VisionX Series

User Manual

Version 1.0
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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

ASRock Website: http://www.asrock.com

The terms HDMI™ and HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Safety instructions

Your system is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions.

Setting up your system

- Read and follow all instructions in the documentation before you operate your system.
- Do not use this product near water or a heated source such as a radiator.
- Set up the system on a stable surface.
- Openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the system for ventilation. Never insert objects of any kind into the ventilation openings.
- Use this product in environments with ambient temperatures between 0° C and 40° C.
- If you use an extension cord, make sure that the total ampere rating of the devices plugged into the extension cord does not exceed its ampere rating.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill water or any other liquids on your system.
- When the system is turned OFF, a small amount of electrical current still flows. Always unplug all power, modem, and network cables from the power outlets before cleaning the system.
- If you encounter the following technical problems with the product, unplug the power cord and contact a qualified service technician or your retailer.
    - The power cord or plug is damaged.
    - Liquid has been spilled into the system.
    - The system does not function properly even if you follow the operating instructions.
    - The system was dropped or the cabinet is damaged.
    - The system performance changes.

No disassembly

The warranty does not apply to products (including HDD, ODD, memory and warranty seal) that have been damaged as a result of attempting to disassemble/reassemble the system or modifying the hardware configuration.

Safety cautions and warnings

Optical Drive Safety Information

Optical drives sold with this system contains a CLASS 1 LASER PRODUCT.

CAUTION:

Invisible laser radiation when open. Do not stare into beam or view directly with optical instruments.

WARNING:

Making adjustments or performing procedures other than those specified in the user's manual may result in hazardous laser exposure. Do not attempt to disassemble the optical drive. For your safety, have the optical drive serviced only by an authorized service provider.

Product disposal notice

IMPORTANT:

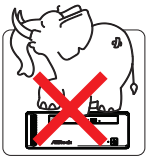
This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

Nordic Lithium Cautions (for lithium-ion batteries)

CAUTION!

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Installation Notices



Do not place this product underneath heavy loads or in an unstable position.

Do not use or expose this product around magnetic fields as magnetic interference may affect the performance of the product.

Do not expose this product to high levels of direct sunlight, high-humidity or wet conditions.

Do not block the air vents to this product or impede the airflow in any way.

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Chapter 1 Introduction

Thank you for purchasing ASRock VisionX Series, a reliable product produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, Chapter 3 contains the operation guide of the software and utilities. Chapter 4 contains the configuration guide of the BIOS setup.

Because the hardware specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this product, please visit our website for specific information about the model you are using. ASRock website http://www.asrock.com.

1.1 Package Contents

ASRock VisionX Series

1 x Support CD

1 x Quick Start Guide

1 x AC Power Cord

1 x AC/DC Adapter

1 x DVI to D-Sub Adapter

1 x Remote Controller

1 x MHSL to Micro USB Cable

English

1.2 Specifications

Processor	• Intel® Mobile Haswell Processor • Supports 4th Generation Intel® Corei7/i5/i3 Dual-Core Mobile Haswell Processor Family
Chipset	• Mobile Intel® HM87 Express chipset
Memory	• Supports DDR3 1600/1333/1066MHz, 2xSO-DIMM slots, maximum up to 16GB
Display	• AMD Radeon™ R9 M270X Graphics (with 1GB GDDR5 VRAM) *AMD has officially renamed AMD Radeon™ HD8850M to AMD Radeon™ R9 M270X. • Supports Blu-ray 3D playback, AMD HD3D technology
HDD	• Supports 2.5" SATA HDD (Up to two HDDs)
mSATA SSD	• Supports mSATA SSD
ODD	• DVD Super Multi
Front I/O	• 1 x MHSL (Mobile High-Speed Link), 1 x USB 3.0, 1 x MIC, 1 x Headphone, 4-in-1 Card reader (MMC/SD3.0/MS/MS Pro)
Rear I/O	• 1x HDMI, 1x DVI-I (Dual-Link), 1x USB 2.0, 1x S/PDIF, 1x eSATA2, 5x USB3.0
Audio	• 7.1 CH HD Audio, supports DTS Connect
Lan	• Gigabit LAN
WiFi	• 2T2R 802.11 a/b/g/n/ac (5GHz/2.4GHz Dual-Band access / Faster Speed: WLAN up to 867Mbps data rate.)

Bluetooth	• Bluetooth 4.0/3.0 HS class II
Remote Controller	• Support MCE function
Power	• 120W/19V Adapter
Dimension	• 200mm(W)x70mm(H)x200mm(L)
Volume	• 2.8L

*For barebone systems, CPU, memory, HDDs and ODDs may not be included.

Free bundle software:

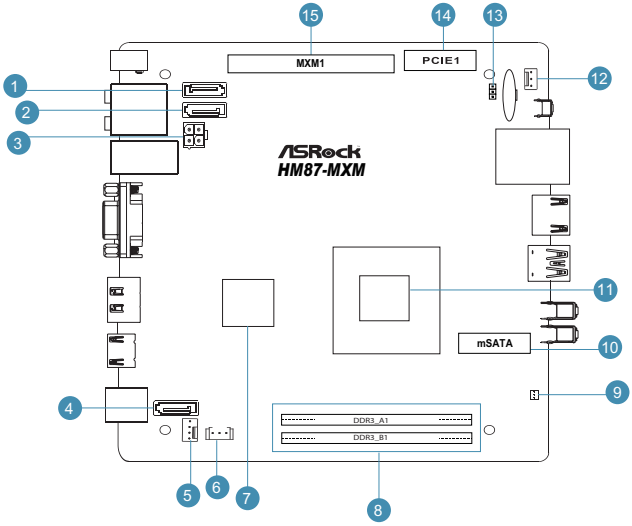
1. CyberLink PowerDVD 10 OEM version. (Blu-ray 3D movie playback, 2D-to-3D video file playback, Enhanced TrueTheater 3D to convert 2D-to-3D for DVDs and video files etc.)
2. Symantec Norton AntiVirus Software (trial version)

MHSL (Mobile High-Speed Link) support list:

Sony	HTC	Samsung
XPeria Z	HTC One	Galaxy S3 (with micro USB 11pin-to-5pin adapter
XPeria Z Ultra		

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

1.3 System Motherboard Components

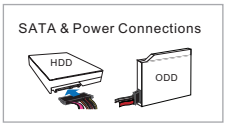


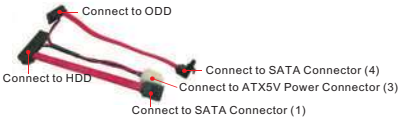
No.	Description
1	SATA 3.0 connector: For HDD SATA data cables
2	SATA 3.0 connector: For HDD SATA data cables
3	ATX5V output power connector for slim ODD & 2.5” HDD
4	SATA connector: For ODD SATA data cables
5	SATA power cable connector (+5V/+12V) for second HDD
6	Fan connector
7	HM87 PCH chipset
8	Memory socket
9	Infrared module
10	mSATA slot
11	CPU
12	Fan connector
13	Clear CMOS jumper
14	Mini-PCI Express expansion slot: For WiFi module
15	MXM 3.0 slot

English

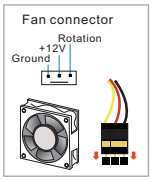
NOTE

1. SATA and Power Connections





2. Fan Connection



1.4 Rear Panel

No.	Description
1	HDMI connector
2	eSATA2 connector
3	DVI-I port
4	USB3.0 ports: USB devices
5	Mic In (Pink): Microphone
6	Optical S/PDIF Out port
7	DC-In jack
8	Side port for side speakers
9	Center/LFE (Orange): Center / subwoofer speakers
10	Front L/R Out (Lime): Stereo speakers or headphones
11	Line In (Blue) for 2/4/6 channel; Rear (Blue) for 8 channel
12	LAN (RJ-45) port: Local Area Network
13	USB2.0 ports: USB devices

1.5 System Chassis

No.	Description
1	Headphone
2	Microphone
3	USB3.0 ports: USB devices
4	MHSL port
5	4-in-1 Card reader (MMC/SD3.0/MS/MS Pro)
6	Power ON/OFF button with status indicator
7	Slot-in Optical Disc Drive

1.6 MHSL (Mobile High Speed Link)

MHSL is ASRock's exclusive HD video and digital audio interface for connecting mobile phones, tablets or other portable devices to your PC and then to a HDMI monitor. Not only does it support the MHL standard's features such as charging while browsing the portable device's content on another monitor, MHSL also lets users sync data between the mobile device and your PC, plus it supports ASRock's HDMI-In feature so that other devices that support HDMI output may work through the MHSL port too.

Step 1

Connect your monitor to the **HDMI** port on the system via an HDMI cable.

Step 2

Connect your mobile device to the **MHSL** port on the system via the **MHSL to Micro USB Cable**.

Step 3

Double-click the "A-Tuning"  icon on the desktop and find "MHSL / HDMI-In" function in "Tools" tab.

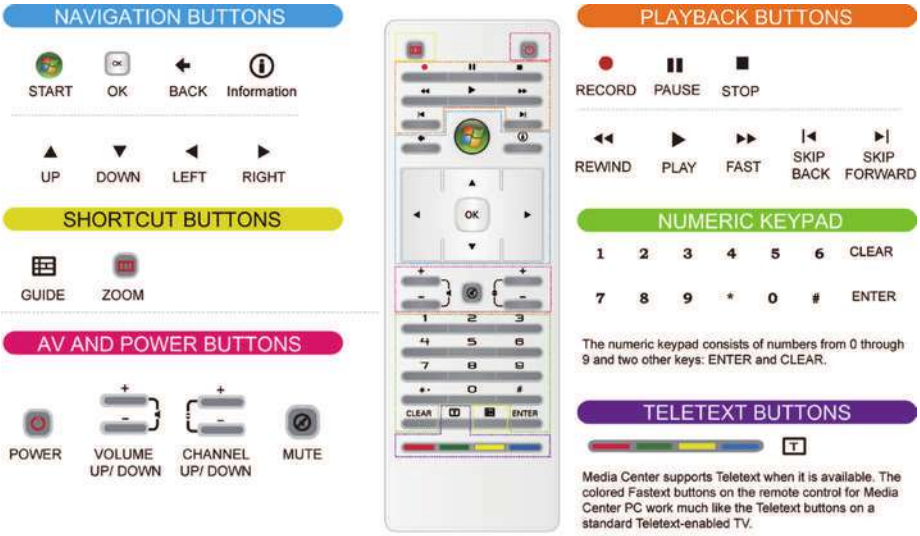
Step 4

Click the textbox and enter the action to set a hotkey. Then click **Apply** to apply the setting.

Step 5

Use the hotkey to switch between on-board PC screen or MHSL Source.

1.7 Remote Controller



Some remote controller functions listed above are only available with the relative hardware equipments. If the hardware equipments you adopt are not compatible with the system, you are not allowed to use these functions. This product is designed to meet MCE standards.

English

Chapter 2 Opening the chassis

1. Press the button on the rear I/O to open the top side of the chassis.

2. After the chassis is opened, you will see the top shield inside the chassis.

3. Unscrew the screws on the corners of the top shield.

4. Carefully remove the top shield.

Chapter 3 Reinstalling the ODD/HDD

1. After you remove the top shield, you will see the ODD/HDD bracket.

2. Disconnect the ODD/HDD SATA power cable, and take out the ODD/HDD bracket.

3. Unscrew the screws from the side of the ODD / HDD rack, and change your required ODD / HDD.

Chapter 4 Installing the second HDD

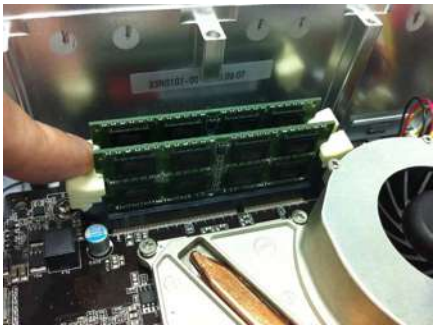
1. Please follow steps 1 and 2 from page 16 to take out the ODD/HDD bracket. Install the second HDD and fasten the screws to the rack, then replace the bracket into the chassis.

2. Connect the SATA and power cables.

3. Replace the side cover and fasten the screws.

Chapter 5 Reinstalling the DIMMs

1. Unlock the DIMM slot by pressing the retaining clips outward to change the DIMM.



Chapter 6 Reinstalling the CPU

*Torx T8 screwdriver is required for the installation.

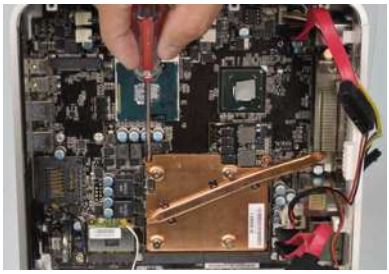
1. Unscrew the screws of the CPU fan.

2. Rotate the screw on the top of the CPU socket.

3. Now you can reinstall a new CPU to the system.

Chapter 7 Reinstalling the MXM card

1. Please follow step 1 from page 19 to remove the CPU fan. Then unscrew the two screws on top of the MXM card.



2. Lift the MXM card slightly upwards, then gently pull it out of the MXM slot.

3. Now you can reinstall a new MXM card to the system.

Chapter 8 Dual Monitor

ASRock VisionX series HTPC supports dual monitor. With the internal VGA output which supports DVI-I and HDMI, you can easily enjoy the benefits of dual monitor.

ASRock VisionX series HTPC also provides independent display controllers for DVI-I and HDMI to support dual VGA output so that DVI-I and HDMI can drive the same or different display contents simultaneously.

To enable dual monitor, please follow the steps below:

1. Connect a DVI-I monitor cable to the DVI-I port on the I/O panel and connect a HDMI monitor cable to the HDMI port on the I/O panel.

2. If you have already installed the VGA driver from our support CD to your system, you can freely enjoy dual monitor after your system reboots. If you haven't installed the VGA driver yet, please install the VGA driver from our support CD and restart your computer.

Chapter 9 Software and Utilities Operation

9.1 Installing Drivers

The Support CD that comes with this system contains necessary drivers and useful utilities that enhance the system's features.

Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu.

Drivers Menu

The drivers compatible to your system will be auto-detected and listed on the support CD driver page. Please click **Install All** or follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

To improve Windows 7 compatibility, please download and install the following hot fix provided by Microsoft.
"KB2720599": http://support.microsoft.com/kb/2720599/en-us

9.2 A-Tuning

A-Tuning is ASRock's multi purpose software suite with a new interface, more new features and improved utilities, including XFast RAM, Dehumidifier, Good Night LED, FAN-Tastic Tuning and a whole lot more.

9.2.1 Installing A-Tuning

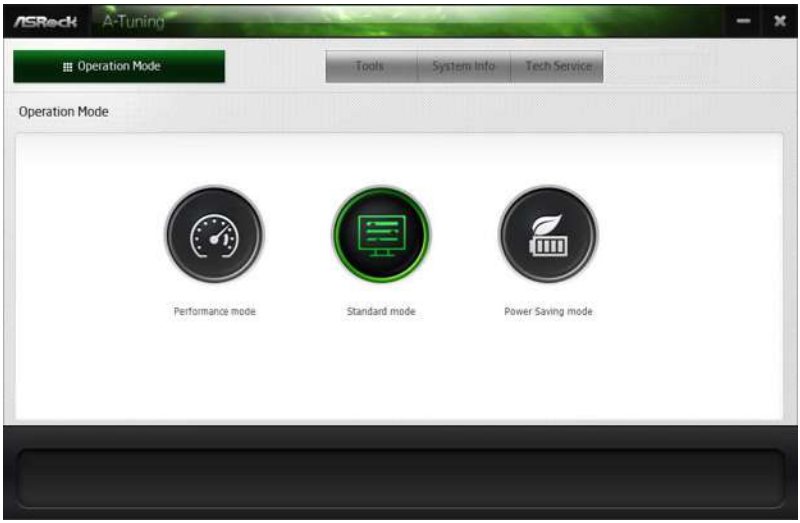
When you install the all-in-one driver to your system from ASRock's support CD, A-Tuning will be auto-installed as well. After the installation, you will find the icon "A-Tuning" on your desktop. Double-click the "A-Tuning"  icon, A-Tuning main menu will pop up.

9.2.2 Using A-Tuning

There are five sections in A-Tuning main menu: Operation Mode, Tools, System Info and Tech Service.

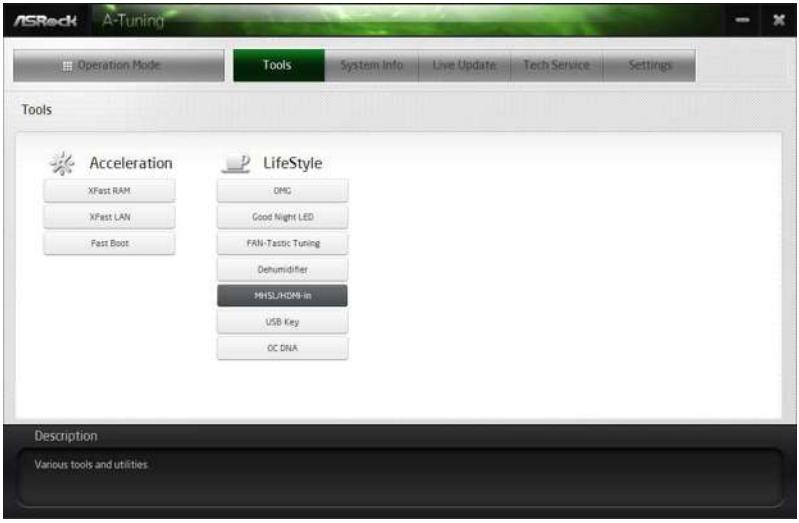
Operation Mode

Choose an operation mode for your computer.



Tools

Various tools and utilities.



XFast RAM

Boost the system's performance and extend the HDD's or SSD's lifespan! Create a hidden partition, then assign which files should be stored in the RAM drive.

XFast LAN

Boost the speed of your internet connection! Select a specific mode for making the designated program's priority highest.

Fast Boot

Fast Boot minimizes your computer's boot time. Please note that Ultra Fast mode is only supported by Windows 8 and the VBIOS must support UEFI GOP if you are using an external graphics card.

OMG

Schedule the starting and ending hours of internet access granted to other users. Place X marks on the time table to disable the internet.

Good Night LED

Switch off the Power/HDD/LAN LEDs when the system is on, and automatically switch off the Power and Keyboard LEDs when the system enters into Standby/ Hibernation mode.

FAN-Tastic Tuning

Configure up to five different fan speeds using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met.

Dehumidifier

Prevent motherboard damages due to dampness. Enable this function and configure the period of time until the computer powers on, and the duration of the dehumidifying process.

MHSL / HDMI-In

Connect two different devices to one monitor and toggle between the primary and secondary screen without replugging the connectors every time. Please set a hotkey for switching between the two devices.

USB Key

Plug in the USB Key and let your computer log in to windows automatically!

OC DNA

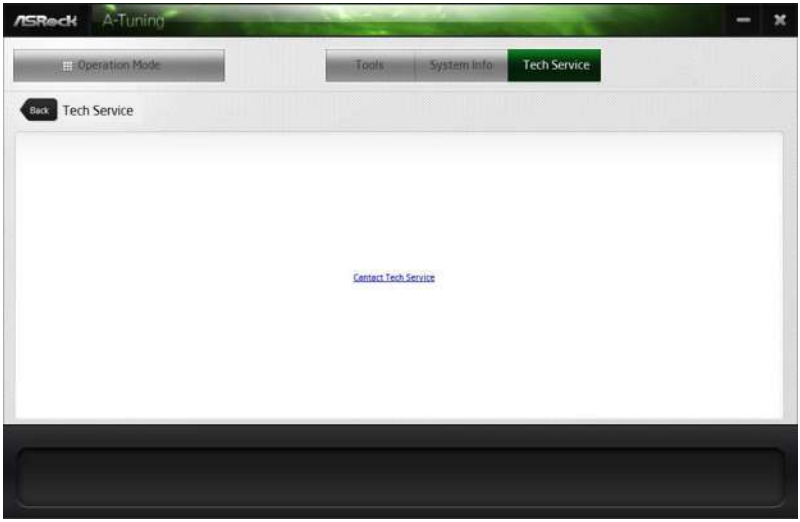
OC DNA is an unique software which helps to save your OC settings as a profile. then you can send this OC setting profile to the friends.

System Info

View information about the system.

Tech Service

Contact Tech Service.



9.3 Symantec Norton AntiVirus Software free bundle (Trial version)

Protect your PC with Norton Internet Security, the fastest virus, spyware, Internet protection. Norton Internet Security can stop online identity theft, viruses, spyware, bots and more. Stop attacks before they get on your PC, deliver clear threat and performance explanations, identify unsafe web sites right in your search results, and use intelligence-driven Norton Insight Network for faster, fewer, shorter scans.

Chapter 10 UEFI SETUP UTILITY

10.1 Introduction

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. Not only will it make BIOS setup less difficult but also a lot more amusing. This section explains how to use the UEFI SETUP UTILITY to configure your system. You may run the UEFI SETUP UTILITY by pressing <F2> or <Del> right after you power on the computer, otherwise, the Power-On-Self-Test (POST) will continue with its test routines. If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

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

10.1.1 UEFI Menu Bar

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

Main	For setting system time/date information
OC Tweaker	For overclocking configurations
Advanced	For advanced system configurations
Tool	Useful tools
H/W Monitor	Displays current hardware status
Boot	For configuring boot settings and boot priority
Security	For security settings
Exit	Exit the current screen or the UEFI Setup Utility

10.1.2 Navigation Keys

Use <←> key or <→> key to choose among the selections on the menu bar, and use < ↑ > key or < ↓ > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

Please check the following table for the descriptions of each navigation key.

Navigation Key(s)	Description
← / →	Move the selection bar to select a setup menu
↑ / ↓	Move the selection bar to select an configuration item on a menu
+ / -	To change option for the selected items
<Tab>	Switch to next function
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F4>	Toggle sound on/off
<F7>	Discard changes and exit the SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

10.2 Main Screen

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

Active Page on Entry

Select the default page when entering the UEFI setup utility.

UEFI Guide

UEFI Guide is a quick tutorial for ASRock's UEFI setup Utility. You may abort the tutorial by pressing "esc".

10.3 OC Tweaker Screen

In the OC Tweaker screen, you can set up overclocking features.

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

CPU Configuration

No-K OC

No-K OC allows users to overclock their non k-series chipset motherboards. Please note that overclocing may cause damage to your components and motherboard. It should be done at your own risk and expense.

EZ OC

You can use this option to adjust EZ overclocking setting. Please note that overclocing may cause damage to your components and motherboard. It should be done at your own risk and expense.

CPU Ratio

The CPU speed is determined by the CPU Ratio multiplied with the BCLK. Increasing the CPU Ratio will increase the internal CPU clock speed without affecting the clock speed of other components.

CPU Cache Ratio

The CPU Internal Bus Speed Ratio. The maximum should be the same as the CPU Ratio.

BCLK/PCIE Frequency

The CPU speed is determined by the CPU Ratio multiplied with the BCLK. Increasing the BCLK will increase the internal CPU clock speed but also affect the clock speed of other components.

BCLK Ratio

Configure BCLK Ratio to prevent the PC from crashing when the internal CPU clock speed and clock speed of other components are too high.

CPU OC Fixed Mode

Select enable to disable Enhanced Intel SpeedStep Technology and enable Intel Turbo Boost technology for better performance. Select disable for power saving.

Intel SpeedStep Technology

Intel SpeedStep technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation.

Intel Turbo Boost Technology

Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state.

Filter PLL Frequency

CPU BCLK Filter Frequency. Choose 1.6 for better overclocking capabilities.

PCIE PLL Selection

Select SB PLL when overclocking.

Long Duration Power Limit

Configure Package Power Limit 1 in watts. When the limit is exceeded, the CPU ratio will be lowered after a period of time. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

Long Duration Maintained

Configure the period of time until the CPU ratio is lowered when the Long Duration Power Limit is exceeded.

Short Duration Power Limit

Configure Package Power Limit 2 in watts. When the limit is exceeded, the CPU ratio will be lowered immediately. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

Primary Plane Current Limit

Configure the current limit of the CPU under Turbo Mode in ampere. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

DRAM Timing Configuration

DRAM Reference Clock

Select Auto for optimized settings.

DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically.

DRAM Configuration

DRAM Tweaker

Fine tune the DRAM settings by leaving marks in checkboxes. Click OK to confirm and apply your new settings.

CAS# Latency (tCL)

The time between sending a column address to the memory and the beginning of the data in response.

RAS# to CAS# Delay (tRCD)

The number of clock cycles required between the opening of a row of memory and accessing columns within it.

Row Precharge Time (tRP)

The number of clock cycles required between the issuing of the precharge command and opening the next row.

RAS# Active Time (tRAS)

The number of clock cycles required between a bank active command and issuing the precharge command.

Command Rate (CR)

The delay between when a memory chip is selected and when the first active command can be issued.

Write Recovery Time (tWR)

The amount of delay that must elapse after the completion of a valid write operation, before an active bank can be precharged.

Refresh Cycle Time (tRFC)

The number of clocks from a Refresh command until the first Activate command to the same rank.

RAS to RAS Delay (tRRD)

The number of clocks between two rows activated in different banks of the same rank.

Write to Read Delay (tWTR)

The number of clocks between the last valid write operation and the next read command to the same internal bank.

Read to Precharge (tRTP)

The number of clocks that are inserted between a read command to a row precharge command to the same rank.

Four Activate Window (tFAW)

The time window in which four activates are allowed the same rank.

CAS Write Latency (tCWL)

Configure CAS Write Latency.

tREFI

Configure refresh cycles at an average periodic interval.

tCKE

Configure the period of time the DDR3 initiates a minimum of one refresh command internally once it enters Self-Refresh mode.

tRDRD

Configure between module read to read delay.

tRDRDDR

Configure between module read to read delay from different ranks.

tRDRDDD

Use this to change DRAM tRWSR Auto/Manual settings. The default is [Auto].

tWRRD

Configure between module write to read delay.

tWRRDDR

Configure between module write to read delay from different ranks.

tWRRDDD

Use this to change DRAM tRRSR Auto/Manual settings. The default is [Auto].

Configure between module write to read delay from different DIMMs.

tWRWR

Configure between module write to write delay.

tWRWRDR

Configure between module write to write delay from different ranks.

tWRWRDD

Configure between module write to write delay from different DIMMs.

tRDWR

Configure between module read to write delay.

tRDWRDR

Configure between module read to write delay from different ranks.

tRDWRDD

Configure between module read to write delay from different DIMMs.

RTL (CHA)

Configure round trip latency for channel A.

RTL (CHB)

Configure round trip latency for channel B.

IO-L (CHA)

Configure IO latency for channel A.

IO-L (CHB)

Configure IO latency for channel B.

ODT WR (CHA)

Configure the memory on die termination resistors' WR for channel A.

ODT WR (CHB)

Configure the memory on die termination resistors' WR for channel B.

ODT NOM (CHA)

Use this to change ODT (CHA) Auto/Manual settings. The default is [Auto].

ODT NOM (CHB)

Use this to change ODT (CHB) Auto/Manual settings. The default is [Auto].

Command Tri State

Enable for DRAM power saving.

MRC Fast Boot

Enable Memory Fast Boot to skip DRAM memory training for booting faster.

DIMM Exit Mode

Select Slow Exit to reduce power consumption, or Fast Exit for better performance.

FIVR Configuration

FIVR Switch Frequency Signature

Select whether to boost or lower the FIVR Switch Frequency.

FIVR Switch Frequency Offset

Configure the percentage of frequency boost or deduction.

Vcore Override Voltage

Configure the voltage added to the Vcore when the system is under heavy load.

Vcore Voltage Additional Offset

Configure the dynamic Vcore voltage added to the Vcore.

CPU Cache Override Voltage

Add voltage to the CPU Cache when the system is under heavy load.

CPU Cache Voltage Offset

Configure the voltage for the CPU Cache. Setting the voltage higher may increase system stability when overclocking.

System Agent Voltage Offset

Configure the voltage for the System Agent. Setting the voltage higher may increase system stability when overclocking.

CPU Analog IO Voltage Offset

CPU I/O Analog Voltage.

CPU Digital IO Voltage Offset

CPU I/O Digital Voltage.

CPU Integrated VR Faults

Disable FIVR Faults to raise the threshold to trigger CPU over current protection and over voltage protection for better overclocking capabilities.

CPU Integrated VR Efficiency Mode

Enable FIVR Efficiency Management for power saving. Disable for better performance and overclocking capabilities.

Voltage Configuration

DRAM Voltage

Use this to configure DRAM Voltage. The default value is [Auto].

10.4 Advanced Screen

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

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

10.4.1 CPU Configuration

Intel Hyper Threading Technology

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

Active Processor Cores

Select the number of cores to enable in each processor package.

CPU C States Support

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

Enhanced Halt State (C1E)

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

CPU C3 State Support

Enable C3 sleep state for lower power consumption.

CPU C6 State Support

Enable C6 deep sleep state for lower power consumption.

CPU C7 State Support

Enable C7 deep sleep state for lower power consumption.

Package C State Support

Enable CPU, PCIe, Memory, Graphics C State Support for power saving.

CPU Thermal Throttling

Enable CPU internal thermal control mechanisms to keep the CPU from overheating.

No-Execute Memory Protection

Processors with No-Execution Memory Protection Technology may prevent certain classes of malicious buffer overflow attacks.

Intel Virtualization Technology

Intel Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions, so that one computer system can function as multiple virtual systems.

Hardware Prefetcher

Automatically prefetch data and code for the processor. Enable for better performance.

Adjacent Cache Line Prefetch

Automatically prefetch the subsequent cache line while retrieving the currently requested cache line. Enable for better performance.

10.4.2 Chipset Configuration

PCIE1 Link Speed

Select the link speed for PCIE1.

Onboard HD Audio

Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed.

Onboard LAN

Enable or disable the onboard network interface controller.

Restore on AC/Power Loss

Select the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

Good Night LED

By enabling Good Night LED, the Power/LAN LEDs will be switched off when the system is on. It will also automatically switch off the Power and Keyboard LEDs when the system enters into Standby/Hibernation mode.

10.4.3 Storage Configuration

SATA Controller(s)

Enable/disable the SATA controllers.

SATA Mode Selection

IDE: For better compatibility.

AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Management

SATA Aggressive Link Power Management allows SATA devices to enter a low power state during periods of inactivity to save power. It is only supported by AHCI mode.

Dynamic Storage Accelerator

Keep this option enabled for higher HDD and SSD I/O performance, lower latency and increased system responsiveness.

Hard Disk S.M.A.R.T.

S.M.A.R.T stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various indicators of reliability.

10.4.4 Intel® Rapid Start Technology

Intel® Rapid Start Technology

Intel® Rapid Start Technology is a new zero power hibernation mode which allows users to resume in just 5-6 seconds.

10.4.5 Intel® Smart Connect Technology

Intel® Smart Connect Technology

Intel® Smart Connect Technology automatically updates your email and social networks, such as Twitter, Facebook, etc. while the computer is in sleep mode.

10.4.6 Super IO Configuration

CIR Controller

Enable or disable the CIR Receiver for Remote Controller.

10.4.7 ACPI Configuration

Suspend to RAM

It is recommended to select auto for ACPI S3 power saving.

Check Ready Bit

Enable to enter the operating system after S3 only when the hard disk is ready, this is recommended for better system stability.

ACPI HPET Table

Enable the High Precision Event Timer for better performance and to pass WHQL tests.

PCIE Devices Power On

Allow the system to be waked up by a PCIE device and enable wake on LAN.

Wake From Onboard LAN

Allow the system to be waked up by the Onboard LAN.

CIR Power On

Use this item to enable or disable CIR to power on the system.

RTC Alarm Power On

Allow the system to be waked up by the real time clock alarm. Set it to By OS to let it be handled by your operating system.

USB Keyboard/Remote Power On

Allow the system to be waked up by an USB keyboard or remote controller.

USB Mouse Power On

Allow the system to be waked up by an USB mouse.

10.4.8 USB Configuration

Intel USB 3.0 Mode

Enable or disable all the USB 3.0 ports. It is recommended to select [Smart Auto].

Legacy USB 3.0 Support

Enable or disable Legacy OS Support for USB 3.0 devices.

10.5 Tools

OMG (Online Management Guard)

Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required.

UEFI Tech Service

Contact ASRock Tech Service if you are having trouble with your PC. Please setup network configuration before using UEFI Tech Service.

Easy RAID Installer

Easy RAID Installer helps you to copy the RAID driver from the support CD to your USB storage device. After copying the drivers please change the SATA mode to RAID, then you can start installing the operating system in RAID mode.

Easy Driver Installer

For users that don't have an optical disk drive to install the drivers from our support CD, Easy Driver Installer is a handy tool in the UEFI that installs the LAN driver to your system via an USB storage device, then downloads and installs the other required drivers automatically.

Instant Flash

Save UEFI files in your USB storage device and run Instant Flash to update your UEFI.

Internet Flash

ASRock Internet Flash downloads and updates the latest UEFI firmware version from our servers for you. Please setup network configuration before using Internet Flash.

*For BIOS backup and recovery purpose, it is recommended to plug in your USB pen drive before using this function.

Network Configuration

Use this to configure internet connection settings for Internet Flash.

Internet Setting

Enable or disable sound effects in the setup utility.

UEFI Download Server

Select a server to download the UEFI firmware.

Dehumidifier Function

If Dehumidifier Function is enabled, the computer will power on automatically to dehumidify the system after entering S4/S5 state.

Dehumidifier Period

Configure the period of time until the computer powers on and enables Dehumidifier after entering S4/S5 state.

Dehumidifier Duration

Configure the duration of the dehumidifying process before it returns to S4/S5 state.

Dehumidifier CPU Fan Setting

Configure the speed of the CPU fan while Dehumidifier is enabled. The higher the value, the faster the fan speed.

Max: 255

Min: 1

Save User Default

Type a profile name and press enter to save your settings as user default.

Load User Default

Load previously saved user defaults.

10.6 Hardware Health Event Monitoring Screen

This section allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, fan speed and voltage.

CPU Fan 1 Setting

Select a fan mode for CPU Fans 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

HD Fan 1 Setting

Select a fan mode for HD Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

10.7 Boot Screen

This section displays the available devices on your system for you to configure the boot settings and the boot priority.

Fast Boot

Fast Boot minimizes your computer's boot time. In fast mode you may not boot from an USB storage device. Ultra Fast mode is only supported by Windows 8 and the VBIOS must support UEFI GOP if you are using an external graphics card. Please notice that Ultra Fast mode will boot so fast that the only way to enter this UEFI Setup Utility is to Clear CMOS or run the Restart to UEFI utility in Windows.

Boot From Onboard LAN

Allow the system to be waked up by the onboard LAN.

Setup Prompt Timeout

Configure the number of seconds to wait for the setup hot key.

Bootup Num-Lock

Select whether Num Lock should be turned on or off when the system boots up.

Boot Beep

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

Full Screen Logo

Enable to display the boot logo or disable to show normal POST messages.

AddOn ROM Display

Enable AddOn ROM Display to see the AddOn ROM messages or configure the AddOn ROM if you've enabled Full Screen Logo. Disable for faster boot speed.

Boot Failure Guard

If the computer fails to boot for a number of times the system automatically restores the default settings.

Boot Failure Guard Count

Configure the number of attempts to boot until the system automatically restores the default settings.

CSM (Compatibility Support Module)

CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows 8 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only.

Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only.

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only.

10.8 Security Screen

In this section you may set or change the supervisor/user password for the system. You may also clear the user password.

Supervisor Password

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

User Password

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

Secure Boot

Enable to support Windows 8 Secure Boot.

10.9 Exit Screen

Save Changes and Exit

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

Discard Changes and Exit

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

Discard Changes

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

Load UEFI Defaults

Load UEFI default values for all options. The F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Copy shellx64.efi to the root directory to launch EFI Shell.

Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information. For technical questions, please submit a support request form at http://www.asrock.com/support/tsd.asp

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