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IPC Solution

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Panel PC System

Fanless Series

FP8153 User's Manual

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- Description of you peripheral attachments
- Description of your software (operating system, version, application software, etc.) and BIOS configuration
- Description of the symptoms (Extract wording any message)

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Table of Contents

Chapter 1 Introducing the FP8153Panel PC

Overview

The FP8153 is 15-inch TFT Panel PC, this panel PC with Intel® Atom™ E3845 (Bay Trail) Processor low-power CPU module inside and touch screen device, this user's manual provides information on the physical features, installation, and BIOS setup.

Built to unleash the total potential of the Intel® Atom™ E3845 Processor, Able to support 1.91 GHz CPU, this unit supports two 10/100/1000 Base –TX LAN port, GPIO-4In/4Out digital I/O, one PCIe mini card socket, one free PCIe slot, four USB-2.0, one USB 3.0, SATA/ CFAST socket, audio, two So-DIMM socket up to 8GB DDR3L RAM, VGA and HD display.

Each FP8153 has six ports for I/O communication. Four RS-232 and two RS232 / RS422/RS485 ports are available. There is also a watchdog timer that can be configured from software to automatically reset the system. And for easy configuration, AMI BIOS are available.

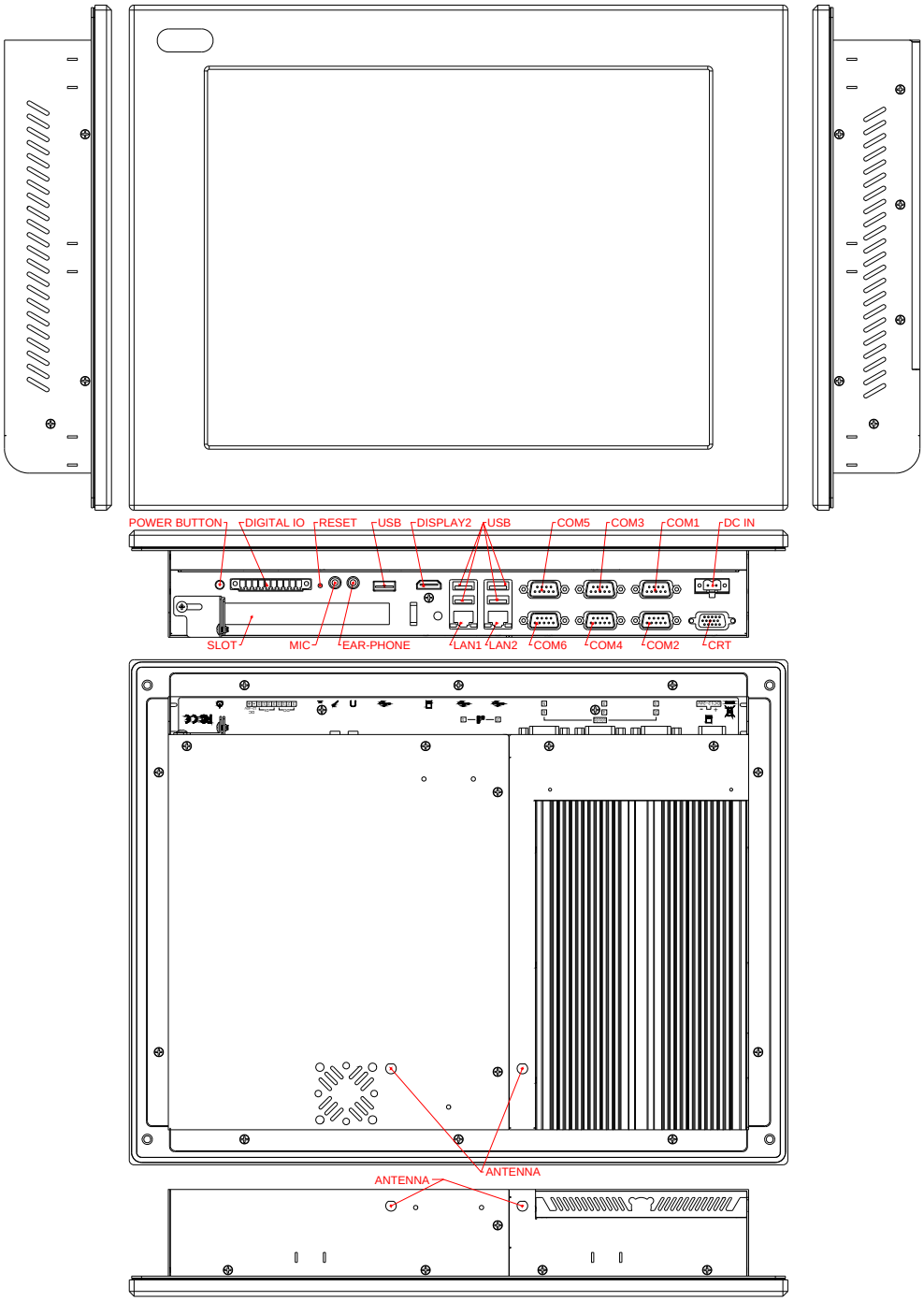
The FP8153 is perfect for ATM machines, KIOSK, point-of-sales/point-of- information, gaming and infotainment, measurement technology, lotteries, banking and Thin Client and small Embedded Control. The unit is only 400mm (W) x 64.9mm (D) x 307mm (H).

Series Comparison Table

Model	FP8153T
System Processor	Intel ® Atom™ E3845 1.91GHZ (Bay Trail)
*Memory 204 Pin-DIMM*2*	*DDR3L-1333 4GB / 8GB (Max.)*
Multi I/O	*Two RS232/RS422/RS485 and Four RS232*
USB 2.0 / 3.0	*Four / One*
Audio	*Mic-In and Ear-Phone*
RJ45 LAN port (10/100/1000 Mbps)	*Two Realtek RTL8111F*
GPIO	*4-In/4-Out*
PCIe Mini-Card Socket	*One*
SIM Card Socket	*One*
Storage	*One CFAST and SATA*
Panel Display Type	15' TFT LED LCD
Max. Resolution	*1024x768*
Max. Colors	*16.2M(RGB 8-Bit)*
Luminance(cd/㎡)	*500 cd/㎡*
Dot Size(mm)	*0.297*0.297*
Viewing Angle(H/V)	*80°/80°*
Lamp Life	*50,000Hrs*
Touch Screen (w/T)	5 Wire, Analog Resistive
Resolution	*2048x2048*
Light Transmission	*80%±%5*
Life Time	*10 Million Activations*
Operating Temperature	0 ~+60℃(32~140℉)
Storage Temperature	-20~+70℃(4~158℉)
Dimensions (Unit: mm)	400(W) x 64.9(D) x 307(H)

Layout

FP8153



Specifications

- ***Processor Board –***

  Intel ® Atom™ E3845 1.91GHZ (2M L2 Cache) Low Power Processor with 4GB DDR3L/1333-RAM

- ***I/O Outlets –***

  Two PCIe 10/100/1000 base-TX Ethernet LAN ports with RJ45

  Two RS-232/RS422/RS485 port and four RS232 ports with DB9

  One HD display port and VGA display with DB15

  Five USB ports (Include one 3.0 port)

  Audio connector for Earphone and Mic-in

  One terminal block for 4-In and 4-Out Isolated Digital I/Os

  One PCIe Mini card socket modules, especially for WLAN/GPRS module

  One terminal block for DC-In Power and one power Button

- ***Storage Bay-***

  CFAST Compact Flash socket for CFAST Compact Flash modules

  One 2.5" SATA hard disk space

- ***LCD Display-***

  Front panel with 15-inch color LVDS TFT LCD panel.

  Supports up to XGA 1024x768 16.2M colors

- ***Resistive Touch screen –***

  5-wire analog resistive touch screen device with USB interface.

  The USB interface Software support Windows 7/ 8/ 8.1/ 10, WES7

- ***Power requirement –***

  +12V ~ +24V DC, 2.74A Maximum (1.76A typical) with DC19V Input

- ***Dimensions –***

  400mm (D) x 64.9mm (W) x 307mm (H)

- ***Certifications-***

  EMC: CE/FCC

- ***Others-***

  Front panel protection Approval: IP65 Compliant

  Weight: 7.6 Kg (Standard packing)

Packing List

Upon receiving the package, verify the following things. Should any of the mentioned happens, contact us for immediate service.

- Unpack and inspect the FP8153package for possible damage that may occur during the delivery process.
- Verify the accessories in the package according to the packing list and see if there is anything missing or incorrect package is included.
- If the cable(s) you use to install the FP8153is not supplied from us, please make sure the specification of the cable(s) is compatible with the FP8153 system.

Note: After you install the FP8153, it is recommended that you keep the diskette or CD that contains drivers and document files, and keep the document copies, or unused cables in the carton for future use.

The following lists the accessories that may be included in your FP8153 package. Some accessories are optional items that are only shipped upon order.

- One FP8153T industrial Panel PC.
- One pack of (4+4+4) screws for 2.5" SATA hard disk installation, mini-card installation, and spare parts.
- One pack of 2 apartable terminal blocks, 2-pin for power input and 10-pin for isolated digital I/Os.
- One pack of embedded Mount kit. (8 metals with 8 screws)
- One compact disc includes software utility and manuals.

Optional:

- AK1006 (P/N: 060610028G) – For Half size mini PCIe module adapter kits.
- FP8152K1 (PN: 0606010042R) – For Wall Mounting Kit (VESA 75x75/100x100)
- FP8152K2 (PN: 0606010043R)- Slot Guide Kit for Add-On Card
- FB4757 (PN: 0153020012G) –PCIe to PCI Riser Card

Chapter 2 Hardware Installation

This chapter introduces the system connectors and guides you to apply them for field application.

Before Installation

Before you install the system, make sure you follow the following descriptions.

1. Before removing the cover, shut down the operation System and disconnect power switch to off and unplug AC cable.

2. Install or unplug any connector, PCIe card (Mini-PCI), CFAST Compact Flash, and hard disk be sure that the power is disconnected or power switch to off from the system. If not, this may damage the system.

3. The ESD (Electricity Static Discharge) may be created from human body that touches the board. It may do damage to the board circuit.

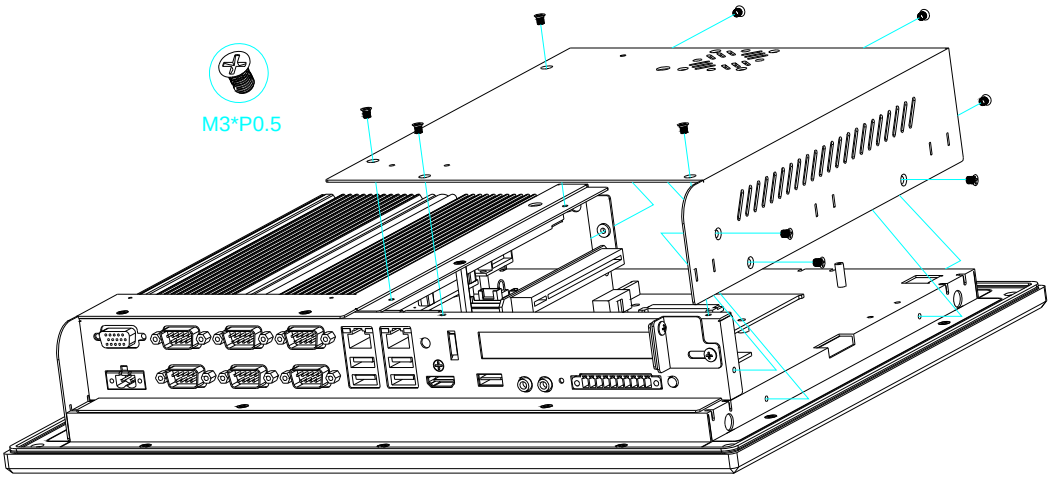
4. When using the screwdriver on screws, before make sure the screws size and type, if uses the not correct unscrews or screws of system, the screwdriver may break the screws.

❑ To install hardware- Remove the Side Cover

If you are installing following hardware items, you can remove the side cover. The following figure will guide you how to install SATA 2.5" HDD, CFAST Compact Flash, mini PCIe WLAN or GPRS module to the FP8153T and how to install the FP8153T fixers. (Please see the spots circled.)

a. Unscrew Side Cover

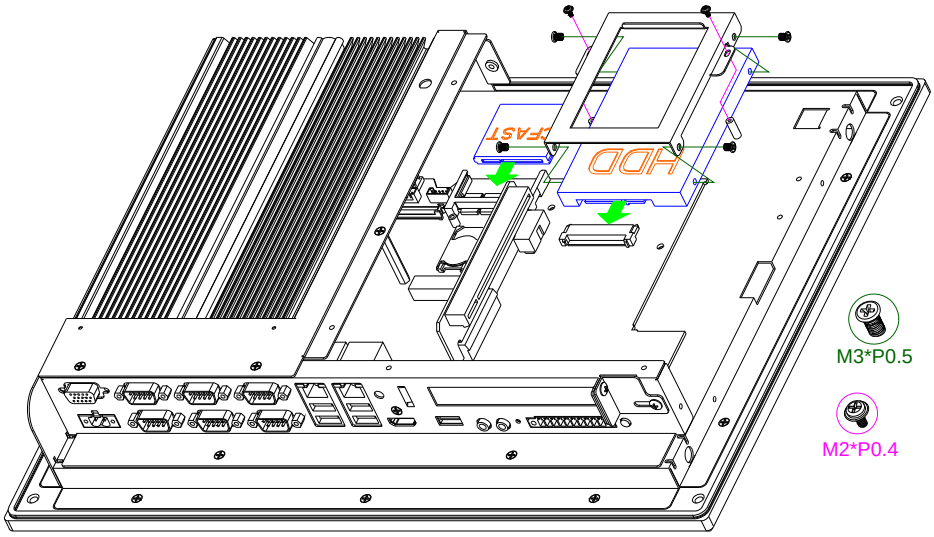
Use a cross-head screwdriver to remove ten screws that secure the side cover.



b. Installing SATA Hard disk and CFAST

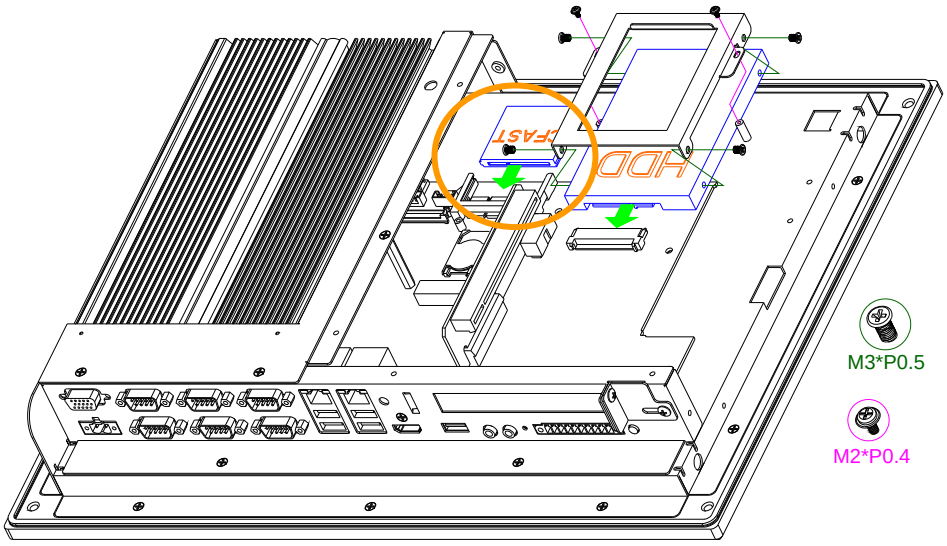
Faster Screws up the Hard disk device to HDD metal frame then insert to SATA slot and screws up metal frame to system. See following figure.

✧ ***b1: Fasten Screws the SATA HDD into the HDD Metal Frame***



Note: Use caution when handling the hard disk to prevent damage to SATA connector as you inserts hard disk. Gently slide the hard disk into the SATA connector and stop when you feel resistance.

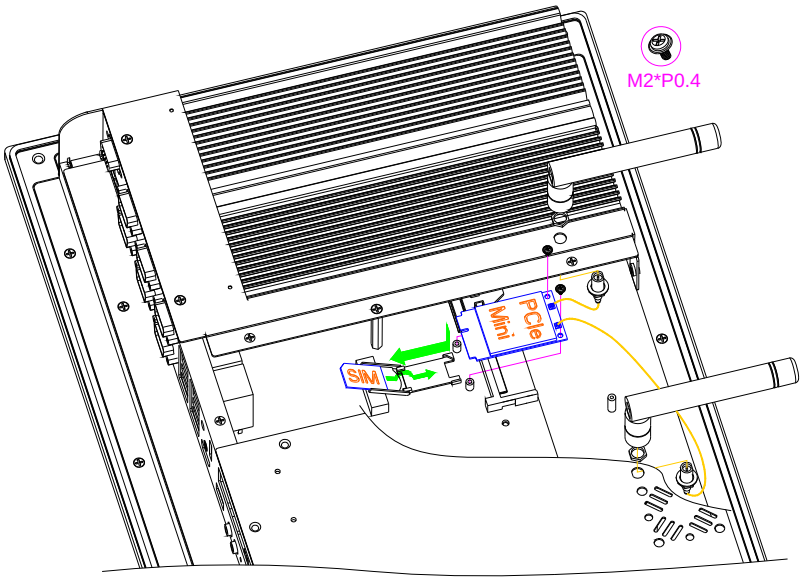
✧ ***b2: Installing CFAST Compact Flash***



c. Installing PCIe Mini Card Module

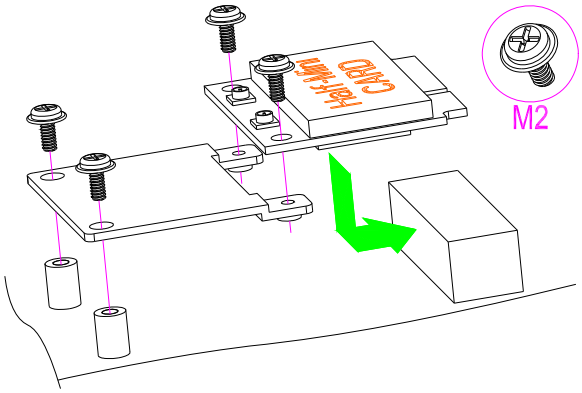
FP8153T supports PCIe mini card socket; you may extend additional PCIe mini card module and SIM card to system. Connect to the antenna cable from side cover antenna holes to GPRS or Wireless LAN module and install the SIM card for GPRS. See following figures.

✧ ***c1. Installing PCIe Mini Card and SIM card***



Note: 1. When installing PCIe GPRS Mini card on system these is need the installing the SIM Card to SIM socket.
2. The insert SIM card into the SIM card socket. Make sure that the SIM card is properly inserted and that golden contact area on the card is facing downwards.

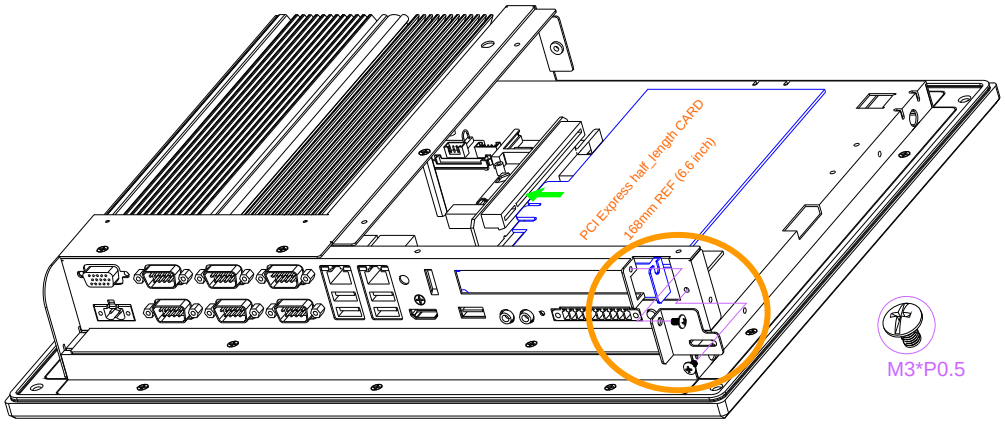
✧ ***c2. Installing AK1006 kit (Optional) - for Half Size Mini PCIE module***



d. To installing Expansion Card – PCI/PCIE Card

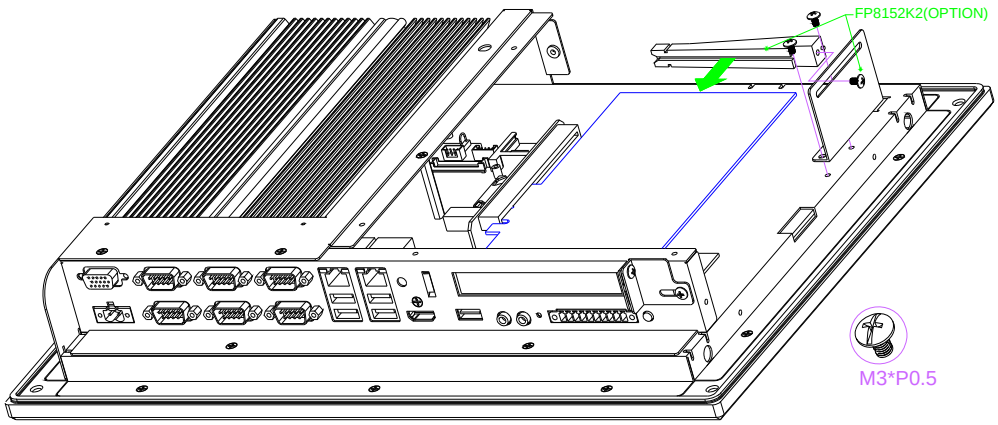
If you are installing Expansion PCIE hardware interface card, you can remove the side cover. The following figure will guide you how to install PCIE interface card inside the FP8153 and screw the L-Type Metal on the PCIE card Bracket and expansion card holder. (Please see the spots circled.)

✧ ***d1. Installing PCIE Expansion Card***



Note: The PCIE bus supports x1 lane via PCIE x16 slot.

✧ ***d2. Installing FP8152K2 Kit (Optional) – Add-On card holder***

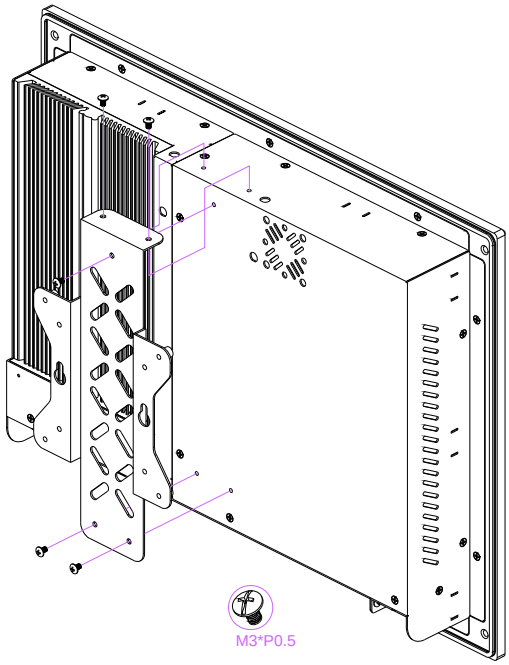


Note: The FP8152K2 kit – Add-On card holder can length range is 125 ~ 188 mm.

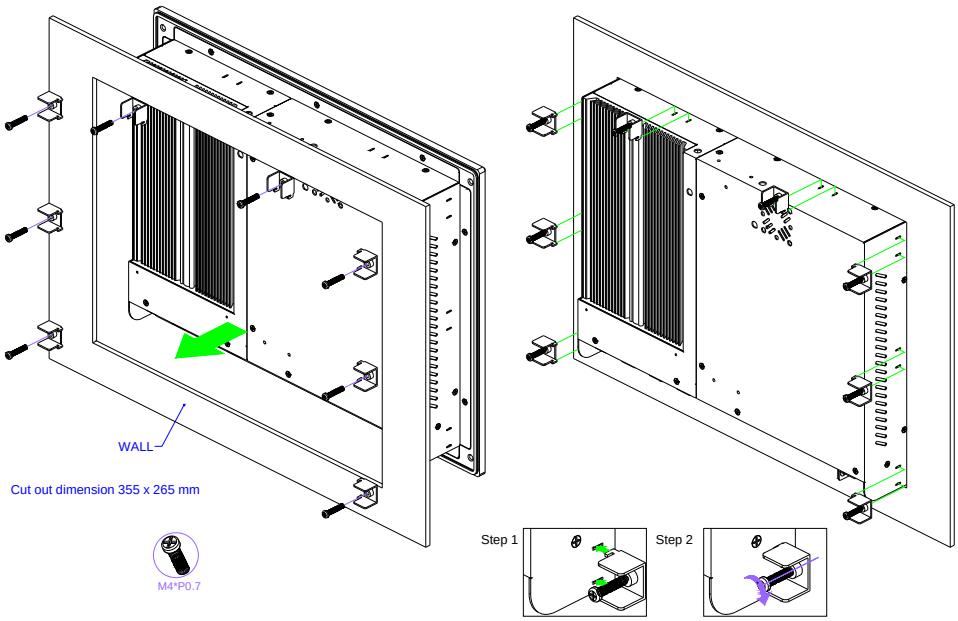
e. Installing the universal fixers on FP8153

Please refer to the back side figure for installing the FP8153 with universal fixers.

e1. FP8152K1 (Optional) – Mounting Kit with VESA 75/100 mm Standards



e2. Embedded Wall mounting

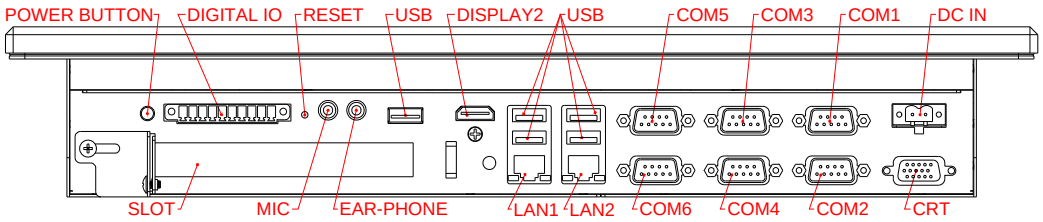


e3.

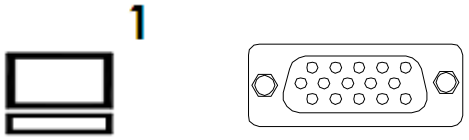
□ I/O Peripheral Connectors

View from the bottom side, if you are connecting the monitor, LAN, COM, Digital I/O, Audio, VGA, DISPLAY2, and USB to the FP8153. See following figure and a side pictures.

a. Bottom Side of FP8153 Panel PC



1. Connecting the Display1: VGA (CRT)

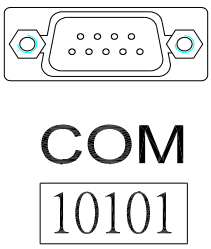


DB15	Signal
1	Red
2	Green
3	Blue
13	Hsync
14	Vsync
12	DDC Data(*)
15	DDC Clock(*)
5 & 10	Digital Ground
6,7,8	Analog Ground
Others	Not Used

2. Connecting the Display2: HD

3. Connecting the COM ports

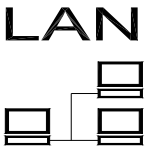
The DB9 (COM3~COM6) is standard serials port connector. The COM1 and COM2 are designed for multiple proposes; its can select RS232/RS422/RS485 by BIOS CMOS setting. The following tables show the signal connections of these connectors.



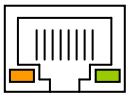
DB-9	RS-232	RS-422	RS-485
1	-DCD	TX-	485-
6	-DSR		
2	RXD	TX+	485+
7	-RTS		
3	-TXD	RX+	
8	-CTS		
4	-DTR	RX-	
9	-RI		
5	Ground		
Metal	Case Ground		

4. Connecting the LAN ports

The RJ45 connector with 2 LED's for WAN/LAN. The left side LED (orange) indicates data is being accessed and the right side LED (green) indicates on-line status. (On indicates on-line and off indicates off-line)The following lists the pin assignment of RJ45. (LAN2 Support Wake-On-LAN)



RJ45 connector

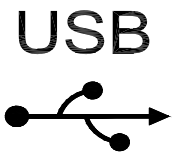


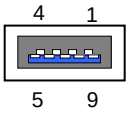
(Front View)

RJ45	LAN	RJ45	LAN
1	MDI0+	5	MDI2+
2	MDI0-	6	MDI2-
3	MDI1+	7	MDI3+
4	MDI1-	8	MDI3-

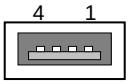
5. Connecting the USB Ports

The system supports a five port USB connectors. Any USB device can be attached to USB ports as plug-and-play function is supported. The rear panel of right side port USB # 1~4 support USB 2.0, and USB #5 can support USB2.0/3.0.





USB 3.0



USB 2.0

(Front View)

USB	Signal
1	USBV
2	USBD- (V2.0)
3	USBD+(V2.0)
4	USBG
5	StdA_SSRX-(V3.0)
6	StdA_SSRX+(V3.0)
7	USBG (V3.0)
8	StdA_SSTX-(V3.0)
9	StdA_SSTX+(V3.0)

6. Connecting the Audio

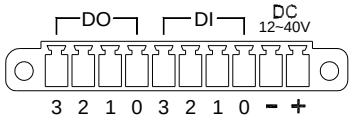
Mic-In

EAR-Phone

7. Digital I/O Connector

The FP8153 provides 4-in and 4-out isolated digital I/O, output port is an open collector, you will need connections external voltage of Digital (+) and digital (-) connector.

D I/O



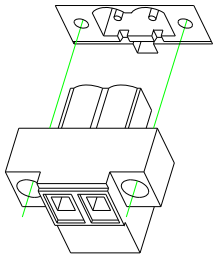
DI/O	Signal	Bit Location
+	Digital Voltage	Please refer to Chapter 4- Digital I/O - Software programming example
-	Digital Ground	
DI-0	Digital-IN0	
DI-1	Digital-IN1	
DI-2	Digital-IN2	
DI-3	Digital-IN3	
DO-0	Digital-Out0	
DO-1	Digital-Out1	
DO-2	Digital-Out2	
DO-3	Digital-Out3	

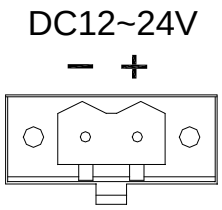
Note: Digital inputs accept DC12~40V Signal with isolated input. Digital outputs are active-low open collector output, and can drive up to 60V/400mA maximum.

□ Connecting the DC Power and Power Button

Power is supplied through an external power DC In. See following figure and a side pictures.

1. DC Power Connector: Use external 2-pin apartable terminal block.

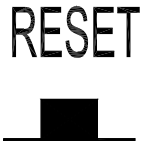




DC +12V~+24V, 65VA minimum

2. Power Button & Reset Push Button: Pushing the Power button once will switch the FP8153 on and off, depending on system BIOS (Chipset > South Bridge > Restore AC Power Lose).And Reset push button is switcher for system reset; Push and release the button will cause hard ware reset of FP8153 and restart system booting.

Power button: On/Off



Reset Push Button: Restart

Chapter 3 BIOS Setup

This chapter describes the BIOS setup.

Overview

BIOS are program located on a Flash memory chip on a circuit board. It is used to initialize and set up the I/O peripherals and interface cards of the system, which includes time, date, hard disk drive, and connected devices such as the video display, diskette drive, USB device, and the USB keyboard. This program will not be lost when you turn off the system.

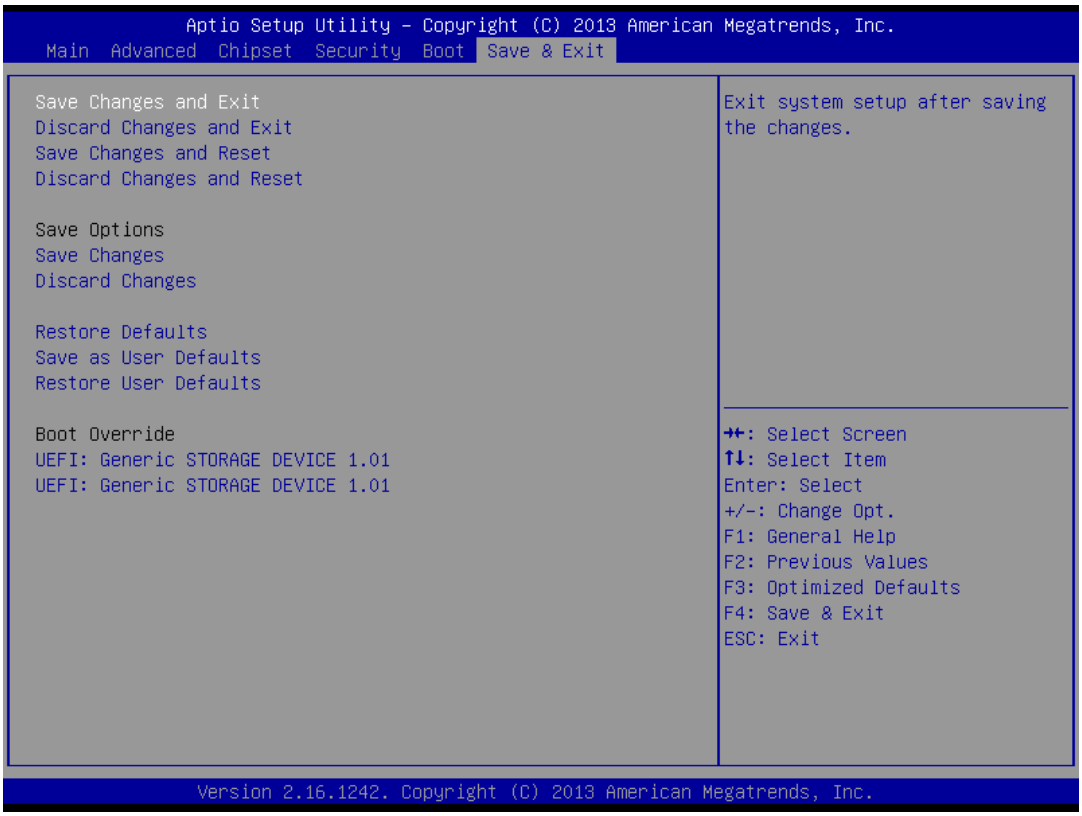
The BIOS provides a menu-driven interface to the console subsystem. The console subsystem contains special software, called firmware that interacts directly with the hardware components and facilitates interaction between the system hardware and the operating system.

The BIOS default values ensure that the system will function at its normal capability. In the worst situation the user may have corrupted the original settings set by the manufacturer.

All the changes you make will be saved in the system RAM and will not be lost after power-off.

When you start the system, the BIOS will perform a self-diagnostics test called Power On Self Test (POST) for all the attached devices, accessories, and the system. Press the [Del] or [ESC] key to enter the BIOS Setup program, and then the main menu will show on the screen.

Note: Change the parameters when you fully understand their functions and subsequence.



□ BIOS Functions

On the menu, you can perform the following functions

1. Main
2. Advanced
   - ACPI Settings
   - IT8786 Super IO Configuration
   - NCD7904D HW Monitor
   - Serial Port Console Redirection
   - CPU Configuration
   - IDE Configuration
   - Miscellaneous Configuration
   - SCC Configuration
   - Network Stack Configuration
   - CSM Configuration
   - USB Configuration
   - Security Configuration
   - Realtek PCIe GBE Family Controller
3. Chipset
   - Host Bridge
   - South Bridge
4. Security
5. Boot
6. Save & Exit

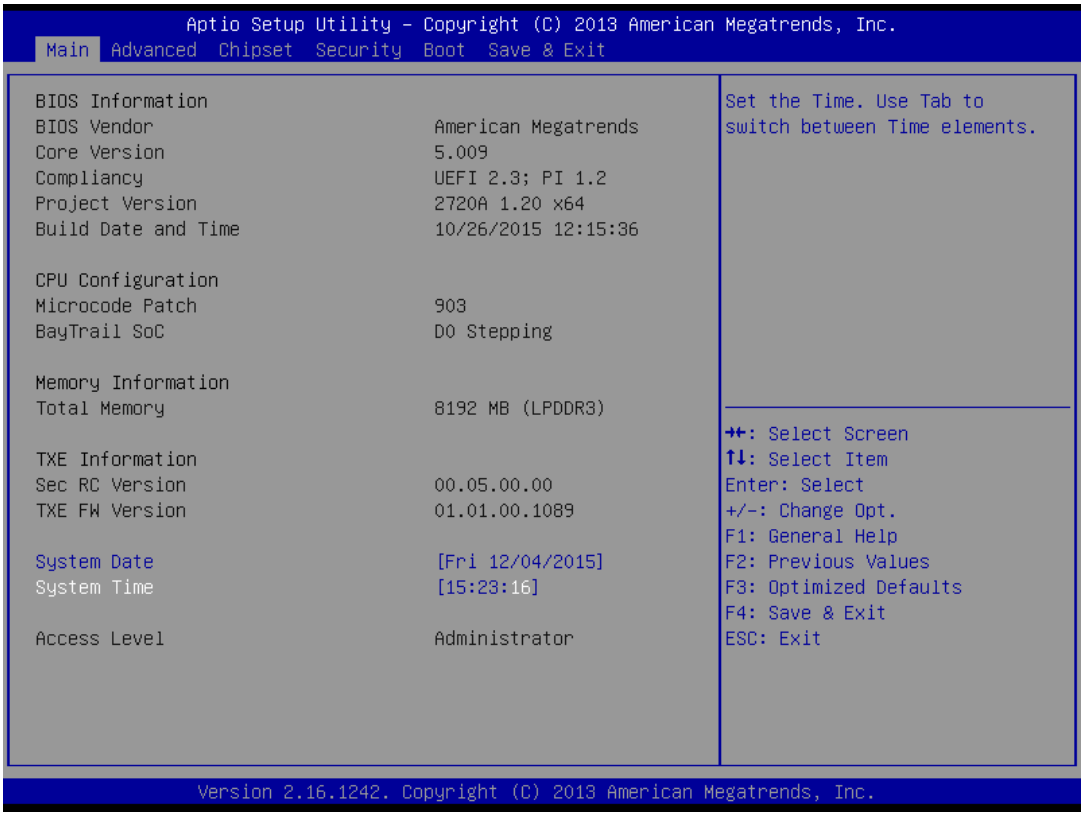
- **Keyboard Convention**

On the BIOS, the following keys can be used to operate and manage the menu:

Key	Function
[↑][↓]	The Up and Down keys allow you to select item.
[←][→]	The Left and Right keys allow you to select screen.
[Enter]	The Enter key allows the user to select an option to edit its value or access a sub menu.
[+]/[-]	The Plus and Minus keys allow you to change the field value of a particular setup item.
[F1]	General Help.
[F2]	Previous Values.
[F3]	Optimized Defaults.
[F4]	Save current configuration and exit.
[ESC]	To exit the current menu or message.

Main Setup

This section describes BIOS version information and basic system hardware configuration. If the CPU board is already installed in a working system, you will not need to select this option anymore.



System Date & Time Setup

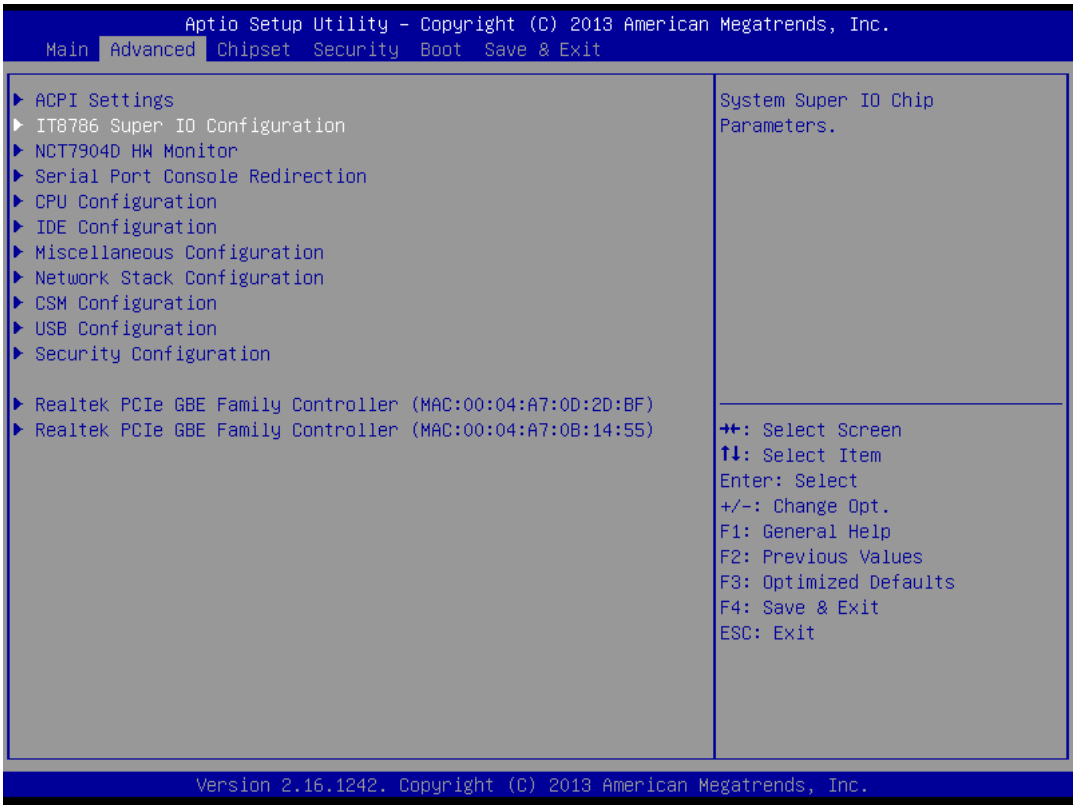
Highlight the <Date> field and then press the [+]/ [-] keys or enter new values to set the current date. Follow the month, day and year format.

Highlight the <Time> field and then press the [+]/ [-] keys or enter new values to set the current date. Follow the hour, minute and second format.

The user can bypass the date and time prompts by creating an AUTOEXEC.BAT file. For information on how to create this file, please refer to the MS-DOS manual.

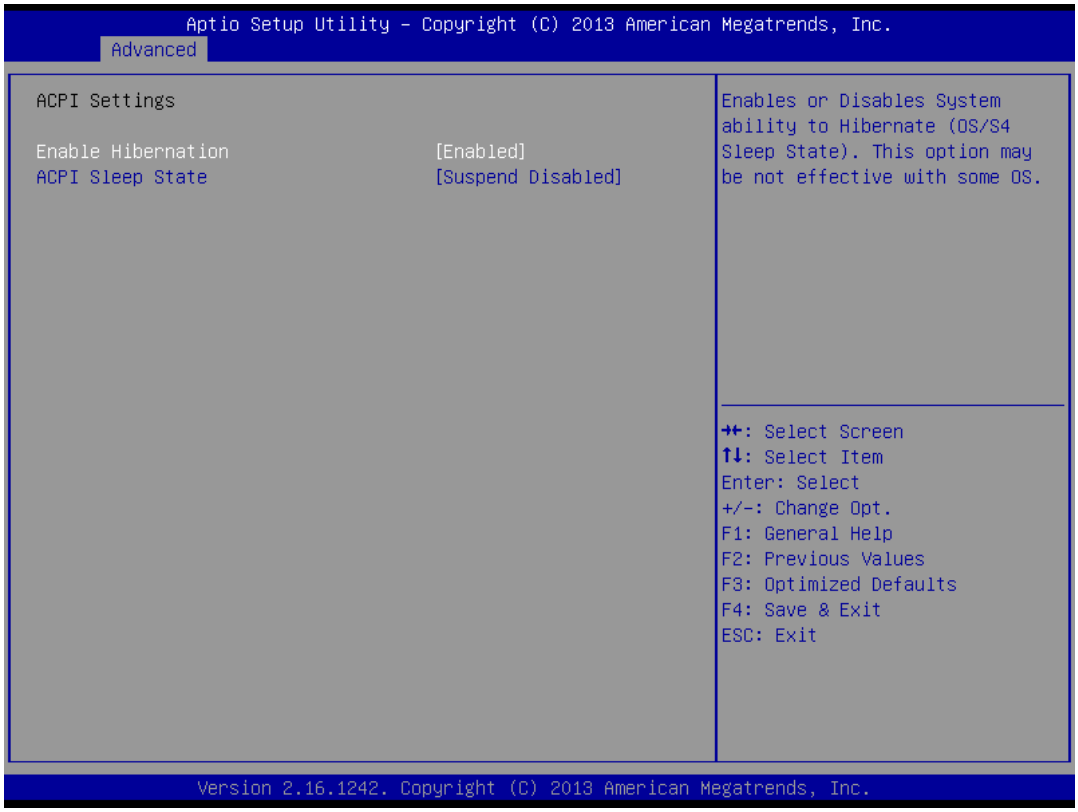
Advanced Setup

Select the Advanced tab from the setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as USB Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages



- **ACPI settings**

This filed specifies allow you set this value to utilize the ACPI (Advanced Configuration and Power Interface) specification.



Enable Hibernation

This item allows users to enable or disable system ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

Available Options: Disabled, Enabled

Default setting: Enabled

ACPI Sleep State

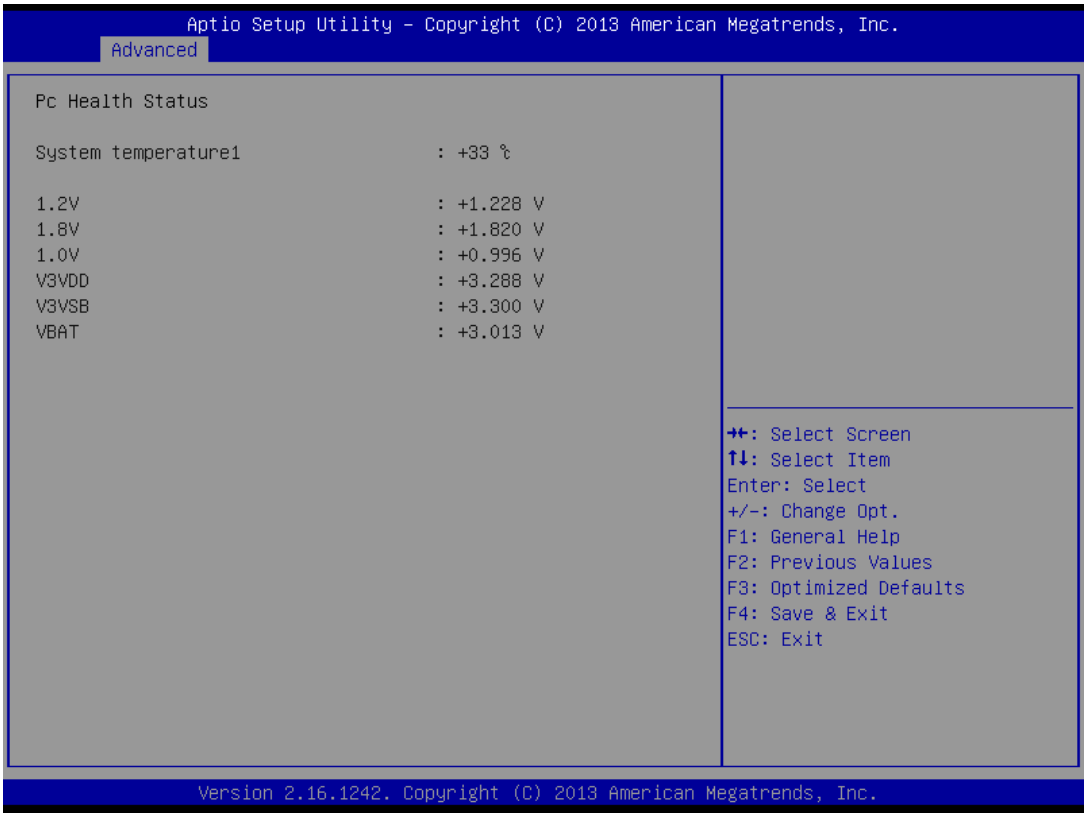
This item allows users to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Available Options: Suspend, Disabled, and S3 (Suspend to RAM)

Default setting: Suspend Disabled

❑ Hardware Monitor Configuration

On the Hardware Monitor Setup screen, you can monitor the system, 1.2V, 1.8V, 1.0V V3VDD, V3VSB voltage, and VBAT voltage...

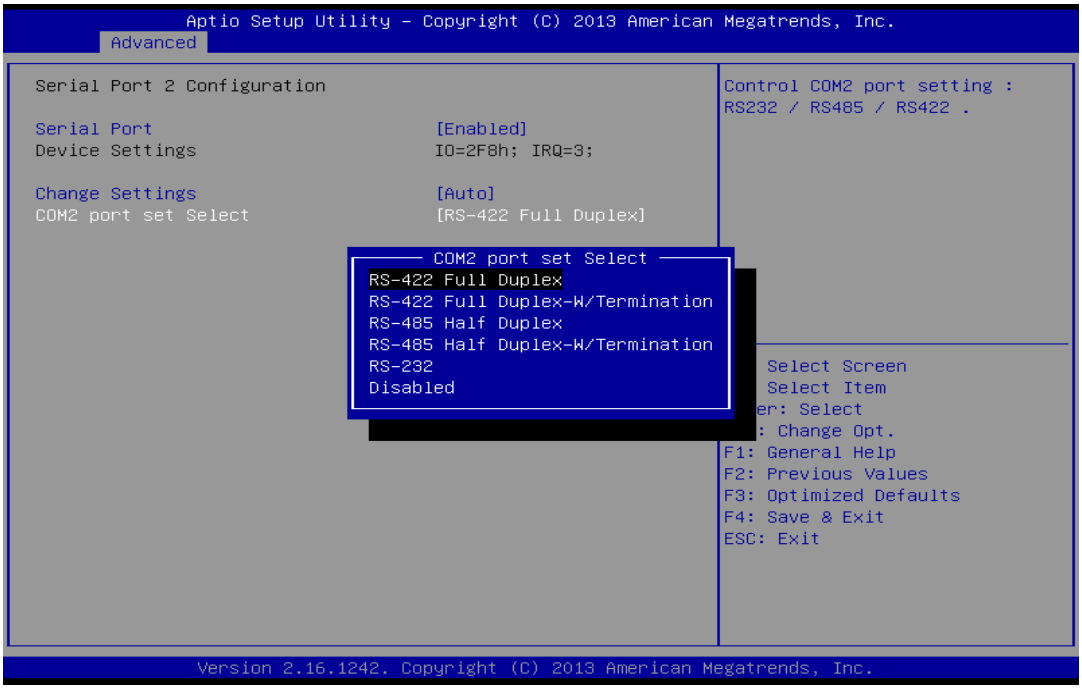


❑ IT8786 Super IO Configuration

This section describes the function of Super I/O settings.

Serial Port 1/ Port 2 Configuration

These fields select the I/O port address for Serial port 1 and port 2.



✧ ***Serial Port***

This item allows users to select the enable or disable Serial port.

Available Options: Enabled, and Disabled.

Default setting: Enabled

Change Settings

This item allows users to select the port address and IRQ...

Available Options: Auto, IO=3F8; IRQ=IRQ4, IO=3F8; IRQ=IRQ3/4/5/7/9/10/11/12, IO=2F8; IRQ=IRQ3/4/5/7/9/10/11/12, IO=3E8; IRQ=IRQ3/4/5/7/9/10/11/12, and IO=2E8; IRQ=IRQ3/4/5/7/9/10/11/12

Default setting: Auto (Device Setting: COM1 IO=3F8; IRQ4, COM2 IO=2F8; IRQ=3)

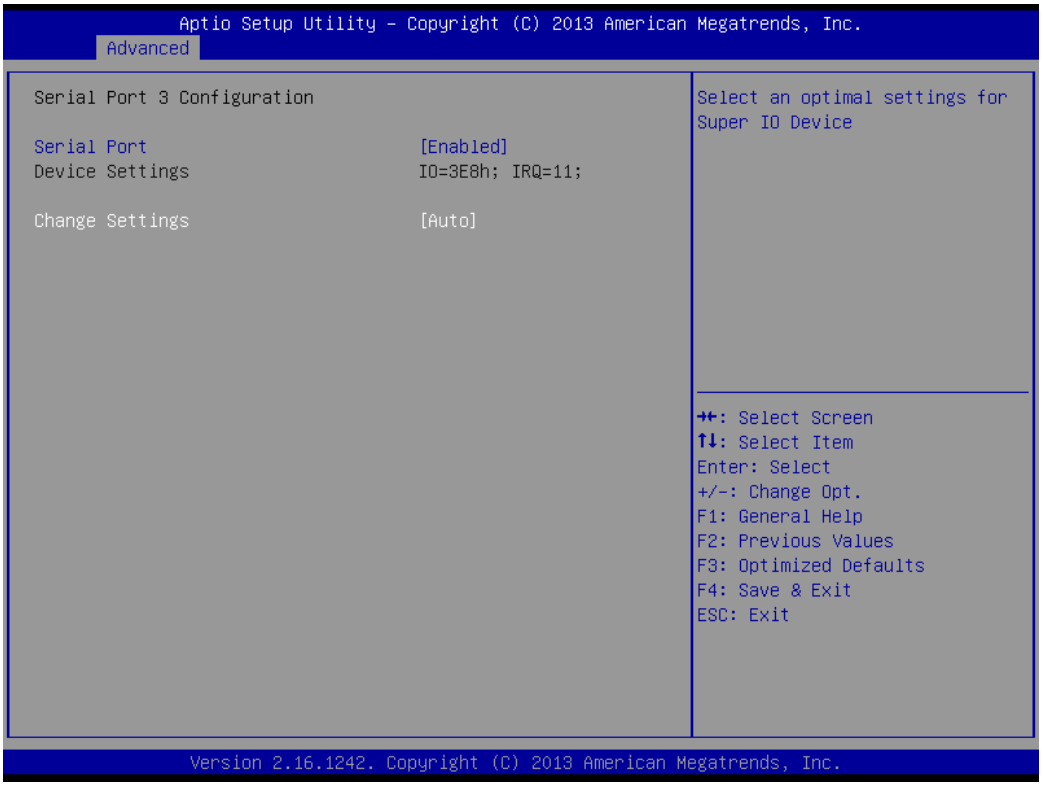
COM 1/COM2 Port Set Select

This item allows users can select RS-232, RS-422 and RS-485 of select COM1/COM2.

Available Options: RS-232, RS-422 Full Duplex, RS-422 Full Duplex-W/Termination, RS-485 Full Duplex, and RS-485 Full Duplex-W/Termination

Default setting: RS-232

Serial Port 3/4/5/6 Configuration



✧ ***Serial Port***

This item allows users to select the enable or disable Serial port.

Available Options: Enabled, and Disabled.

Default setting: Enabled

Change Settings

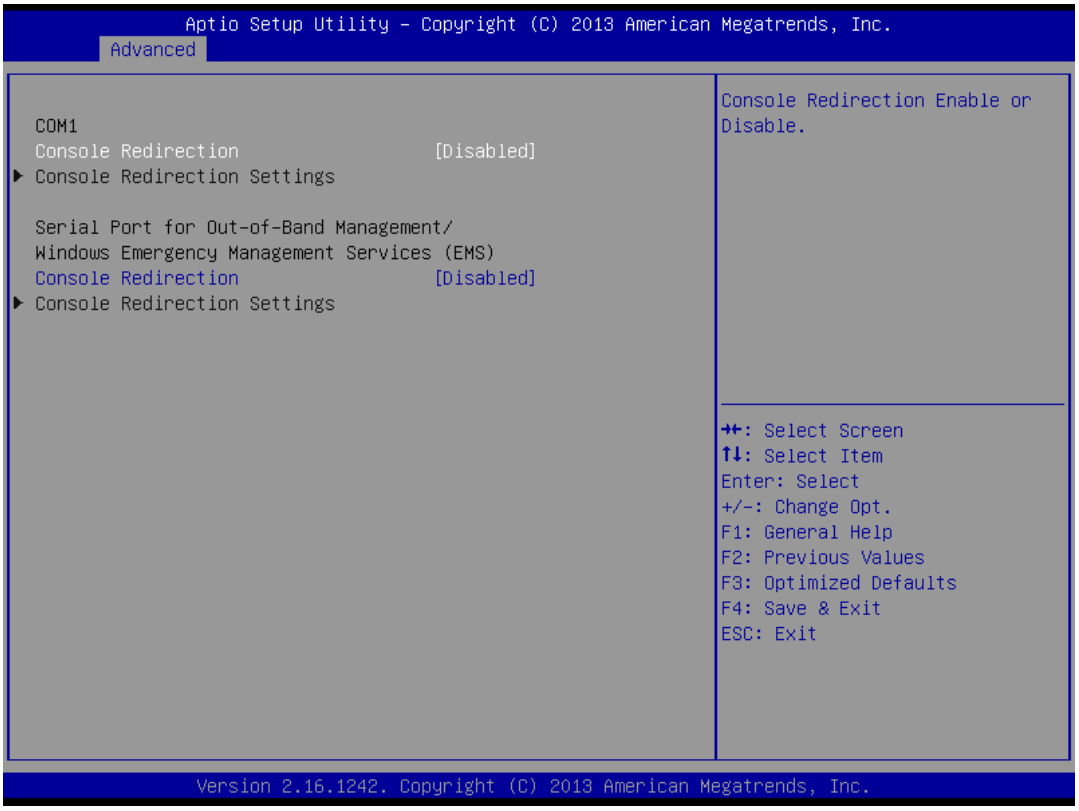
This item allows users to select the port address and IRQ...

Available Options: Auto, IO=3F8; IRQ=IRQ4, IO=3E8; IRQ=IRQ3/4/5/7/9/10/11/12, IO=2E8; IRQ=IRQ3/4/5/7/9/10/11/12, IO=2F0; IRQ=IRQ3/4/5/7/9/10/11/12, and IO=2E0; IRQ=IRQ3/4/5/7/9/10/11/12

Default setting: Auto (Device Settings: COM1- IO=3F8; IRQ=4, COM3- IO=3E8; IRQ=11; COM4- IO=2E8; IRQ=10, COM5- IO=3E0; IRQ=12, COM6- IO=2E0; IRQ=6

□ Serial Port Console Redirection

This option turns on console redirection support in the BIOS and is the default setting. The remote access feature requires the use of the COM1 connector located at the rear panel of the FP8153.



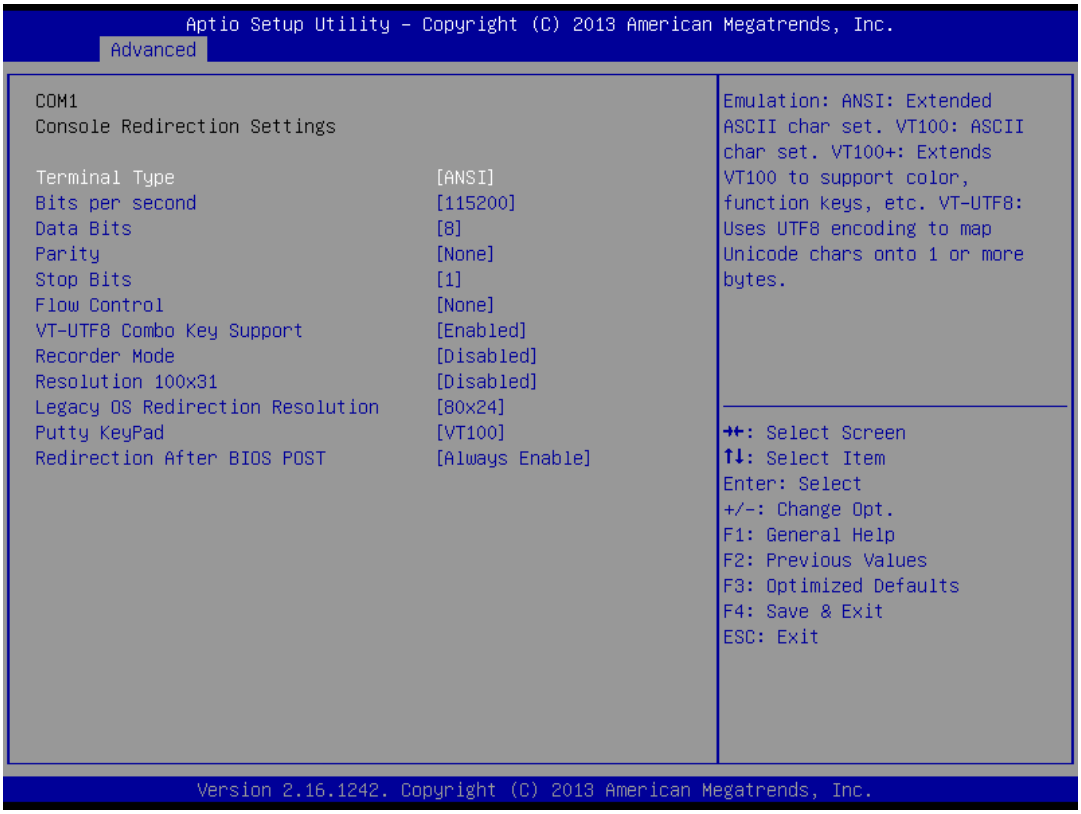
COM1 - Console Redirection

This field is select console redirection Enable or disable.

Available Options: Enabled, and Disabled

Default setting: Disabled

✧ ***Console Redirection Setting***



Terminal Type

This field is selecting the target terminal type.

Available Options: VT100, vt100+, VT-UTFB, and PC_ANS1

Default setting: VT100

Bits per Second

This field is select Serial ports can use baud rate. Just keep in mind that speed must match terminal setting.

Available Options: 9600, 19200, 57600, and 115200

Default setting: 115200

Data Bit

This field is select Serial ports can use data bit. Just keep in mind that the data bits must match terminal setting.

Available Options: 7 Bots, and 8 Bits

Default setting: 8 Bits

Parity

This field is select Serial ports can use parity mode. Just keep in mind parity must match terminal setting.

Available Options: None, Even, Mark, and Spcae

Default setting: None

Stop Bit

This field is select Serial ports can use any mode. Just keep in mind that the bits per second and stop bits must match terminal setting.

Available Options: 1 Bit, and 2 Bit

Default setting: 1 Bit

Flow Control

This field is Serial ports can use flow control for console redirection.

Available Options: None, and Hardware RTS/CTS

Default setting: None

VT-UTF8 Combo Key Support

This field is select VT-UTF8 combination key support for ANSI/VT100 terminals.

Available Options: Enabled and Disabled

Default setting: Enabled

Recorder Mode

On this mode enabled only text will be sent. This is to capture Terminal data.

Available Options: Enabled and Disabled

Default setting: Disabled

Resolution 100x31

This item is select Enables or disables extended terminal resolution

Available Options: Enabled and Disabled

Default setting: Disabled

Legacy OS Redirection Resolution

On Legacy OS, the Number of Rows and Columns supported redirection

Available Options: 80x24, and 80x25

Default setting: 80x24

Putty KeyPad

This item is select FunctionKey and KeyPad on Putty

Available Options: VT100, LINUX, XTERMR6, SCO, ESCN and VT400

Default setting: VT100

Redirection After BIOS Post

These fields is select redirection is active during post and during boot loader or always active or off active. (Some Oss may not work if set to Always)

Available Options: Boot Loader and Always Enable

Default setting: Always Enable

Console Redirection (OBM/EMS)

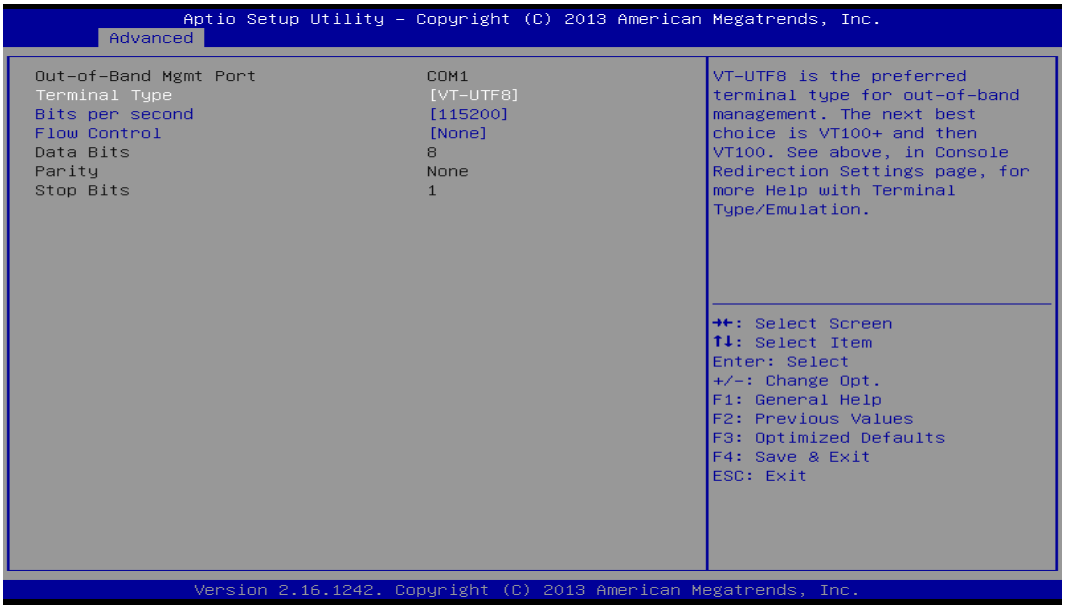
This field is select console redirection Enable or disable. Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS)

Available Options: Enabled and Disabled

Default setting: Disabled

✧ ***Console Redirection Setting – Out of Band Mgmt Port***

Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.



Terminal Type

This field is Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes...

Available Options: VT100, vt100+, VT-UTFB, and PC_ANS1

Default setting: VT100

Bits per Second

This field is select Serial ports can use baud rate. Just keep in mind that speed must match terminal setting.

Available Options: 9600, 19200, 57600, and 115200

Default setting: 115200

Flow Control

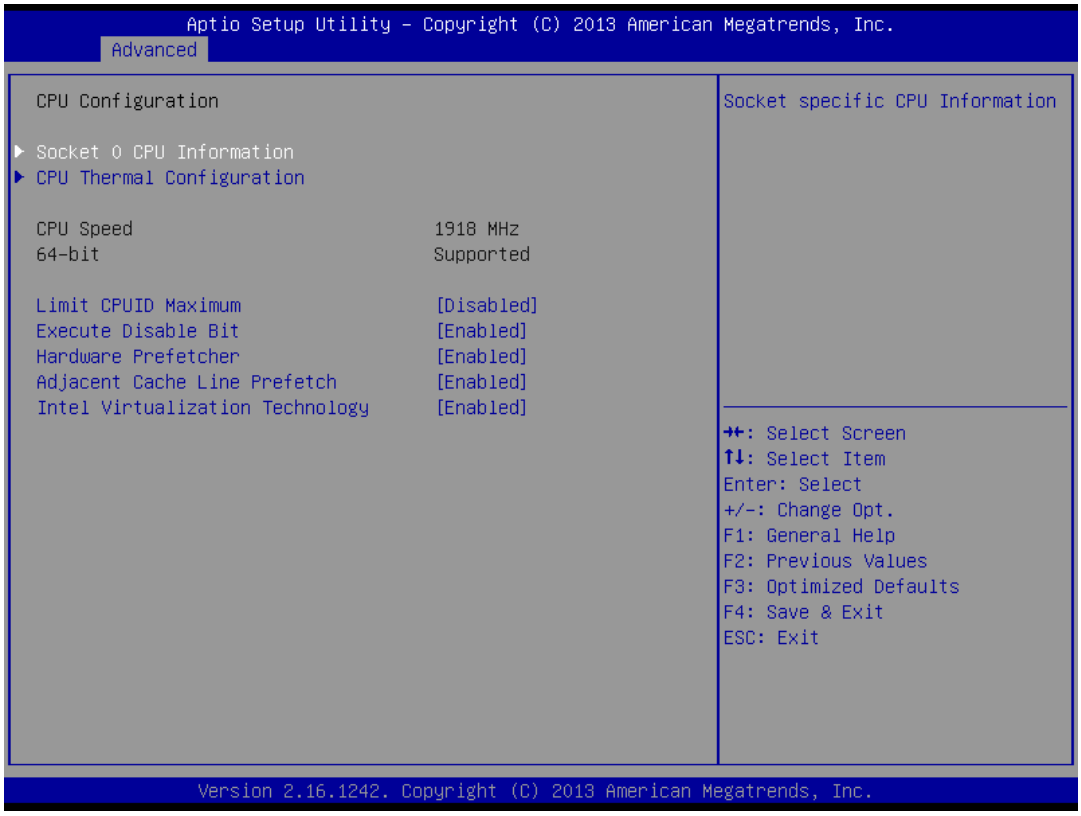
The flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Available Options: None, Hardware RTS/CTS, and Software Xon/Xoff

Default setting: None

❑ CPU Configuration

You can use this screen to select options for the CPU information. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.



Limit CPUID Maximum

This field allows users to enable or disable limit CPUID maximum, to disable this item when Windows XP.

Available Options: Disabled, and Enabled

Default setting: Disabled

Execute Disable Bit

This field allows users to enable or disable the No-Execution page protection. XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS. (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.x)

Available Options: Disabled, and Enabled

Default setting: Enabled

Hardware Prefetcher

This field allows the users to enable or disable the Mid Level Cache (L2) streamer prefetcher.

Available Options: Disabled, and Enabled

Default setting: Enabled

Adjust Cache Line Prefetch

This field allows the users to enable or disable the Mid Level Cache (L2) prefetching of adjacent cache lines.

Available Options: Disabled, and Enabled

Default setting: Enabled

Intel Virtualization Technology

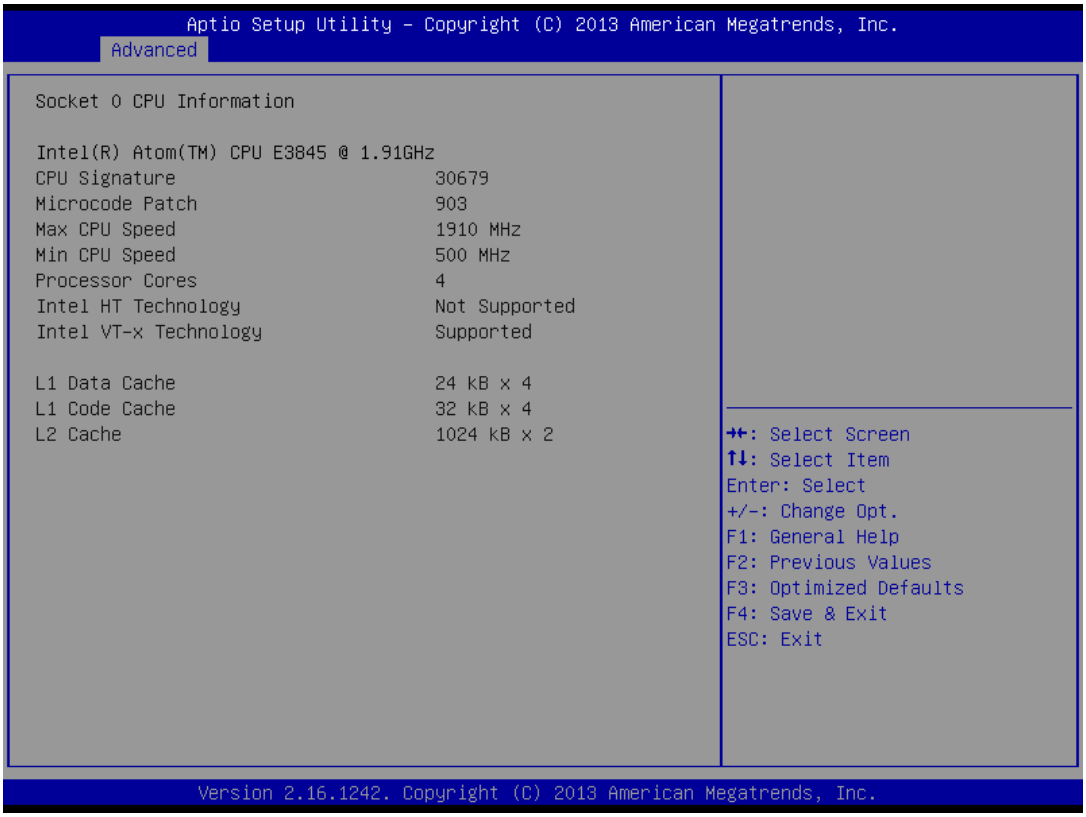
When enabled, a VMM can utilize the additional hardware capabilities provided by Vander pool Technology.

Available Options: Disabled, and Enabled

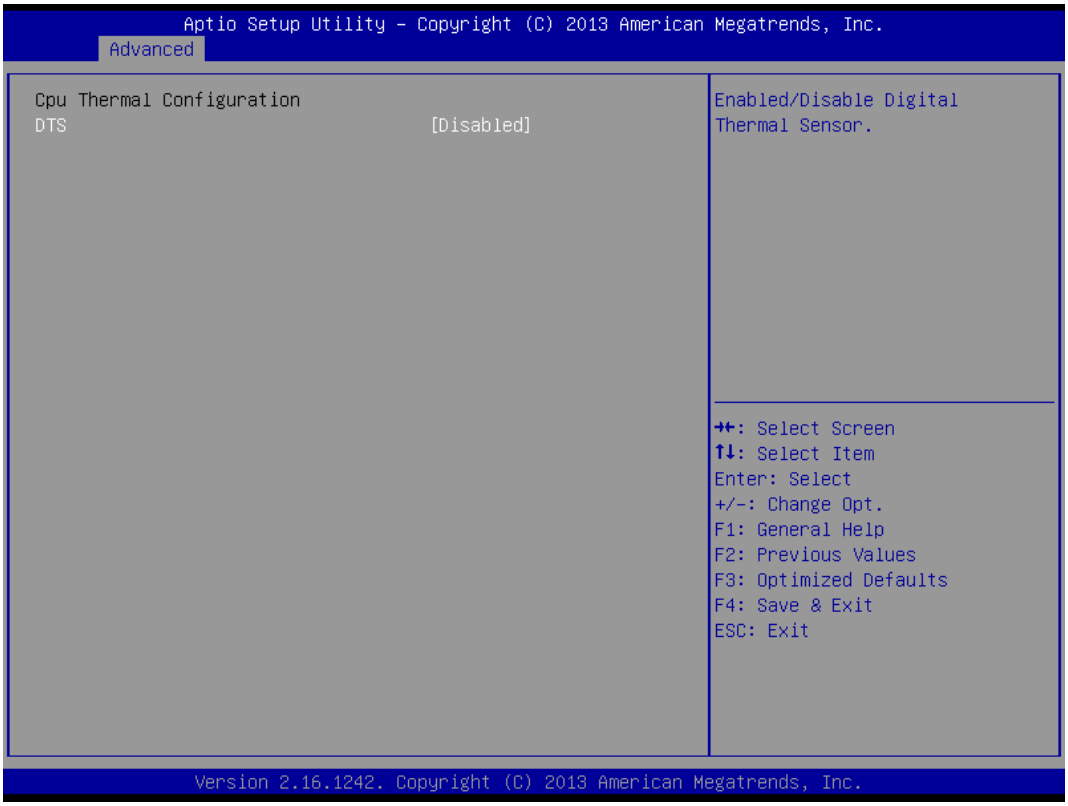
Default setting: Enabled

Socket CPU 0 information

Display CPU Information, like CPU speed and L1/L2 cache and support function.



CPU Thermal Configuration



✧ ***DTS***

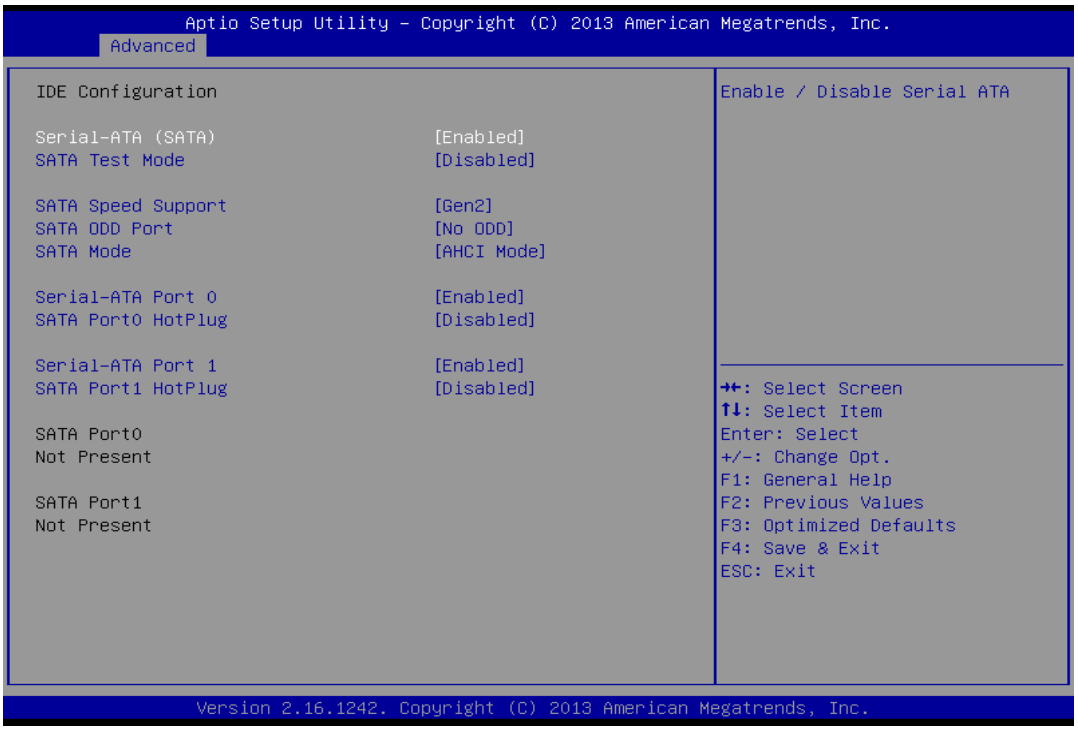
This field allows the users to enable or disable the Digital Thermal Sensor.

Available Options: Disabled, and Enabled

Default setting: Disabled

❑ IDE Configuration

You can use this screen to select options for the IDE devices Configuration.



Serial-ATA (SATA)

This item allows users to enable or disable SATA Controller.

Available Options: Disabled, and Enabled

Default setting: Enabled

SATA Test Mode

This item allows users to enable or disable SATA test mode.

Available Options: Disabled, and Enabled

Default setting: Disabled

SATA Speed Support

This item allows users can select SATA speed.

Available Options: Gen1, and Gen2

Default setting: Gen2

SATA ODD Port

Select a SATA ODD is Port0 or Port1 configuration.

Available Options: NO ODD, Port 0 ODD, and Port 1 ODD

Default setting: No ODD

SATA Mode

Select a configuration for SATA controller. Install Windows XP in AHCI mode need to use the F6 Method pre-installed AHCI driver, if you select IDE mode, you do not need to pre-install.

Available Options: IDE, and AHCI

Default setting: AHCI

SATA Port0/Port1

The system CFAST socket corresponding SATA port 0, SATA pot 1 is SATA HDD, this item allows users to enable or disable SATA port 0 or SATA port1.

Available Options: Disabled, and Enabled

Default setting: Enabled

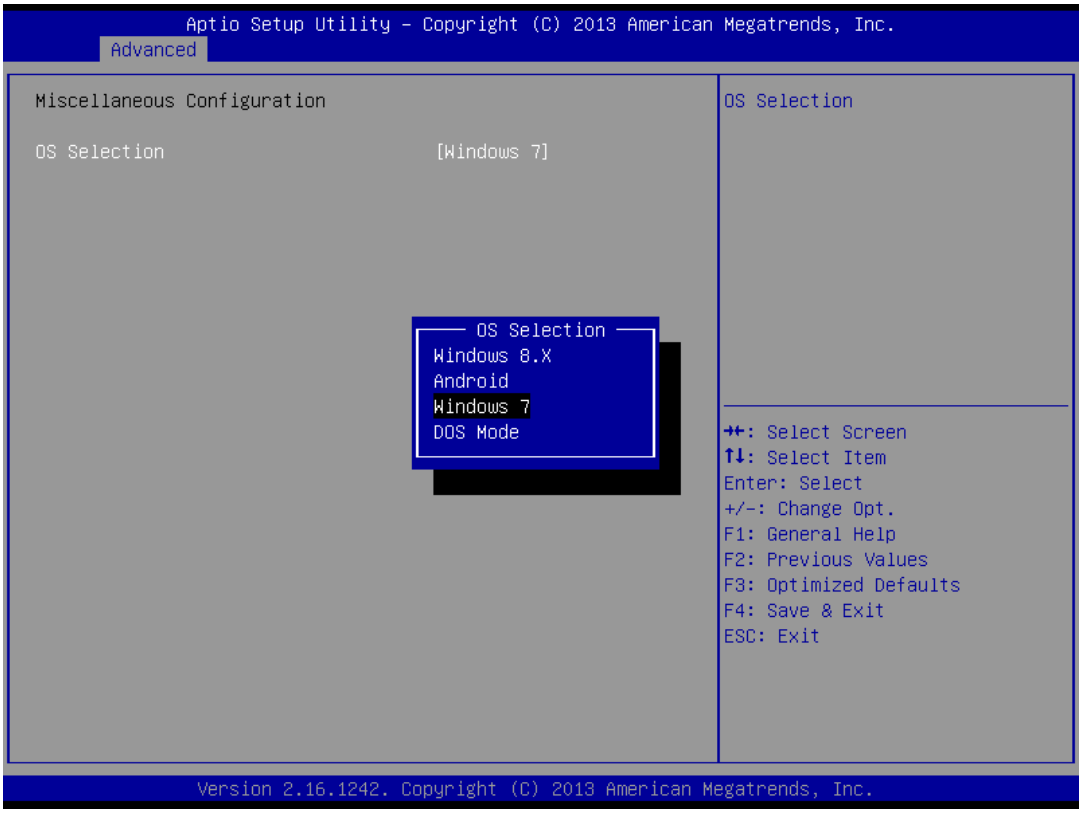
SATA Port0/Port1 HotPlug

The system SATA CFAST/HDD corresponding SATA port 0/1 hot plug, this item allows users to enable or disable SATA port 0/1.

Available Options: Disabled, and Enabled

Default setting: Disabled

- **Miscellaneous Configuration**



OS Selection

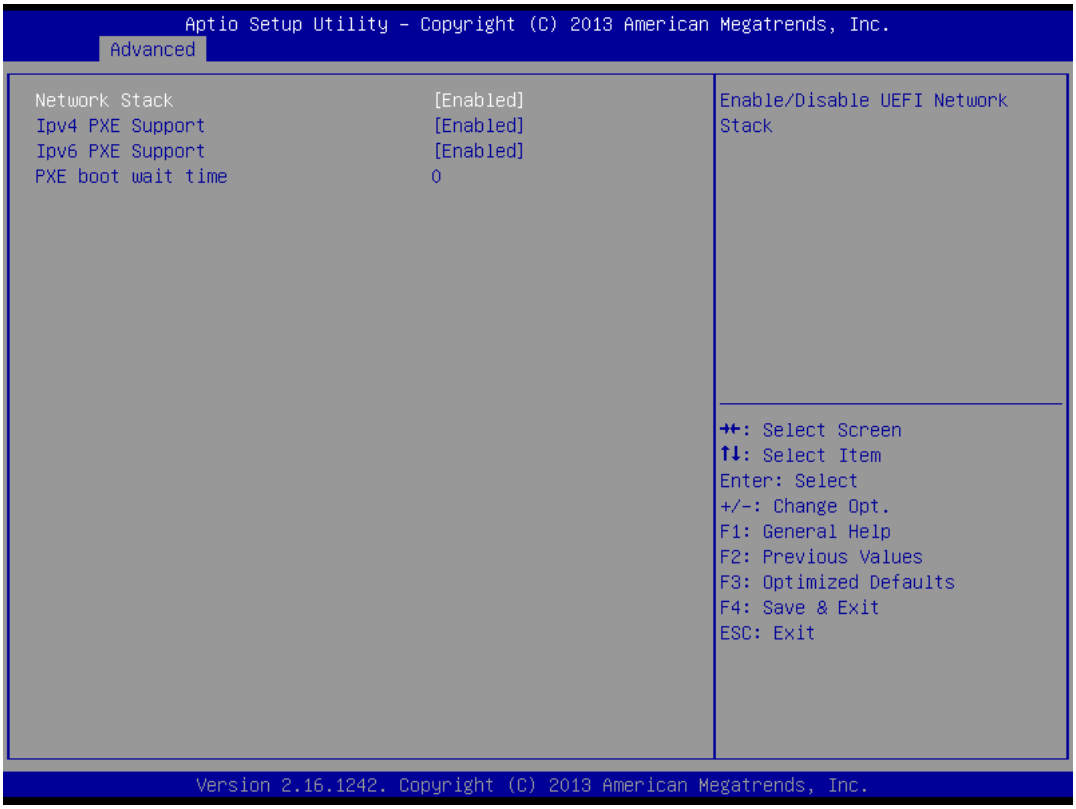
The Item is Select OS configuration, When Install Windows 8 or 8.1 need select to use Windows 8.X. If using the Android OS, please refer https://01.org/android-ia.

Available Options: Windows 8.X, Android, Windows 7 and DOS Mode

Default setting: Windows 7

Note: This is impartment "OS Selection", Different OS be selected through *OS Selection". The default is Windows 7, which needs to be changed when Windows 8.X or Android OS is installed.*

❑ Network Stack Configuration



Network Stack

This field specifies the PXE boot ROM of the onboard LAN chip.

Available Options: Disabled, and Enabled

Default setting: Disabled

IPV4/IPV6 Support

This field specifies the Enable Ipv4 or Ipv6 PXE Boot Support.

Available Options: Disabled, and Enabled

Default setting: Enabled

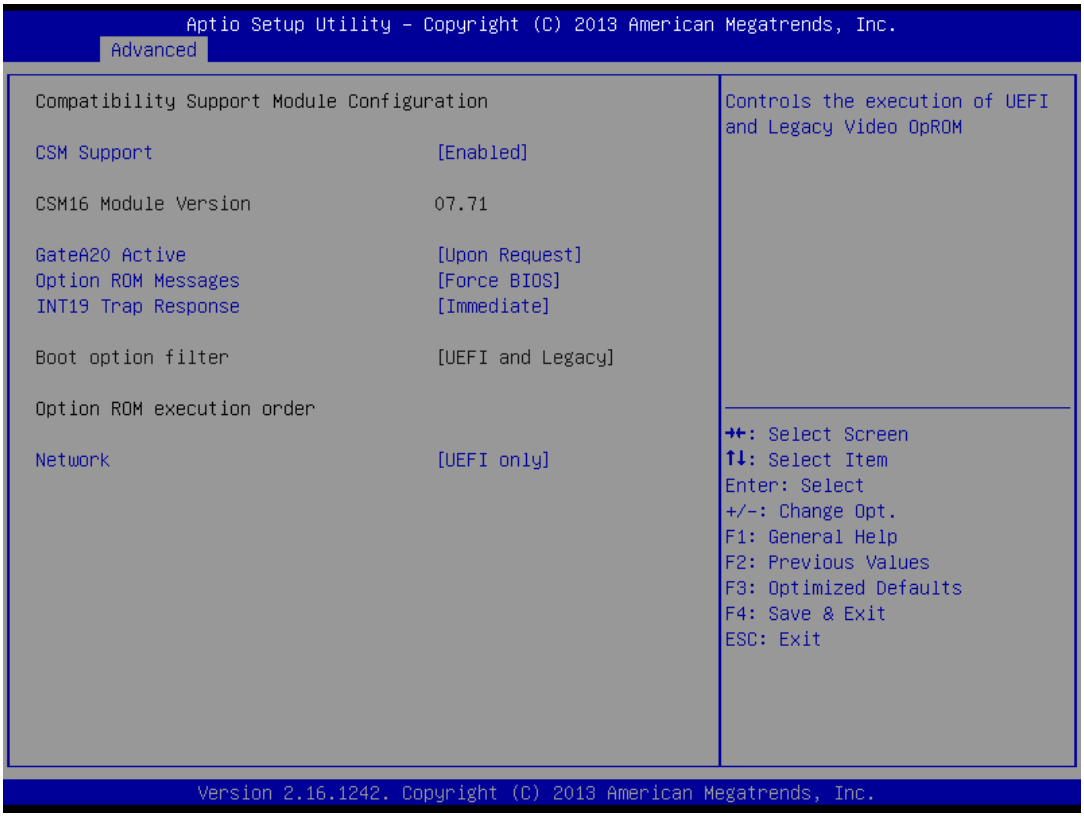
PXE boot wait time

This field specifies the Wait time to press ESC key to abort the PXE boot.

Default setting: 0

❑ CSM Configuration

The CSM (Compatibility Support Module) is Option ROM Execution, boot options filter, etc.



CSM Support

This item allows users to enable or disable CSM.

Available Options: Disabled, and Enabled

Default setting: Enabled

GateA20 Active

UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Available Options: UPON REQUEST, and ALWAYS

Default setting: UPON REQUEST

Option ROM Message

Set display mode for Option ROM

Available Options: Force BIOS, and Keep Current

Default setting: Force BIOS

INT19 Trap

BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE - execute the trap right away; POSTPONED - execute the trap during legacy boot.

Available Options: Immediate, and Postponed

Default setting: Immediate

Boot Option Filter

This option controls Legacy/UEFI ROMs priority.

Available Options: UEFI and Legacy, Legacy only, and UEFI only

Default setting: UEFI and Legacy

Network

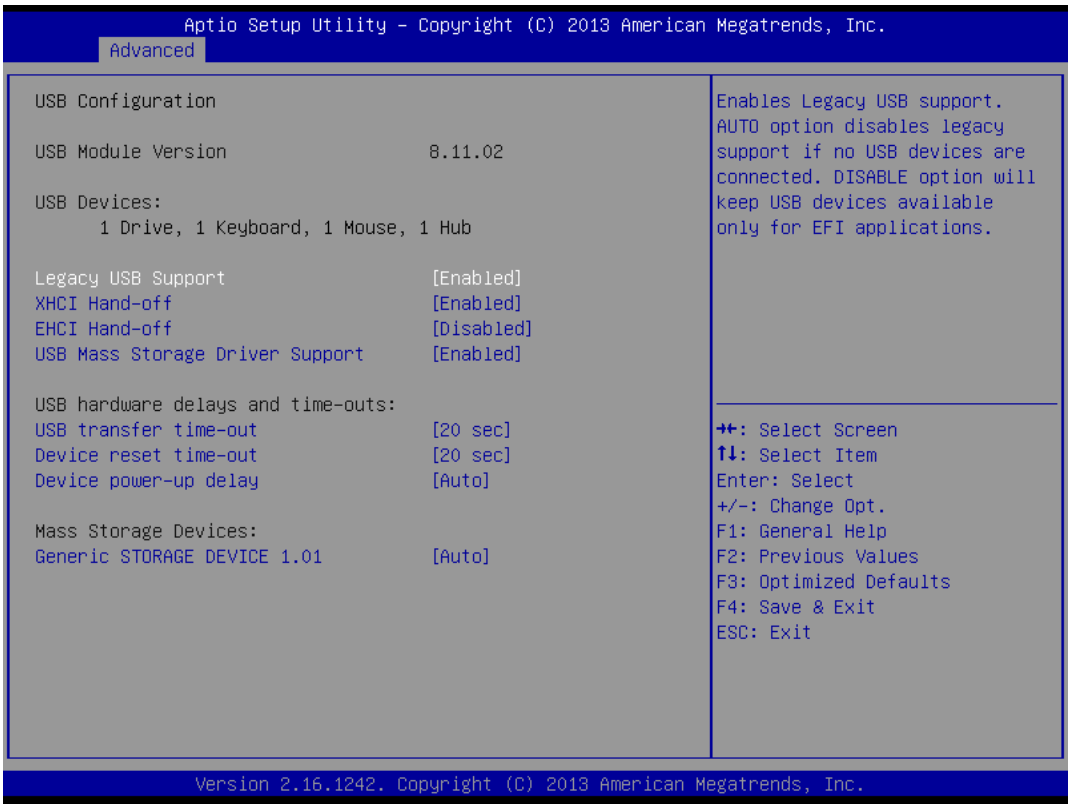
Controls the execution of UEFI and Legacy PXE OpROM

Available Options: Do not Launch, Legacy only, and UEFI only

Default setting: UEFI only

❑ USB Configuration

You can use this screen to select options for the USB Configuration.



Legacy USB Support

Legacy USB Support refers to the USB mouse and USB keyboard support. Normally if this option is not enabled; any attached USB mouse or USB keyboard will not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB drivers loaded on the system. Set this value to Enabled or Disabled the Legacy USB Support.

Available Options: Disabled, Auto, and Enabled

Default setting: Enabled

XHCI Hand-Off

This is a workaround for OS without XHCI Hand-Off support. The XHCI ownership change should claim by XHCI driver.

Available Options: Disabled, and Enabled

Default setting: Enabled

EHCI Hand-Off

This is a workaround for OS without EHCI Hand-Off support. The EHCI ownership change should claim by EHCI driver.

Available Options: Disabled, and Enabled

Default setting: Disabled

USB Mass Storage Driver Support

Mass storage device emulation type. If the emulation FDD, recommended formatted as FAT32 format.

Available Options: Disabled, and Enabled

Default setting: Enabled

USB transfer time-out

The time-out value for control, bulk, and interrupt transfers.

Available Options: 1 sec, 5 sec, 10 sec, and 20 sec

Default setting: 20 sec

Device reset time-out

USB mass storage device start unit command time-out.

Available Options: 10 sec, 20 sec, 30 sec, and 40 sec

Default setting: 20 sec

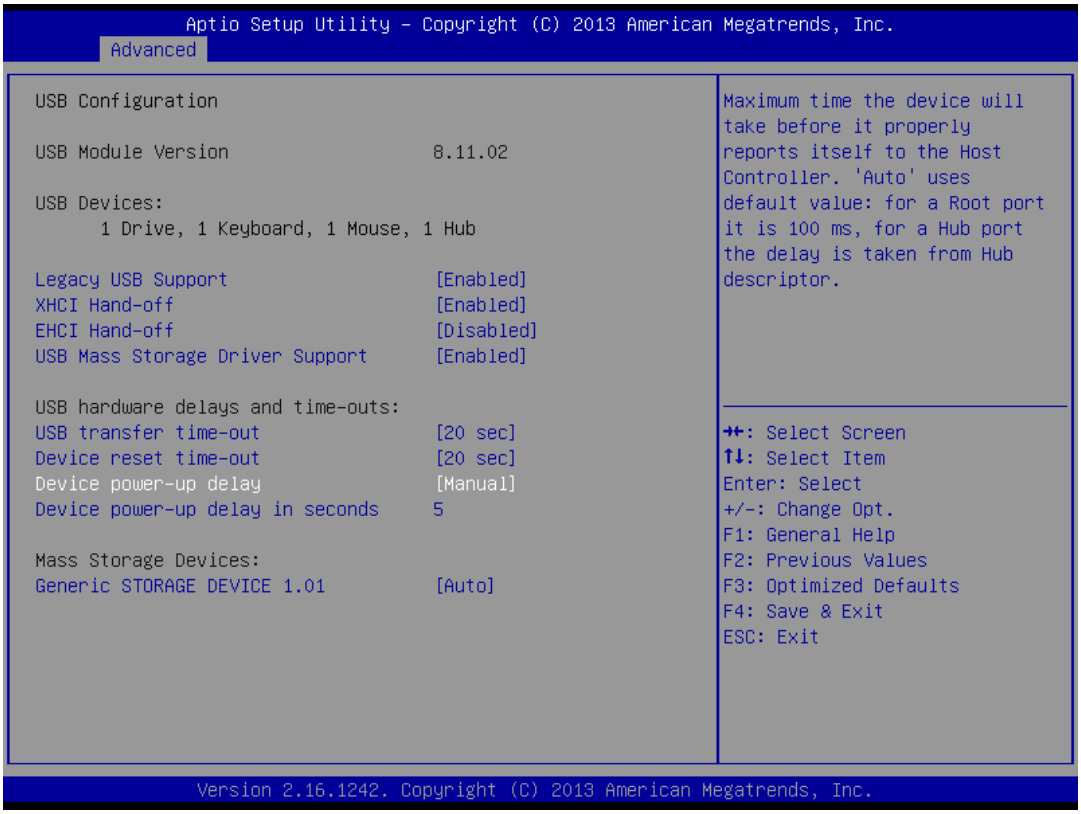
Device power-up delay

Maximum time the device will take before it properly reports itself to the Host controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is take from Hub descriptor.

Available Options: Auto, and manual

Default setting: Auto

Device power-up delay > Select "Manual"



✧ ***Device Power-Up delay in second***

Delay range is 1...40 seconds, in one second increments

Available Options: 1, 5, 10, 20, 30, and 40 Sec

Default setting: 5 Sec

Generic Storage Device 1.01

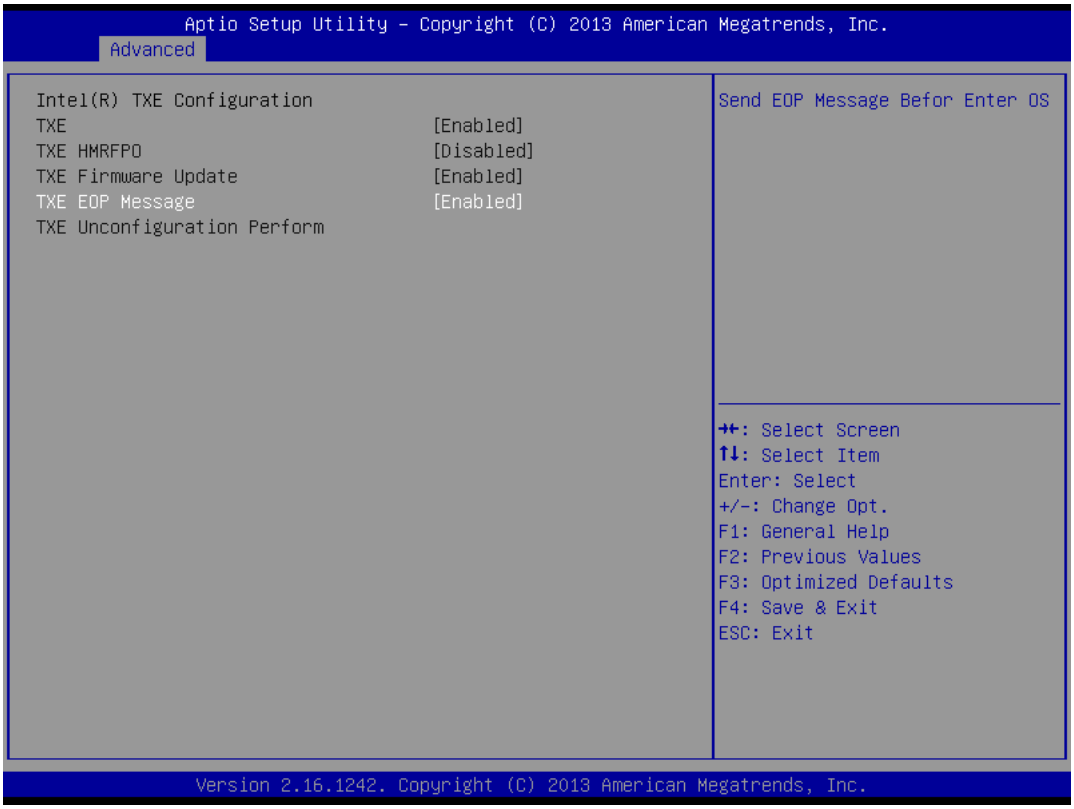
Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM'; drives with no media will be emulated according to a drive type.

Available Options: Auto, Floppy, Forced FDD, Hard Disk, and CD-ROM

Default setting: Auto

❑ Security Configuration

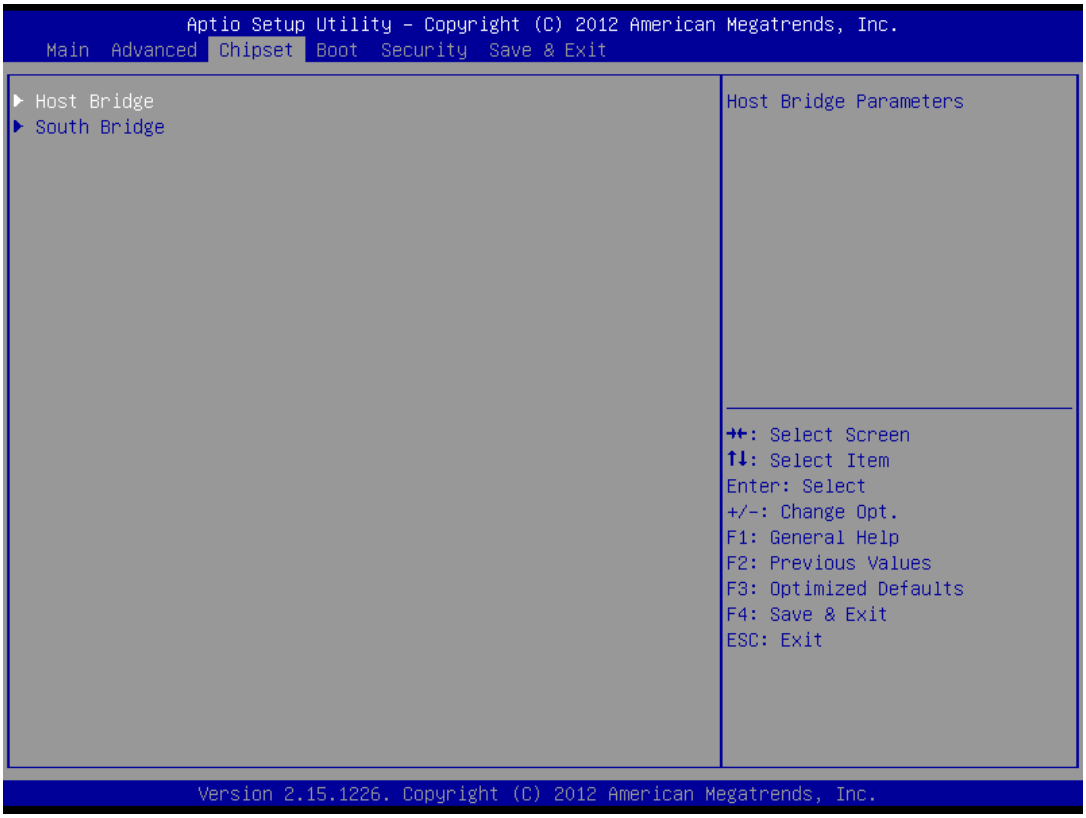
You can use this screen to select TXE Configuration.



Chipset

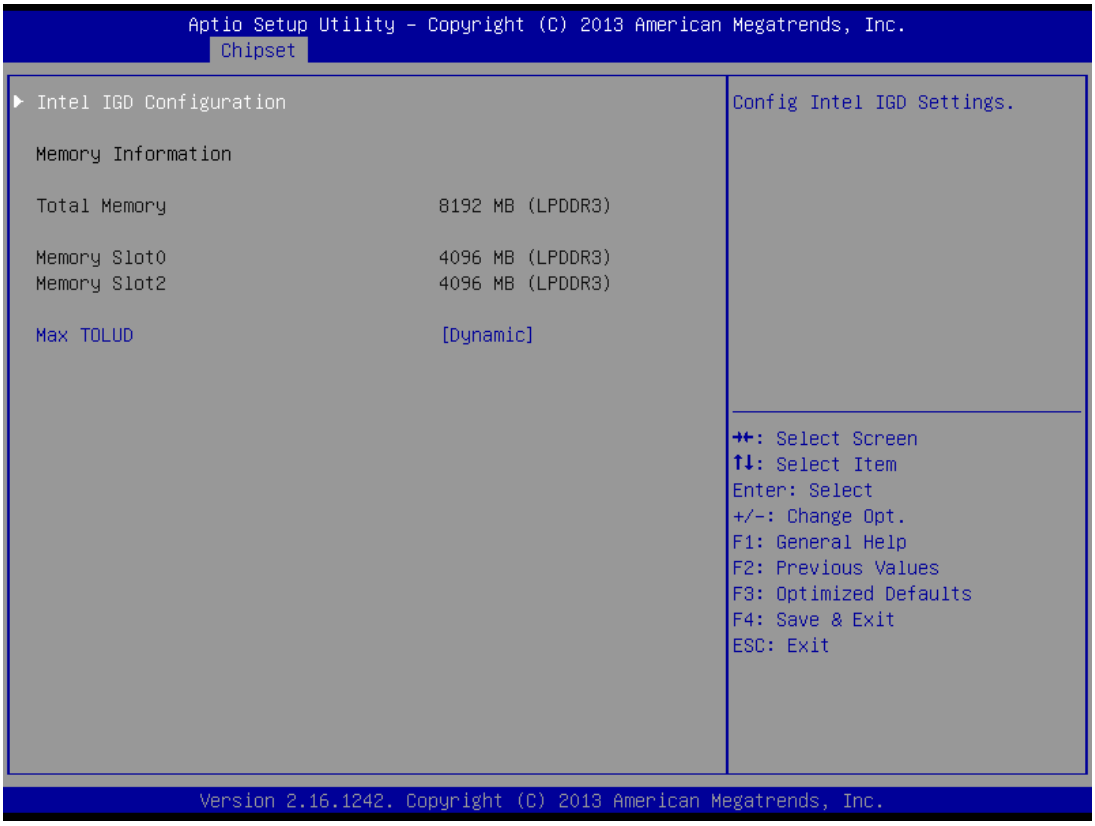
This section describes the configuration of the board's chipset features.

- Host Bridge
- South Bridge



❑ Host Bridge

You can use this screen to select options for the Host Bridge Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.



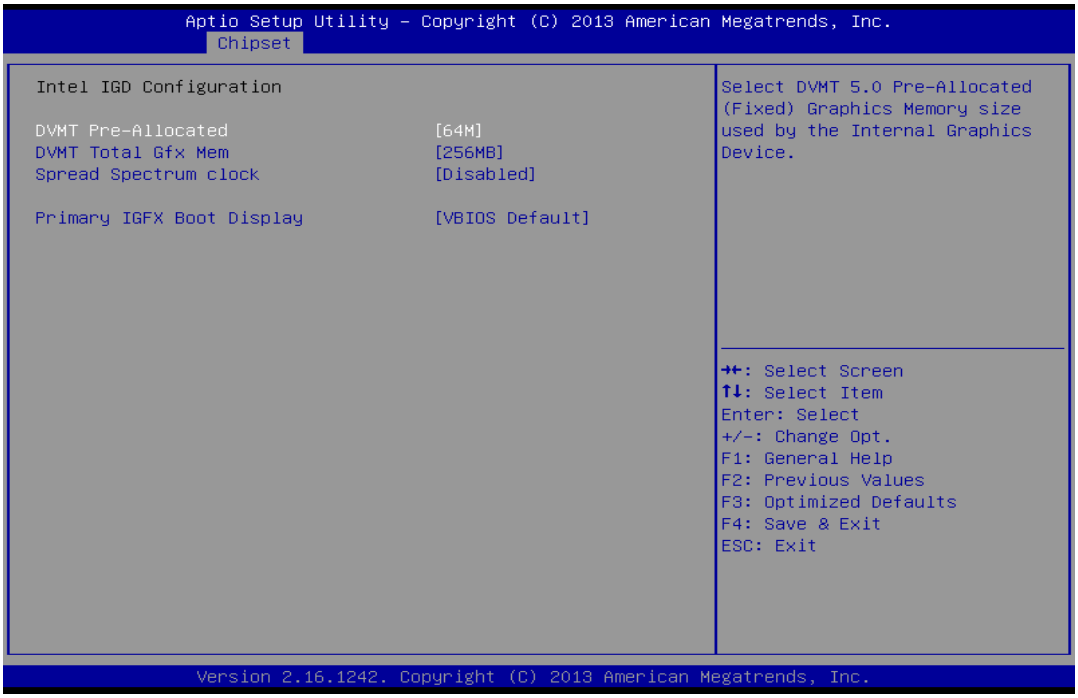
Max TOLUD

This field is Max value of TOLUD; Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

Available Options: Dynamic, 2GB, 2.25GB, 2.5GB, 2.75GB, and 3GB

Default setting: Dynamic

Intel IGD Configuration



✧ ***DVMT Pre- Allocated***

The Item is select DVMT 5.0 Pre-Allocated (Fixed) graphics memory size used by the internal graphics device.

Available Options: 64MB, 96MB, 128MB, 160MB, 192MB, 224MB, 256MB, 288MB, 320MB, 352MB, 384MB, 416MB, 448MB, 480MB, and 512MB

Default setting: 64 MB

✧ ***DVMT Total GFX Mem***

This field specifies allows you to select the maximum amount of graphics memory of DVMT 5.0 to be shared with the system memory.

Available Options: 128MB, 256MB, and MAX

Default setting: 256 MB

✧ ***Primary IGFX Boot Display***

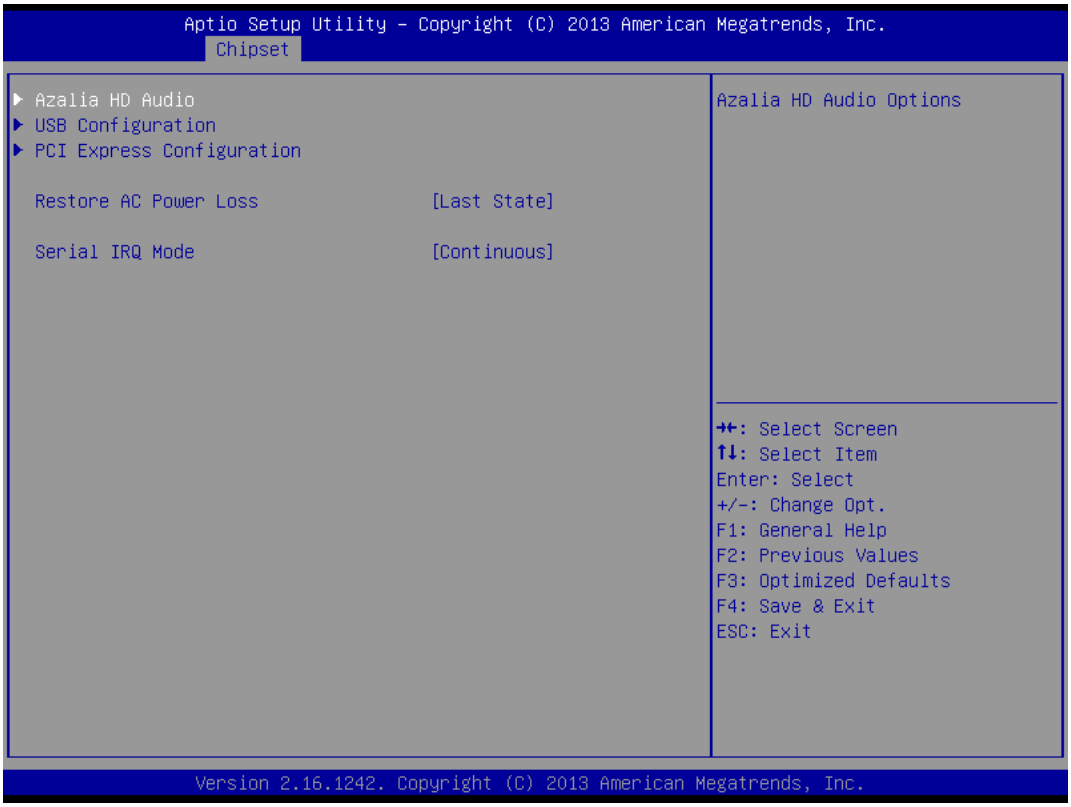
This field specifies allows you to select the Video Device which will be activated during POST.

Available Options: EFP/HD (Display2), LFP/LCD, and VBIOS Default.

Default setting: VBIOS Default

❑ South Bridge

You can use this screen to select options for the South Bridge Configuration. South Bridge is a chipset on the motherboard that controls the USB, LAN port, and audio function.



Restore AC Power Lose

This field specifies the option controls how the PC will behave once power is restored following a power outage (or other unexpected or ungraceful shutdown). The "Last State" option returns the PC to the state in effect at the time the power outage or shutdown occurred. Assign this option the "Power On" value to reboot automatically; assign the "Power Off" value to leave the machine powered down.

Available Options: Power Off, Power On, and Last State

Default setting: Last State

Serial IRQ Mode

This item is Configure Serial IRQ Mode.

Available Options: Continuous, and Quiet

Default setting: Continuous

Azalia HD Audio

✧ ***Audio Controller***

This item allows users to enable or disable Azalia Controller.

Available Options: Disabled, and Enabled

Default setting: Enabled

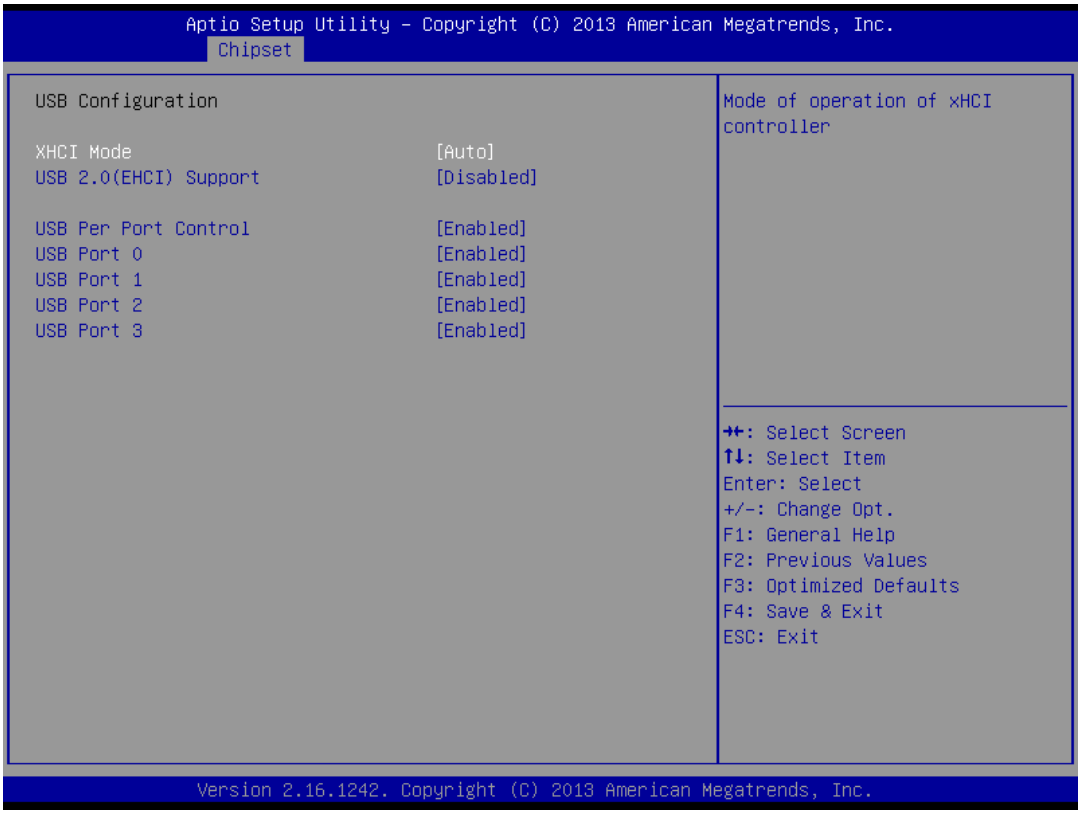
✧ ***Azalia HD Codec***

This item allows users to enable or disable internal HD codec for Azalia.

Available Options: Disabled, and Enabled

Default setting: Enabled

USB Configuration



✧ ***XHCI Mode***

The item XHCI (eXtensible Host Controller Interface) a workaround for specification for Universal Serial Bus 3.0 support. If an "OS Selection" selected is windows 8, the "USB.2.0 (EHCI) support would be set to Disabled. (For Windows 8.x)

Available Options: Disabled, Auto, Smart Auto, and Enabled

Default setting: Smart Auto

✧ ***USB 2.0(EHCI) Support***

This item allows users to enable or disable USB 2.0 (EHCI) Support. If an "OS Selection" selected is windows 7, the "XHCI Mode" support would be set to Disabled. (For Windows 7)

Available Options: Disabled, and Enabled

Default setting: Disabled

✧ ***USB Per Port Control***

The USB Control each of the USB ports (0~3). Enabled: Enable USB per port; Disabled: Use USB port X settings

Available Options: Disabled, and Enabled

Default setting: Enabled

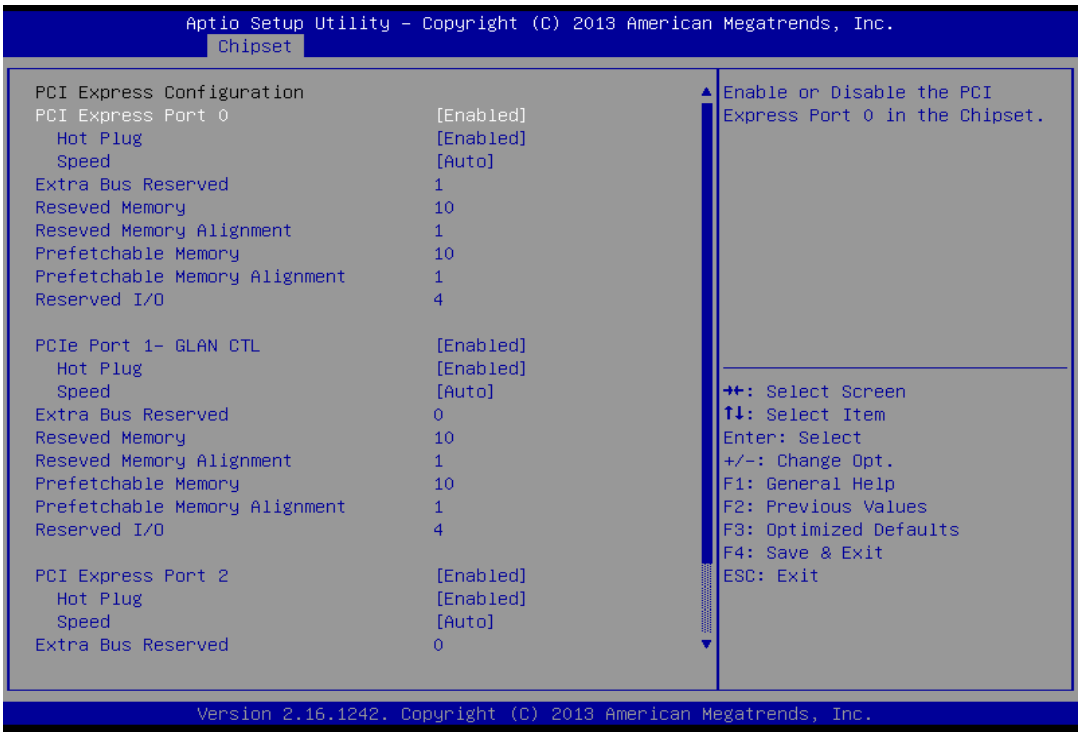
✧ ***USB Port 0/1/2/3***

The USB Control each of the USB ports (0~3).

Available Options: Disabled, and Enabled

Default setting: Enabled

PCI Express Configuration



✧ ***PCI Express Port 0>Mini Card/1>GLAN/2> Reserved***

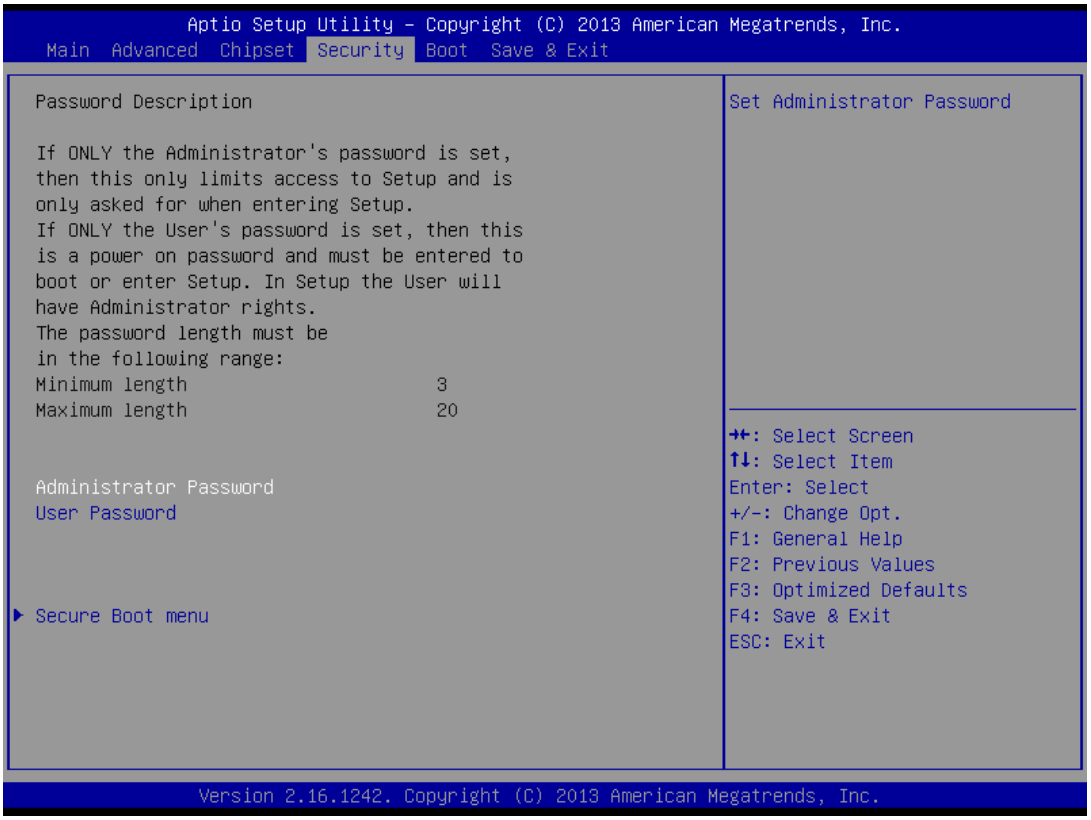
The onboard Mini card /LAN corresponding PCI Express port 0/1, the PCIe port 0/1 item allows users to enable or disable on board PCIe Mini card and LAN.

Available Options: Disabled, and Enabled

Default setting: Enabled

Security

Security Setup provides both Administrator and User password. If you use both passwords, the Administrator password must be set first. The system can be configured so that all users must enter a password every time the system boots or when Setup is executed, using either the Administrator password or User password. The Administrator and User passwords activate two different levels of password security. If you select password support, you are prompted for a three to twenty character password. Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must drain NVRAM and reconfigure.



Install Administrator/User Password

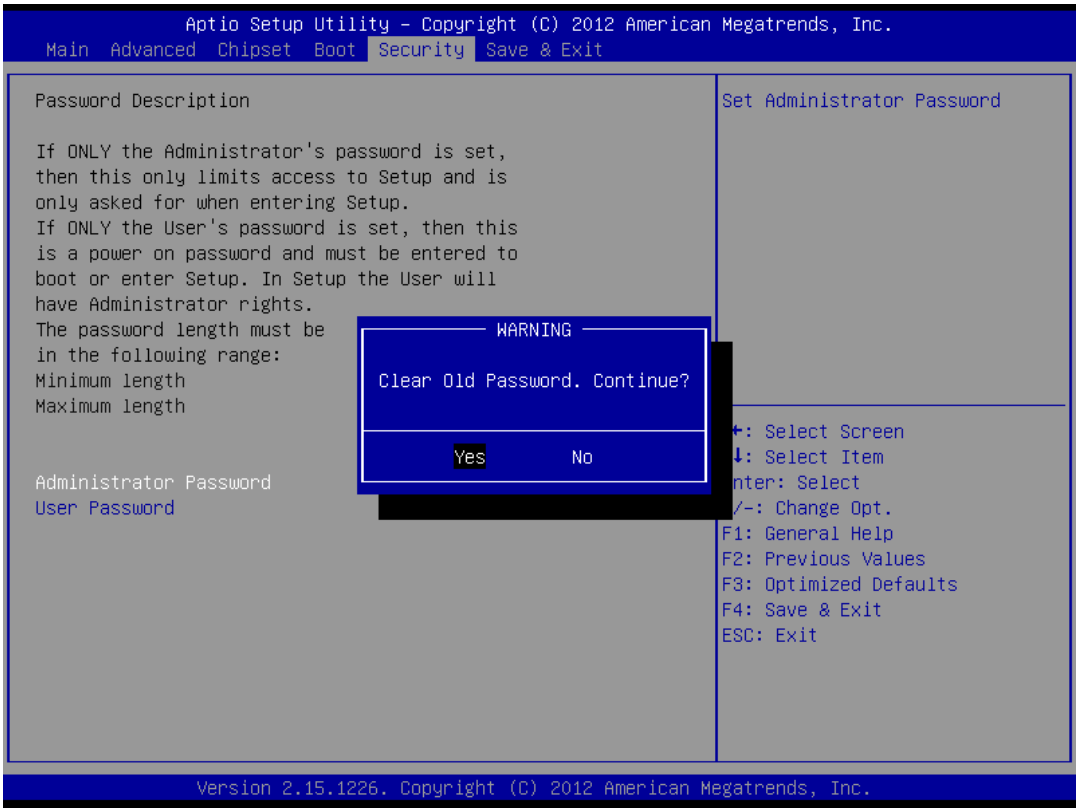
Select Administrator/User Password item, press <Enter> and type new password (up to 3 character length) and confirm new password. The screen does not display the characters entered.

✧ ***Change Administrator/User Password***

Select Administrator/user password item, press <Enter> and type current password, at the next dialog type new password and confirm new password.

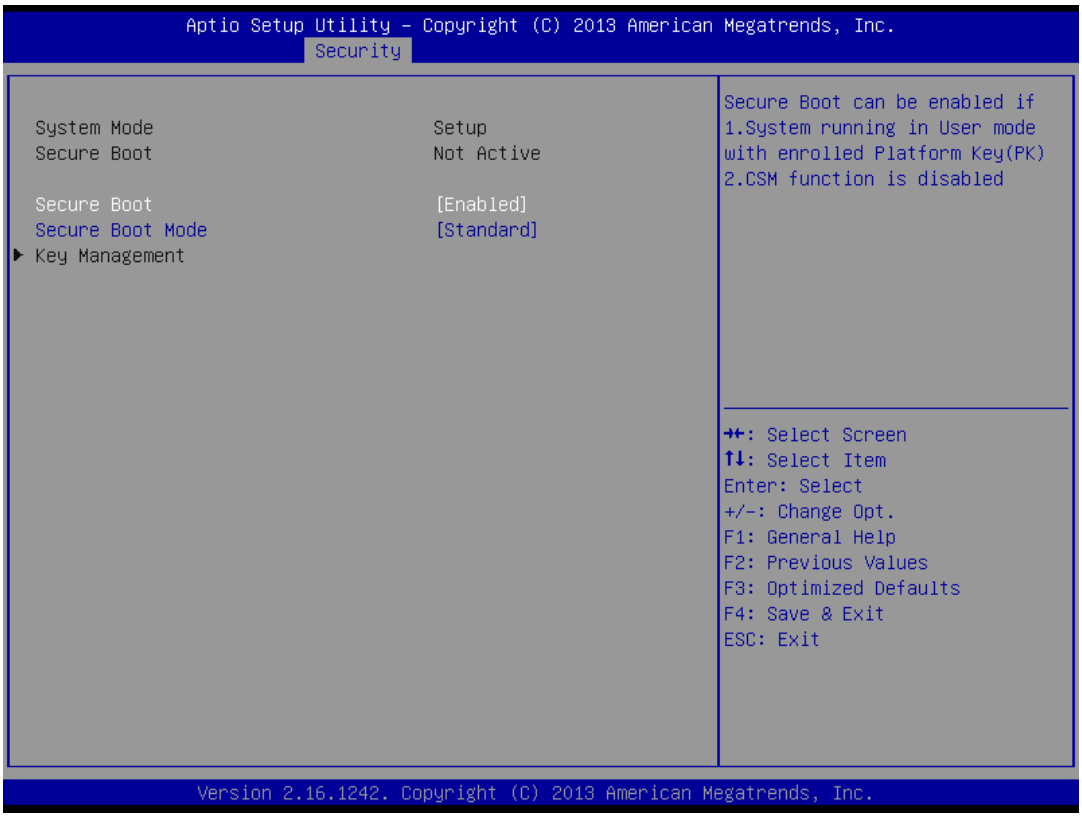
✧ ***Clear Old Password***

Select Administrator/user password item, press <Enter> and type current password, at the next dialog press <Enter> to Clear Old Password.



Security Boot menu

Customizable Secure Boot settings



✧ ***Secure Boot***

Secure Boot can be enabled if 1.System running in User mode with enrolled Platform Key (PK) 2.CSM function is disabled

Available Options: Disabled, and Enabled

Default setting: Disabled

✧ ***Secure Boot Mode***

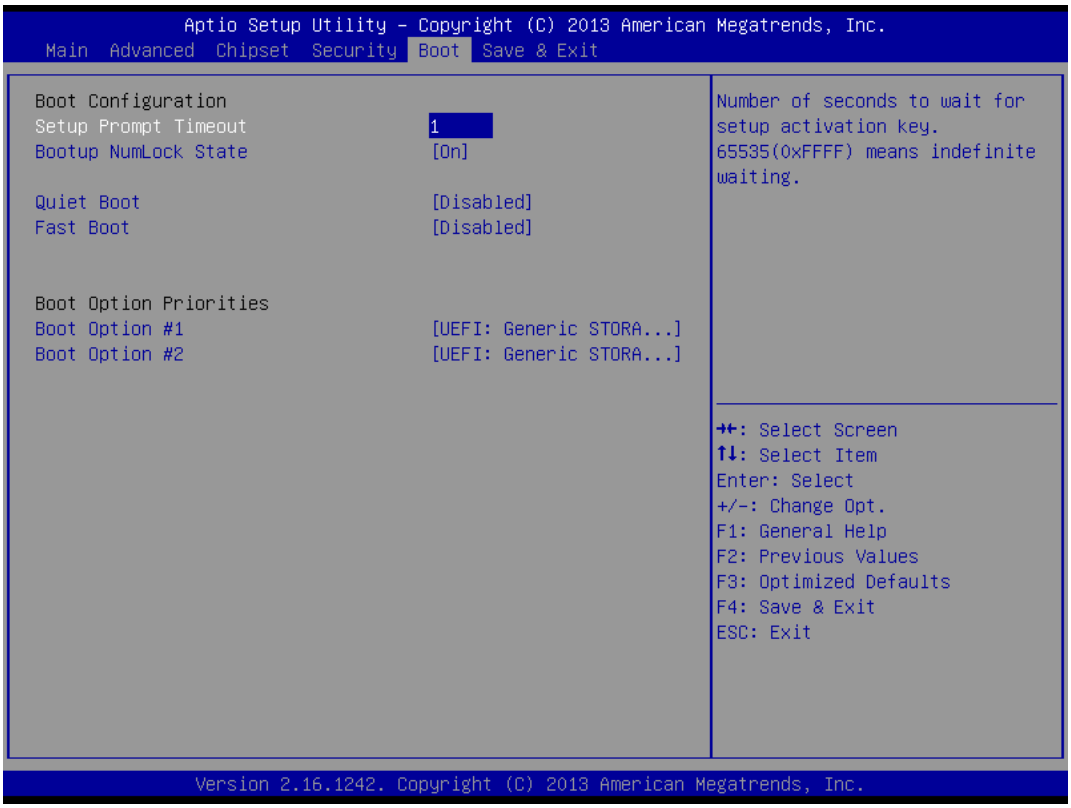
Secure Boot mode selector. 'Custom' Mode enables users to change Image Execution policy and manage Secure Boot Keys.

Available Options: Standard, and Customer

Default setting: Standard

Boot

Select the *Boot* tab from the setup screen to enter the Boot BIOS Setup screen. You can select any of the items in the left frame of the screen, such as Boot Device Priority, to go to the sub menu for that item. You can display a Boot BIOS Setup option by highlighting it using the <Arrow> keys. All Boot Setup options are described in this section.



Setup Prompt Timeout

This item allows users to select the number of seconds to wait for setup activation key.

Available Options: 1~65535

Default setting: 1

Bootup NumLock State

This field is used to activate the Num Lock function upon system boot. If the setting is on, after a boot, the Num Lock light is lit, and user can use the number key.

Available Options: On, and Off

Default setting: On

Quiet Boot

This item allows users to enable or disable Quiet boot option. If Enable, an OEM LOGO is shown instead of POST messages.

Available Options: Disabled, and Enabled

Default setting: Disabled

Fast Boot

This field is used to activate the fast boot function of the system. When set to Enabled, boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Available Options: Disabled, Enabled

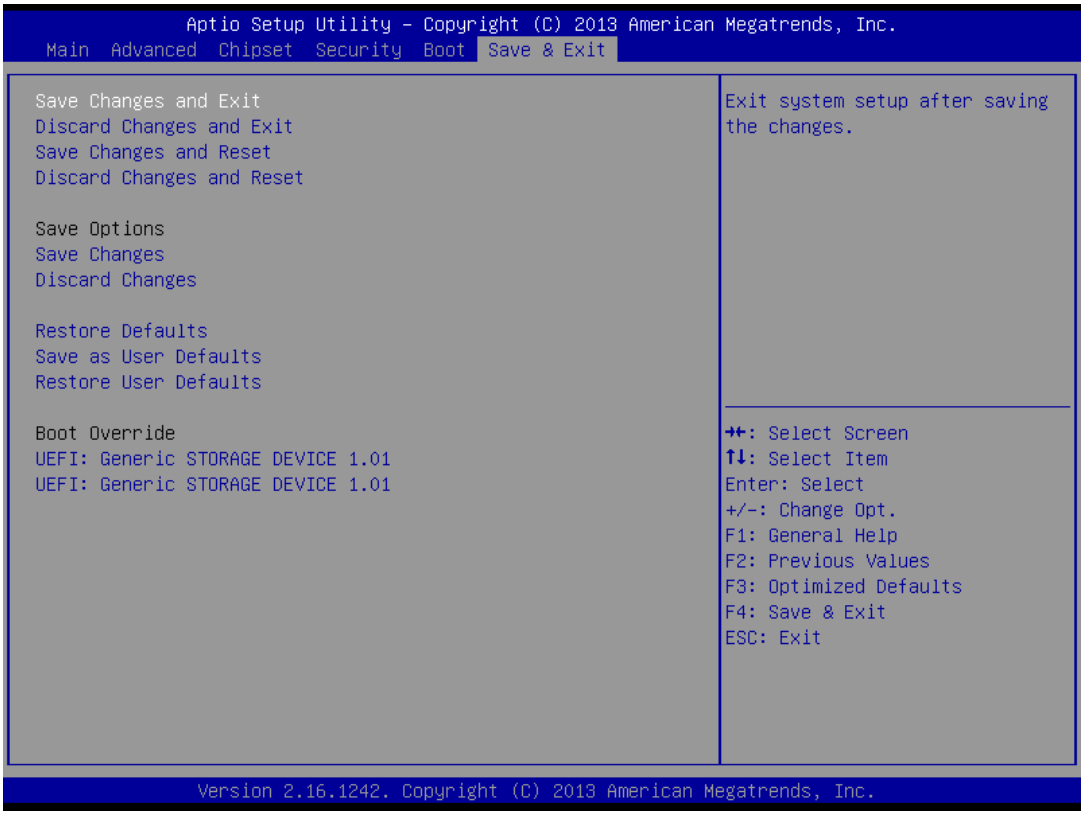
Default setting: Disabled

Boot Option Priorities

This item allows users to set boot device priority. Set the boot device options to determine the sequence in which the system checks which device to boot from. The settings are Hard Driver BBS Priorities (*Removable Storage Dev., Hard Drive),* and CD/DVD ROM Driver BBS Priorities (*USB CDROM).*

Note: When you select a boot Option category from the boot menu, a list of devices in that category appears. For example, if the system has hard disk drives and USB storage connected, then the list will show all hard disk drives attached.

Save & Exit



Save Changes and Exit

When you have completed the system configuration changes, select this option to save the changes and Exit, so the new system configuration parameters can take effect.

Discard Changes and Exit

Select this option to quit without making any modifications to the system configuration.

Save Changes and Reset

When you have completed the system configuration changes, select this option to save the changes and reboot the system, so the new system configuration parameters can take effect. The following window will appear after selecting the 'Save Changes and Reset' option selected. Reset the system after saving the changes.

Discard Changes and Reset

Select this option to reboot the system without saving the changes done in the setup configuration.

Save Changes

When you have completed the system configuration changes, select this option to save your system configuration and continue. For some of the options it required to reset the system to take effect...

Discard Changes

When you have completed the system configuration changes, select this option to undo the previous changes.

Restore Defaults

Restore/Load Default values for all the setup options.

Save as User Defaults

Save the changes done so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup option.

Chapter 4 Software Installation

The enclosed CD diskette includes FP8153T VGA, System, Audio, USB, LAN and touch screen driver. To install and configure you FP8153T system, you need to perform the following steps.

Select you OS configuration to BIOS, when you Install Windows 7, Windows 8 or 8.1 need select BIOS setting.

System Driver

- **WIN 7/8 Driver**

Installs Atom E3845 Chipset, Core PCI, PCIe, SATA, USB, ISAPnP and IDE/ATA Device Drive.

Step 1: To install the Atom E3845 driver, insert the CD ROM into the CD ROM device, and enter DRIVER>SysChip>E3845>WIN7 or >WIN8.

Step 2: Execute SetupChipset.exe file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Yes, I want to restart my computer now. Installation is done.

No, I will restart my computer later.

System must be restart then complete the installation.

VGA Driver

- **WIN 7/8 x86/x64 Driver**

Step 1: To install the VGA driver, insert the CD ROM into the CD ROM device, and enter DRIVER>VGA>E3845 >WIN7> or >WIN8>.

Step 2: Execute Setup.EXE file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Yes, I want to restart my computer now. Installation is done.

No, I will restart my computer later.

System must be restart then complete the installation.

Note: In the DRIVER>VGA>E3845>WIN7 or >WIN8 directory, a Readme.txt file is included to provide installation information.

Audio Driver

- **WIN 7/8 x86/x64 Driver**

Step 1: To install the AUDIO driver, insert the CD ROM into the CD ROM device, and enter DRIVER>AUDIO>ALC888_R270>Windows.

Step 2: Execute Setup.exe file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Yes, I want to restart my computer now. Installation is done!

No, I will restart my computer later.

System must be restart then complete the installation.

LAN Driver (RTL 8111F)

- **WIN 7/8 x86/x64 Driver**

Step 1: To install the LAN driver, insert the CD ROM into the CD ROM device, and enter DRIVER>LAN>RTL8111F>WIN7.

Step 2: Execute setup.exe file.

USB 3.0 Driver

- **WIN 7/8 x86/x64 Driver**

Step 1: To install the USB 3.0 XHCI driver, insert the CD ROM into the CD ROM device, and enter DRIVER>USB>E3845>WIN7.

Step 2: Execute SETUP.exe file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Read License Agreement and click "Yes" to proceed.

Review Readme File Information and click "Next" to proceed.

When the "Setup Progress" is complete click "Next" to proceed.

Lastly, the "Setup Complete" screen appears so click "Finish" to restart your computer.

Note: In the DRIVER> USB>E3845 >WIN7 directory, a Readme.txt file is included to provide installation information.

TXE Driver

- **WIN 7 Driver**

Step 1: To install the TXE driver, insert the CD ROM into the CD ROM device, and enter DRIVER>TXE>E3845>WIN7 or >WIN8.

Step 2: Execute SETUPTXE.exe file.

Step 3: The screen shows the SETUP type. Press any key to enter the main menu.

Step 4: As the setup is completed, the system will generate the message as follows.

Read License Agreement and click "Yes" to proceed.

Review Readme File Information and click "Next" to proceed.

When the "Setup Progress" is complete click "Next" to proceed.

Lastly, the "Setup Complete" screen appears so click "Finish" to restart your computer.

Note: In the DRIVER>TXE>E3845 >WIN7 or >WIN8 directory, a Readme.txt file is included to provide installation information. For Windows 7, it is necessary to install Windows update KB2685811 before installing TXE driver.

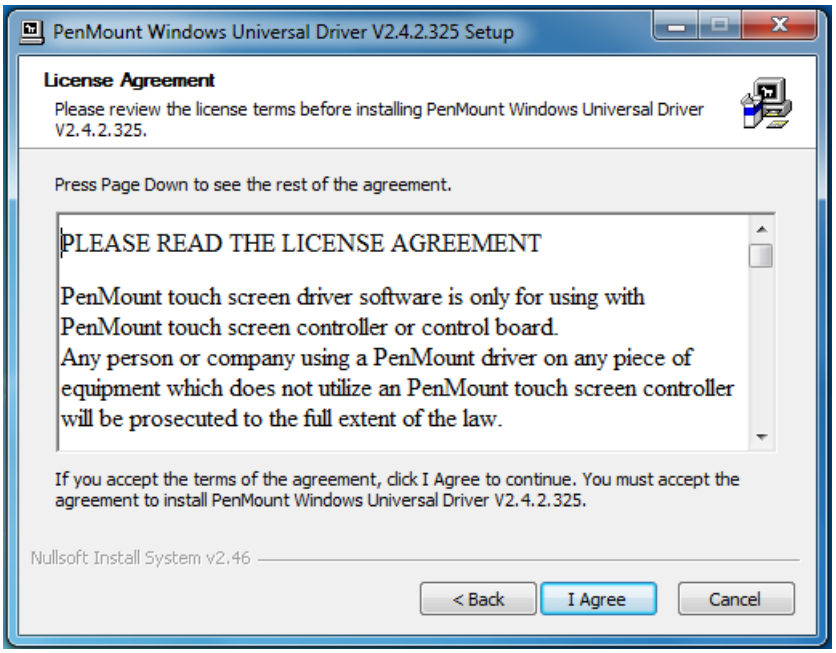
Touch Screen Driver

- **WIN WES7/WIN7/WIN8.1 Driver**

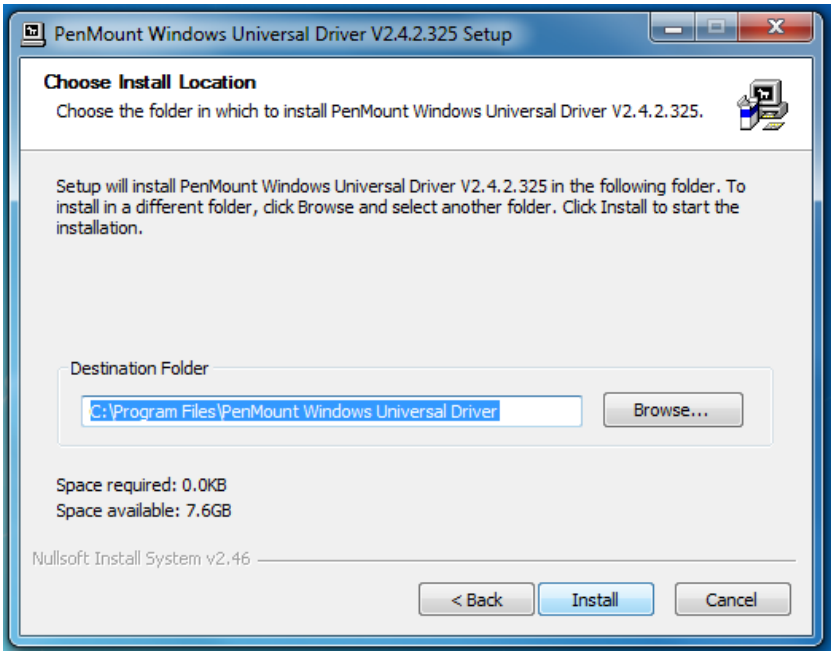
Step 1: To install the Touch Screen driver, insert the CD ROM into the CD ROM device, and enter DRIVER>TouchScreen>PM6500>USB_RS232>Windows.

Step 2: Execute Setup.exe file. Just click **[Next >]** button to continue installation.

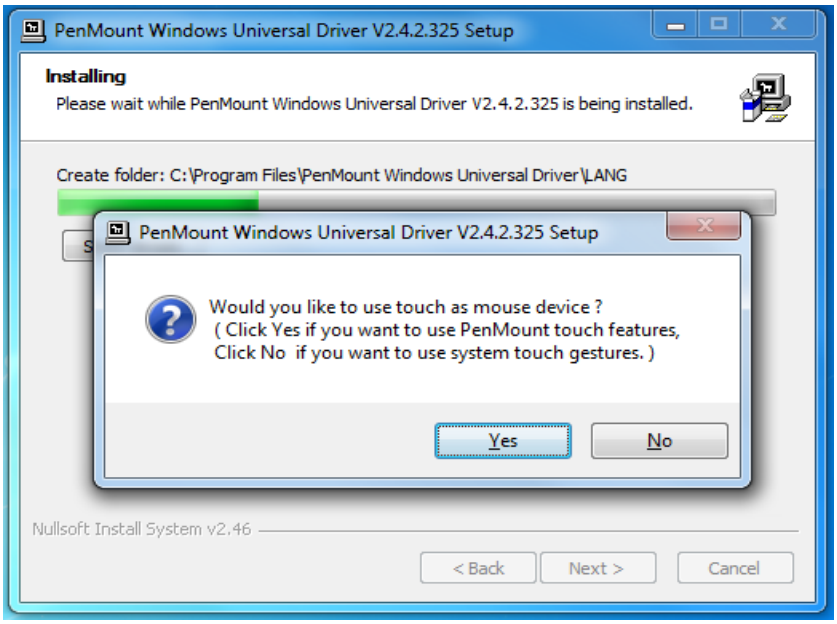
Step 3: Windows will prompt a message before driver install. A **License Agreement** window appears. Click "**I Agree**" and "**Next**"



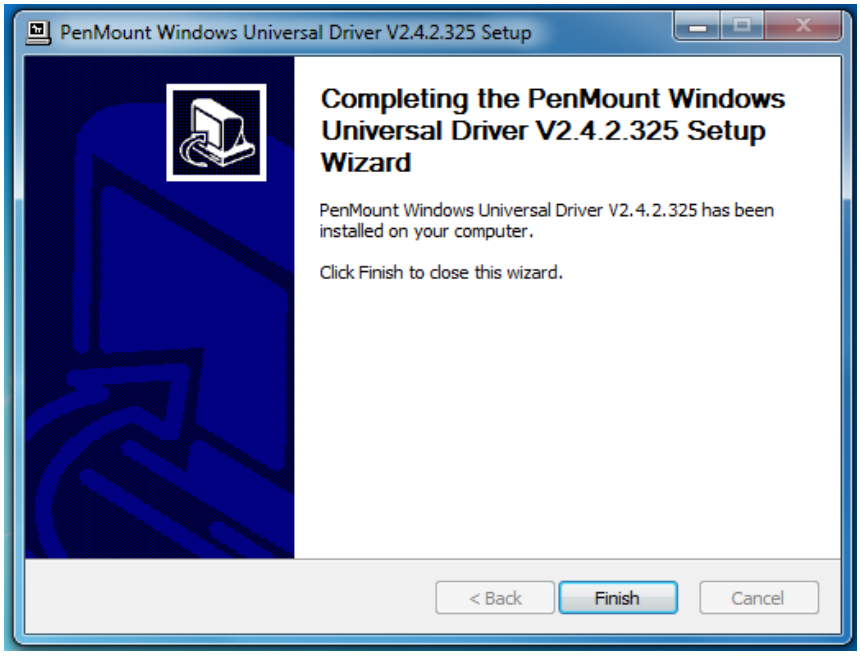
Step 4: When ready to install the driver. Click "**Install**".



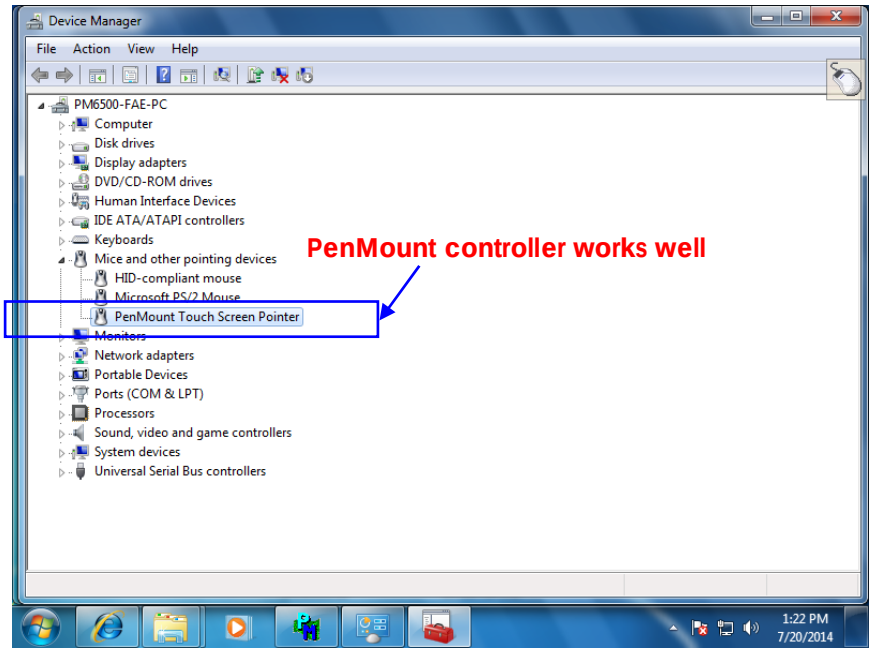
Step 5: When the window below shows up, please select “yes” for installing PenMount as mouse mode; select “no” for digitizer mode. If your operating system doesn’t support Windows tablet input, digitizer device can’t be used, therefore you have to select “yes” here, otherwise after the installation the touch doesn’t work after re-booting.



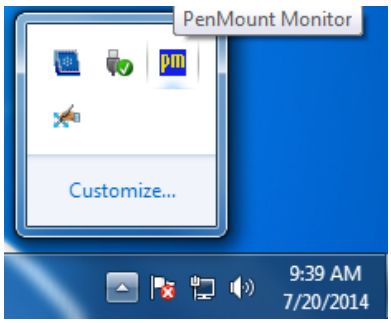
Step 6: A Windows Notifying of installation completion appears. Click “Finish”.

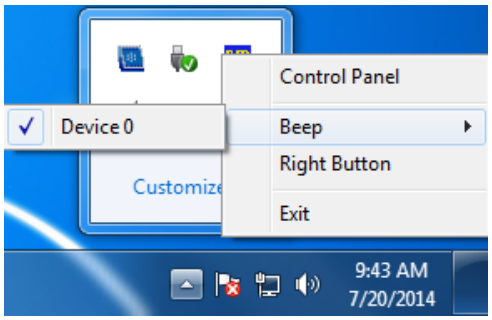


Step 7: Users can check the situation of controllers in Device Manager. If the controller is set up well, there will be messages as the following picture.



Step 8: As soon as driver installation finishes, the icon of PenMount monitor.

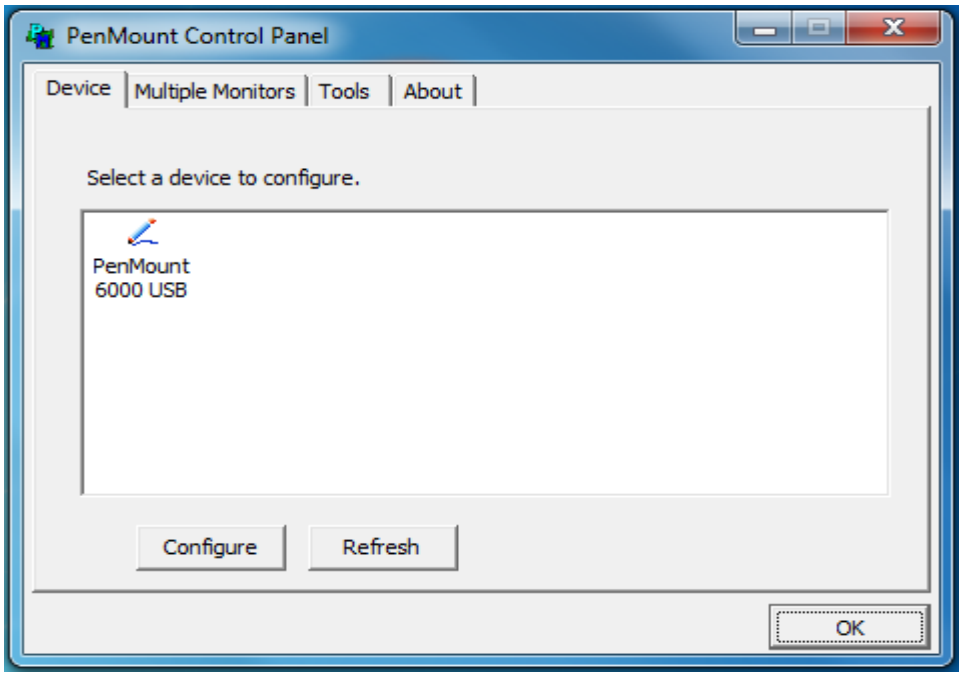




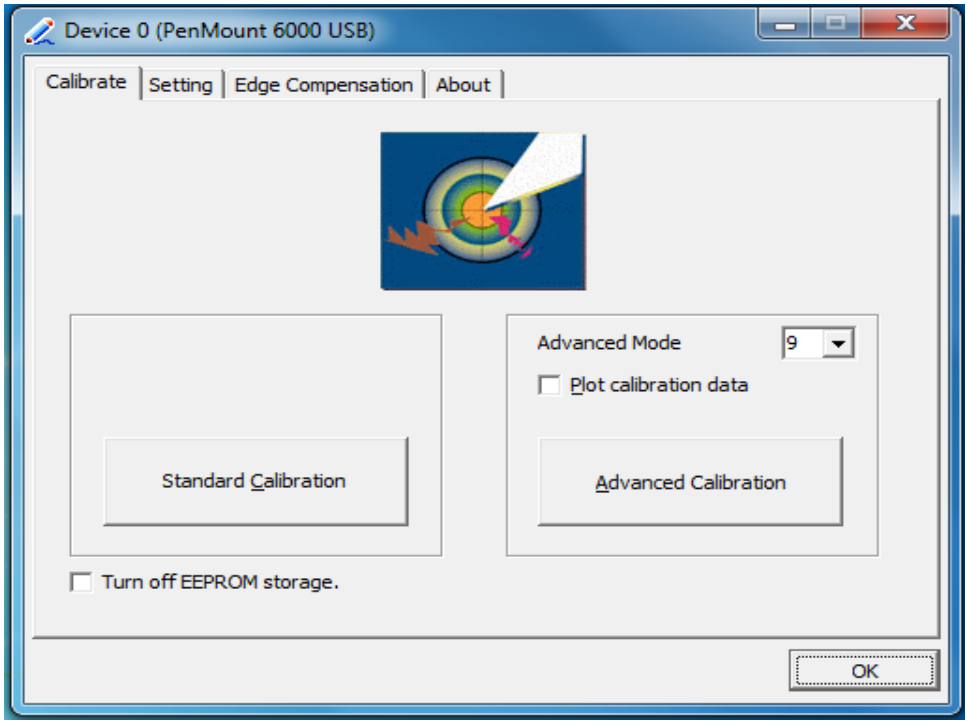
- **Configure PenMount driver Utility**

The controller is displayed on the Panel List box. Users can get the information of interface type for each controller. Select one device after added more than one device at the panel list window.

On **PenMount Control Panel** you are able to see the device of PenMount 6000 USB/RS-232 detected by your system under **Device** tab. select a device and click the **Configure** button.



Configure Device 0 (PenMount 6000 USB)



✧ ***< Calibrate >***

This function offers two ways to calibrate your touch screen. '**Standard Calibration**' adjusts most touch screens while '**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

The black lines reflect the ideal linearity assumed by PenMount's application program while the blue lines show the approximate linearity calculated by PenMount's application program as the result of user's execution of **Advance Calibration**.

Plot Calibration Data

Check this function to have touch panel linearity comparison graph appear when you finish

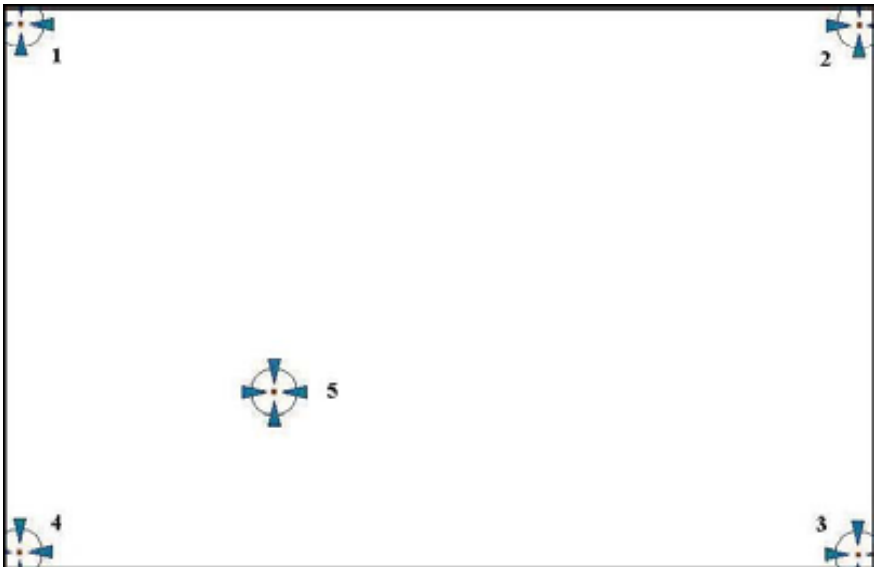
Turn off EEPROM storage

This function disables the write-in of calibration data in **Controller**. This function is enabled by default.

➢ **To calibrate your Touch Screen:**

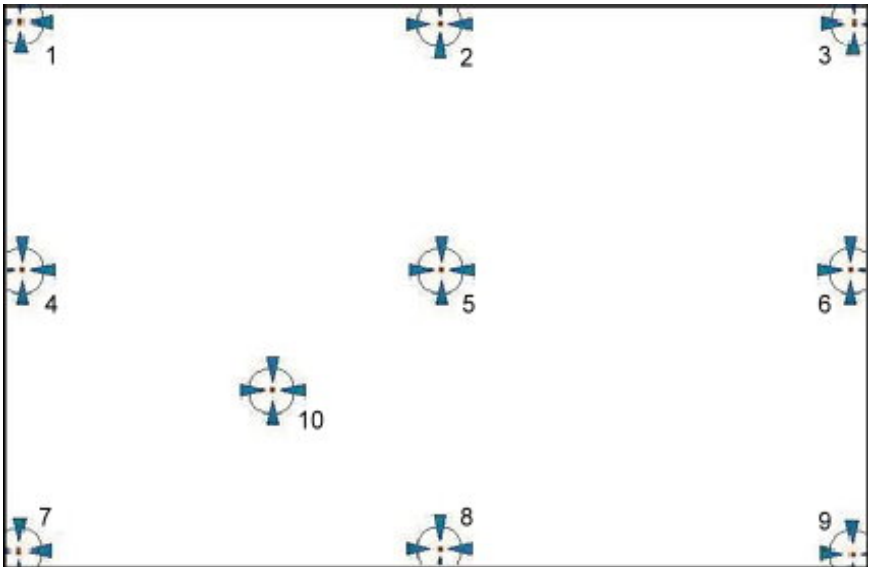
1. Please select a device then click "**Configure**". You can also double click the device too.

2. Click "**Standard Calibration**" to start standard calibration or "**Advanced Calibration**" to start Advanced Calibration.

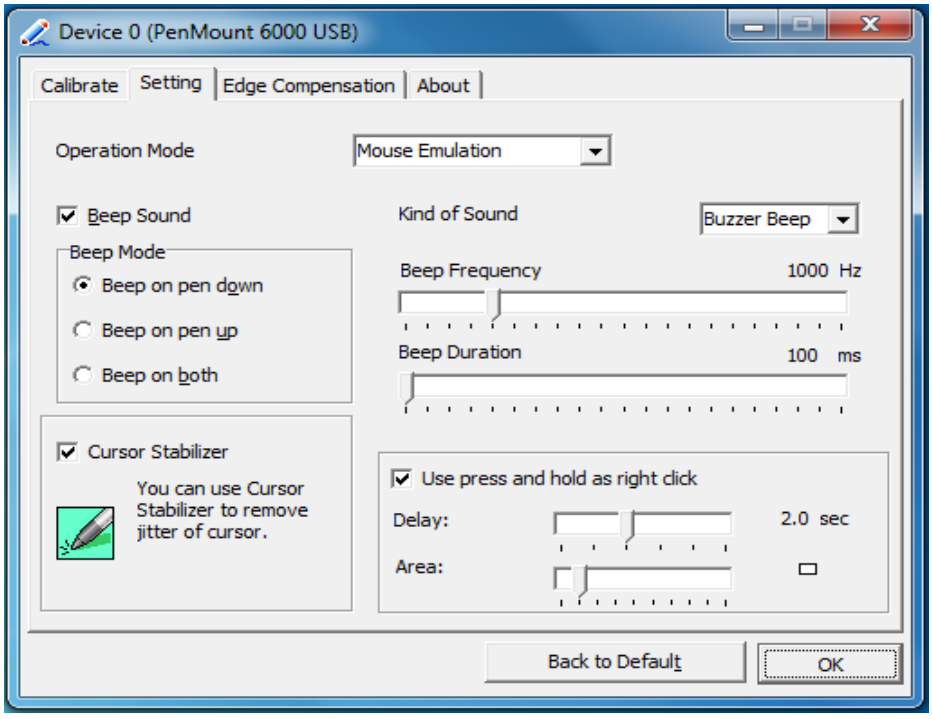


Advanced Calibration

You can Uses 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**'.



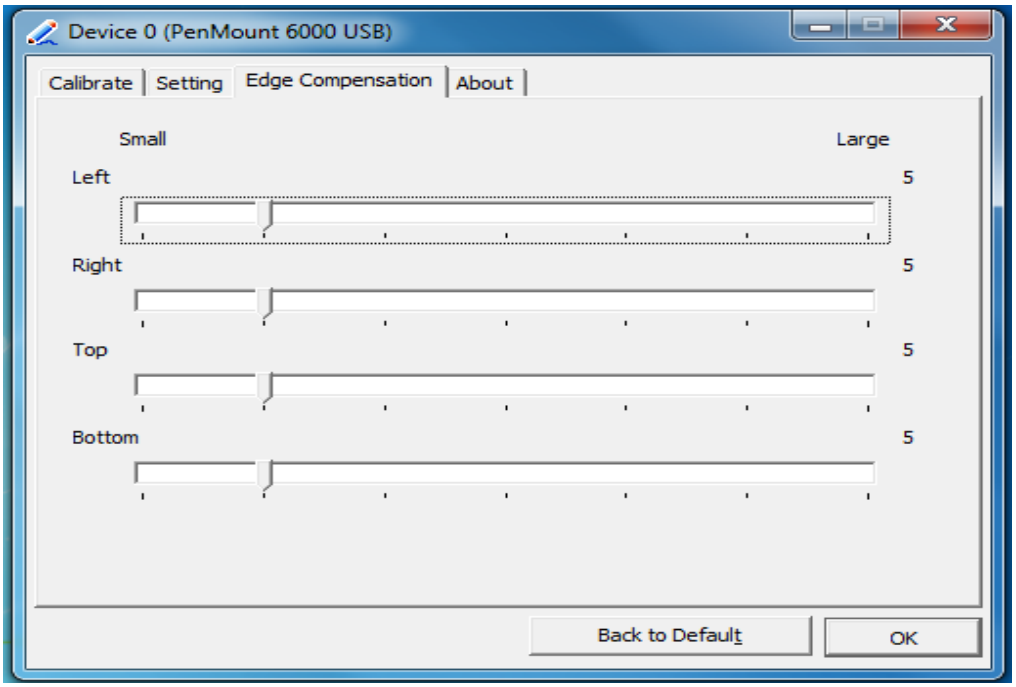
✧ ***<Setting>***



Operation Mode
This mode enables and disables mouse's ability of dragging on-screen icons—useful for configuring POS terminals.
Pen Input Emulation
Select this mode and mouse will emulate Windows Vista pen input device operation, by which no mouse event will be sent until the touch is dragged out of range or released from the screen.
Mouse Emulation
Select this mode and 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 disabled.
Click on Release
Select this mode and mouse only provides a click function when the touch is released.
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 is 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

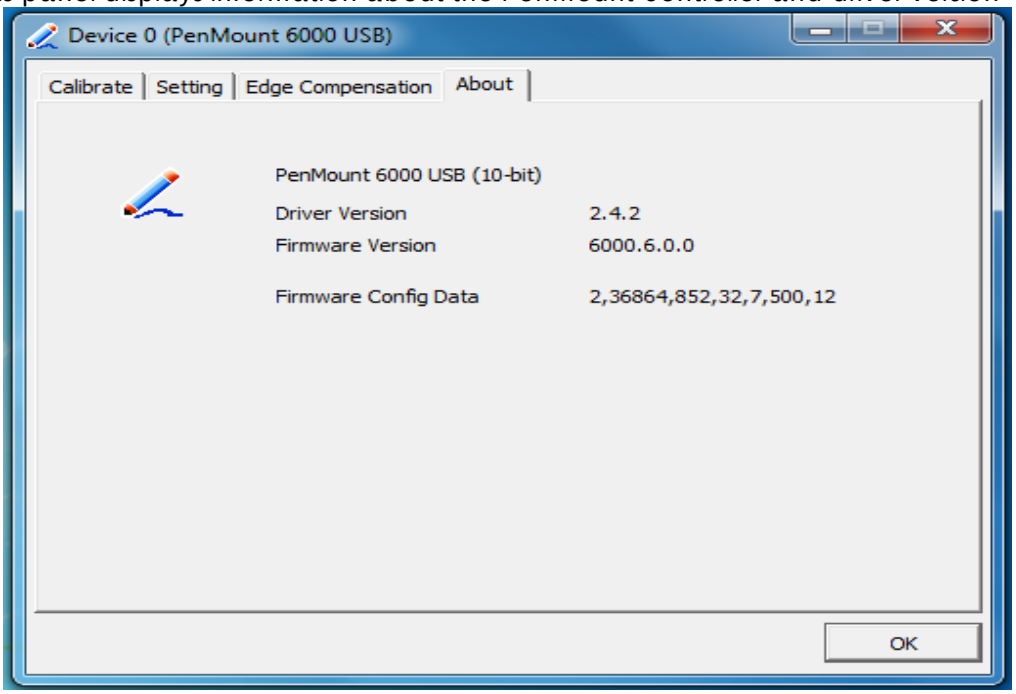
✧ ***<Edge Compensation>***

This page is the edge compensation settings. You can adjust the settings from 0 to 30 for accommodating the difference of each touch panel.



✧ ***<About>***

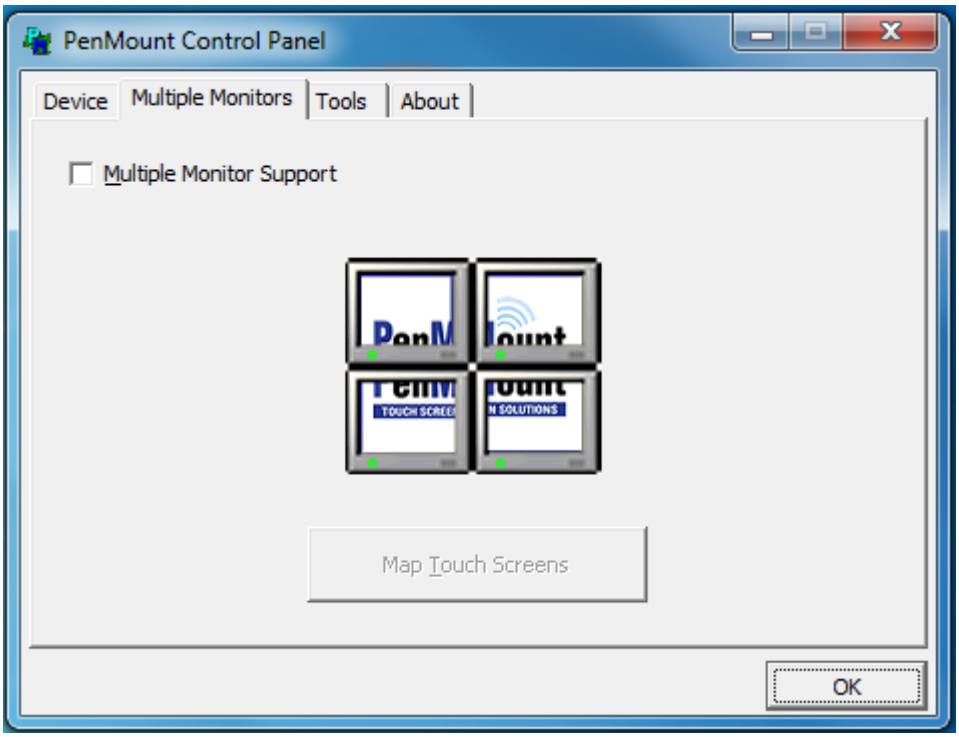
This panel displays information about the PenMount controller and driver version



Multiple Monitors

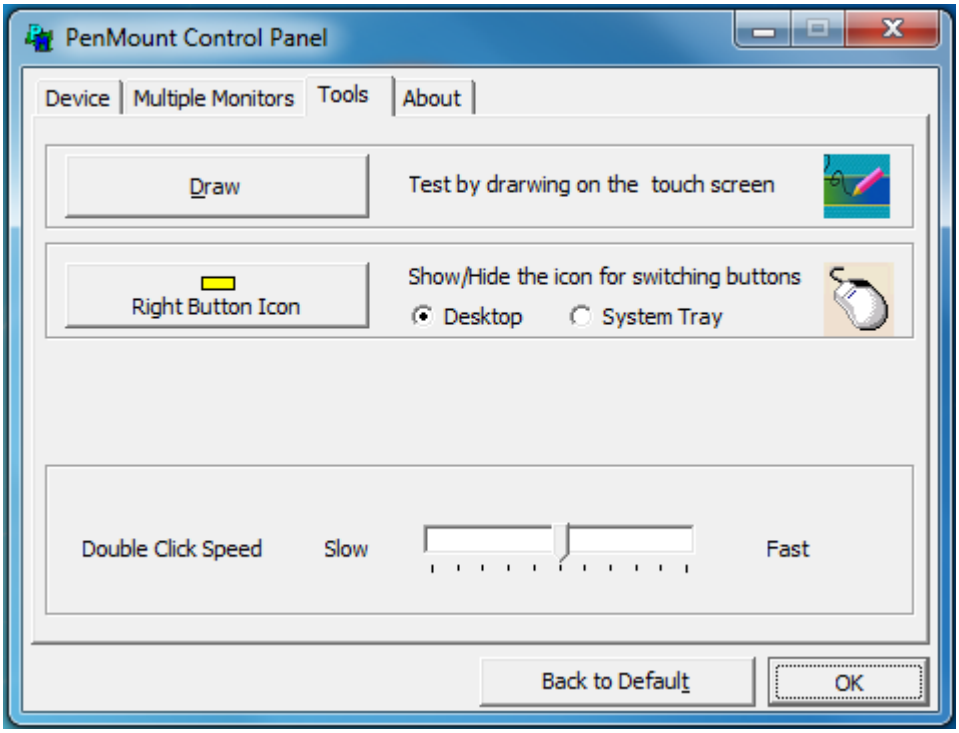
The multiple monitors function supports two to six touch screen displays for one system. PenMount drivers for Windows 7, 8.1, and 10 32/64bit, support **Multiple Monitors**. This function supports from two to four touch screen displays for one system. Each monitor requires its own PenMount touch screen 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 RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors supports the following modes:

Windows Extend Monitor Function (Multi Display)



Note: The **Multiple Monitors** function is for the use with multiple displays only (Windows Extend Monitor Function- plug the HD display). Do not use this function if you have only one touch's screen display. Please note once you turn on this function the **Rotating** function is disabled.

Tools



✧ ***<Draw>***

Tests or demonstrates the PenMount touch screen operation. The display shows touch location. Click **Draw** to start. Touch the screen with your finger or a stylus and the drawing screen registers touch activity such **left**, **right**, **up**, **down**, **pen up**, and pen **down**.

✧ ***<Right Button Icon>***

The function simulates the right button function of a mouse. Click the right button and the user can only touch the screen once and the driver changes the touch definition to the left button.

✧ ***<Double Click Speed>***

The function lets the user adjust the double click area and speed to their personal preference.

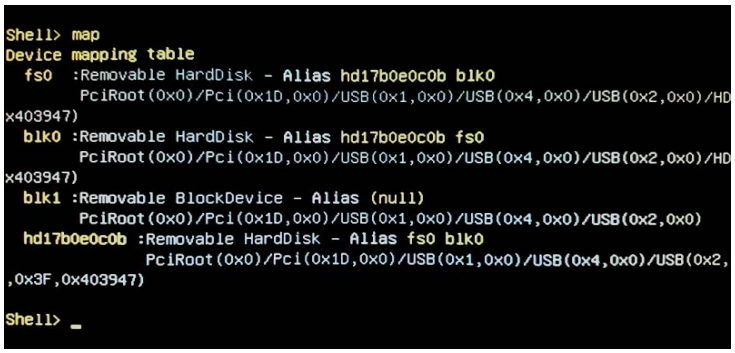
EFI BIOS Flash Utility

In the <UTILITY> directory, there is the fpt64.zip EFI BIOS flash tool (Include fpt64.efi and fpt.txt file), Follow these steps to upgrade BIOS:

Step 1: Uncompress the fpt64.zip BIOS flash tool and copy new BIOS file to the root directory of USB-Stick.

Step 2: Press [F11] after system start-up to enter Boot Menu, Select UEFI: Jetxxx (USB-Stick).

Step 3: Using the "**map"** shell command will list device mapping table. To change the current file system to the mapped fs0 file system: "**fs0:**" (Select to USB stick removable storage, if only plug USB Stick, use "**fs0**" shell command)



Step 4: Use the "**fpt64 -f xxxxxVxx.bin**" program to update the new BIOS.

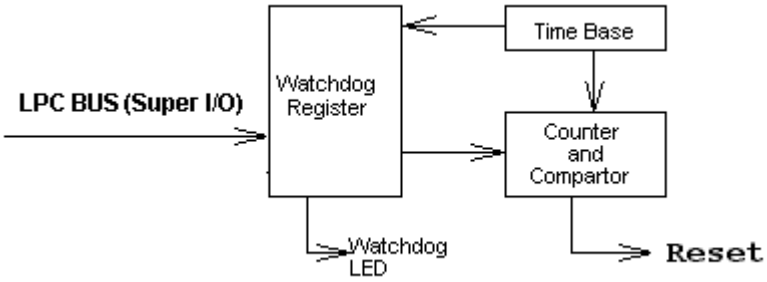
Step 5: Power off the system or use "reset" shell command, when BIOS update is successful the message will show "FPT Operation Passed".

Step 6: Restores BIOS default, when updates the BIOS and reboots the system at the first time.

Watchdog Timer

This section describes how to use the Watchdog Timer, including disabled, enabled, and trigger functions.

The system is equipped with a programmable time-out period watchdog timer. You can use your own program to enable the watchdog timer. Once you have enabled the watchdog timer, the program should trigger the I/O every time before the timer times out. If your program fails to trigger or disable this timer before it times out, e.g. because of a system hang-up, it will generate a reset signal to reset the system. The time-out period can be programmed to be set from 1 to 65535 seconds or minutes.



The CD includes a Watch Dog demo file. In the WATCHDOG/ ITE8712 /TURBOC: Library and Test Program written in Turbo C++

The WATCHDOG includes a demonstration program established for users who would like to configure the Watchdog timer by themselves.

❑ Watchdog Timer Setting

The watchdog timer is a circuit that may be used from your program software to detect system crashes or hang-ups. The watchdog timer is automatically disabled after reset.

Once you have enabled the watchdog timer, your program must trigger the watchdog timer every time before it times out. After you trigger the watchdog timer, it will be set to non-zero value to watchdog counter and start to count down again. If your program fails to trigger the watchdog timer before time-out, it will generate a reset pulse to reset the system.

The factor of the watchdog timer time-out constant is approximately 1 second. The period for the watchdog timer time-out is between 1 to FFFF timer factors.

If you want to reset your system when watchdog times out, the following table listed the relation of timer factors between time-out periods.

Time Factor	Time-Out Period (Seconds)	Time-Out Period (Minutes)
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
“	“	“
“	“	“
“	“	“
FFFF	FFFF	FFFF

❑ Watchdog Timer Enabled

To enable the watchdog timer, you have to output a byte of timer factor to the watchdog register whose address is 2eh and data port is 2fH. The following is a Demo program, which demonstrates how to enable the watchdog timer and set the time-out period at 28 seconds.

```
;--------------------------------------------------------------------------------
; Enter the extended function mode
;--------------------------------------------------------------------------------
outportb(0x2e,0x87);     // Enter to extended function mode
outportb(0x2e,0x87);
outportb(0x2e,0x55);
outportb(0x2e,0x55);
;--------------------------------------------------------------------------------------------------------
; Logical device 7, configuration registers Index 72h-Bit 7, 73H (LSB)/74H (MSB)
;--------------------------------------------------------------------------------------------------------
outportb(0x2e,0x72);     // Index 72h- Time and Watchdog Register
outportb(0x2f,0xc0);     // Set Bit 7 is 1: Second and Bit6: Enabled Watchdog.
//outportb(0x2f,0x80);   // Set Bit 7 is 0: Minute.

outportb(0x2e,0x74);     // Set Timer Value counter1 0100~FF00 (MSB)
outportb(0x2f,0x00);

outportb(0x2e,0x73);     // Set Timer Value counter0 0001~00FF (LSB)
outportb(0x2f,0x28);     // Set timeout interval as 28seconds and start counting
;----------------------------------------
; Exit extended function mode
;----------------------------------------
outportb(0x2e,0x01);
```

❑ Watchdog Timer Trigger

After you enable the watchdog timer, your program must write the same factor as enabling to the watchdog register at least once every time-out period to its previous setting. You can change the time-out period by writing another timer factor to the watchdog register at any time, and you must trigger the watchdog before the new time-out period in next trigger.

❑ Watchdog Timer Disabled

To disable the watchdog timer, simply write a 00H to the watchdog register.

```
;--------------------------------------------------------------------------------------------------------
; Logical device 7, configuration registers Index 72h Bit 6
;--------------------------------------------------------------------------------------------------------
outportb(0x2f,0x07);     //Select Logical Device 7 of watchdog timer
outportb(0x2e,0x72);     //Index 72h- Time-Out Value and Watchdog Register
outportb(0x2f,0x80);     //Set Bit6 to '0': Disabled Watchdog.
```

Digital I/O (GPIO) programming

The following is a Demo program, which demonstrates how to read and write the data of GPIO.

```
;-------------------------------------------------------------------------------------------------------------
; Configuration the Digital IO port is A06h-(GPO) Bit0, Bit1, Bit2, Bit3/ (GPI) Bit 4, Bit 5,
; Bit 6, Bit 7
; A06h-Bit0/Bit1/ Bit2/Bit4 (GPO-0 ~ GPO-3, Write data)
;       When set to a “1”, respective GPO port is programmed as ‘High’.
;       When set to a “0”, respective GPO port is programmed as ‘Low’.
; A06h-Bit4/ Bit5 / Bit6/ Bit7 (GPI-0 ~ GP1-3, Read data)
;       Its respective bit only read.
;-------------------------------------------------------------------------------------------------------------
outportb(0xA06, 0x01);          //Set GPO-0 (Bit0) TO ACTIVE.
//outportb(0xA06, 0x02);        //Set GPO-1 (Bit1) TO ACTIVE.
//outportb(0xA06, 0x0f);        //Set GPO-1/2/3/4 (Bit0/1/2/3) TO ACTIVE.

Ctemp = inportb(0XA06); //read GPI-0 (Bit-4) ~ GPI-3(Bit-7) value”
printf("GPI(Input)= %x ",Ctemp);
```

Chapter 5 Technical Reference

This section outlines the errors that may occur when you operate the system, and also gives you the suggestions on solving the problems.

Topic include:

- Trouble Shooting for
  - LCD Display and Touch Screen
- Technical Reference
- FP8153 Dimension

Trouble Shooting

Touch Screen

The following information informs the LCD and touch serene driver. Please adjust your systems according to the messages below. Make sure all the components and connectors are in proper position and firmly attached. If the errors still exist, please contact with your distributor for maintenance.

□ Windows might cause Page Fault blue screen when keep touching the touch panel during system booting up for USB model.

Workaround:

➢ Do not keep touch the touch panel when system booting up.

□ USB touch kit driver will not be loaded properly if the panel was kept touched during system booting up in Windows.

Workaround:

➢ Do not keep touch the touch panel when system booting up.

➢ Check CMOS BIOS setting, the USB Function must enable.

□When plug HD display use windows extend monitor Function, touch device calibration is can't complete adjust.

Workaround:

➢ Go to Touch Configure PenMount driver Utility > **Multiple Monitors.** This function supports from two to four touch screen displays for one system.

LCD Display is unstable

□ There is no display on the LCD Monitor.

Workaround:

➢ Make sure the DC power supply indicator on the LCD and Power LED.

➢ Connector to the external HD monitor. If you system functions properly with a HD monitor but it does not function with the Panel PC LCD monitor, check system BIOS to see if there is VBIOS Default (Both) scan for LFP (LCD) or EFP(HD-Display2) only and or load BIOS default and try again. If these is no display. May be problem with system.

Technical Reference

Physical and Environmental

Temperature: Operating 0°C ~ 60°C

Relative humidity 5 % to 95 % non-condensing

Surface Temperature of Chassis：

5°C to 45°C (W/HDD)/0°C to 60°C (W/CFAST or SSD)

Serial Ports

The ACEs (Asynchronous Communication Elements ACE1 to ACE2) are used to convert parallel data to a serial format on the transmit side and convert serial data to parallel on the receiver side. The serial format, in order of transmission and reception, is a start bit, followed by five to eight data bits, a parity bit (if programmed) and one, one and half (five-bit format only) or two stop bits. The ACEs are capable of handling divisors of 1 to 65535, and produce a 16x clock for driving the internal transmitter logic.

Provisions are also included to use this 16x clock to drive the receiver logic, also included in the ACE a completed MODEM control capability, and a processor interrupt system that may be software tailored to the computing time required to handle the communications link.

The following table is a summary of each ACE accessible register

DLAB	Port Address	Register
0	Base + 0	Receiver buffer (read)
		Transmitter holding register (write)
0	Base + 1	Interrupt enable
X	Base + 2	Interrupt identification (read only)
X	Base + 3	Line control
X	Base + 4	MODEM control
X	Base + 5	Line status
X	Base + 6	MODEM status
X	Base + 7	Scratched register
1	Base + 0	Divisor latch (least significant byte)
1	Base + 1	Divisor latch (most significant byte)

Receiver Buffer Register (RBR)

Bit 0-7: Received data byte (Read Only)

Transmitter Holding Register (THR)

Bit 0-7: Transmitter holding data byte (Write Only)

Interrupt Enable Register (IER)

Bit 0: Enable Received Data Available Interrupt (ERBFI)

Bit 1: Enable Transmitter Holding Empty Interrupt (ETBEI)

Bit 2: Enable Receiver Line Status Interrupt (ELSI)

Bit 3: Enable MODEM Status Interrupt (EDSSI)

Bit 4: Must be 0

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

Interrupt Identification Register (IIR)

Bit 0: "0" if Interrupt Pending

Bit 1: Interrupt ID Bit 0

Bit 2: Interrupt ID Bit 1

Bit 3: Must be 0

Bit 4: Must be 0

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

Line Control Register (LCR)

Bit 0: Word Length Select Bit 0 (WLS0)

Bit 1: Word Length Select Bit 1 (WLS1)

WLS1	WLS0	Word Length
0	0	5 Bits
0	1	6 Bits
1	0	7 Bits
1	1	8 Bits

Bit 2: Number of Stop Bit (STB)

Bit 3: Parity Enable (PEN)

Bit 4: Even Parity Select (EPS)

Bit 5: Stick Parity

Bit 6: Set Break

Bit 7: Divisor Latch Access Bit (DLAB)

MODEM Control Register (MCR)

Bit 0: Data Terminal Ready (DTR)

Bit 1: Request to Send (RTS)

Bit 2: Out 1 (OUT 1)

Bit 3: Out 2 (OUT 2)

Bit 4: Loop

Bit 5: Must be 0

Bit 6: Must be 0

Bit 7: Must be 0

Line Status Register (LSR)

Bit 0: Data Ready (DR)

Bit 1: Overrun Error (OR)

Bit 2: Parity Error (PE)

Bit 3: Framing Error (FE)

Bit 4: Break Interrupt (BI)

Bit 5: Transmitter Holding Register Empty (THRE)

Bit 6: Transmitter Shift Register Empty (TSRE)

Bit 7: Must be 0

MODEM Status Register (MSR)

Bit 0: Delta Clear to Send (DCTS)

Bit 1: Delta Data Set Ready (DDSR)

Bit 2: Training Edge Ring Indicator (TERI)

Bit 3: Delta Receive Line Signal Detect (DSLSD)

Bit 4: Clear to Send (CTS)

Bit 5: Data Set Ready (DSR)

Bit 6: Ring Indicator (RI)

Bit 7: Received Line Signal Detect (RSLD)

Divisor Latch (LS, MS)

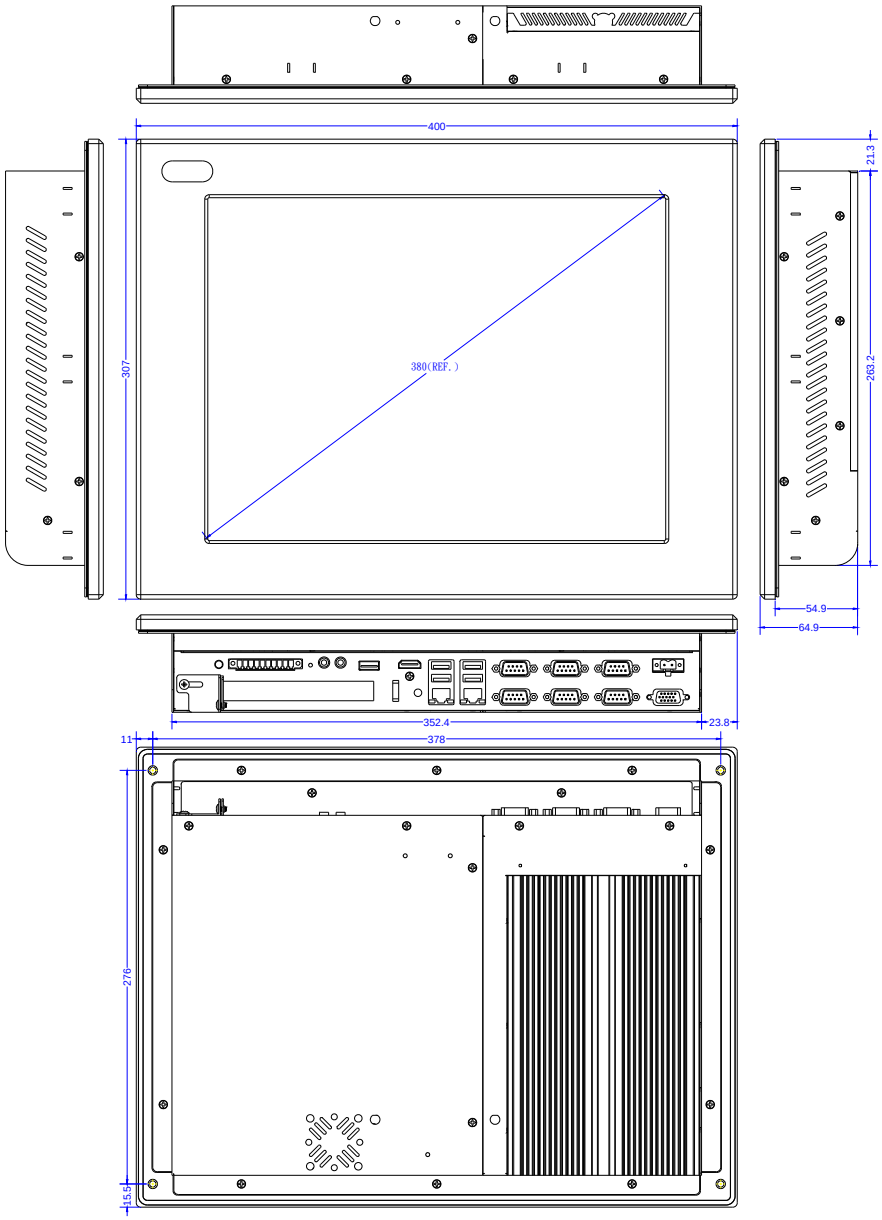
	LS	MS
Bit 0:	Bit 0	Bit 8
Bit 1:	Bit 1	Bit 9
Bit 2:	Bit 2	Bit 10
Bit 3:	Bit 3	Bit 11
Bit 4:	Bit 4	Bit 12
Bit 5:	Bit 5	Bit 13
Bit 6:	Bit 6	Bit 14
Bit 7:	Bit 7	Bit 15

Desired Baud Rate	Divisor Used to Generate 16x Clock
300	384
600	192
1200	96
1800	64
2400	48
3600	32
4800	24
9600	12
14400	8
19200	6
28800	4
38400	3
57600	2
115200	1

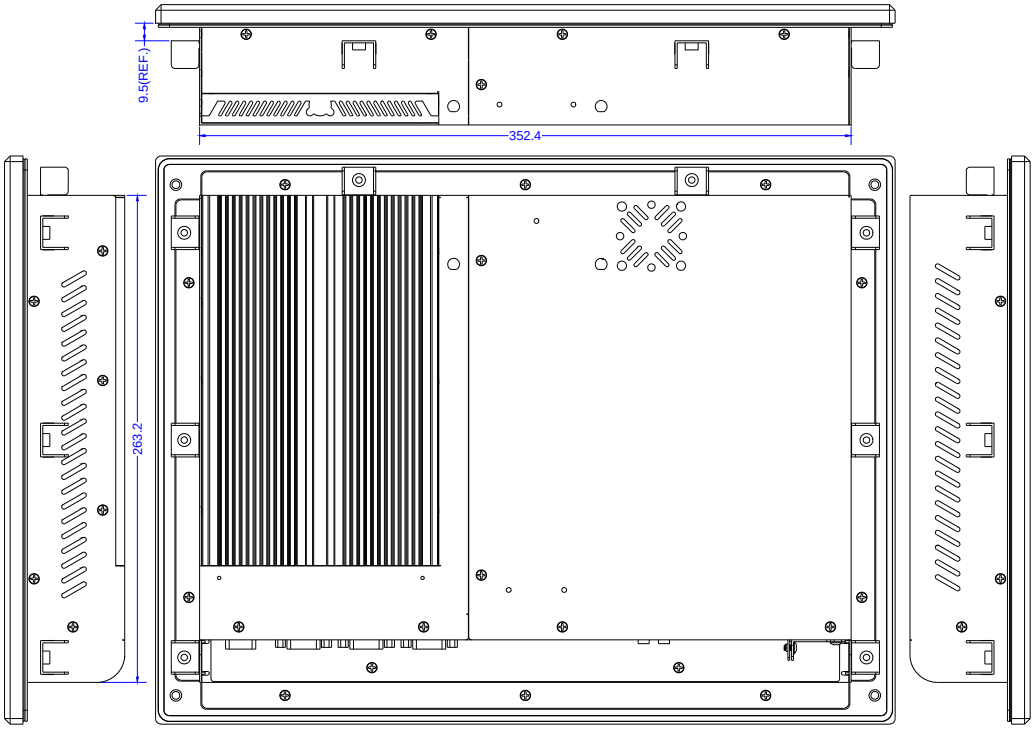
Appendix

Dimension

a. FP8153



b. FP8153 - Wall Mounting Cut-Out Dimension



Cut out dimension 355 x 265 mm

c. FP8152K1 - Embedded Mounting with VESA 75*75/100*100 mm