TA970 Plus 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.

Using Setup

When starting up the computer, press **<Del>** 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.

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

Total Memory
Shows system memory size, VGA shard 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.

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

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

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
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)
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.

PS2 Keyboard PowerOn
This item allows you to control the keyboard power on function.
Options: Disabled (Default) / Any Key / Stroke Key / Specific Key

Stroke Keys Selected
This item will show only when Keyboard PowerOn is set "Stroke Key."
Options: Wake Key (Default) / Power Key / Ctrl+F1 / Ctrl+F2 / Ctrl+F3 / Ctrl +F4 / Ctrl+F5 / Ctrl+F6

Specific Key Enter
This item will show only when Keyboard PowerOn is set "Specific Key."
Press Enter to set Specific key.

PS2 Mouse PowerOn
This item allows you to control the mouse power on function.
Options: Disabled (Default) / Enabled

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

CPU Configuration

C1E
This item allows you to configure the Enhanced Halt State (C1E) function, which may reduce the power consumption of your system when the system is idle.
Options: Disabled (Default) / Enabled
SVM
This item allows you to enable AMD virtualization in CPU. This secure virtual mode will let your run multiple OS (guest) on the same physical hardware by decoupling OS and physical hardware with the hypervisor layer.
Options: Enabled (Default) / Disabled
PowerNow
This item allows you to enable or disable the generation of ACPI_PPC, _PSS, and _PCT objects.
Options: Enabled (Default) / Disabled
HTC temperature limit
This item allows you to set HTC temperature limit. Range: 70℃ - 95℃
Options: 80 (Default)
Core Leveling
This item allows you to set CPU Downcoring
Options: Auto (Default) / Manual
HPC Mode
This item allows you to set High Performance Computing Mode.
(This item is only for AM3+ CPU)
Options: Disabled (Default) /Enabled
CPB Mode
This item allows you to set core performance boost enablement.
(This item is only for AM3+ & AM3 revision E CPU)
Options: Disabled (Default) /Enabled

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.

OnChip SATA Channel
This option allows you to enable the on-chip Serial ATA.
Options: Enabled (Default) / Disabled
OnChip SATA Type
This option allows you to select the on-chip Serial ATA operation mode.
Options: Native IDE (Default) / RAID / AHCI / Legacy IDE
SATA IDE Combined Mode
This option controls the SATA/PATA combined mode.
Options: Enabled (Default) / Disabled

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

Legacy USB3.0 Support
This item enables/disables legacy USB3.0 support.
Options: Enabled (Default) / Disabled / Auto

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

Mass Storage Devices
Mass storage device emulation type. 'Auto' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drivers with no media will be emulated according to a driver type.
Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CR-ROM

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SMART FAN Control

CPU Smart FAN
This item allows you to control the CPU Smart Fan function.
Options: Disabled (Default) / Auto / 4Pin / 3Pin
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(℃)
When CPU temperature is lower than this value, the CPU fan will keep lowest RPM.
Options: 10 (℃) (Default)
Fan Ctrl On(℃)
When CPU temperature is higher than this value, the CPU fan controller will turn on.
Options: 20 (℃) (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

Restore AC Power Loss

This setting specifies how your system should behave after a power fail or interrupts occurs. Power Off: Leaving the system in power-off status after power recovers. Power ON: Powering on the system immediately when power returns. Last State: 1. Leaving the system in power-off if the system shuts down at DC off status; 2. Powering on the system immediately if the system shuts down at DC on status.

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

Serial Port 1 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=3,4,5,6,7,10,11,12 / IO=2F8h; IRQ=3,4,5,6,7,10,11,12 / IO=3E8h;
IRQ=3,4,5,6,7,10,11,12 / IO=2E8h; IRQ=3,4,5,6,7,10,11,12

CIR Controller Configuration

CIR Controller
This item enables or disables CIR Controller.
Options: Disabled (Default) / Enabled

H/W Monitor

PWM Processor Hot
This item enables/disables PWM Processor Hot.
Options: Enabled (Default) / Disabled
Shutdown Temperature
This item allows you to set up the CPU shutdown Temperature.
Options: Disabled (Default) / 70℃/158℉ / 75℃/167℉ / 80℃/176℉ /
85℃/185℉ / 90℃/194℉

Network Stack

Network Stack
This item enables or disables UEFI network stack
Options: Disabled (Default) / Enabled
   *Note: The following items appear only when you set the Network Stack item to
   [Enabled]*

IPv4 PXE Support

This item enables or disables IPv4 PXE Boot Support. If disabled IPv4 booth option will not be created.

Options: Enabled (Default) / Disabled

IPv6 PXE Support

This item enables or disables IPv6 PXE Boot Support. If disabled IPv6 booth option will not be created.

Options: Enabled (Default) / Disabled

PXE boot wait time

Wait time to press ESC key to abort the PXE boot.

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

IOMMU
This item allows you to enable/disable NB IOMMU.
Options: Disabled (Default) / Enabled
NB Port #2/#4/#09/#10

Gen2 High Speed Mode
Options: GEN2 Autonomous (Default) / GEN1 / GEN2 Software Initiated /
GEN2 Advertize RC

Port ASPM support
Options: Disabled (Default) / L0s enable / L1 enable / L0s + L1 enable /
L0s Downstream Only / L0s Downstream Only + L1

Link Width (Only for Port #02/#04/#09)
Options: Auto (Default) / x1 / x2 / x4 / x8 / x16

South Bridge Configuration

SB USB Configuration

OHCI HC (Bus 0 Dev 18/19/20/22 Fn 0/5)
This item allows you to control OHCI host controller. (USB 1.1 Device)
Options: Enabled (Default) / Disabled

SB Azalia Audio Configuration

HD Audio Azalia Device
This item allows you to control the HD audio device.
Options: Enabled (Default) / Auto / Disabled

Onboard Devices

Realtek PCIE NIC
This item enables/disables Realtek PCIE NIC.
Options: Enabled (Default) / Disabled
Onboard LAN Option ROM
This item enables/disables Onboard LAN Option ROM.
Options: Disabled (Default) / Enabled
Onboard USB3.0
This item enables/disables Onboard USB3.0 Controller.
Options: Enabled (Default) / Disabled

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

Full Screen Logo Display

This item allows you to enable/disable Full Screen Logo Show function.
Options: Enabled (Default) / Disabled

Fast Boot

This item allows you to enable/disable boot with initialization of a minimal
set of devices required to launch active boot option. Has no effect for BBS
boot options.
Options: Disabled (Default) / Enabled

*Note: The following items appear only when you set the Fast Boot function to
[Enabled]*

SATA Support

Options: Last Boot HDD Only (Default) / All SATA Devices / HDD Only

VGA Support

If Auto, only install Legacy OpRom with Legacy OS and logo would NOT be shown during post. EFI driver will still installed with EFI.

Options: EFI Driver (Default) / Auto

USB Support

If Disabled, all USB devices will NOT be available until after OS boot. If Partial Initial, specific USB port/device will NOT be available before OS boot. If Enabled, all USB devices will be available in OS and Post.

Options: Full Initial (Default) / Partial Initial / Disable

PS2 Devices Support

If Disabled, PS2 devices will be skipped.

Options: Enabled (Default) / Disable

Network Stack Driver Support

If Disabled, Network Stack Drivers will be skipped.

Options: Disable (Default) / Enabled

BIOS Flash protection

While enabled, it can't flash write and flash erase by SMI.

Options: Enabled (Default) / Disabled

Boot Success Beep

When this item is set to Enabled, BIOS will let user know boot success with beep.

Options: Enabled (Default) / Disabled

Boot Option #1/#2/#3

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.

CSM16 parameters

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

Option ROM Messages

This item sets the display mode for option ROM.

Options: Force BIOS (Default) / Keep Current

INT19 Trap Response

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

Options: Postponed (Default) / Immediate

CSM parameters

Launch CSM
This option controls if CSM will be launched.
Options: Enabled (Default) / Disabled
Boot option filter
This option controls what devices system can boot to.
Options: UEFI and Legacy (Default) / Legacy only / UEFI only
Launch PXE OpROM policy
This item controls the execution of UEFI and Legacy PXE OpROM
Options: Legacy only (Default) / UEFI only / Do not launch
Launch Storage OpROM policy
This item controls the execution of UEFI and Legacy Storage OpROM
Options: Legacy only (Default) / UEFI only / Do not launch
Launch Video OpROM policy
This item controls the execution of UEFI and Legacy Video OpROM
Options: Legacy only (Default) / UEFI only / Do not launch
Other PCI device ROM priority
For PCI devices other than Network, Mass storage or Video defines which
OpROM to launch
Options: Legacy OpROM (Default) / UEFI OpROM

5 Security Menu

Administrator Password
This item sets Administrator Password.

User Password
This item sets User Password.

Secure Boot Menu

Secure Boot Control
Secure Boot flow control. Secure Boot can be enabled only when 1.
Platform Key (PK) is enrolled and Platform is operating in user mode and
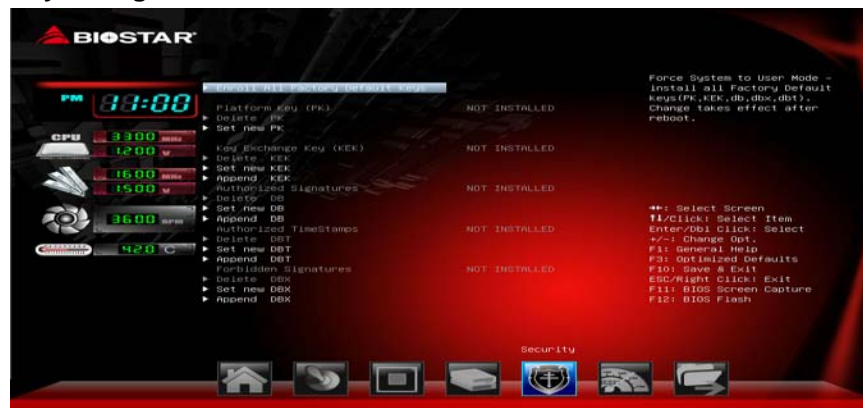2.CSM function is disabled in Setup.
Options: Disabled (Default) / Enabled

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Note: The following items appear only when you set the Secure Boot Control function to [Enabled]

Key Management

Enroll All Factory Default Keys
It allows you to immediately load/clear the default Security Boot keys, Platform key (PK), Key-exchange Key (KEK), Signature database (db), and Revoked Signatures (dbx). The Platform Key (PK) state will change from Unloaded mode to Loaded mode. The settings are applied after reboot or at the next reboot.

Platform Key (PK)
Delete PK – Allows you to delete the PK file from your system.
Set new PK – Allows you set new PK file.

Key Exchange Key Database (KEK)
Delete KEK – Allows you to delete the KEK file from your system.
Set new KEK – Allows you set new KEK file.
Append Var to KEK – Allows you append Var to KEK.

Authorized Signature Database (DB)
Delete DB – Allows you to delete the DB file from your system.
Set new DB – Allows you set new DB file.
Append Var to DB – Allows you append Var to DB.

Authorized Timestamps Database (DBT)
Delete DBT – Allows you to delete the DBT file from your system.
Set new DBT – Allows you set new DBT file.
Append Var to DBT – Allows you append Var to DBT.

Forbidden Signature Database (DBX)
Delete DBX – Allows you to delete the DBX file from your system.
Set new DBX – Allows you set new DBK file.
Append Var to DBX – Allows you append Var to DBX.

6 Performance 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.
■   The options and default settings might be different by RAM or CPU
    models.

BIO-unlocKING

This item allows you to activate BIO-unlocKING function.
(This item is only for AM3 CPU.)
Options: Disabled (Default) / Enabled

CPU Clock

This item allows BIOS to select CPU Clock (MHz).
Options: 200 (Default) / 200~600

Spread Spectrum

This item allows you to enable or disable spread spectrum for
CPU/ATIG/SRC clock.
Options: Disabled (Default) / Enabled

Memory Clock Mode

This item allows user to select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If Manual, the DRAM speed specified will be programmed regardless of SPD. If AMP/XMP/XMP2, the DRAM speed specified will be refer memory profile.
Options: Auto (Default) / Manual / AMP / XMP1 / XMP2
(AMP/XMP is only for AM3+ CPU)
> *Note: The following items appear only when you set the **Memory Clock Mode** item to [Manual]*

Memory Frequency: DDR 800 / DDR3 1066 / DDR3 1333 / DDR3 1600 / DDR3 1866

AMD Pstate Configuration

Custom P-Stated
This item will tell BIOS whether to use the step option below this configure the P-State, or whether to configure the P-States automatically.
Options: Disabled (Default) / Enabled
> *Note: The following items appear only when you set the Custom P-State item to [Enabled]*

Core FID
This item sets the frequency to use for Core P-State selected. Value is saved in the _PSS object.
Options: x8 1600MHz ~ x31.5 6300MHz

Core VID
This function allows you to adjust the voltage of CPU Core.

Core DID
This is the Core Divider.
Options: Divided by 1 (Default) / Divided by 2 / Divided by 4 / Divided by 8 / Divided by 16

NB FID
This item sets the frequency to use for Core P-State selected. Value is saved in the _PSS object.
Options: 800MHz ~ 6800MHz

NB VID
This function allows you to adjust the voltage of NB Core.

HT Configuration

HT Frequency
The Hyper Transport link will run at this speed if it is slower than or equal to the system clock and the board is capable.
Options: Auto (Default) / 200 MHZ / 400 MHZ / 600 MHZ / 800 MHZ / 1000 MHZ / 1200 MHZ / 1400 MHZ / 1600 MHZ / 1800 MHZ / 2000 MHZ / 2200 MHZ / 2400 MHZ / 2600 MHZ / 2800 MHZ / 3000 MHZ / 3200 MHZ /
HT Width
The Hyper Transport link will run at this width.
Options: Auto (Default) / 8 BIT / 16 BIT

DRAM Timing Configuration

DRAM Timing Mode
This item selects DRAM Timing Mode.
Options: Both (Default) / DCT0 / DCT1 / Auto
Note: The following items appear only when you set the DRAM Timing Mode item to [DCT0 / DCT1 / Both]

2TCMD
Options: Auto (Default) / 1T / 2T
CL
Options: Auto (Default) / 4~12 CLK
TRCD
Options: Auto (Default) / 5~12 CLK
TRP
Options: Auto (Default) / 5~12 CLK
TRAS
Options: Auto (Default) / 15~30 CLK
TRC
Options: Auto (Default) / 11~42 CLK
TWR
Options: Auto (Default) / 5~8 / 10 / 12 CLK
TWTR
Options: Auto (Default) / 4~7 CLK
TRRD
Options: Auto (Default) / 4~7 CLK
TRTP
Options: Auto (Default) / 4~7 CLK

MCT Configuration

Bank Interleaving
This item allows you to enable or disable Memory Bank interleaving.
Options: Auto (Default) / Disabled
Channel Interleaving
This item allows you to control the Memory Channel interleaving.
Options: Auto (Default) / Disabled
Memory Hole Remapping
This item allows you to enable or disable the Memory Remapping Around
Memory Hole
Options: Enabled (Default) / Disabled
Power Down Enable
This item allows you to enable or disable DDR3 power down mode.
Options: Disabled (Default) / Enabled

Memory Over Voltage
This item allows you to control Memory Over Voltage

CPU Vcore
This item allows you to control CPU Vcore.

CPU-NB Over Voltage
This item allows you to control CPU-NB Over Voltage.

BIOSTAR Memory Insight

DDR3_A1/A2/B1/B2
These items display SPD information of DDR3 memory.

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.