

TPOWER X79 UEFI BIOS Manual

UEFI BIOS Setup	1
1 Main Menu	3
2 Advanced Menu	4
3 Chipset Menu	17
4 Boot Menu	22
5 Security Menu	24
6 O.N.E Menu	25
7 Exit Menu	31

TPOWER X79 UEFI BIOS Manual

UEFI BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.

UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.

The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

Plug and Play Support

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

EPA Green PC Support

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

ACPI Support

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AMI UEFI BIOS also supports Version 2.3 of the PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

TPOWER X79 UEFI BIOS Manual

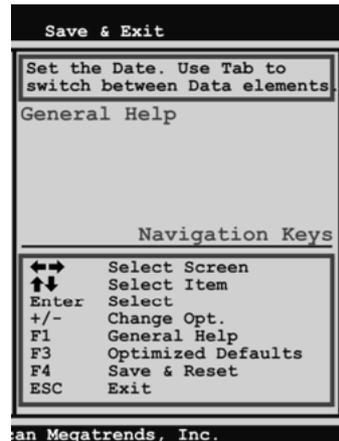
Supported CPUs

This AMI UEFI BIOS supports the Intel CPU.

Using Setup

When starting up the computer, press during the **Power-On Self-Test (POST)** to enter the UEFI BIOS setup utility.

In the UEFI BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.



Notice

- The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.
- The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.

TPOWER X79 UEFI BIOS Manual

1 Main Menu

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.



BIOS Information

It shows the system information including UEFI BIOS version, Project Code, Model Name, Build Date, etc.

Total Memory

It shows the system memory size, VGA shared memory will be excluded.

System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

System Time

Set the system internal clock.

TPOWER X79 UEFI BIOS Manual

2 Advanced Menu

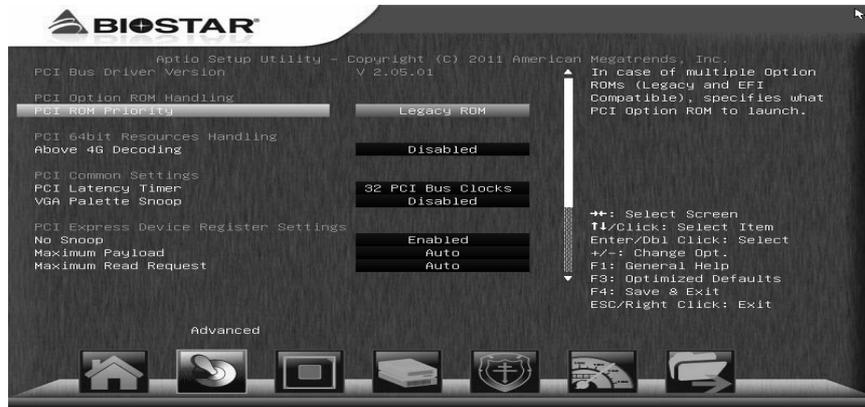
The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



PCI Subsystem Settings



TPOWER X79 UEFI BIOS Manual

PCI ROM Priority

In case of multiple option ROMs (Legacy and EFI Compatible), this item specifies what PCI Option ROM to launch.

Options: Legacy ROM (Default) / EFI Compatible ROM

Above 4G Decoding

Enables or disables 64bit capable devices to be decoded in above 4G address space (only if system supports 64bit PCI Decoding).

Options: Disabled (Default) / Enabled

PCI Latency Timer

This item sets the value to be programmed into PCI Latency Timer Register.

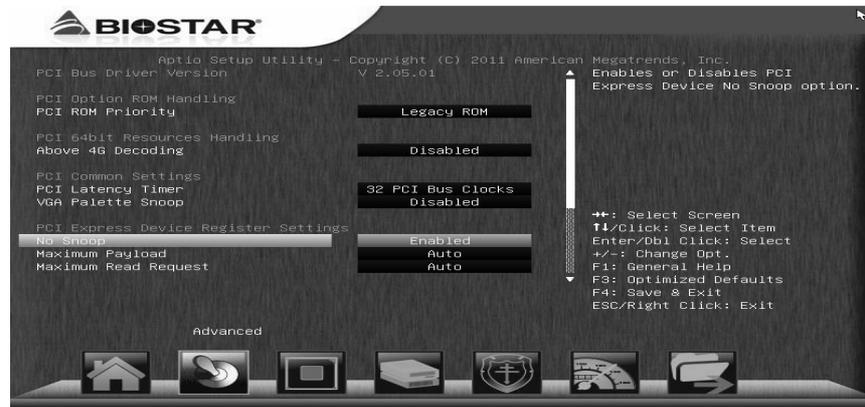
Options: 32 PCI Bus Clocks (Default) / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

VGA Palette Snoop

This item enables or disables VGA Palette Registers Snooping.

Options: Disabled (Default) / Enabled

PCI Express Settings



TPOWER X79 UEFI BIOS Manual

No Snoop

This item enables or disables PCI Express Device No Snoop option.

Options: Enabled (Default) / Disabled

Maximum Payload

This item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

Maximum Read Request

This item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.

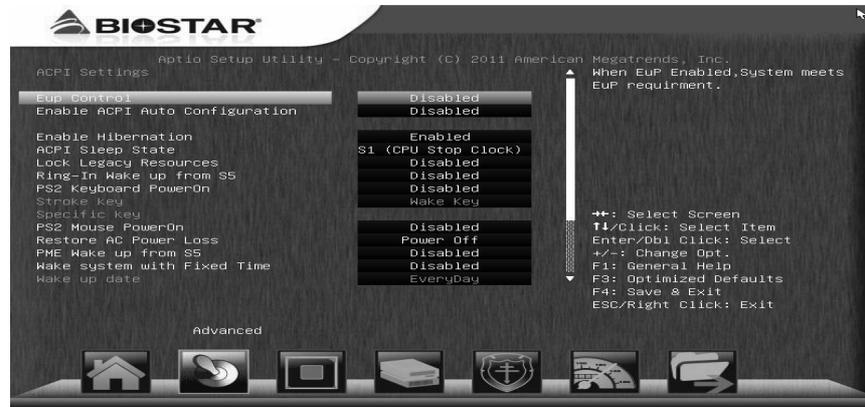
Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

ASPM Support

This item sets the ASPM Level: Force LO – Force all links to LO State; Auto – BIOS auto configures; Disabled – Disables ASPM.

Options: Disabled (Default) / Auto / Force L0s

ACPI Settings/WakeUp Event control



EuP Control

When EuP is enabled, the system will meet EuP requirement.

Options: Disabled (Default) / Enabled

TPOWER X79 UEFI BIOS Manual

Enable ACPI Auto Configuration

This item enables or disables BIOS ACPI Auto Configuration.

Options: Disabled (Default) / Enabled

Enable Hibernation

This item enables or disables system ability to hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

Options: Disabled (Default) / Enabled

ACPI Sleep State

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Options: S1 (CPU Stop Clock) (Default) / Suspend Disabled / S3 (Suspend to RAM)

Lock Legacy Resources

This item enables or disables Lock of Legacy Resources.

Options: Disabled (Default) / Enabled

Ring-In Wake up from S5

The item enables the system to wake from S5 using Ring-In event.

Options: Disabled (Default) / Enabled

PS2 Keyboard PowerOn

This item allows you to control the PS2 keyboard power on function.

Options: Disabled (Default) / Any Key / Stroke Key / Specific Key

PS2 Mouse PowerOn

This item allows you to control the PS2 mouse power on function.

Options: Disabled (Default) / Enabled

Restore AC Power Loss

This item specifies what state to go to when power is re-applied after a power failure.

Options: Power Off (Default) / Power On / Last State

TPOWER X79 UEFI BIOS Manual

PME Wake up from S5

The item enables the system to wake from S5 using PME event.

Options: Disabled (Default) / Enabled

Wake system with Fixed Time

This item enables or disables the system to wake on by alarm event. When this item is enabled, the system will wake on the hr::min::sec specified.

Options: Disabled (Default) / Enabled

Wake up date

You can choose which date the system will boot up.

Wake up hour / Wake up minute / Wake up second

You can choose the system boot up time, input hour, minute and second to specify.

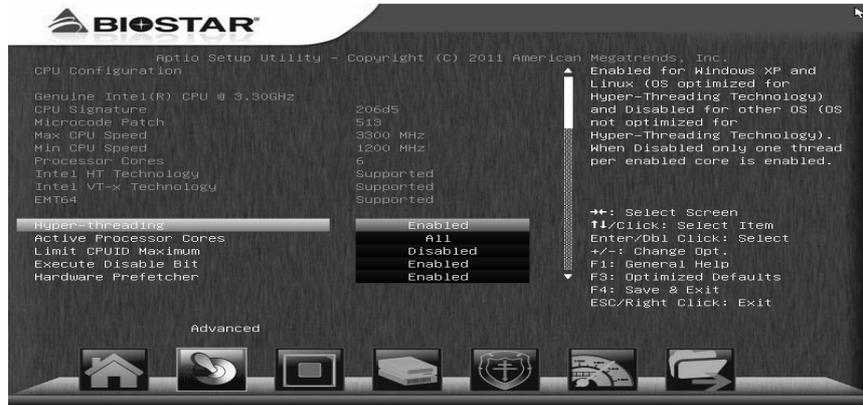
USB Device Wakeup from S3/S4

This item allows you to enable or disabled the USB resume from S3/S4 function.

Options: Disabled (Default) / Enabled

TPOWER X79 UEFI BIOS Manual

CPU Configuration



Hyper-threading

It is enabled for Windows and Linux (OS optimized for Hyper Threading Technology) and disabled for other OS (OS not optimized for Hyper Threading Technology).

Options: Enabled (Default)/ Disabled

Active Processor Cores

Number of cores will be enabled in each processor package.

Options: All (Default) / 1 ~ 5

Limit CPUID Maximum

When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.

Options: Disabled (Default) / Enabled

Execute Disable Bit

This item allows you to configure the Execute Disabled Bit function, which protects your system from buffer overflow attacks.

Options: Enabled (Default) / Disabled

TPOWER X79 UEFI BIOS Manual

Hardware Prefetcher

This item enables the Mid Level Cache (L2) streamer prefetcher.

Options: Enabled (Default) / Disabled / State

Adjacent Cache Line Prefetcher

This item enables the Mid Level Cache (L2) prefetching of adjacent cache lines.

Options: Enabled (Default) / Disabled

DCU Streamer Prefetcher

This item enables prefetch of next L1 Data line based upon multiple loads in same cache line.

Options: Enabled (Default) / Disabled

DCU IP Prefetcher

This item enables prefetch of next L1 line based upon sequential load history.

Options: Enabled (Default) / Disabled

Intel Virtualization Technology

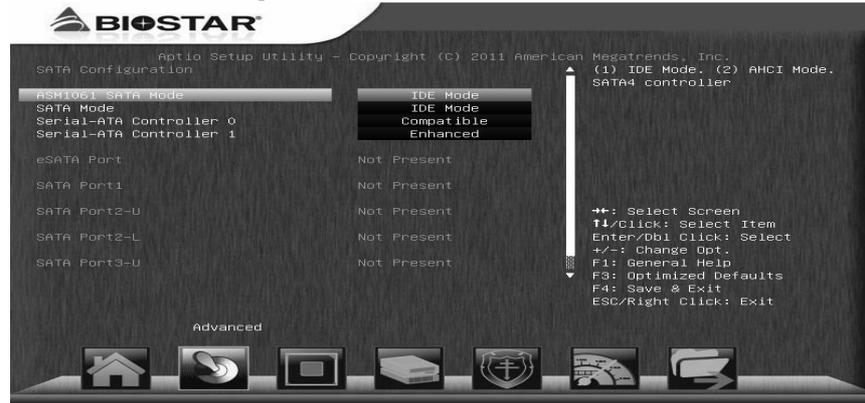
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Options: Enabled (Default) / Disabled

TPOWER X79 UEFI BIOS Manual

SATA Configuration

The BIOS will automatically detect the presence of SATA devices. There is a sub-menu for each SATA device. Select a device and press <Enter> to enter the sub-menu for detailed options.



ASM1061 SATA Mode

This item provides (1) IDE Mode (2) AHCI Mode for SATA4 controller.

Options: IDE Mode (Default) / Disabled / ACHI Mode

SATA Mode

This item provides several options of SATA modes for your selection.

Options: IDE Mode (Default) / Disabled / ACHI Mode / RAID Mode

Serial-ATA Control 0

This item enables or disables Serial ATA Controller 0.

Options: Compatible (Default) / Disabled / Enabled

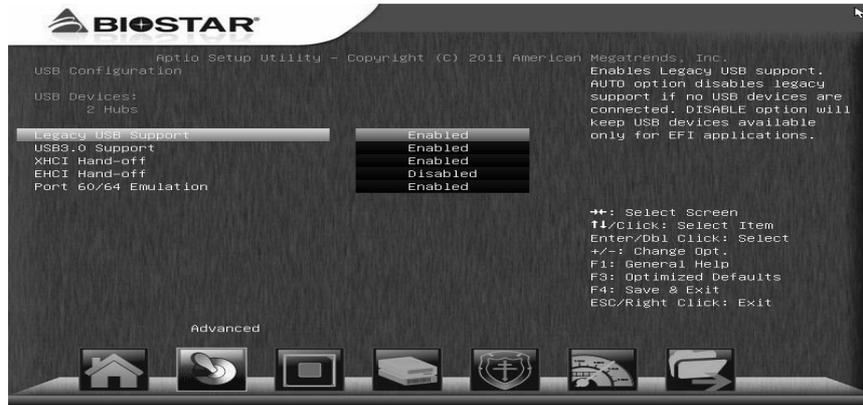
Serial-ATA Control 1

This item enables or disables Serial ATA Controller 1.

Options: Enhanced (Default) / Disabled

TPOWER X79 UEFI BIOS Manual

USB Configuration



Legacy USB Support

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).

Options: Enabled (Default) / Disabled / Auto

USB3.0 Support

This item enables or disables USB3.0 (XHCI) Controller support.

Options: Enabled (Default) / Disabled

XHCI Hand-Off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

Options: Enabled (Default) / Disabled

EHCI Hand-Off

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Options: Disabled (Default) / Enabled

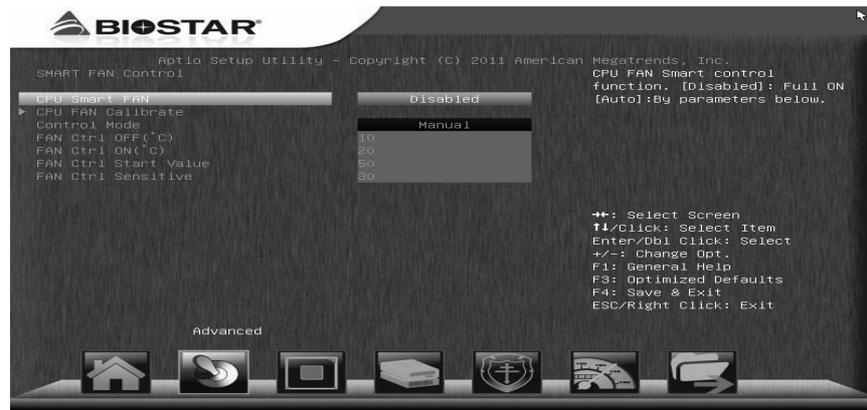
TPOWER X79 UEFI BIOS Manual

Port 60/64 Emulation

This item can enable I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

Options: Enabled (Default) / Disabled

SMART FAN Control



CPU Smart FAN

This item allows you to control the CPU Smart Fan function.

Options: Disabled (Default) / Auto

CPU FAN Calibrate

Press [ENTER] to calibrate CPU FAN.

Control Mode

This item provides several operation modes of the fan.

Options: Quiet / Aggressive / Manual

Fan Ctrl OFF(°C)

When CPU temperature is lower than this value, the CPU fan will keep lowest RPM.

Options: 10 (°C) (default)

TPOWER X79 UEFI BIOS Manual

Fan Ctrl On(°C)

When CPU temperature is higher than this value, the CPU fan controller will turn on.
Options: 20 (°C) (Default)

Fan Ctrl Start Value

This item sets CPU FAN Start Speed Value.
Options: 50 (Default)

Fan Ctrl Sensitive

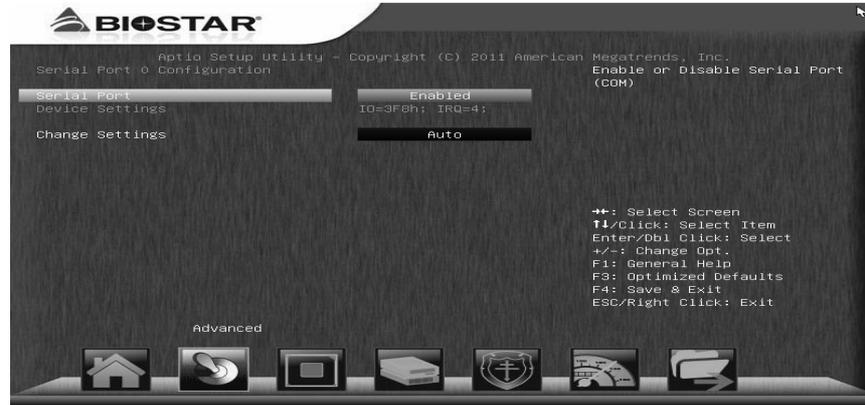
The bigger the numeral is, the higher the FAN speed is.
Options: 30 (Default)

Super IO Configuration



TPOWER X79 UEFI BIOS Manual

Serial Port 0 Configuration



Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3F8h; IRQ=4 / IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 / IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12

CIR Controller Configuration



TPOWER X79 UEFI BIOS Manual

CIR Controller

This item enables or disables CIR Controller.

Options: Disabled (Default) / Enabled

H/W Monitor



Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.

Options: Disabled (Default) / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F

TPOWER X79 UEFI BIOS Manual

3 Chipset Menu

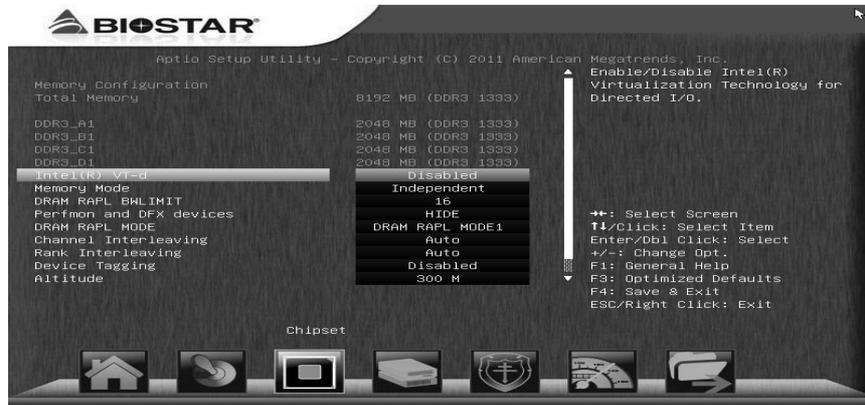
This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



North Bridge



TPOWER X79 UEFI BIOS Manual

Intel (R) VT-d

This item allows you to enable or disable Intel (R) Virtualization Technology for directed I/O.

Options: Disabled (Default) / Enabled

Memory Mode

This item selects the mode for memory initialization.

Options: Independent (Default) / Mirroring / Lock Step / Sparing

DRAM RAPL BWLIMIT

Options: 16 (Default) / 0

Perfmon and DFX devices

This item can set the Perfmon and DFX devices hidden or unhidden.

Options: HIDE (Default) / UNHIDE

DRAM RAPL Mode

Options: Disabled (Default) / DRAM RAPL MODE0 / DRAM RAPL MODE1

Channel Interleaving

This item can select different Channel Interleaving settings.

Options: Auto (Default) / 1 ~ 4 Way

Rank Interleaving

This item can select different Rank Interleaving settings.

Options: Auto (Default) / 1 Way / 2 Way / 4 Way / 8 Way

Device Tagging

This item allows you to enable or disable Device Tagging function.

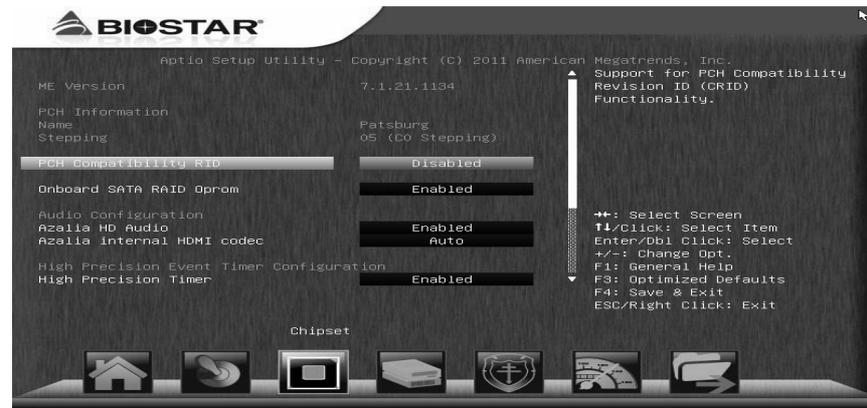
Options: Disabled (Default) / Enabled

TPOWER X79 UEFI BIOS Manual

Altitude

This item sets the system altitude above the sea level in meters.
Options: 300 M (Default) / Auto / 900 M / 1500 M / 3000 M

South Bridge Configuration



PCH Compatibility RID

This item allows you to enable or disable the support for PCH Compatibility Revision ID (CRID) functionality.
Options: Disabled (Default) / Enabled

Onboard SATA RAID Oprom

This item allows you to enable or disable onboard SATA RAID option rom if Launch Storage OpROM is enabled.
Options: Enabled (Default) / Disabled

Azalia HD Audio

This item allows you to enable or disable Azalia HD Audio.
Options: Enabled (Default) / Disabled

TPOWER X79 UEFI BIOS Manual

Azalia Internal HDMI codec

This item allows you to enable or disable internal HDMI codec for Azalia.
Options: Auto (Default) / Disabled

High Precision Timer

This item allows you to enable or disable the High Precision Event Timer.
Options: Enabled (Default) / Disabled

All USB Devices

This item allows you to enable or disable all USB Devices.
Options: Enabled (Default) / Disabled

EHCI Controller 1 / 2

This item allows you to enable or disable USB2.0 (EHCI) Support.
Options: Enabled (Default) / Disabled

PCI Express Ports Configuration



Launch PXE OpROM

This item allows you to enable or disable Boot Option for Legacy Network Devices.
Options: Disabled (Default) / Enabled

TPOWER X79 UEFI BIOS Manual

Launch Storage OpROM

This item allows you to enable or disable Boot Option for Legacy Mass Storage Devices with Option ROM.

Options: Enabled (Default) / Disabled

Onboard PCIE Giga LAN

This item allows you to enable or disable the PCI Express Ports in the chipset.

Options: Enabled (Default) / Disabled

PCIe Sub Decode

This item enables or disables PCIe Sub Decode Port. (This option is available when Subtractive Decode Agent is enabled (PCHTrap9[14] = '1b')

Options: Disabled (Default) / Enabled

DMI Vc1 Control

This item enables or disables DMI Vc1.

Options: Enabled (Default) / Disabled

DMI Vcp Control

This item enables or disables DMI Vcp.

Options: Enabled (Default) / Disabled

DMI Vcm Control

This item enables or disables DMI Vcm.

Options: Enabled (Default) / Disabled

TPOWER X79 UEFI BIOS Manual

4 Boot Menu

This menu allows you to setup the system boot options.



Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.

Options: 2 (Default)

Bootup NumLock State

This item selects the keyboard NumLock state.

Options: On (Default) / Off

Quiet Boot

This item allows you to enable or disable Quiet Boot option.

Options: Enabled (Default) / Disabled

GateA20 Active

Upon Request – FA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB

Options: Upon Request (Default) / Always

TPOWER X79 UEFI BIOS Manual

Option ROM Messages

This item sets the display mode for option ROM.
Options: Force BIOS (Default) / Keep Current

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When set to Enabled, this item allows the option ROMs to trap interrupt 19.
Options: Disabled (Default) / Enabled

BOOT SUCCESS BEEP

When this item is set to Enabled, BIOS will let user know boot success with beep.
Options: Enabled (Default) / Disabled

UEFI BOOT

This option enables or disables boot from the UEFI Devices.
Options: Disabled (Default) / Enabled

Boot Option Priorities

The items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

CD/DVD ROM Drive BBS Priorities

This item sets the order of the legacy devices in this group.

Hard Drive BBS Priorities

This item sets the order of the legacy devices in this group.

TPOWER X79 UEFI BIOS Manual

5 Security Menu



Administrator Password

This item sets Administrator Password.

User Password

This item sets User Password.

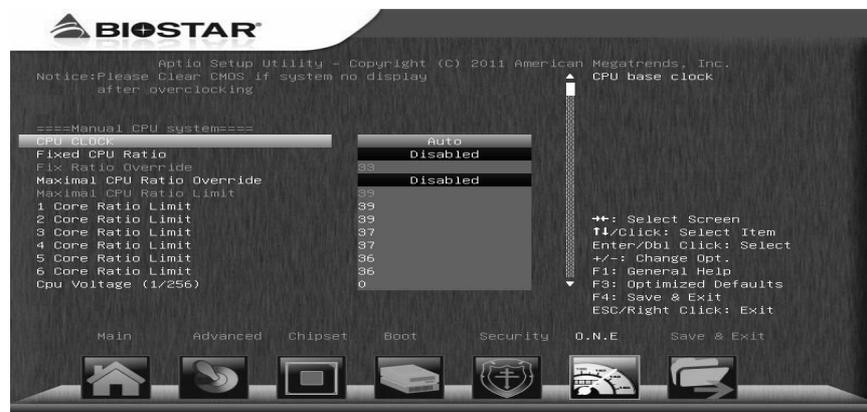
TPOWER X79 UEFI BIOS Manual

6 O.N.E Menu

This submenu allows you to change voltage and clock of various devices.
(However, we suggest you use the default setting. Changing the voltage and clock improperly may damage the device.)

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



CPU CLOCK

This item sets the CPU base clock.

Options: Auto (Default) / 100Mhz / 125Mhz / 166Mhz / 250Mhz

Fixed CPU Ratio

This item enables or disables Fixed CPU Ratio all the time.

Options: Disabled (Default) / Enabled

Fixed CPU Override

This item sets the Fixed Ratio Override.

TPOWER X79 UEFI BIOS Manual

Maximal CPU Ratio Override

This item can be enabled or disabled to change the maximal CPU ratio limit. If this item is enabled, you can set the maximal CPU ratio limit of 1 ~ 6 Core.

Options: Disabled (Default) / Enabled

CPU Voltage (1/256)

This item sets CPU Voltage (1/256).

IA Core Current Max (1/8 Amp)

This item sets the IA Core Current Max (1/8 Amp).

CPU C1E

C1E is “Enhanced Halt State” function, this function helps to save power and decrease heat by lowering CPU frequency while the processor is not working.

Options: Enabled (Default) / Disabled

Enhanced Intel SpeedStep Technology

This item enables or disables Enhanced Intel SpeedStep Technology.

Options: Enabled (Default) / Disabled

Turbo Mode

This item enables or disables Turbo Mode.

Options: Enabled (Default) / Disabled

Internal PLL Overvoltage

This item enables or disables the function to fix the S# resume failure.

Options: Enabled (Default) / Disabled

Power Limit 1 Value (1/8 Watt)

This item sets the power limit value which CPU must not exceed over a specific time.

Options: 1440 (Default)

TPOWER X79 UEFI BIOS Manual

Power Limit 2 Switch

This item enables/disables Power Limit 2 Switch.

Options: Enabled (Default) / Disabled

Power Limit 2 Value (1/8 Watt)

This item sets Power Limit Value which CPU must not exceed in a short duration time.

Options: 1760 (Default)

CPU Vcore Mode

This item is CPU over voltage mode. In Fixed Mode, it allows you to set CPU Vcore Fixed Voltage; in Offset Mode, to set CPU Vcore Offset Voltage.

Options: SPEC Voltage (Default) / Auto / Fixed Mode / Offset Mode

Phase Control

This item sets the PWM Phase control method.

Options: CPU Power State (Default) / Full On

Performance Memory Profiles

This item allows you to select the Performance Memory Profiles that will impact memory sizing behaviour.

Options: Automatic (Default) / Manual / XMP Profile 1 / XMP Profile 2

Memory Multiplier

This item allows you to set the Memory Multiplier.

CAS# Latency (tCL)

This item allows you to select CAS Latency of DDR3.

Options: 9 (Default) / 3 ~ 15

Row Precharge Time (tRP)

This item allows you to select Row Precharge Time of DDR3.

Options: 9 (Default) / 3 ~ 15

TPOWER X79 UEFI BIOS Manual

RAS# to CAS# Delay (tRCD)

This item allows you to select Row Address to Column Address Delay of DDR3.

Options: 9 (Default) / 3 ~ 15

RAS# Active Time (tRAS)

This item allows you to select Row Active Time of DDR3.

Options: 28 (Default) / 9 ~ 63

Write Recovery Time (tWR)

This item allows you to select Internal Write to Read Command Delay of DDR3.

Options: 12 (Default) / 3 ~ 31

Row Refresh Cycle Time (tRFC)

This item allows you to select Minimum Refresh Recovery Time of DDR3.

Options: 128 (Default) / 15 ~ 255

Write to Read Delay (tWTR)

This item allows you to select Internal Write to Read Command Delay of DDR3.

Options: 6 (Default) / 3 ~ 31

Active to Active Delay (tRRD)

This item allows you to select Row Active to Row Active Delay of DDR3.

Options: 5 (Default) / 4 ~ 15

Read CAS# Precharge (tRTP)

This item allows you to select Read to Precharge Delay of DDR3.

Options: 6 (Default) / 4 ~ 15

Four Active Window Delay (tFAW)

This item allows you to select Four Active Window Delay of DDR3.

Options: 24 (Default) / 4 ~ 63

TPOWER X79 UEFI BIOS Manual

CPU voltage adjust

This item allows you to select CPU Main Power.

CPU PLL

This item allows you to select CPU PLL power supply.

DRAM Voltage

This item allows you to select DRAM Voltage.

Vcc SA

This item can select CPU System Agent (memory controller, DMI, PCIe controllers, and display engine) power supply.

PCH Voltage

This item allows you to select PCH Voltage.

Vcc IO

This item can select CPU High Frequency I/O logic power supply.

TPOWER X79 UEFI BIOS Manual

BIOSTAR Memory Insight



DDR3_A1/B1/C1/D1

These items display SPD information of DDR3 memory.



TPOWER X79 UEFI BIOS Manual

7 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



Discard Changes and Exit

Abandon all changes made during the current session and exit setup.

Save Changes and Reset

Reset the system after saving the changes.

Restore Defaults

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

Launch Shell from device

This item attempts to EFI Shell application (Shellx64.efi) from one of the available devices.

TPOWER X79 UEFI BIOS Manual

Saving SetupData to Profile

This item saves your current BIOS Setup Data to profile 1 ~ 5.

Restoring SetupData from Profile

This item restore your BIOS Setup Data from profile 1 ~ 5.