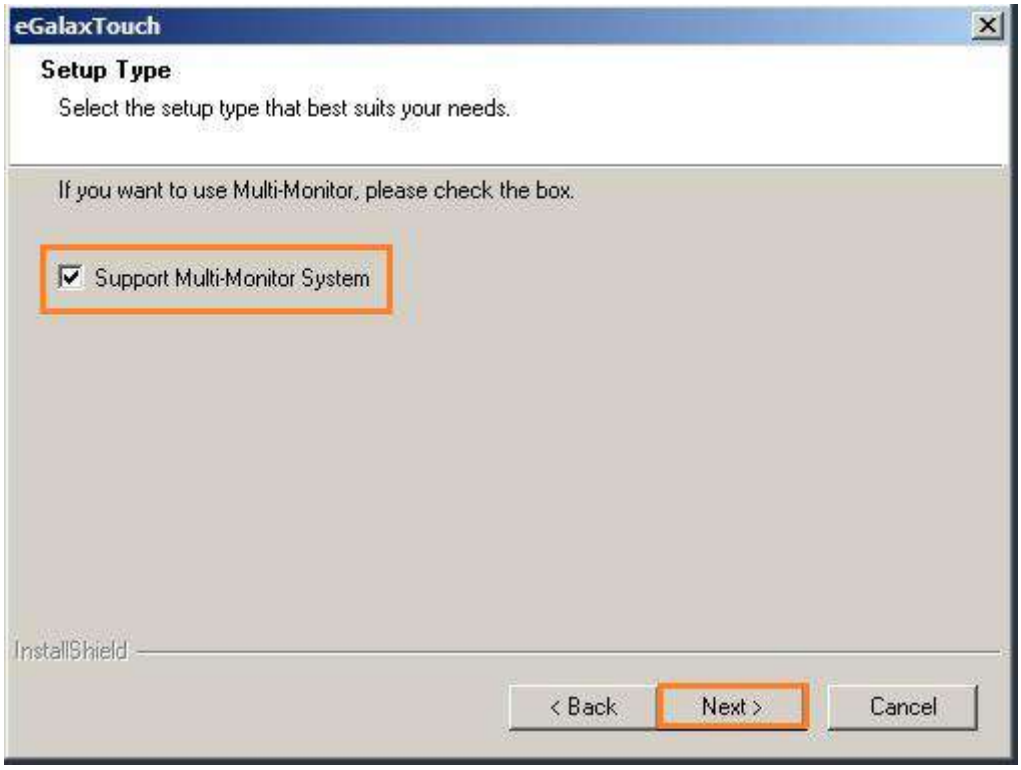


One click on the "I accept the terms of the license agreement" flag
and **Next** to continue the installation

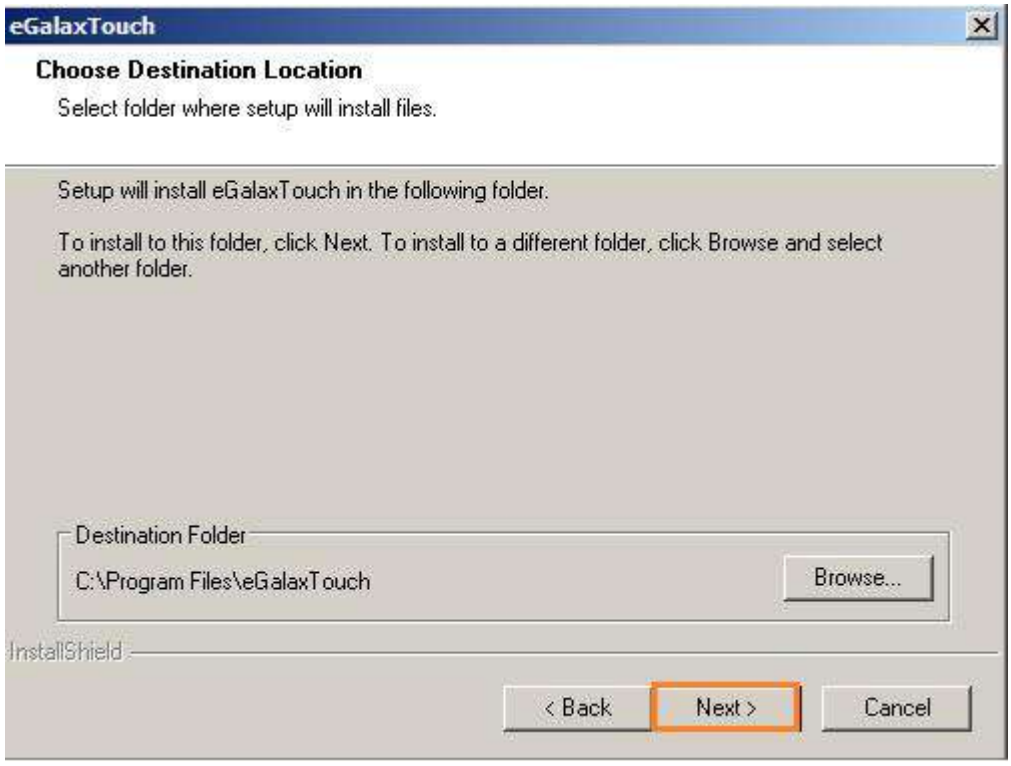
Leave this flag blank if your PVS touchscreen controller is not serial
Next to continue the installation



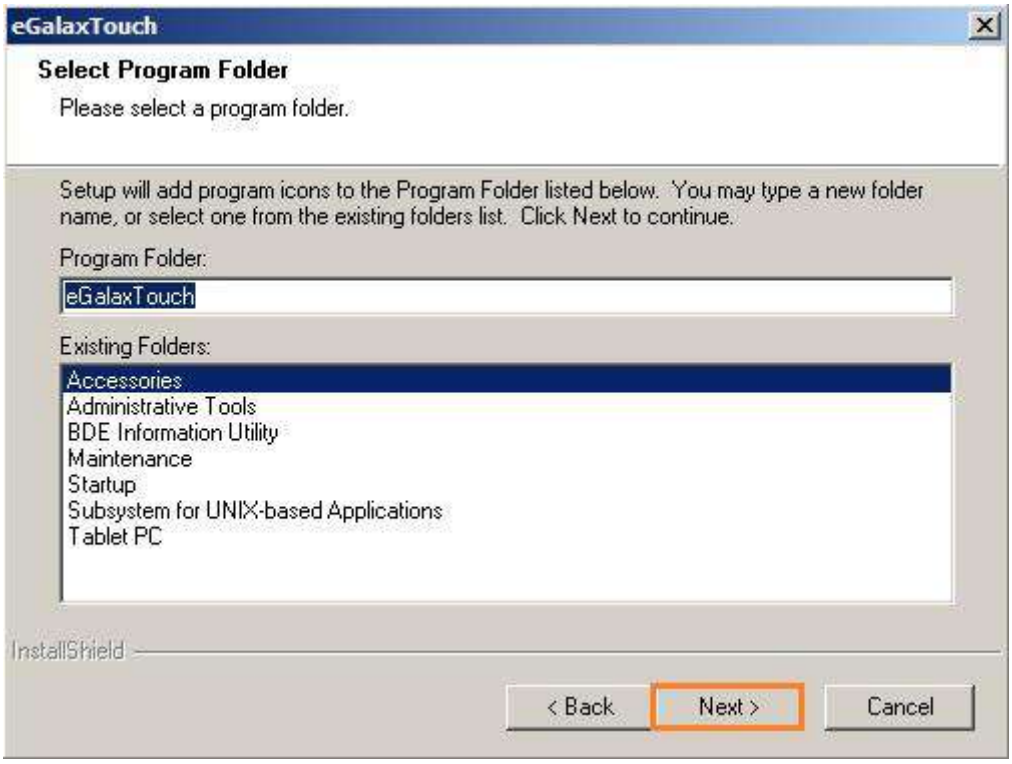
One click on the **None** flag then
"**Next"** to continue the installation.



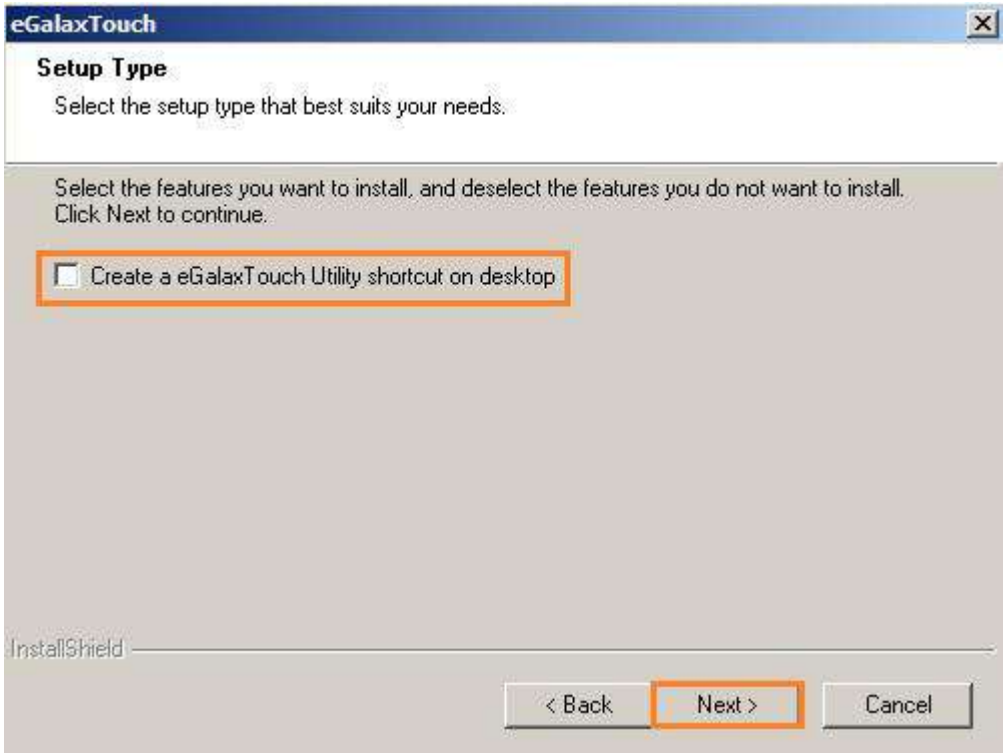
One click on the "Support Multi-Monitor System" flag then "**Next"** to continue the installation.



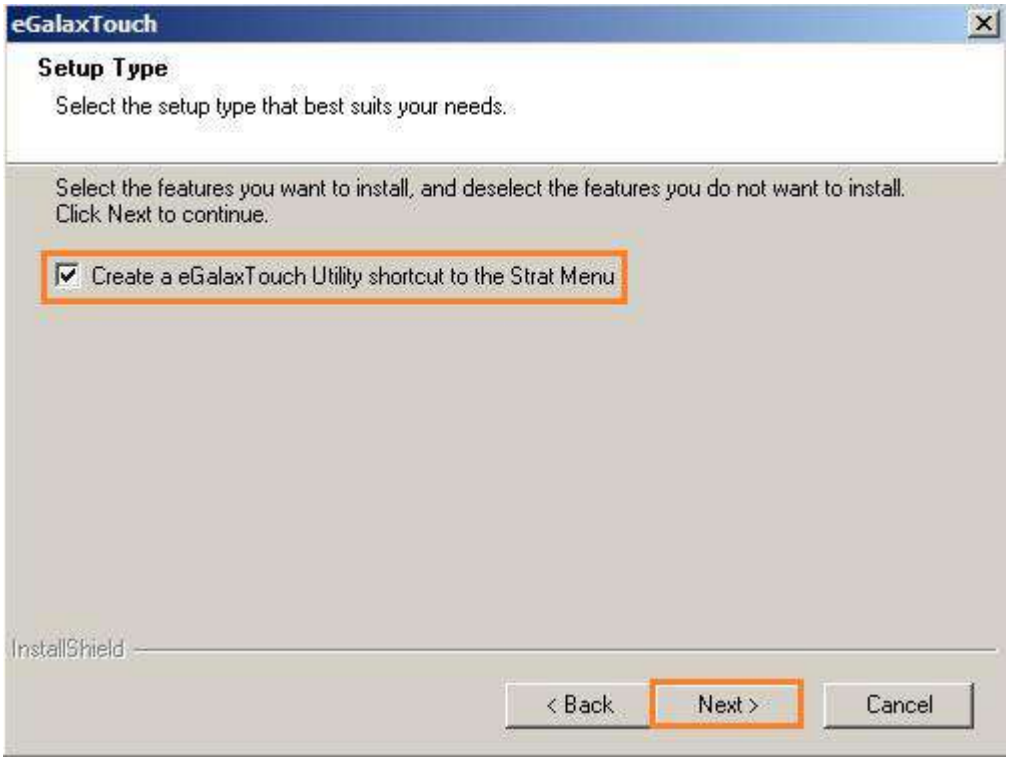
Click "**Next"** to continue the installation.



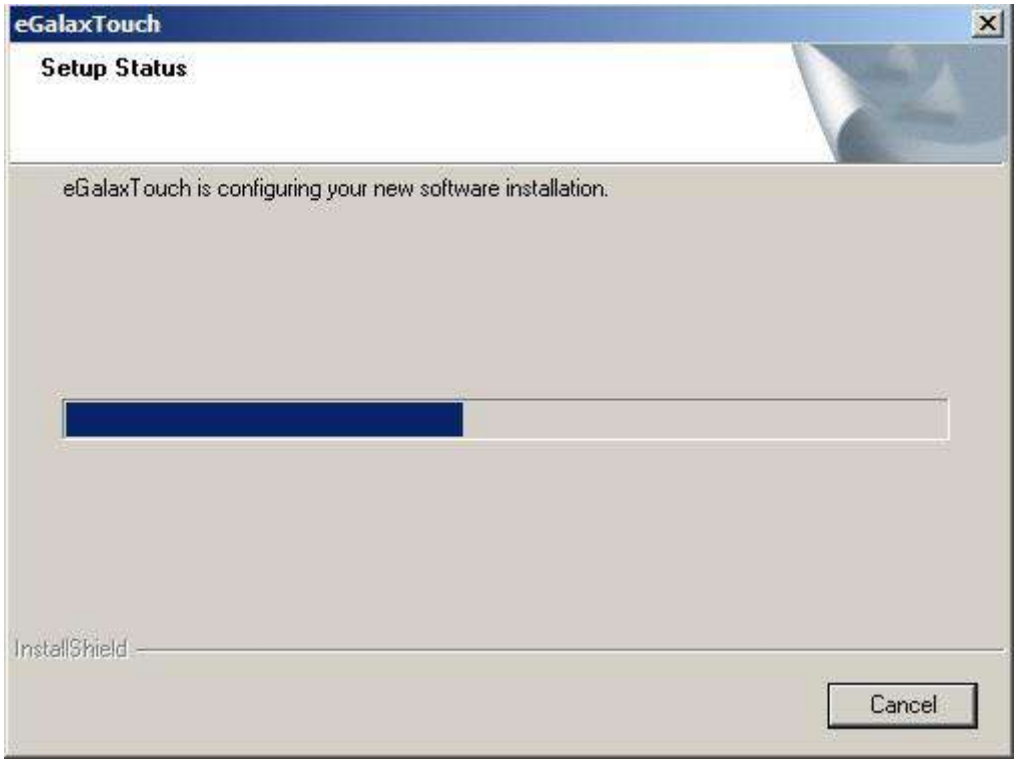
Click "**Next"** to continue the installation.



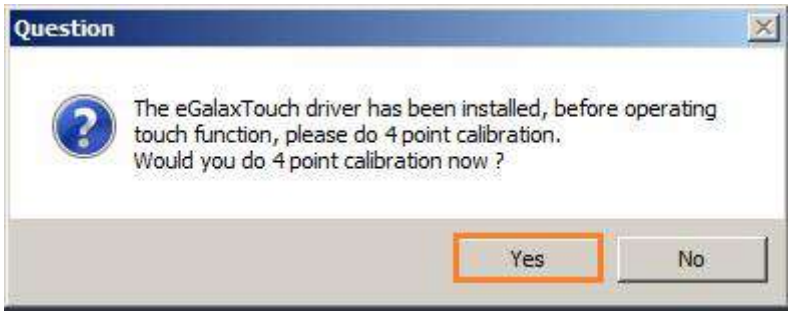
Leave this flag blank if your PVS touchscreen controller is not serial
Next to continue the installation.



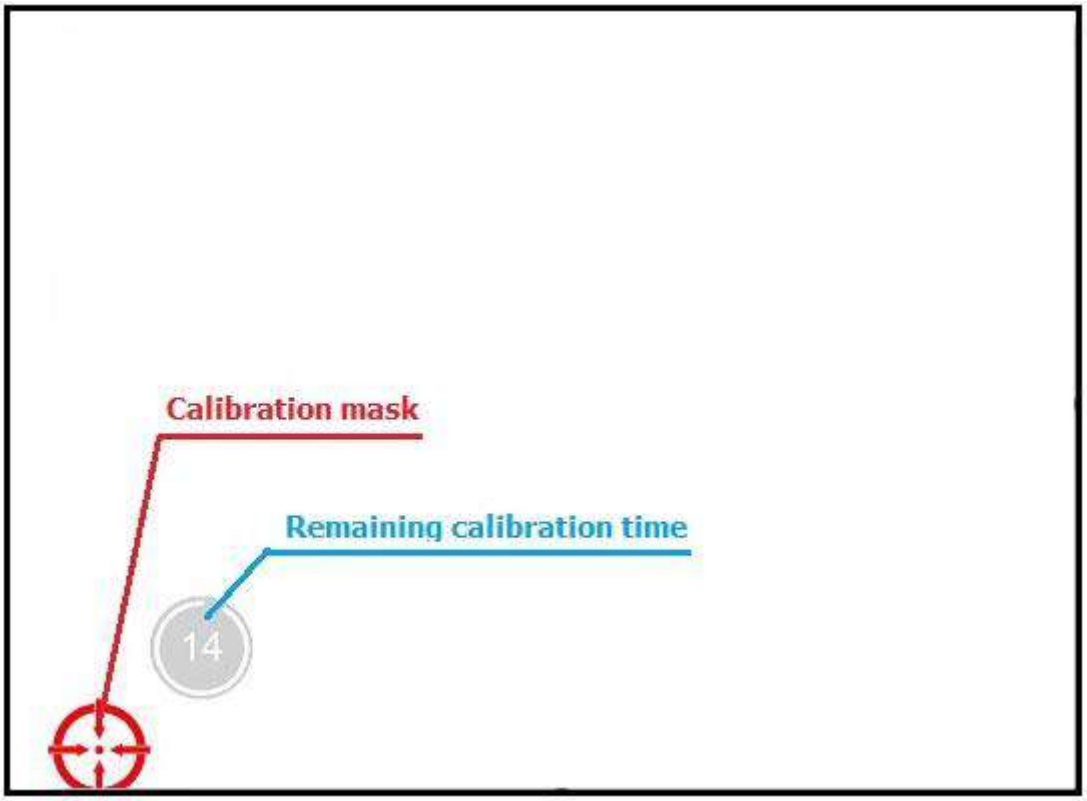
One click one the "Create a eGalaxTouch Utility" shorcut to the Start Menu" flag and **Next** to continue the installation.



Installation colud take some time….



click **Yes** to calibrate



Calibration procedure
The calibration mask is output on the display.
Hold your finger for a few seconds in the middle of the "calibration mask" than release.

Limite time is indicated by the "Remaining calibration time".
Once that you complete the first step, you have to repeat the procedure for any angle.

When the installation is finished, the touchscreen app icon appear on the taskbar

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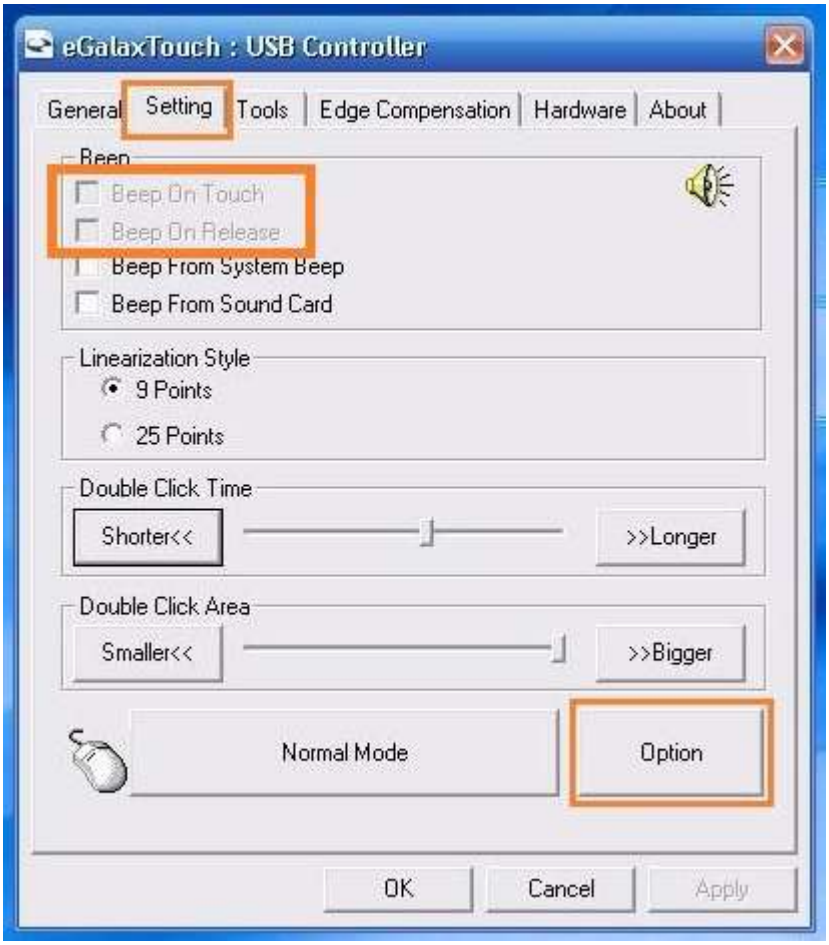

Right click on this icon and choose "**Calibration Utility**" to set all settings you need

7.4 Capacitive touchscreen driver and calibration

Capacitive touchscreen devices are already calibrated by factory. No calibration is needed.

Chapter 8: maintenance

This chapter describes service/maintenance work that can be carried out by a qualified end user.
Only skilled staff must make any job on the device and only after having fully read and understood the safety instructions (chapter 1.1).

8.1 Cleaning

Warning!
This device must be switched off before cleaning in order to prevent unintended functions from being triggered when handling the touch screen or pressing keys.

This device should be cleaned with a moist cloth. The cloth should be moistened with water and detergent, a screen cleaning agent or alcohol (ethanol).
The cleaning agent should be applied to the cloth beforehand, not sprayed directly on the device! Aggressive solvents, chemicals, scouring agents, pressurized air or steam jets should never be used.

8.2 Lithium battery

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP). When you discard the Lithium battery in California, USA and the rest of the world, please follow the related regulations in advance.

8.3 Spare parts

It is recommended to install only original Panel spare parts.
If the customer mount not original spare parts, we can't grant the correct work of the device.