

VMT10 User's Manual



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Chapter 1.Introduction

Congratulations on purchasing the VMT10, a Microsoft Windows[®] Rugged PC.

Its special combination of features makes it perfect for using in

a wide range of applications. These features as:

- High Quality 10.4" LED Backlit Panel with T/s, 800x600/1024x768 Resolution
- Intel Cedar Trail Atom N2600 1.6GHz Processor
- Rugged Aluminum Enclosure and Fanless Design
- Full IP65 Dust / Water Proof Enclosures
- Wide Range 8 to 36V DC Input Support Ignition Cold Crank
- Wide Range -30~60°C Operating Temperature
- Flexible Expansion Capability for WiFi, GPS, LTE/HSPA/GPRS, Bluetooth
- Function Keys for 0%~100% Brightness Control
- VESA Standard for Flexible Mounting Kits

1.1 About this Manual

The following chapters contained in this manual are:

Chapter 1:	Introduction	General information about the VMT.
Chapter 2:	Getting started	Describe the basic use of the VMT.
Chapter 3:	H/W installation	Provide basic instructions for motherboard of the VMT.
Chapter 4:	BIOS Settings	Describe how to set the BIOS of the
Chapter 5:	S/W introduction & installation	VMT. Describe the installed applications on the VMT.

1.2 User and Product Safety

- Never use strong pressure onto the screen or subject it to severe impact, as the LCD panel could become cracked and possibility cause personal injury. If the LCD panel is broken, never touch the liquid inside because the liquid irritates the skin.
- Although the VMT has passed the test of IP65 standard for water and dust resistance, avoid prolonged exposure to rain or other concentrated moisture. Such condition exceeds the IP65 standard, and could result in water or other contaminants entering into the VMT.
- Use only the original approved AC/DC Adapter with the VMT. Use of an unapproved AC/DC Adapter could result in electrical problems, or even cause a fire or electrical shock to the user.
- Do not disassemble the VMT. Servicing should be done by supplier only. If the VMT or accessories gets damaged due to wrong handling or unauthorized repair, warranty is void. In case the warranty seals are broken, warranty is void too.
- Make regularly back-up of all important data.
- Under no circumstance will supplier be liable for any direct, indirect, consequential or incidental damages baring out of the use or inability to use the hardware and software and/or any data loss, even if supplier has been informed about the possibility of such damages.

1.3 Recycling & disposal instructions.



Do not throw this product in the home waste bin.

1.4 Regulatory information.



For CE, FCC, RoHS and other Document of Conformities, consult the contact window of WETIF.

1.5 Product Labeling

The VMT has several labels as shown in Figure 1-1 to 1-2.

A. VMT10

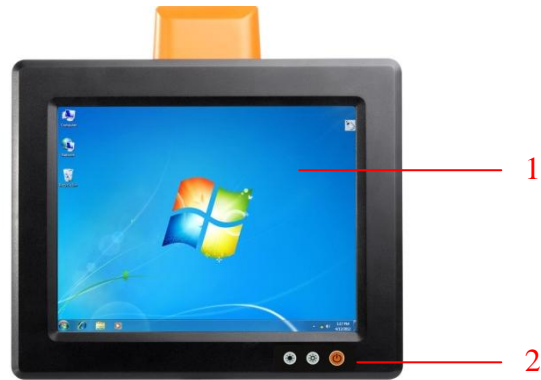


Figure 1-1 Product Labeling (Front side view)

Label nr.	Description
1	LCD panel protection film
2	Keypad for power on/off, brightness up/down

Table 1-1 Front labeling



Figure 1-2 Product Labeling (Back side view)

Label nr.	Description
1	Product model name label
2	Serial number label

Table 1-2 Rear labeling

1.6 System Specifications

The VMT10 detailed specifications as follows. Unless otherwise noted, all the specifications are subject to change without prior notification.

Table 1-3 System Specification

VMT10	
Processor	- Intel Cedarview Atom N2600 1.6GHz
Memory	- 1 x 200-pin SODIMM, Max 2GB DDR3
Storage	- 1 x CFast Slot, Max 64GB
Operating System	- Windows XP Pro. - Windows XP Embedded - Windows 7
Display	- 10.4" TFT LCD with LED backlight - SVGA 800 x 600 Resolution - VGA 1024 x 768 Resolution(Optional) - 400cd/m ² Brightness
Touch Panel	- 8-Wires Resistive type - USB interface
Input / Output Ports	- 1 x RS-232 - 1 x RS-232/422/485 - 2 x USB 2.0 - 2 x RJ45-10/100/1000Mbps Ethernet
Audio	- Audio amplify for two speakers (2 Watt)
Radio Support	- Wireless LAN: 802.11a/b/g/n - Bluetooth: V2.1+EDR, Class II - Wireless WAN: LTE / HSPA / EDGE / GPRS
GPS	- High-performance SiRF III Chipset
Keypad	- Power ON/OFF Button - Increasing Brightness Button - Decreasing Brightness Button
Power System	- Power Input: 8~36VDC - Ignition On/Off: Power on delay 10s; Power off delay 10s (default);

VMT10	
	<p>Hard off delay 120s;</p> <ul style="list-style-type: none"> - Power Consumption: 25W typ. <p>Remark:</p> <p>Power on delay: When the VMT10 is powered on via ignition key, the system will delay 10 seconds to power on.</p> <p>Power off delay: When VMT10 power is controlled by ignition key and turns off by the key (ignition=off), the VMT10 will start the shut procedure after 10s(default) or 30s or 120s.</p> <p>Hard off delay: When VMT10 power is controlled by ignition key and turns off by the key (ignition=off), the VMT10 will cut off the 5VSB power after 10s/30s/120s. In this event when the shutdown process is longer than 120 seconds, the power will be shut down hard, turning off the VMT10's power and 5VSB.</p>
Dimensions and Weight	<ul style="list-style-type: none"> - Dimensions (L x W x H): 278 x 229 x 68 mm - Weight: 4.0Kg
Color	<ul style="list-style-type: none"> - Black

1.7 Environment Standard

Table 1-4 Environment Standards

Operating Temperature	-30~60℃
Mounting	VESA Mount, Vehicle Mount
Humidity	10~95% (Non-condensing)
Shock	5~500HZ, 4G RMS, X,Y,Z axis, 60mins/axis.
Water & Dust proof	IP65 Certificated
Vibration	MIL STD 810G












1.8 Warranty and after service












Should this VMT10 be malfunctioning, please contact your original retailer providing information about the product name, the serial number, and the details about the problem.

Chapter 2. Getting Started

2.1 Check the package

Open the package and check all the parts are inside without shortage and damage:

Main Unit		
Vehicle Mount Terminal	VMT10	
Accessories		
Power Adapter	PWR220A12	
	PWR958D24	
	PWR1868D24	
Power Cord	PC-02A-18	
	PC-03A-18	
	PC-22AA-18	
Antenna	ANT-R3T	
	ANT-S7T	
	ANT-GPST	
	ANT-G8N	
	ANT-OCAP	
Accessories		

Arrester	ART-232P	
IP65 Industrial Keyboard	DKB-57	
Keyboard Mounting Kits		
	DKB-VT2	
Vehicle Mount Kits	RAM-MOUNT-02	
	RAM-MOUNT-03	
	DV-MOUNT-10	
	DV-MOUNT-1002	
	DV-MOUNT-1003	
	DV-MOUNT-20	
	DV-MOUNT-2002	
	DV-MOUNT-2003	

2.2 General View of the VMT10

2.2.1 VMT10 general view



Figure 2-2 VMT10 front side view

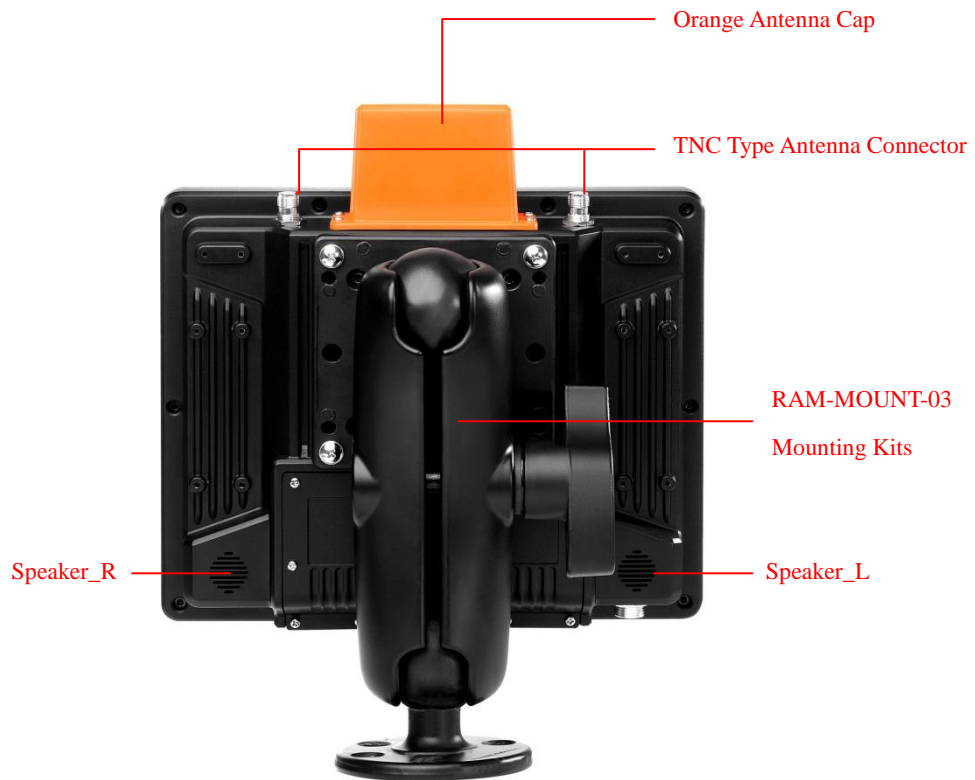


Figure 2-3 VMT10 back side view

2.2.2 VMT10 input / output ports view



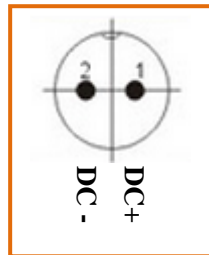
Figure 2-4 VMT10 input/output ports view

A	2 x USB2.0
B/C	RJ-45 GbE LAN
D	COM1 (RS-232)
E	COM2 (RS-232/422/485)
F	DC Power Jack (8~36VDC)

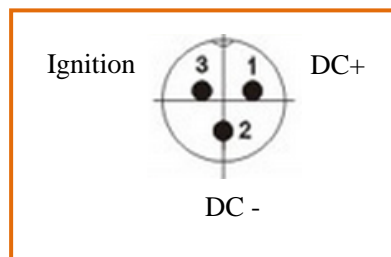
2.3 Starting the VMT10

2.3.1 DC Voltage Supply Connector

Version A: M16 power socket, 2 Pin,



Version B: M16 power socket, 3 Pin,



Explanation:

‘Ignition on’ means that a control signal has to be routed to this connection (e.g., ignition of a vehicle), that matches the supply voltage level and is able to supply at least 1 W to the VMT10.

The signal reference is DC-.

2.3.2 Connecting External Devices

The VMT10 must be disconnected from the power supply:

- Before external devices (e.g., scanner, keyboard) are connected or disconnected.
- Before the VMT10 can be connected to a network.

All connections and interfaces on the VMT10 are located on the underside of the unit.

CAUTION: Make sure that external peripheral devices with their own power supply are switched on at the same time as the or after you start the VMT10. If this is not possible, please ensure that the VMT10 is adequately protected from power leakage caused by an external device.

Only power up the VMT10 when all devices have been connected and the VMT10 has been closed correctly (remember the cable cover!). Otherwise, you may damage the VMT10.

2.3.3 Powering Up the VMT10

Only power up the VMT10 after connecting all of the devices.

The VMT10 is powered up by connecting it to an appropriate power supply and then, depending on the version of the device, either using the [Power] key or the ignition signal.

You have to hold the [Power] key down for a short time.

CAUTION: Make sure there is a suitable disconnecting device such as a power switch or circuit breaker in the power supply circuit.



2.3.4 Powering Down the VMT10

Always shut down the VMT10 as follows:

1. Power down the device using the ignition input or the [Power] key.
2. Remove the cable cover.
3. Disconnect the device from the DC supply voltage (pull the plug).

2.4. Handling the VMT10

2.4.1 Starting the VMT10

Press the Power button to turn on the VMT10. If the VMT10 does not power on, check the power adapter has been connected normally and you should try again.




Figure 2-7 Starting the VMT10

When the VMT10 is powered on, it's operating system starts up. A splash screen (figure 2-7) appears for a short period of time followed by the Windows 7 window.

This section offers the basic procedures of VMT10 using.

2.4.2 Configure and calibrate the touch screen

PenMount touch screen is the most popular touchscreen on the market. Penmount software support a wide range of configuration. You can use this software to configure and calibrate the touch screen. When the operating system is started, you can see the icon of **Penmount Monitor**  in the notification area.

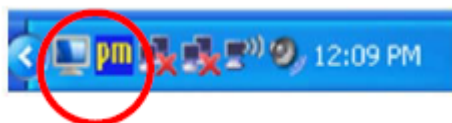


Figure 2-8 icon of Penmount Monitor

1. Right-click on the **PenMount Monitor** icon  in the notification area and select **Control Panel** from the menu.



Figure 2-9 **PenMount Monitor Menu**

2. **PenMount Control Panel** opens. You will be able to see the icon of Penmount 6000 USB under **Device** tab. In the **Device** tab, you can see the devices detected on your system. Select a device and press the **Configure** button to configure it.

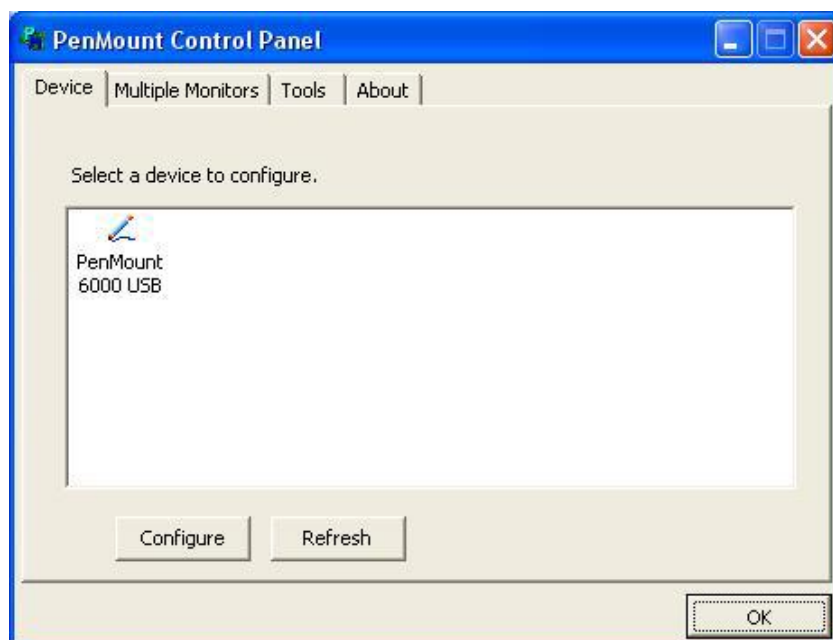


Figure 2-10 **Device Tab**

3. Click the “**Standard Calibration**” to start standard calibration.

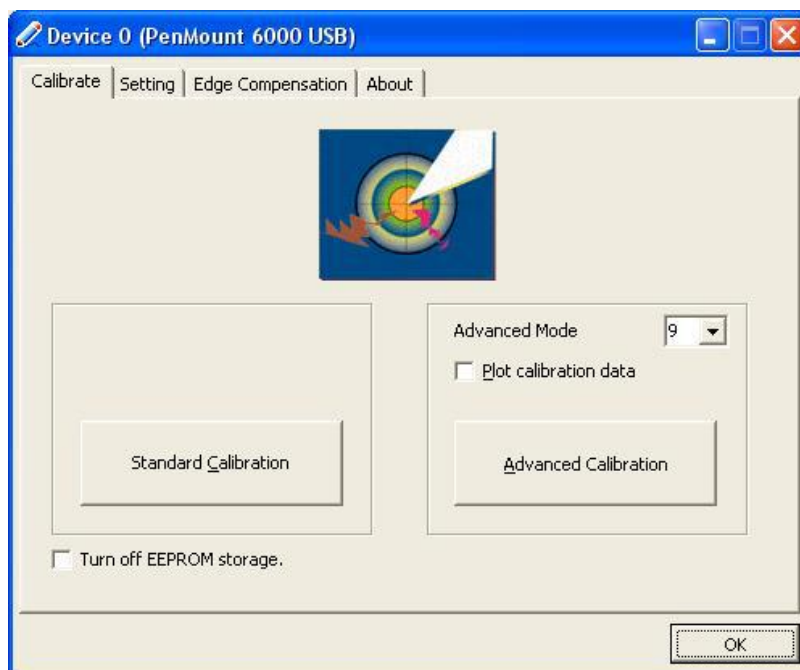


Figure 2-11 Calibrate Tab

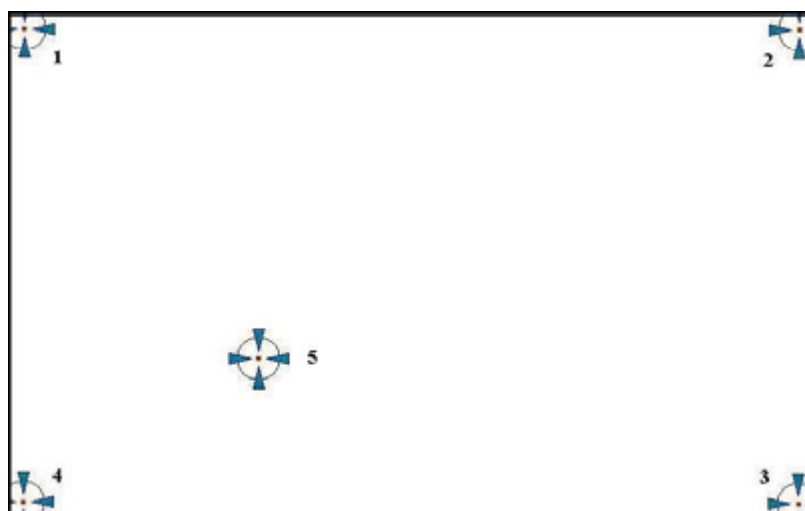


Figure 2-12 Standard Calibrate Window

NOTE: The older the touchscreen gets, the more **Advanced Mode** calibration points you need for an accurate calibration. Use a stylus for **Advanced Calibration** for greater accuracy. Do the following for **Advanced Calibration**:

4. Back in Calibrate tab, press “**Advanced Calibration**” button to start Advanced Calibration.

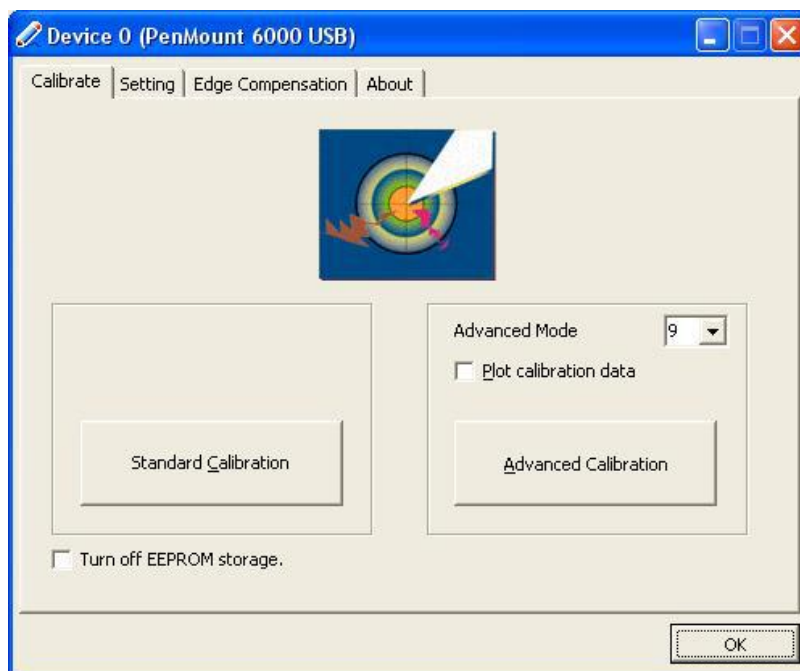


Figure 2-13 Calibrate Tab

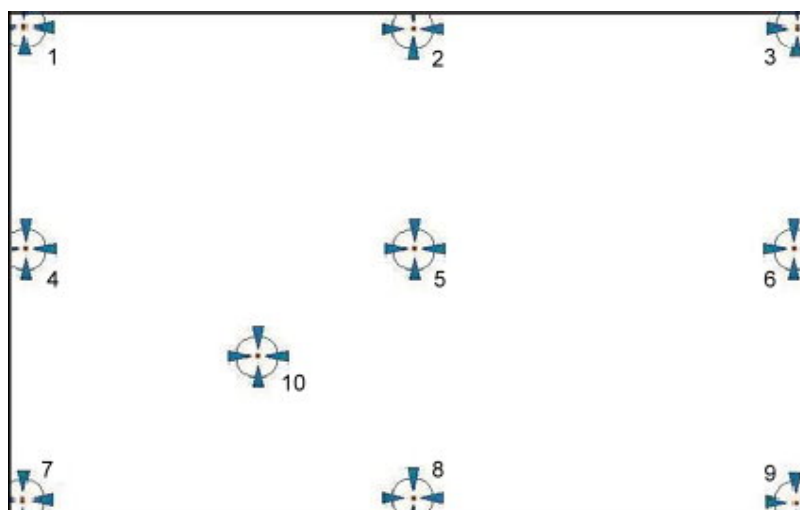


Figure 2-14 Advanced Calibrate Window

Table 2-1 **Advanced Tab**

<p>Plot Calibration Data</p> <p><input type="checkbox"/> Plot calibration data</p>	<p>Check this function to have touch panel linearity comparison graph appear when you finish 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.</p>
<p>Turn off EEPROM storage</p> <p><input type="checkbox"/> Turn off EEPROM storage.</p>	<p>This function disables the write-in of calibration data in Controller. This function is enabled by default.</p>

5. **Setting** tab, you can do some configuration for the touchscreen.

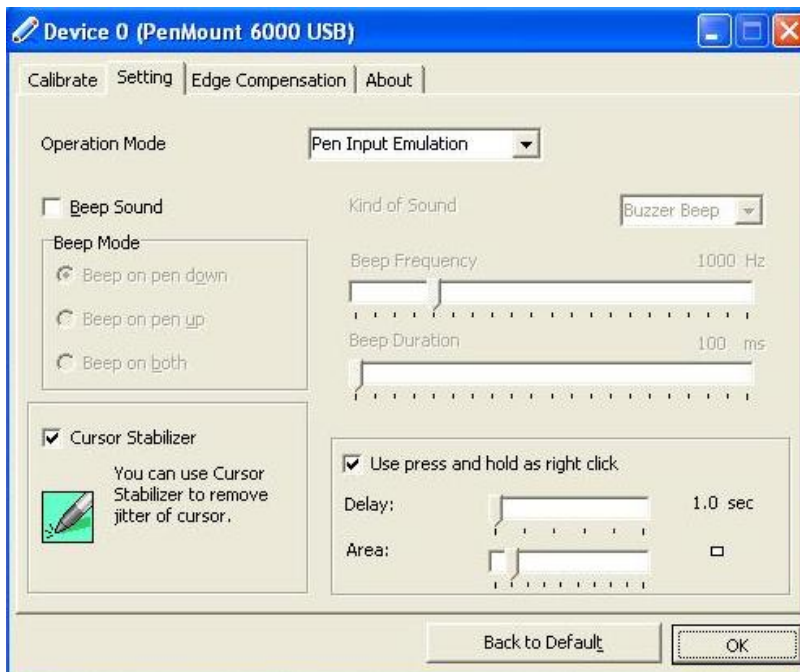


Figure 2-15 **Setting Tab**

➤ **Operation Mode**

This mode enables and disables mouse's ability of dragging on-screen icons—useful for configuring POS terminals.

Table 2-2 **Operation Mode**

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**

Table 2-3 **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

6. **Edge Compensation** tab, you can adjust the settings from 0 to 30 for accommodating the difference of each touch panel.

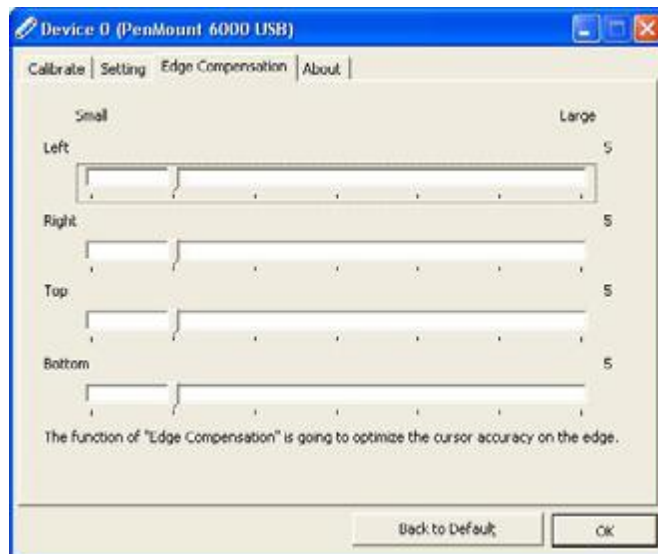


Figure 2-16 **Edge Compensation Tab**

7. **About** tab, This panel displays information about the PenMount controller and driver version

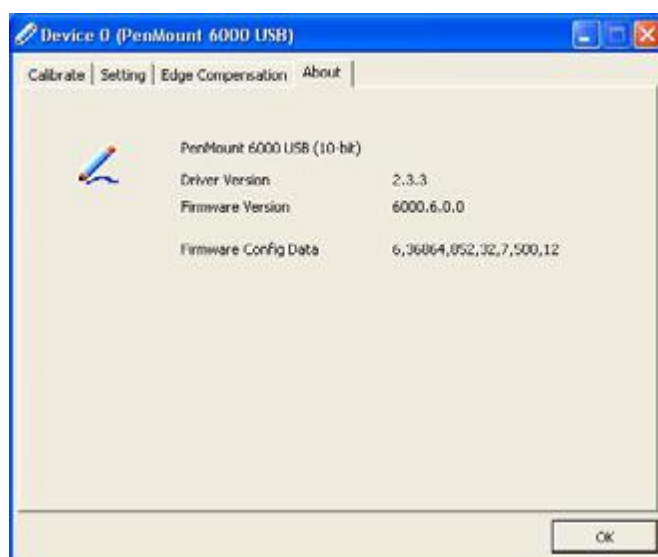


Figure 2-17 **About Tab**

2.4.3 Setting Up Wireless LAN

The Summit Client Utility (SCU) is an application designed for end users and administrators of mobile devices that use a Summit radio module. Using SCU, an end user can:

- Disable the radio (turn it off) and enable the radio (turn it on)
- View the contents of configuration profiles, or profiles, each of which houses the RF, security, and other settings for the radio
- Select the profile to be used to connect to a WLAN
- View global settings, which apply to every profile
- View status information on the radio, the access point (AP) or WLAN router to which it is connected, and the RF connection or link between the two devices
- To troubleshoot a connection or performance issue, view in-depth diagnostic information on the connection and the radio, and perform various troubleshooting and diagnostic tests

After completing an administrator login to the utility, a user can perform these additional tasks:

- Create, rename, edit, and delete profiles
- Alter global settings, which apply to every profile

SCU provides a graphical user interface (GUI) for access to all of its functions. Access to these functions also is available through an application programming interface (API), which an application programmer can use to enable another utility to manage the radio.

To initialize SCU:

- From the Start menu, select Programs
- Select the directory called Summit
- Inside the Summit directory are two items: a directory for the storage of security certificates and an SCU icon. To run SCU, double-click the SCU icon

SCU has five tabs: Main, Profile, Status, and Diags, and Global. Each tab is described in more detail in this section.

Main Tab



Figure 2-18 Main Tab

- **Admin Login/Logout:** Click the Admin Login button. An input field appears for the password, the standard password is: **SUMMIT** (must be entered in capital letters!) , You can find details about the configuration parameters in the SCU online help at:
http://www.summitdatacom.com/Documents/summit_users_guide_3_03.html
- **Enable/Disable Radio:** When the radio is enabled, selecting this button disables it; when the radio is disabled, selecting this button enables it.
- **Active Profile:** You can view the name of the active profile and, using the selection list, select a different profile.
If you select “ThirdPartyConfig” then, after the device goes through a power cycle, WZC is used for configuration of the radio.
- **Status:** Indicates the radio’s status.
- **Radio Type:** Indicates the type of radio in the device.
“BG” means a Summit radio that supports 802.11b and 802.11g.
- **Regulatory Domain:** Indicates the regulatory domain or domains for which the radio is configured.
“Worldwide” means that the radio can be used in any domain.
The domain cannot be configured by an administrator or user.
- **Driver:** Indicates the version of the device driver that is running on the device.
- **SCU:** Indicates the version of SCU that is running on the device.

- **About SCU:** When tapped, supplies information on SCU that on a Windows application normally would appear under Help\About.

Profile Tab

Profile settings are radio and security settings that are stored in the registry as part of a configuration profile. When a profile is selected as the active profile on the Main tab, the settings for that profile become active. An administrator can define up to 20 profiles, edit them, and delete them on the Profile tab in SCU. ***Profile changes made on the tab are saved to the profile only when the Commit button is pressed.***

Unless it is modified, the Default profile does not specify an SSID, EAP type, or method of encryption. If the Default profile is the active profile, then the radio will associate only to an access point that broadcasts its SSID and requires no EAP type and no encryption.

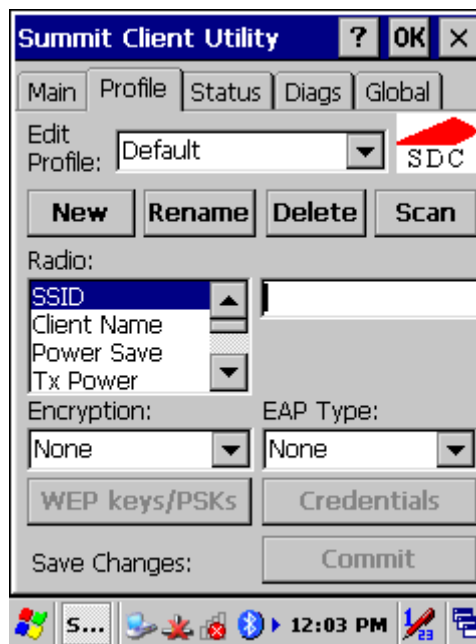


Figure 2-19 Profile Tab

- **Edit Profile:** This is used to select the profile to be viewed or, if you are an administrator, edited.
- **Actions:** Four actions are available, with the first three available only to an administrator:
 - **New:** Create a new profile with default settings and give it a unique name (and then change settings using other selections on the tab).
 - **Rename:** Give the profile a new name, one that is not assigned to another profile

- **Delete:** Delete the profile, provided that it is not the active profile.
- **Scan:** Open a window that lists access points that are broadcasting their SSIDs. Each time you tap the Refresh button, you view an updated list of APs, with each row showing an AP's SSID, its received signal strength indication (RSSI), and whether or not data encryption is in use (true or false). You can sort the list by clicking on the column headers. If you are authorized as an administrator, select an SSID in the list, and tap Commit, you return to the Profile tab to create a profile for that SSID.
- **Radio:** Radio attributes in the list box can be selected individually. When an attribute is selected, the current setting or an appropriate selection box with the current setting highlighted appears on the right.
- **Security:** Values for the two primary security attributes, EAP type and encryption type, are displayed in separate dropdown lists, with the current values highlighted. When you as an administrator select an EAP type, the Credentials button appears; when you tap it, a dialog box appears that enables you to define authentication credentials for that EAP type. When you as an administrator select an encryption type that requires the definition of WEP keys or a pre-shared key, the PSKs/WEP Keys button appears; when you tap it, a dialog box appears that enables you to define WEP keys or a PSK.
- **Commit:** To ensure that changes to profile settings made on the tab are saved in the profile, you must tap the Commit button.

To cause a Summit radio to connect to a typical business WLAN, you must select a profile that specifies the SSID, EAP type, and encryption type supported by the WLAN:

- **SSID:** This is the name or identification of the WLAN.
- **EAP type:** This is the protocol used to authenticate the device and its user if the WLAN uses the Enterprise version of Wi-Fi Protected Access (WPA) and WPA2. SCU supports five EAP types: PEAP with EAP-MSCHAP (PEAP-MSCHAP), PEAP with EAP-GTC (PEAP-GTC), EAP-TLS, LEAP, and EAP-FAST
- **Encryption:** This specifies the type of key used to encrypt and decrypt transmitted data and how that key is specified or derived. Encryption options include:
 - WPA2 or WPA with dynamic keys (derived from the EAP authentication process)
 - WPA2 or WPA with pre-shared keys
 - Static WEP keys

Consult the user's guide for details on all profile settings, including security settings.

Status Tab

The Status tab provides status information on the radio.

- Active profile
- Radio's status: Down (not recognized), Disabled, Not Associated, Associated, or [EAP type] Authenticated
- Client info: Name, IP address, and MAC address
- AP info: Name, IP address, MAC address, beacon period, and DTIM interval
- Connection info: Channel, data rate, transmit power, signal strength, and signal quality

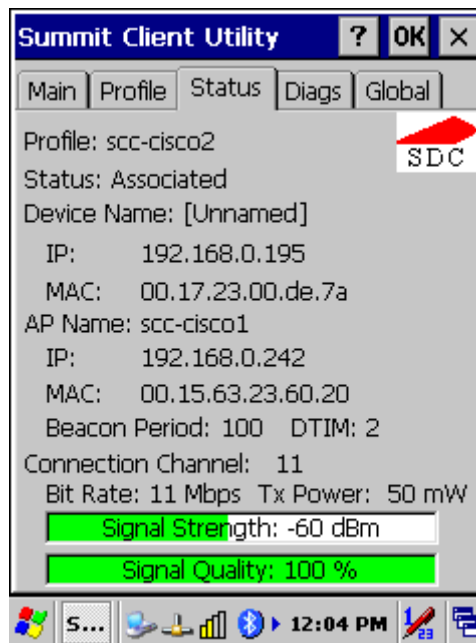


Figure 2-20 Status Tab

Diags Tab

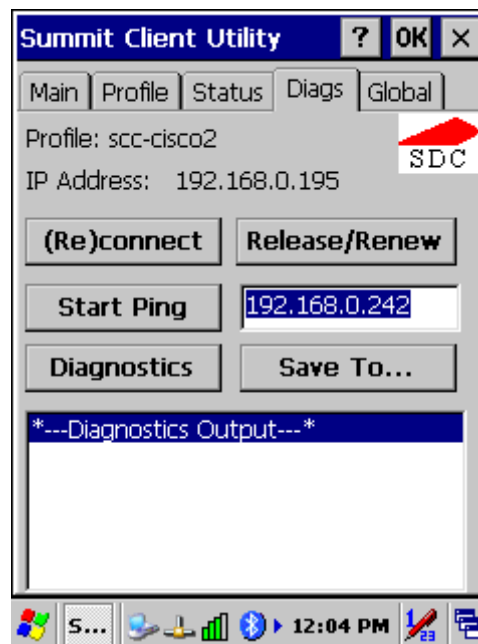


Figure 2-21 Diags Tab

- **(Re)connect:** Disable and enable the radio, apply or reapply the current profile, and attempt to associate and authenticate to the wireless LAN, logging all activity in the output area at the bottom.
- **Release/Renew:** Obtain a new IP address through DHCP release/renew, and log all activity in the output area at the bottom.
- **Start Ping:** Start a continuous ping to the address in the edit box next to it. Once the button is clicked, its name and function will change to Stop Ping. Moving to an SCU window other than Status or Diags also will stop the ping, as will Pings will continue until you tap the Stop Ping button, move to an SCU window other than Diags or Status, exit SCU, or remove the radio.
- **Diagnostics:** Attempt to (re)connect to an AP, and provide a more thorough dump of data than is obtained with (Re)connect. The dump will include radio state, profile settings, global settings, and a BSSID list of APs in the area.
- **Save To...:** Save the diagnostics output to a file.

Global Tab

Global settings include:

- Radio and security settings that apply to all profiles
- Settings that apply to SCU itself

An administrator can define and change most global settings on the Global Settings Tab in SCU.

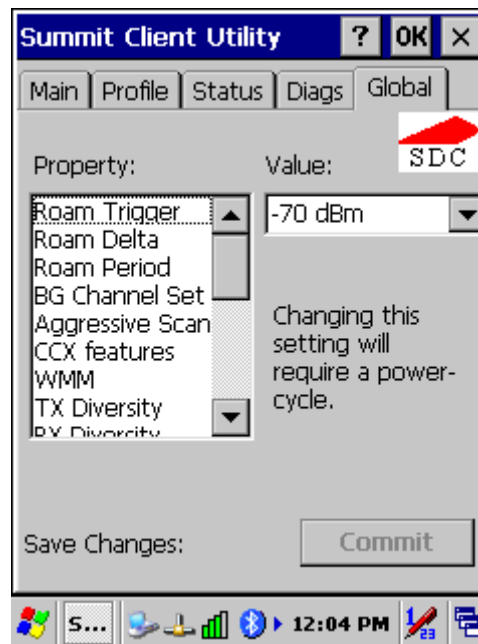


Figure 2-22 Global Tab

The default setting for each global setting ensures reliable operation in most environments. Consult the user's guide for details on all global settings.

2.4.4 Using HSPA (3.5G) Wireless WAN

The HSPA PCI Express Mini Card is a compact, lightweight, wireless UMTS-based modem. It provides EDGE, GPRS, GSM, WCDMA, HSDPA and HSUPA connectivity for VMT10, point-of-sale devices, telemetry products and other machine-to-machine and vertical applications over several radio frequency bands:

- **GSM, GPRS, EDGE**

850 MHz, 900 MHz, 1800 MHz, 1900 MHz

- **UMTS WCDMA / HSDPA / HSUPA**

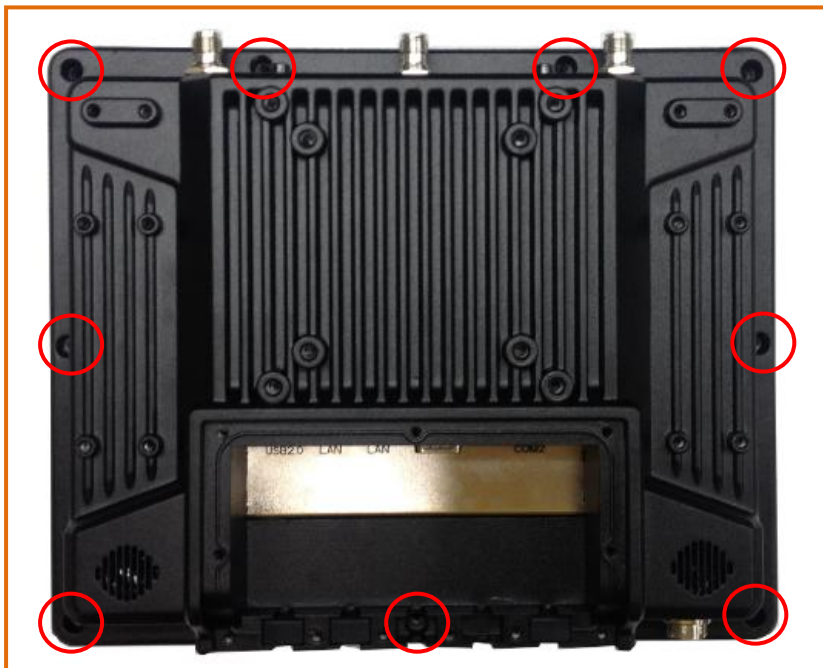
800 MHz, 850 MHz, 900MHz, 1900 MHz, 2100 MHz

- **EV-DO/CDMA**

800 MHz, 1900 MHz

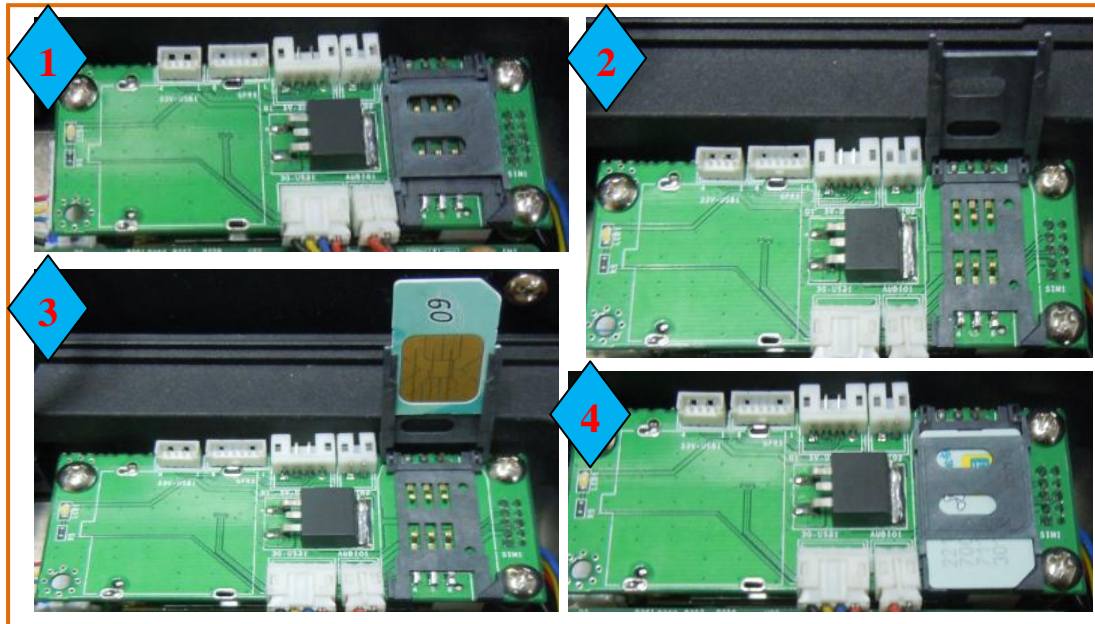
Setup connection

1. Unscrew the 9 screws of the Back Cover as shown in the picture.



2. Open the front panel, and insert the User's SIM card to slot, make sure the User's SIM card has applied the 3G service.

Note: You must turn off the VMT10 before inserting the SIM card.



3. Turn on the VMT10, then booting into OS.
4. Check the device manager without any question mark.



5. Double Click the "Sierra Wireless Watcher" and Click Button "Connect", then the VMT10 will connect to the internet.



6. To tap "?" can get help information for each program.

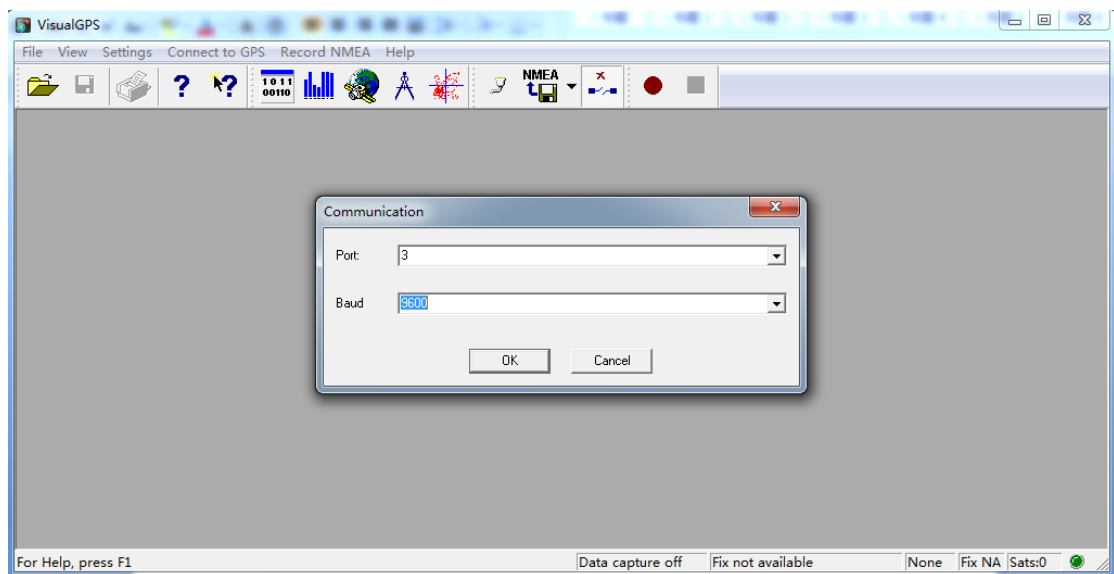
2.4.5 GPS Setting

Setup connection

1. Turn on the VMT10, booting into OS.
2. Double click the *"VisualGPS.exe"* application program icon on the desktop.



3. Start test in "Visual GPS", setting COM port (COM3) and baud rate (9600bps) use for GPS module.



4. After start test, the NMEA output messages are display on the Command Monitor Window. And you can see more gps information on the other windows such as “Signal Quality Window”, “Azimuth and Elevation window” and so on.



NMEA monitor window

The NMEA monitor window will allow you to monitor the data from the GPS receiver in real time. Any data received from the receiver is piped into this window and no filtering of any kind is performed. If the GPS receiver outputs more data than is required by VisualGPS, that data will be displayed.

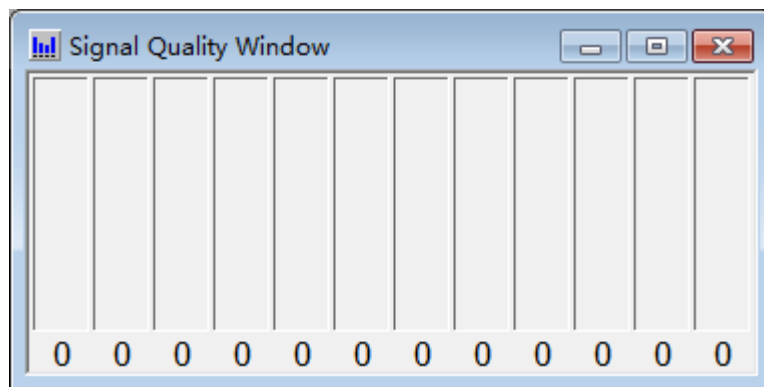
This window may be sized and stretched to fit within the desired area. Using the right mouse button over the window will display various settings. These settings are described below.

```
$GPRMC,060001,A,3348.795,N,11754.064,W,000.0,000.0,110698,013.7,E*62
$GPRMB,A,,,,,,,,,V*71
$GPGGA,060001,3348.795,N,11754.064,W,1,07,1.0,65.8,M,-31.9,M,,*4F
$GPGSA,A,3,14,15,16,18,22,25,29,,,,,2.2,1.0,1.9*38
$GPGSV,2,1,07,14,70,322,55,15,31,212,53,16,32,317,54,18,10,282,47*7C
$GPGSV,2,2,07,22,40,120,53,25,36,045,52,29,28,073,50,,,*4B
$PGRME,19.5,M,44.7,M,48.8,M*10
$GPGLL,3348.794,N,11754.064,W,060002,A*3E
$PGRMZ,217,f,3*1F
$PGRMM,WGS 84*06
$GPBOD,,T,,M,,*47
$GPRTD,1,1,c,0*07
$GPRMC,060003,A,3348.794,N,11754.064,W,000.0,000.0,110698,013.7,E*61
$GPRMB,A,,,,,,,,,V*71
$GPGGA,060003,3348.794,N,11754.064,W,1,07,1.0,66.2,M,-31.9,M,,*45
$GPGSA,A,3,14,15,16,18,22,25,29,,,,,2.2,1.0,1.9*38
$GPGSV,2,1,07,14,70,322,55,15,31,212,53,16,32,317,54,18,10,282,47*7C
```

Signal Quality Window

The Signal Quality Window uses the GPGSV NMEA message to extract the signal to noise ratio (SNR C/No) which is specified as a number from 0 - 99 dB. Depending on the number of satellites in view, the number of SNR bars will vary. At the top of each SNR bar, the raw SNR value is displayed. Full scale is considered any SNR value of 50 dB or above. At the bottom of each bar shows the satellite ID or Pseudo Random Number.

The signal quality bar will change its color depending if the satellite is used in the navigation solution returned by the GPGSA NMEA message. If the satellite is not used in the position fix solution, the signal quality bar will be in gray. If the satellite is used in the solution, the signal quality bar will be blue.



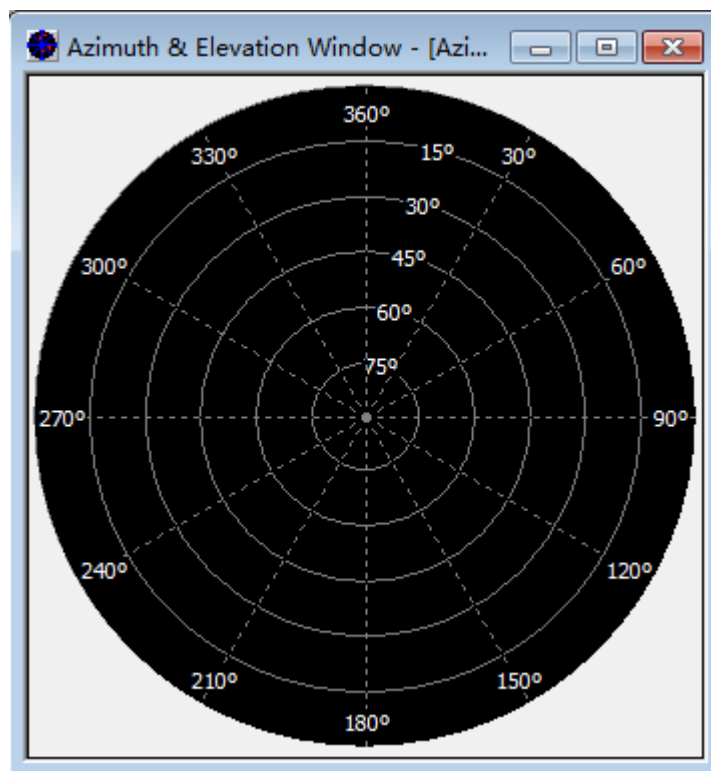
Azimuth and Elevation window

The Azimuth and Elevation window shows satellite position and the physical antenna mask angle. The satellite position is denoted using azimuth, 0 ° to 359 °, and elevation, 0 ° to 90 ° where 90 ° is the horizon. The satellites are also color coded to show which is part of the navigation solution and tracked. When the satellite is highlighted in color shows that it is being used for a navigation solution and tracked. When the satellite is gray shows that the satellite is not tracked.

Like the Signal Quality Window, the Azimuth & elevation Window will use the GPGSV NMEA command to extract azimuth and elevation for each satellite that is in view. Each satellite is identified by its Pseudo Random Number (PRN) with the azimuth as the letter 'A' and elevation by the letter 'E'.

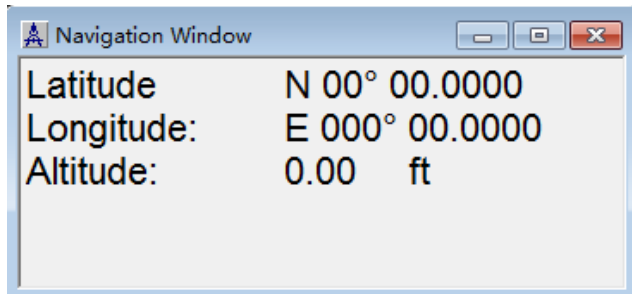
The color of the text for each satellite indicates whether the satellite is used in the position solution. When the text is in red, the satellite is used in the solution. When the text is in gray, the satellite is not used in the solution.

In stationary or static applications it is necessary to place the antenna where it can get a clear view of the sky. Sometimes there are obstructions to the antenna and knowing the effect on the tracking of satellites is essential. The Azimuth and Elevation Window has the ability to show graphically the elevation mask angle. This is the blue jagged line that is built by using satellite information. Using the information from the SNR and solution status, a graphical representation of the mask angle is built. This may take as long as 24 hours of tracking. Below is an example of how the physical elevation mask looks after 16 hours of acquisition on the West Coast on North America. See Azimuth and Elevation Properties for more information on configuration settings to the physical mask angle.



Navigation Window

The Navigation Window displays position data from the GPS receiver. This data includes latitude, longitude and altitude.



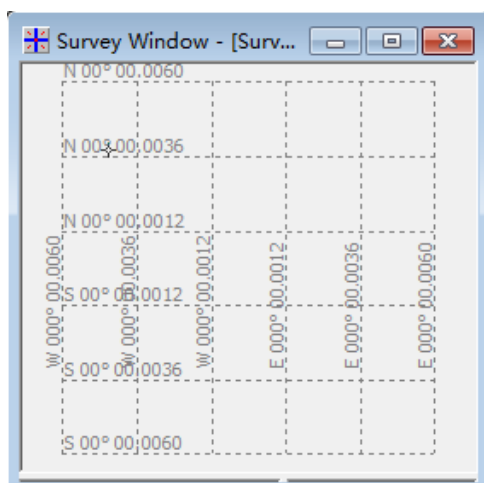
Survey Window

The Survey Window is one of the more interesting windows of VisualGPS. This window will log latitude, longitude and altitude displaying data graphically.

The Survey Window is split into three frames. The first, at the top, is the Survey Frame. Here, a plot of past position history is displayed graphically and is known as paths. These paths can be saved to disk and viewed at a latter time.

The frame directly below the Survey Frame is the Altitude Frame. This frame simply plots the altitude.

To the right of the Altitude Frame is the Position Statistics frame. Displayed here are position average and Dilution of precision or DOPs.



2.4.6 Bluetooth Setting & Using

Start BlueSoleil

1. Turn on the VMT10, booting into OS.
2. Double click the "BlueSoleil Space" application program icon on the desktop.



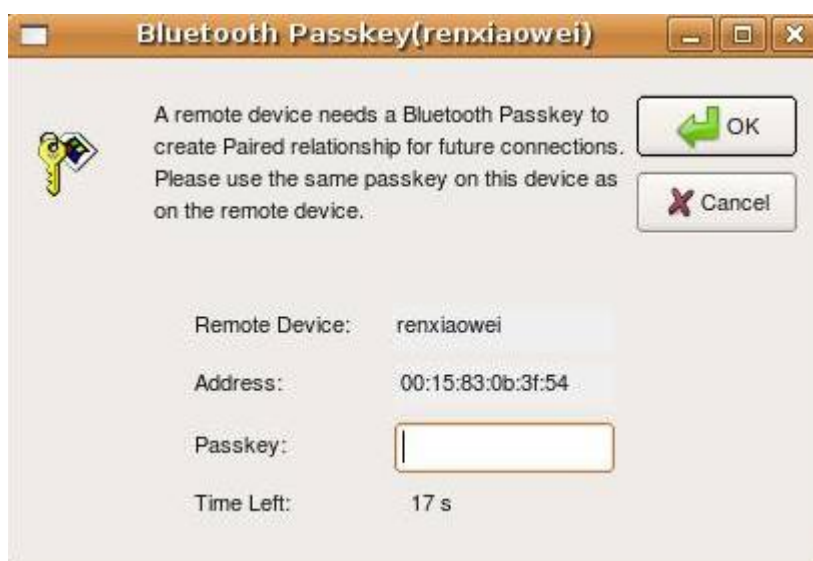
3. Make your Bluetooth devices discoverable, Double-click "*Central Sun*" icon in BlueSoleil window.



Then your Bluetooth devices will be found and listed on the orbit in BlueSoleil window.



4. Double-click your Bluetooth device icon to search services. Available services will be highlighted by service icons located on top of the BlueSoleil window.
5. Double click a service icon to initiate a connection. You might be prompted to enter a passkey to authenticate. Enter the same passkey on both sides, or enter the specific one provided by the device manufacture on your computer side only. A dialog box as shown below will pop up for you to enter a passkey.



After the connection is established, both the Bluetooth device icon and the service icon will turn green.

2.4.7 Keyboard

Any USB keyboard can be connected to the VMT10.

DKB-57 full function QWERTY keyboard with protection class IP 65 is available for the VMT10.



2.4.8 Help

To tap “?” can get help information for each program.

Chapter 3.H/W installation

3.1 Jumpers

3.1.1 Jumper list

Table 3-1 Jumper List

JP1	Auto Power Button Selection
JP2	Clear CMOS
JP3	COM2 RI/+5/+12V Selection

3.1.2 Jumper Settings

Table 3-2 JP1: Auto Power Button Selection

Setting	Function
(1-2)	Enable
(2-3)	Disable (Default)

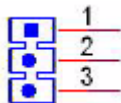


Table 3-3 JP2: SEL Clear CMOS (JP2)

Setting	Function
(1-2)	Normal (Default)
(2-3)	Clear CMOS

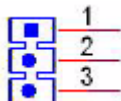
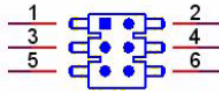


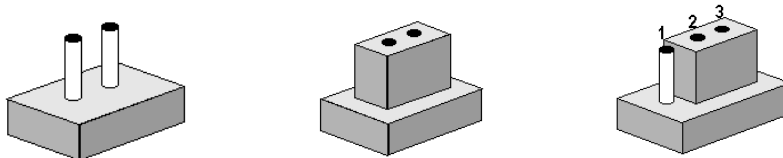
Table 3-4 **JP3: COM2 RI/+5V/+12V Selection**

Setting	Function
(1-2)	+12V
(3-4)	RI (Default)
(5-6)	+5V



3.1.3 Jumper Description

Cards can be configured by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To close a jumper, you connect the pins with the clip. To open a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



The jumper settings are schematically depicted in this manual as follows.



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

Warning! *To avoid damaging the computer, always turn off the power supply before setting jumpers. Clear CMOS. Before turning on the power supply, set the jumper back to 3.0 V Battery On.*



Chapter 4.BIOS Settings

AMIBIOS has been integrated into many motherboards for over a decade. With the AMIBIOS Setup program, you can modify BIOS settings and control the various system features. This chapter describes the basic navigation of the VMT10 Motherboard BIOS setup screens.

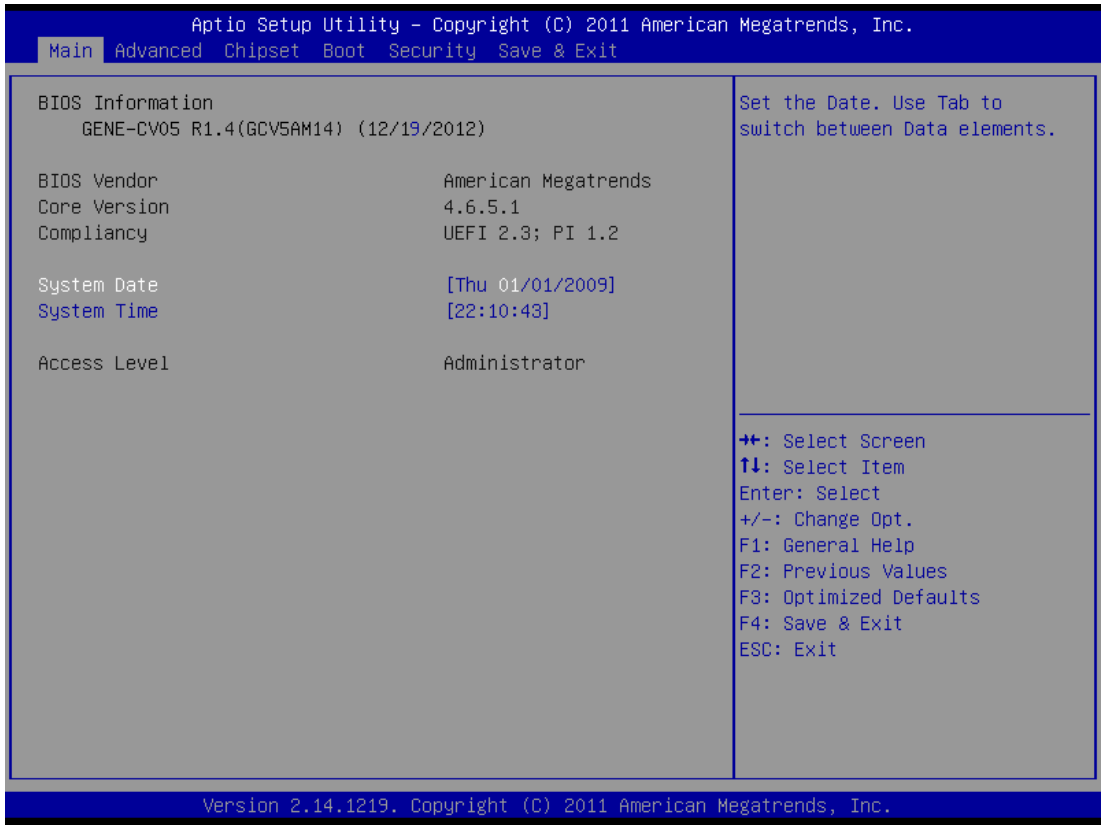


Figure 4-1 Setup program initial screen

AMI's BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in battery-backed CMOS so it retains the setup information when the power is turned off.

4.1 Entering Setup

Turn on the computer and check for the “patch” code. If there is a number assigned to the patch code, it means that the BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press and you will immediately be allowed to enter setup.

4.2 Main Setup

When you first enter the BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



Figure 4-2 Main setup screen

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

4.2.1 System time / System date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

4.3 Advanced BIOS Features Setup

Select the Advanced tab from the VMT10 Motherboard 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 CPU 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 screens are shown below. The sub menus are described on the following pages.

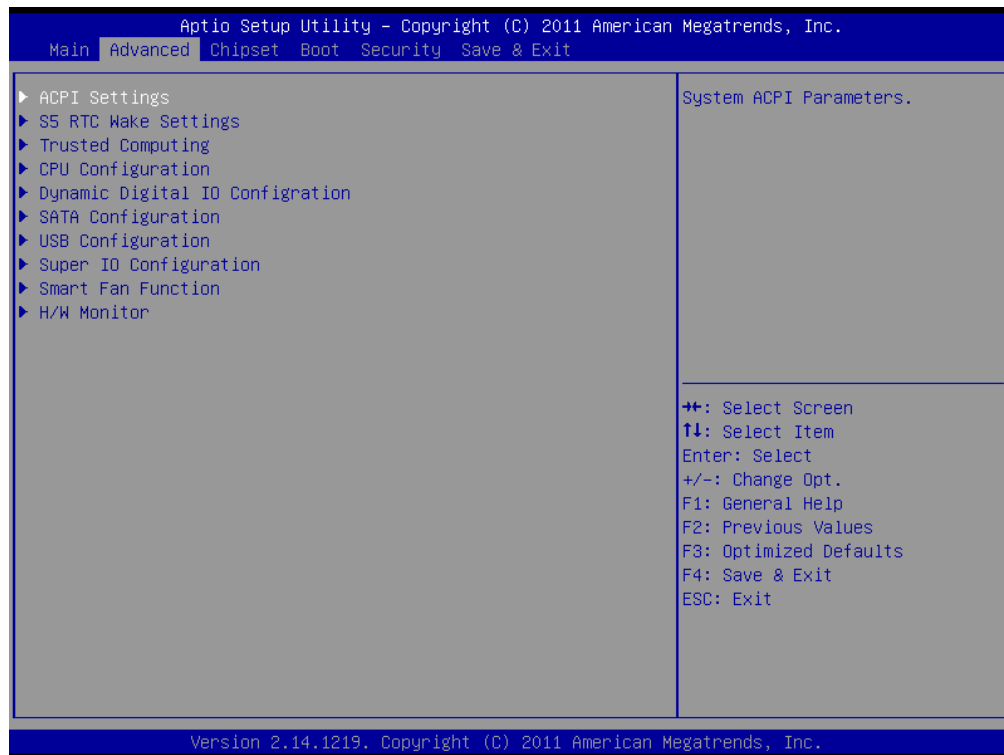


Figure 4-3 Advanced BIOS features setup screen

4.3.1 ACPI Settings

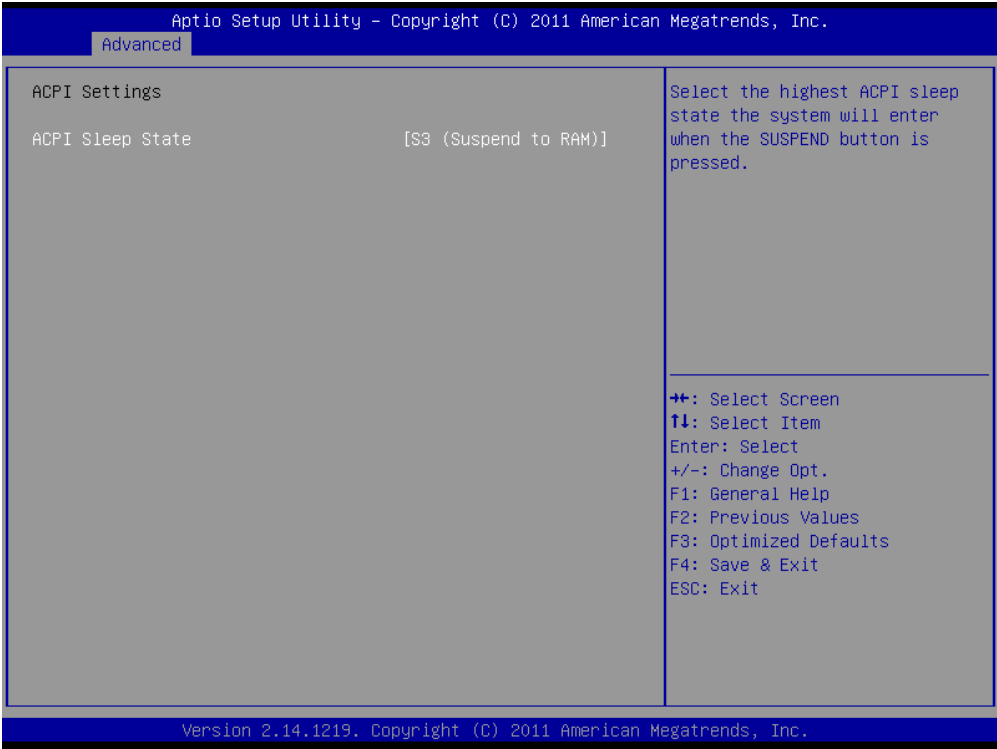


Figure 4-4 ACPI Settings

Options summary: (default setting)

ACPI Sleep State	Suspend Disabled	
	<i>S3 (Suspend to RAM)</i>	
Select the ACPI state used for System Suspend		

4.3.2 S5 RTC Wake Settings

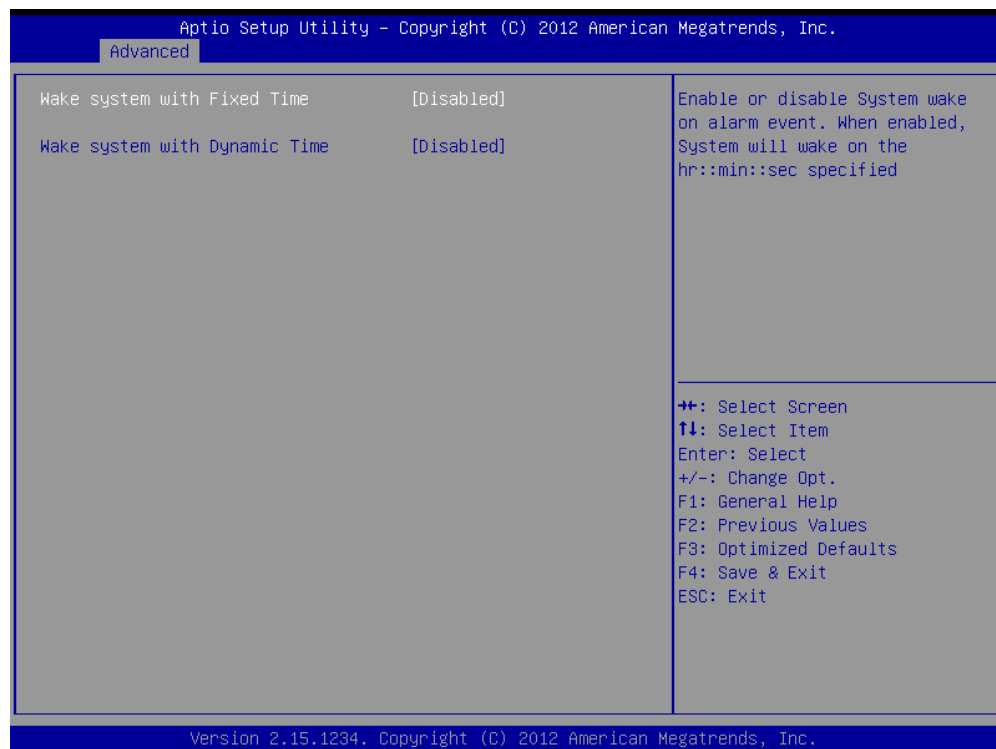


Figure 4-5 S5 RTC Wake Settings

Options summary: (default setting)

Wake system with Fixed Time	<i>Disabled</i>	
	Enabled	
Enable or disable System wake on alarm event. Wake up time is setting by following settings.		
Wake up day	0-31	
Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up		
Wake up hour	0-23	
Wake up minute	0-59	
Wake up second	0-59	
Wake system with Dynamic Time	<i>Disabled</i>	
	Enabled	

Enable or disable System wake on alarm event. Wake up time is current time + Increase minutes.		
Wake up minute increase	1-5	

4.3.3 Trusted Computing

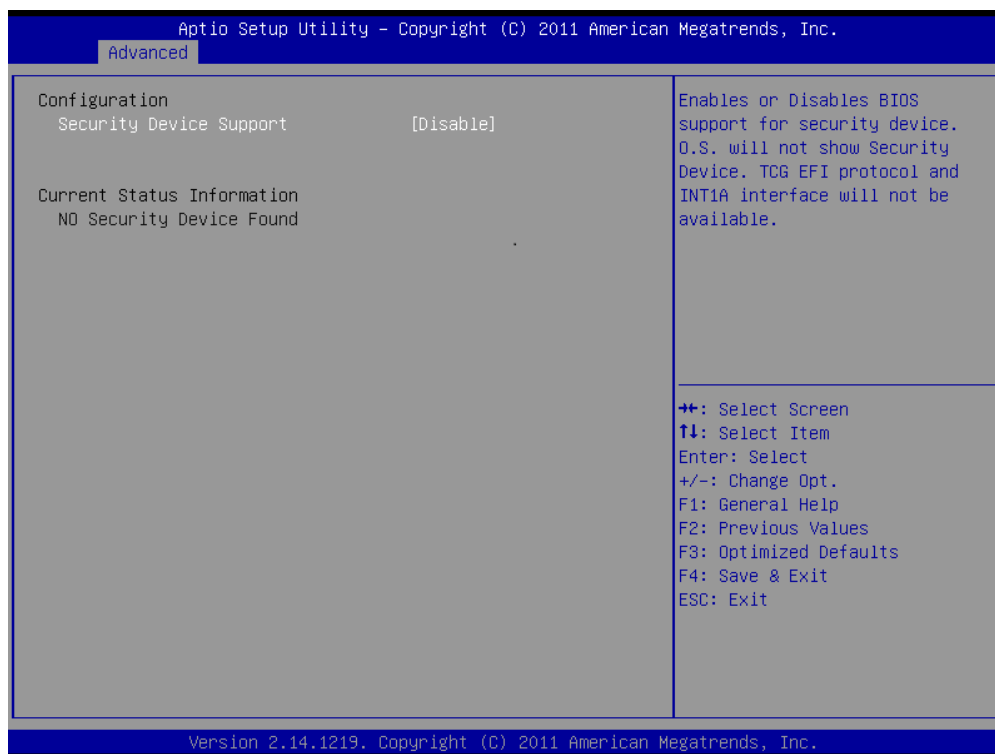


Figure 4-5 Trusted Computing

Security Device Support	<i>Disabled</i>	
	Enabled	
Enable or disable TPM		

4.3.4 CPU Configuration

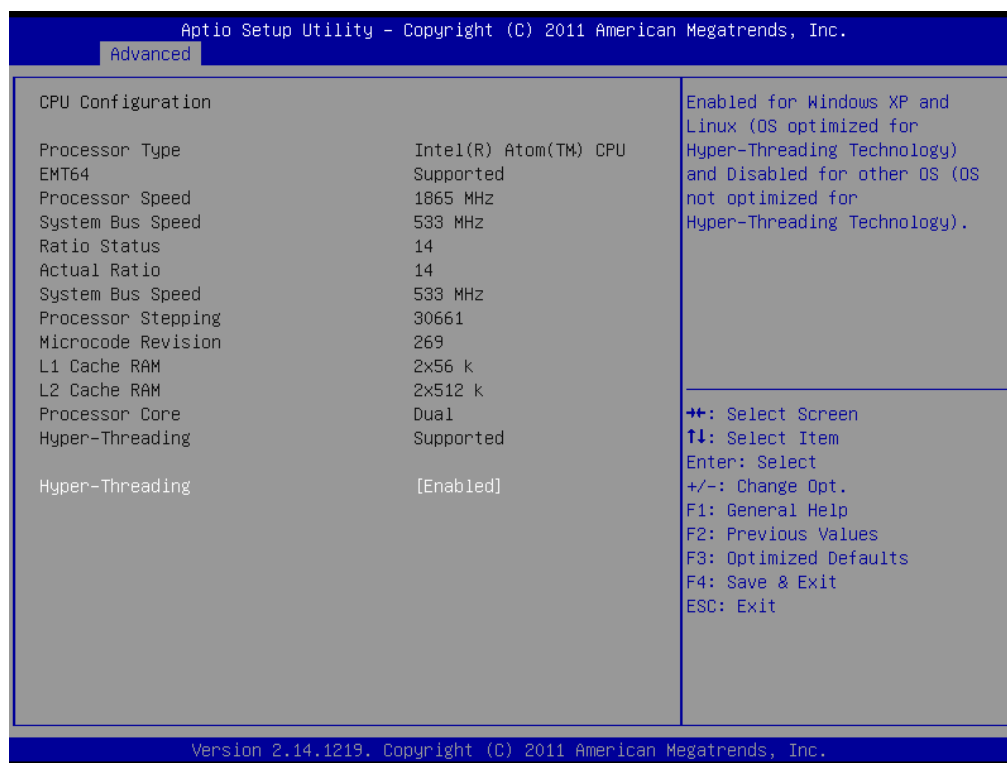


Figure 4-7 CPU Configuration

Options summary: (default setting)

Hyper-Threading	Disabled	
	<i>Enabled</i>	
CPU Hyper-Threading Technology support or not		

4.3.5 Dynamic Digital IO Configuration

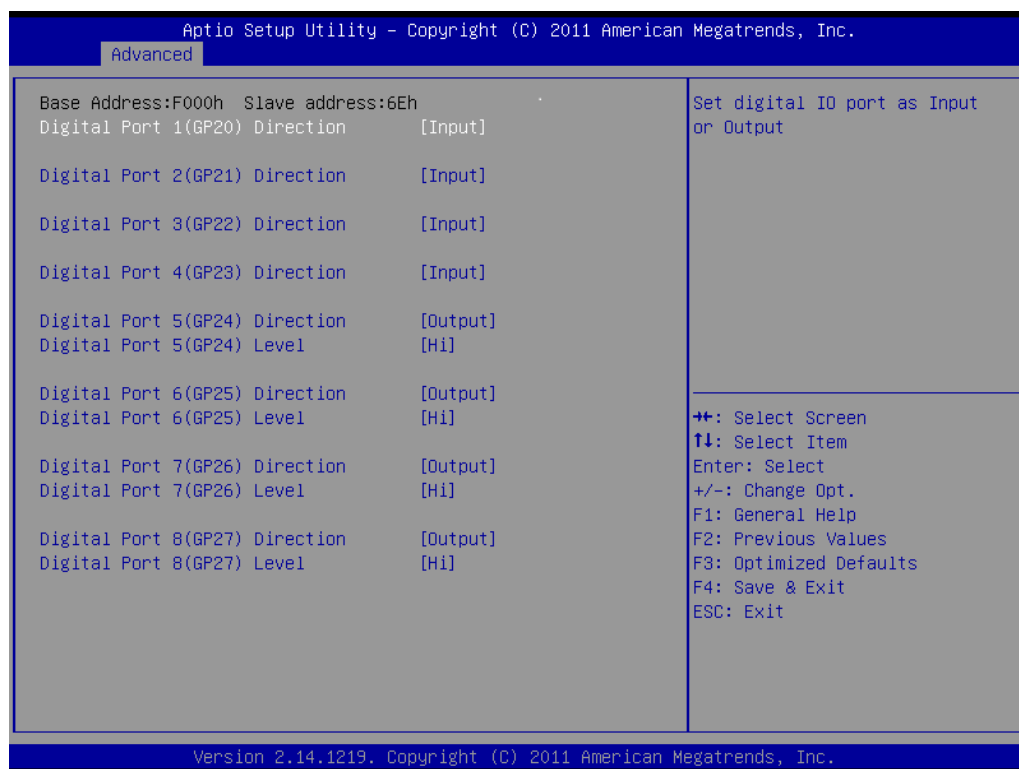


Figure 4-8 Dynamic Digital IO Configuration

Digital Port x(GP2x) Direction	Input	
	<i>Output</i>	
Digital Port Direction		
Digital Port x(GP2x) Level	<i>Hi</i>	
	Low	
Digital Port Level		

4.3.6 SATA Configuration

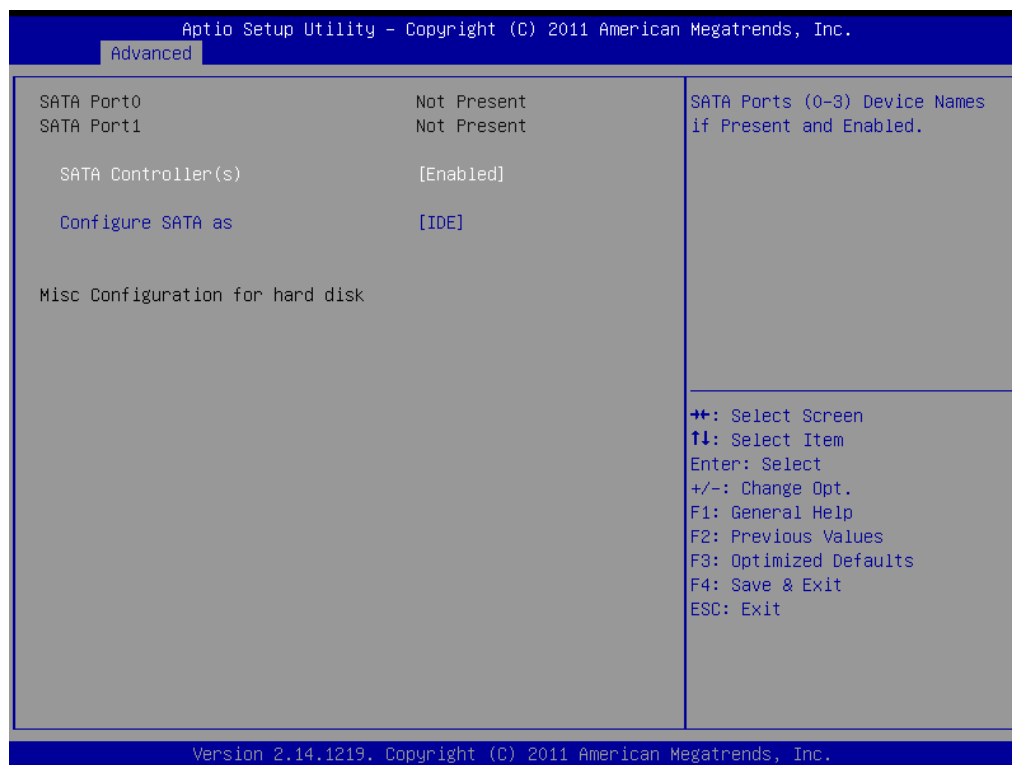


Figure 4-12 SATA Configuration

Options summary: (default setting)

SATA Controller(s)	<i>Enabled</i>	
	Disabled	
SATA Controller Enable/Disable		
SATA Mode	<i>IDE</i>	
	AHCI	
Configure SATA controller operating as IDE/AHCI mode.		
SATA PORTx	<i>Enabled</i>	
	Disabled	
Enable / Disable SATA Portx		
SATA Portx Hot Plug	<i>Enabled</i>	
	Disabled	
Enable / Disable SATA Portx Hot Plug function		

4.3.7 USB Configuration

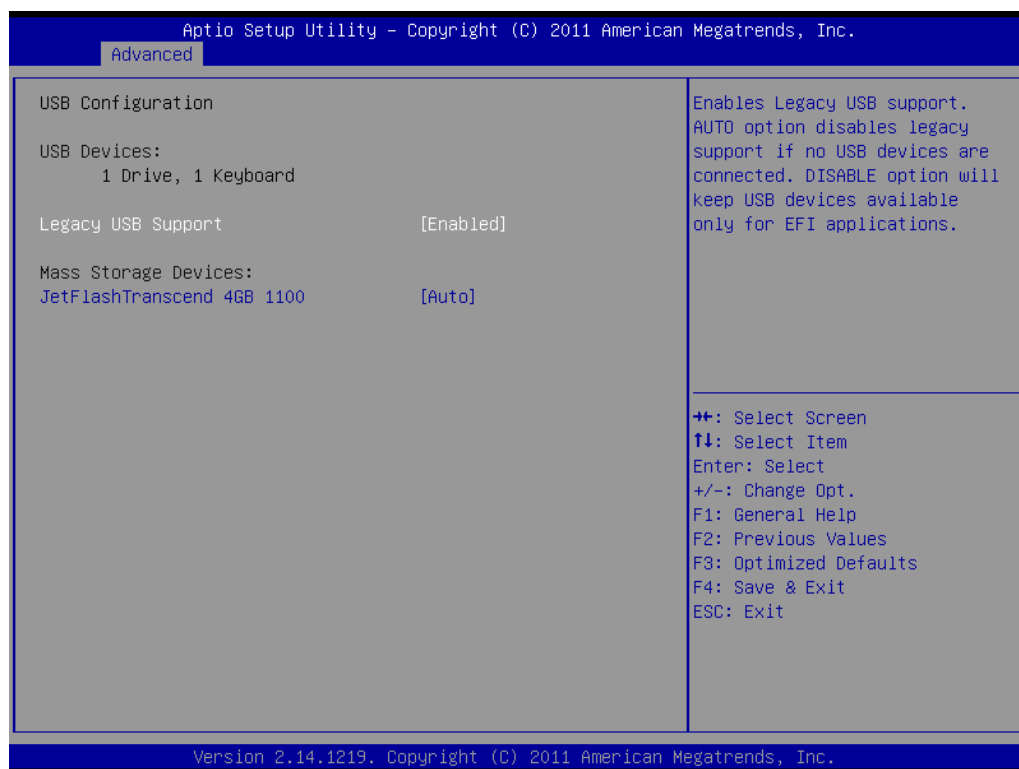


Figure 4-13 USB Configuration

Options summary: (default setting)

Legacy USB Support	<i>Enabled</i>	
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI application		
Device Name (Emulation Type)	<i>Auto</i>	
	Floppy	
	Forced FDD	
	Hard Disk	
	CD-ROM	
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive)		

4.3.8 Super IO Configuration

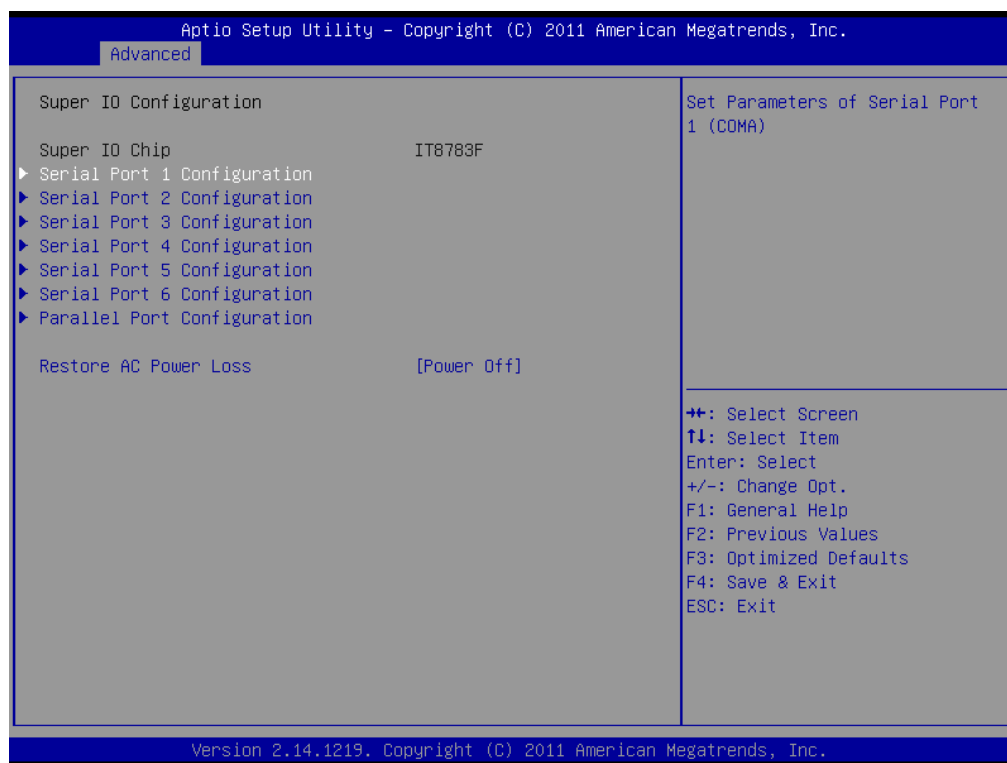


Figure 4-14 Super IO Configuration

Options summary: (default setting)

Serial Port x Configuration		
Set Parameters of Serial Port x		
Parallel Port Configuration		
Set Parallel Port Configuration		
Restore AC Power Loss	<i>Power off</i>	
	Power on	
	Last State	
Set Power on after power fail function		

4.3.9 H/W Monitor

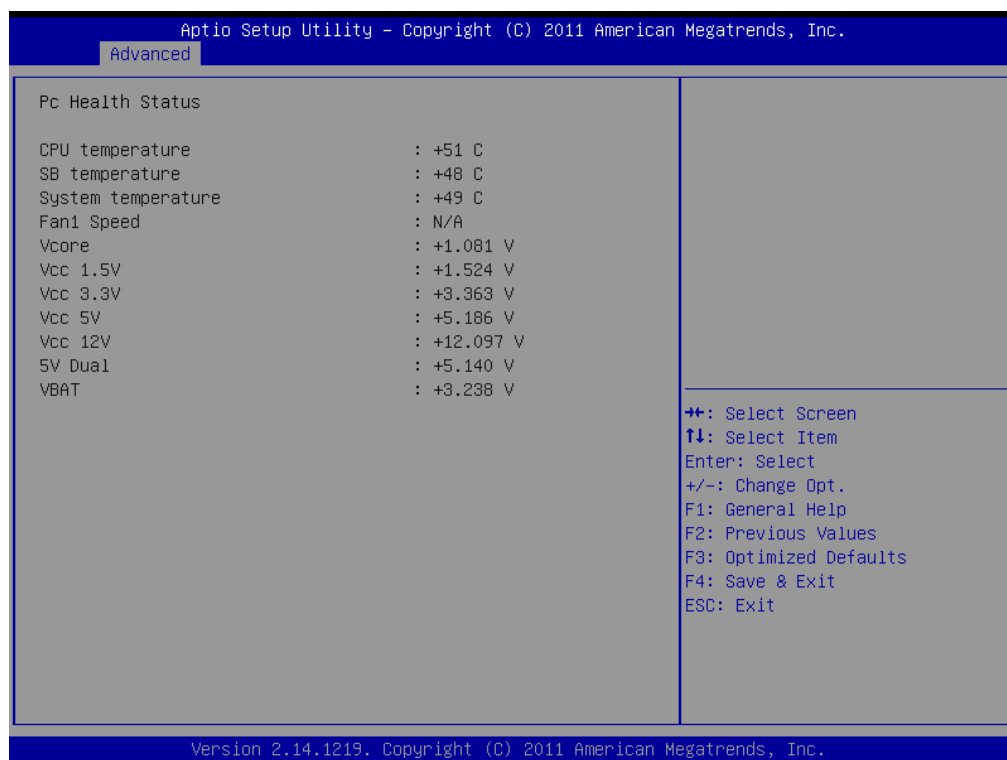


Figure 4-15 H/W Monitor

4.4 Chipset

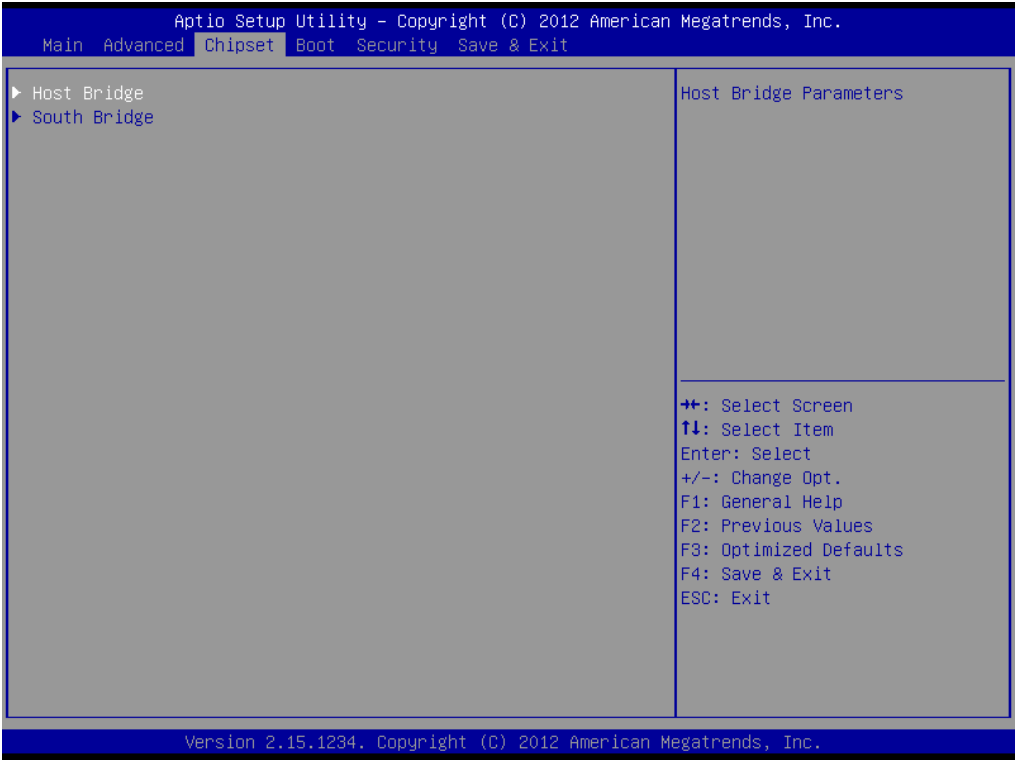


Figure 4-16 Chipset

Options summary: (default setting)

Host Bridge		
Host Bridge Parameters		
South Bridge		
South Bridge Parameters		

4.4.1 Host Bridge

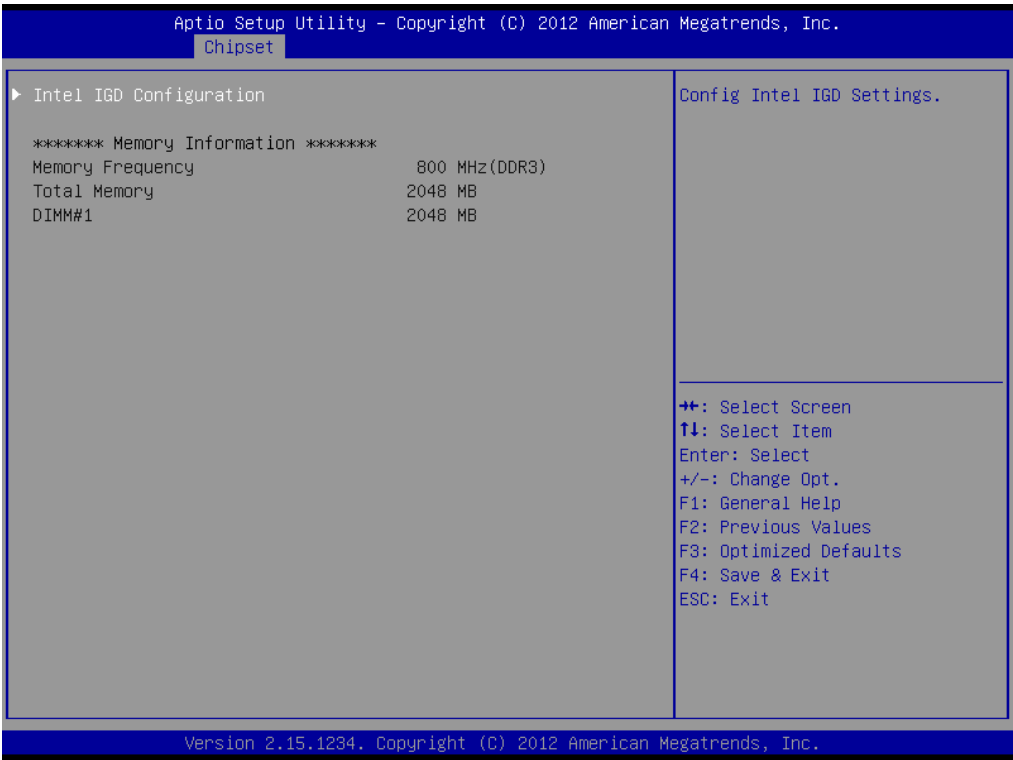


Figure 4-17 Host Bridge

Options summary: (default setting)

Intel IGD Configuration		
Enter to set Graphic Configuration		
Memory Information		
Show current memory information		

4.4.2 Intel IGD Configuration

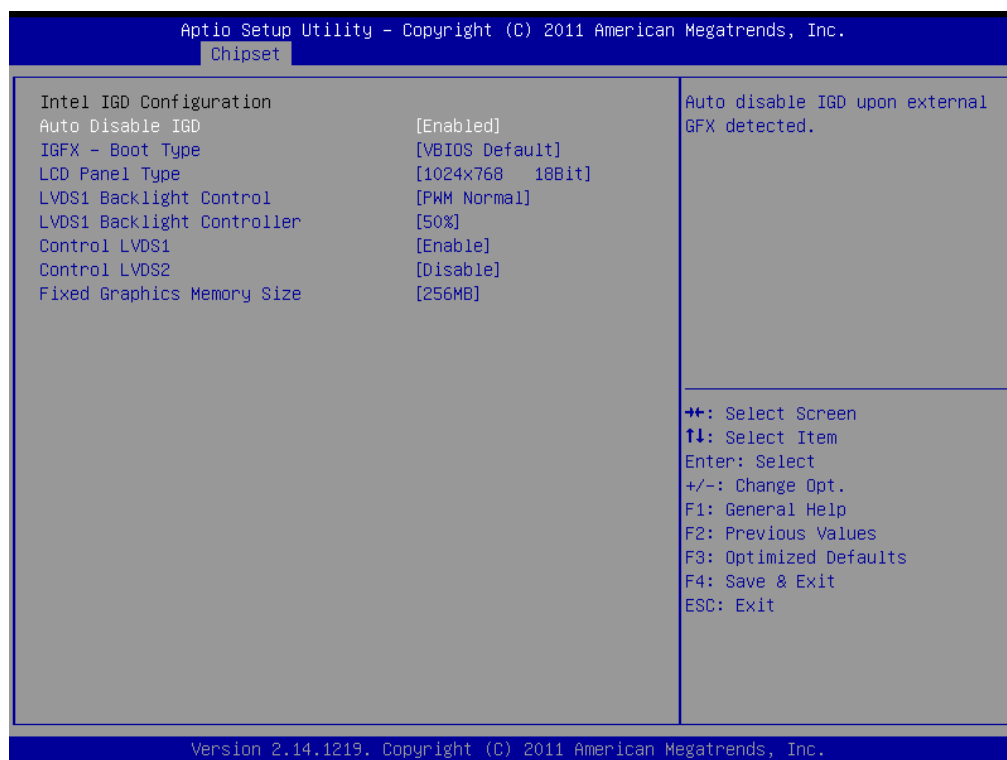


Figure 4-18 Intel IGD Configuration

Options summary: (default setting)

Auto Disable IGD	Disabled	
IGFX – Boot Type	Enabled	
	VBIOS Default	
	CRT	
	1st LVDS	
	DVI	
	CRT + 1st LVDS	
	2nd LVDS	
Select the Video Device which will be activated during POST		
LCD Panel Type	640x480 18bit	
	800x600 18bit	
	1024x768 1bit	
	800x480 18bit	
	1366x768 18bit	
	1280x768 18bit	

	640x480 24bit	
	800x600 24bit	
	1024x768 24bit	
	1280x768 24bit	
	1366x768 24bit	
Select 1st panel native resolution.		

4.4.3 South Bridge

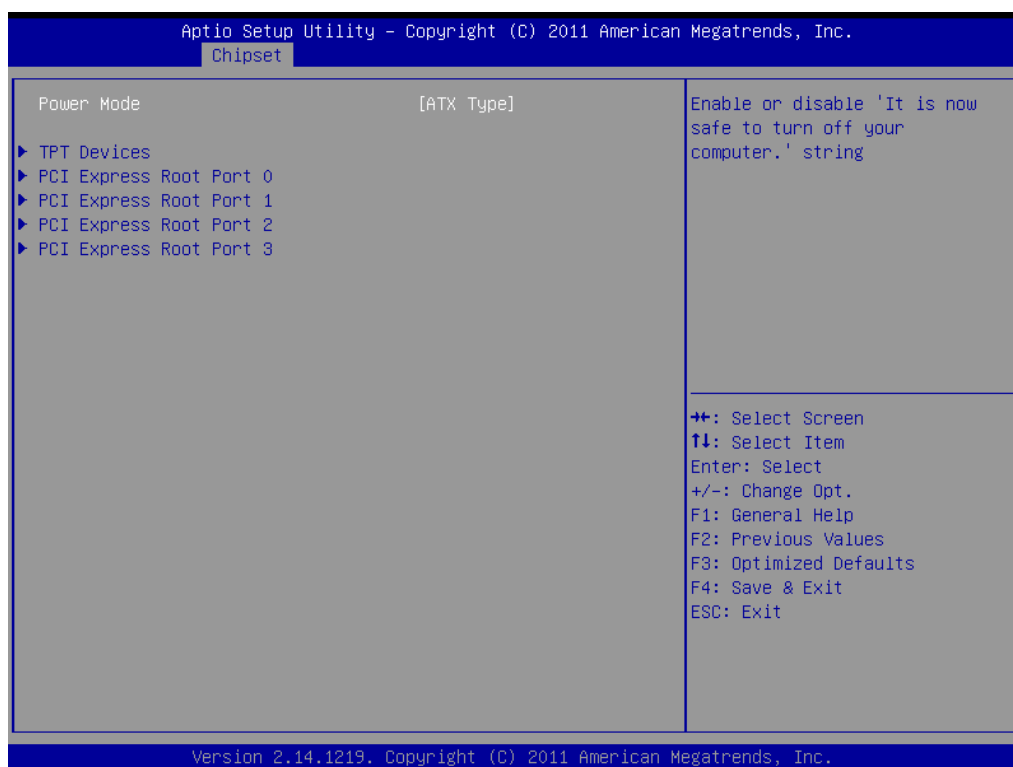


Figure 4-19 South Bridge

Options summary: (default setting)

Power Mode		
Select AT/ATX Power Mode		
TPT Devices		
Configure onboard TPT Devices		
PCI Express Port x	Disabled	
	<i>Enabled</i>	
Enable/Disable PCI Express Port 0 - 3		

4.5 Boot Configuration

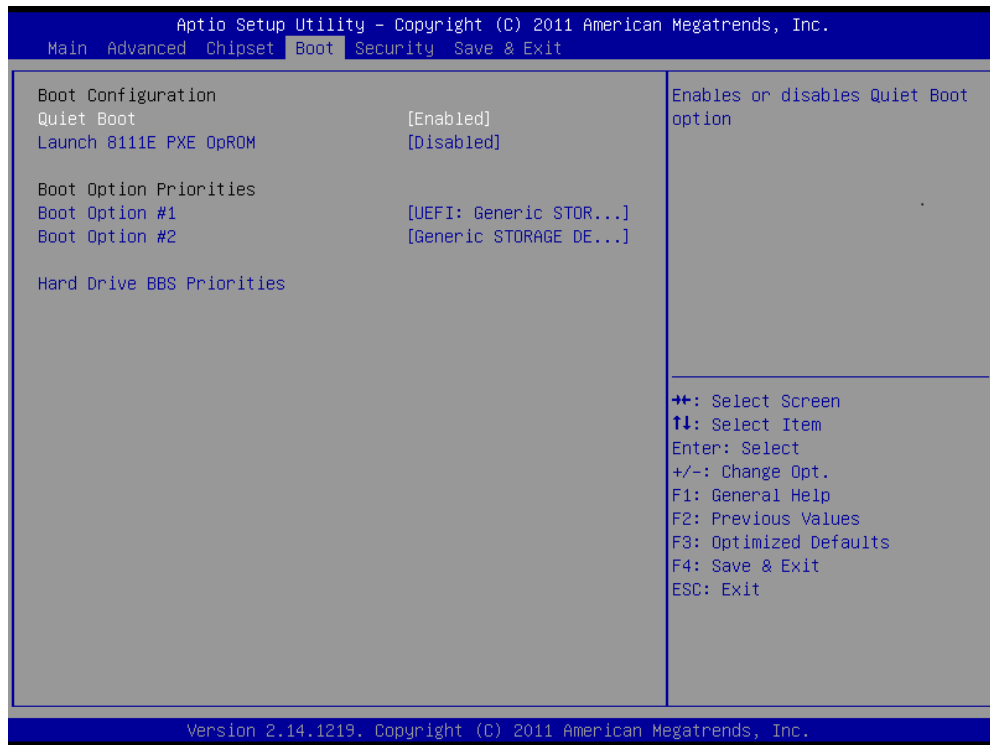


Figure 4-20 Boot Configuration

Options summary: (default setting)

Quiet Boot	Disabled	
	Enabled	
Enables or disables Quiet Boot option		
Launch 8111E PXE OpROM	Disabled	
	Enabled	
En/Disable PXE boot for onboard 8111E LAN		
Boot Option #X		
XXXX Drive BBS Priorities		
The order of boot priorities.		

4.6 Security



Figure 4-21 Security

Options summary: (default setting)

Administrator Password/	Not set	
User Password		

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

Install the Password:

Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password:

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

4.7 Exit

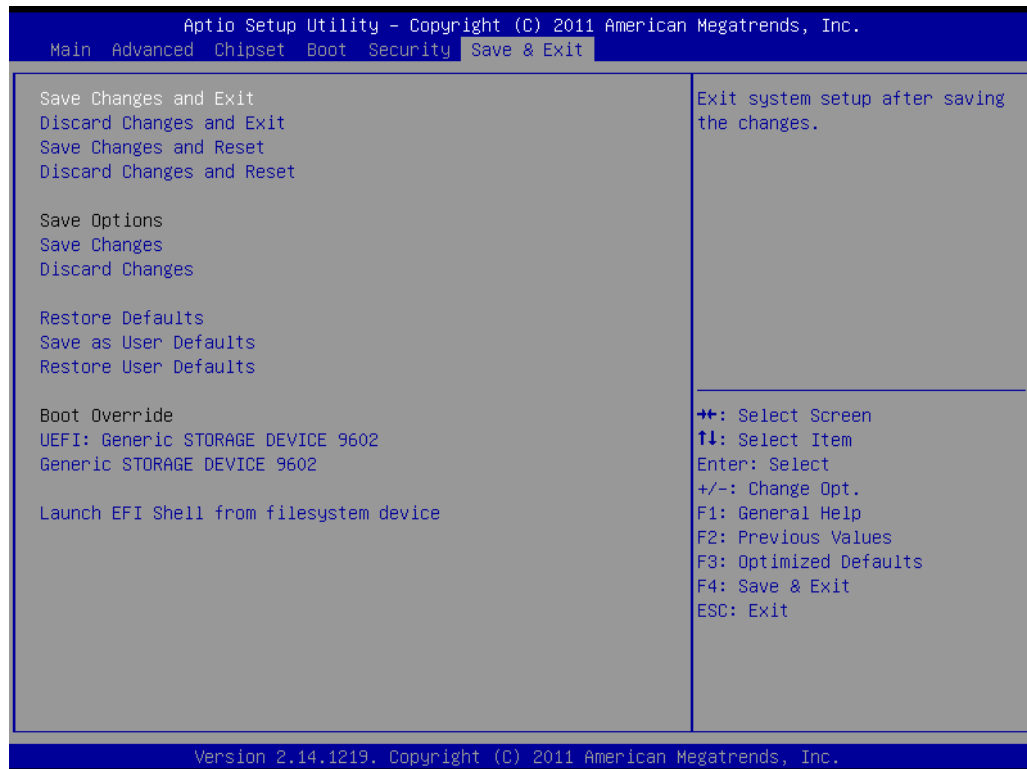


Figure 4-22 Exit

Options summary: (default setting)

Save Changes and Reset		
Reset the system after saving the changes		
Discard Changes and Reset		
Reset system setup without saving any 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 options		

Chapter 5.Driver Installation

5.1 Driver Introduction

The VMT10 comes with a DVD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install AHCI Driver

Step 6 – Install TPM Driver

Step 7 – Install Touch Driver

Step 8 – Install Serial Port Driver (Optional)

5.2 Driver Installation

Insert the VMT10 DVD-ROM into the DVD-ROM Drive. And install the drivers from Step 1 to Step 8 in order.

Step 1 – Install Chipset Driver

1. Click on the **STEP1-CHIPSET** folder and double click on the **.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 2 – Install VGA Driver

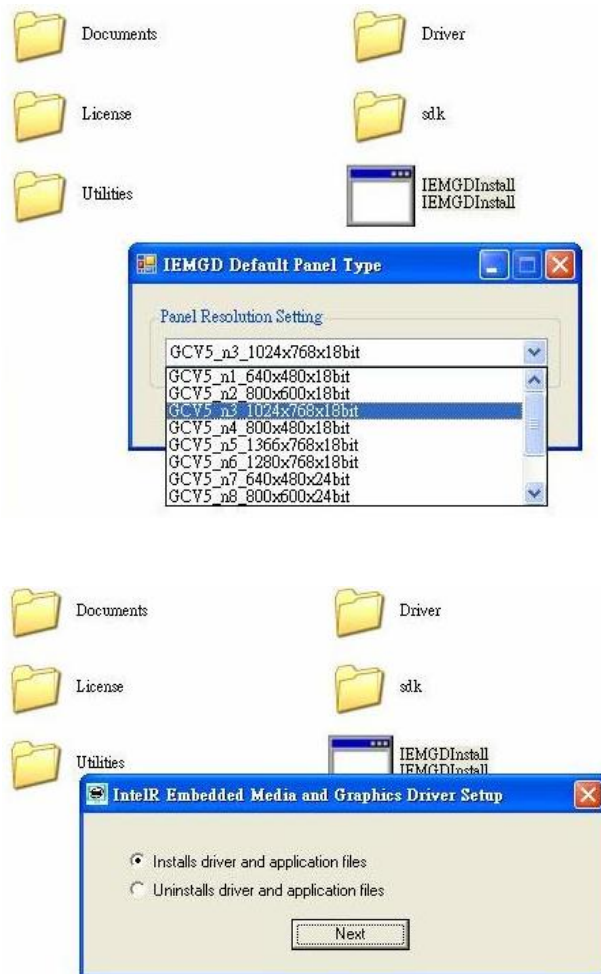
For **Windows® 7**

1. Click on the **STEP2-VGA** folder and select the folder of WIN7_32

2. Double click on the *Setup.exe* file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

For **Windows® XP**

1. Install Framework 3.5
 - Double click on the *dotnetfx35.exe*
 - Follow the instructions that the window shows
 - The system will help you install the driver automatically
2. Install IEMGD
 - Double click on the *IEMGDIInstall.exe*
 - Select the configuration
 - Follow the instructions that the window shows
 - The system will help you install the driver automatically

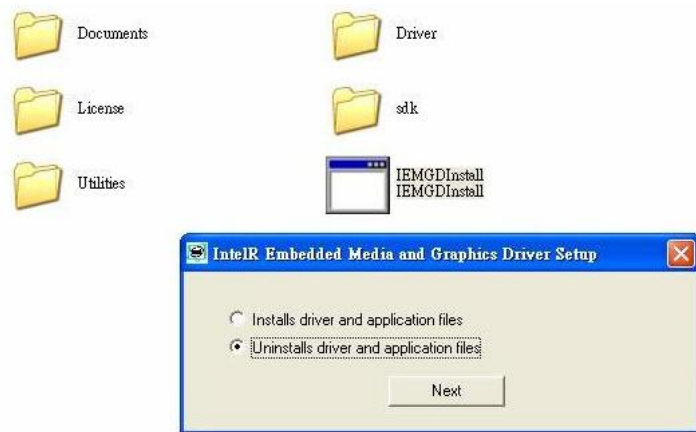




If you want to update driver, please uninstall driver first.

Uninstall IEMGD

1. Double click on the ***IEMGDInstall.exe***
2. Follow the instructions that the window shows
3. The system will help you uninstall the driver automatically



Step 3 – Install LAN Driver

1. Click on the **STEP3-LAN** folder and select the OS folder your system is
2. Double click on the **setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install Audio Driver

1. Click on the **STEP4-AUDIO** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 5 – Install AHCI Driver

Please refer to Appendix D AHCI Settings

Step 6 – Install TPM Driver

1. Click on the ***STEP6-TPM*** folder and select the OS folder your system is
2. Double click on the ***Setup.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 7 – Install Touch Driver

1. Click on the ***STEP7-Touch*** folder and select the OS folder your system is
2. Double click on the ***Setup.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 8 – Install Serial Port Driver (Optional)

1. Click on the ***STEP8-Serial Port Driver (Optional)*** folder and select the OS folder your system is
2. Double click on the ***Serial Patch v1.0.1_Eng.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Note: If the OS is Chinese version, you may click on ***Serial Patch v1.0.1.exe*** file located in each OS folder.