



Asus H310M-IM-A Manual

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Summary of Contents for Asus H310M-IM-A

[Page 1](#) H310M-IM-A...

[Page 2](#) Product warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification or alteration is authorized in writing by ASUS; or (2) the serial number of the product is defaced or missing.

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[Page 5: Chapter 1 Product Overview](#)

Chapter 1 Product overview Package contents Check your industrial motherboard package for the following items. 1 x ASUS H310M-IM-A Motherboard 1 x Serial ATA 6.0 Gb/s cable 1 x M.2 screw package 1 x ASUS I/O Shield NOTE: If any of the above items is damaged or missing, contact your distributor or sales representative immediately.

[Page 6: Specifications](#)

1 x M.2 Socket 3 with M Key, Type 2260/2280 storage devices support Front panel (both SATA & PCIe x2 mode) I/O ports 4 x SATA 6.0Gb/s connectors 1 x 4-pin CPU Fan connector 1 x 4-pin Chassis Fan connector for PWM & DC mode (continued on the next page) H310M-IM-A...

[Page 7](#) 1 x Front panel audio connector(AAFP) 1 x System panel connector 1 x 24-pin ATX power connector 1 x 4-pin ATX power connector 1 x Chassis Intrusion connector Front panel I/O 1 x Speaker connector ports 1 x COM connector(RS232) 1 x Parallel connector 1 x Clear CMOS header 1 x 14-1 pin TPM header...

[Page 8: Chapter 2 Motherboard Information](#)

Chapter 2 Motherboard information Before you proceed Take note of the following precautions before you install motherboard components or change any motherboard settings. CAUTION! • Unplug the power cord from the wall socket before touching any component. • Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.

[Page 9: Motherboard Layout](#)

LGA1151 of the chassis LAN_U32G1_34 M.2(SOCKET3) CHA_FAN PCIE SATA IRST 8111H 2280 2260 AUDIO PCIEX16 ASM1480 CLRTC PCIEX1_1 128Mb BIOS Intel Super ® H310 PCIEX1_2 1083 SATA6G_2 LPC DEBUG SPEAKER COM2 USB914 SATA6G_4 SATA6G_3 AAFP F_PANEL H310M-IM-A...

[Page 10](#) Page Connectors/Jumpers/Slots ATX power connectors (24-pin EATXPWR, 4-pin ATX12V) 2-19 CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN) 2-16 Intel LGA1151 CPU socket ® M.2 socket 3 2-18 DDR4 DIMM slots USB 3.2 Gen 1 connector (20-1 pin U32G1_12) 2-14 Clear RTC RAM (2-pin CLRTC) 2-11...

[Page 11: Central Processing Unit \(Cpu\)](#)

, and Celeron ® ® ® processors. H310M-IM-A CPU socket LGA1151 IMPORTANT: Unplug all power cables before installing the CPU. CAUTION! • Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components.

[Page 12: Installing The Cpu](#)

2.3.1 Installing the CPU CAUTION! LGA1156 CPU is not compatible with the LGA1151 socket. DO NOT install an LGA1156 CPU on the LGA1151 socket. Chapter 2: Motherboard information...

[Page 13](#) H310M-IM-A...

[Page 14: Cpu Heatsink And Fan Assembly Installation](#)

2.3.2 CPU heatsink and fan assembly installation CAUTION! Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary. To install the CPU heatsink and fan assembly Chapter 2: Motherboard information...

[Page 15](#) To uninstall the CPU heatsink and fan assembly H310M-IM-A...

[Page 16: System Memory](#)

This motherboard comes with two Double Data Rate 4 (DDR4) Dual Inline Memory Module (DIMM) sockets. The figure below illustrates the location of the DDR4 DIMM sockets: Channel Sockets Channel A DIMM_A1* Channel B DIMM_B1* H310M-IM-A 288-pin DDR4 DIMM sockets Recommended memory configuration DIMM_B1* DIMM_A1* DIMM_A1* Installing a DIMM Chapter 2: Motherboard information...

[Page 17](#) To remove a DIMM H310M-IM-A 2-10...

[Page 18: Jumpers](#)

CLRRTC +3V_BAT PIN 1 H310M-IM-A Clear RTC RAM To erase the RTC RAM: Turn OFF the computer and unplug the power cord. Use a metal object such as a screwdriver to short the two pins.

[Page 19: Connectors](#)

Line In port (light blue). This port connects to the tape, CD, DVD player, or other audio sources. Line Out port (lime). This port connects to a headphone or a speaker. In the 4.1, 5.1 and 7.1-channel configurations, the function of this port becomes Front Speaker Out. H310M-IM-A 2-12...

[Page 20](#) Microphone port (pink). This port connects to a microphone. Refer to the audio configuration table for the function of the audio ports in 2.1, 4.1, 5.1, or 7.1-channel configuration. Audio 2.1, 4.1, 5.1 or 7.1-channel configuration Headset Port 4.1-channel 5.1-channel 7.1-channel 2.1-channel Line Out (Rear Front Speaker Front Speaker Front Speaker Out Front Speaker Out...

[Page 21: Internal Connectors](#)

This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity. PIN 1 H310M-IM-A TPM connector H310M-IM-A 2-14...

[Page 22](#) This USB connector comply with USB 2.0 specification that supports up to 480 Mbps connection speed. USB914 PIN 1 H310M-IM-A USB2.0 connector CAUTION! Never connect a 1394 cable to the USB connector. Doing so will damage the motherboard. NOTE: The USB cable is purchased separately.

[Page 23](#) H310M-IM-A LPC Debug header IMPORTANT! • Scan the QR code to view the meaning of each debug code. • Debug codes are only available for ASUS LPC debug card. • Contact your region sales representative for LPC debug header ordering. H310M-IM-A 2-16...

[Page 24](#) +PWR_LED PWR_BTN PIN 1 +HDD_LED RESET H310M-IM-A System panel connector • System power LED (2-pin +PWR_LED) This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

[Page 25](#) This connectors are for serial (COM) port. Connect the serial port cables to these connectors, then install the module to a slot opening at the back of the system chassis. COM2 PIN 1 H310M-IM-A Serial port (COM) connector NOTE: The serial port cables are purchased separately. H310M-IM-A 2-18...

[Page 26](#) PIN 1 PIN 1 HD-audio-compliant Legacy AC'97 pin definition compliant definition H310M-IM-A Front panel audio connector IMPORTANT! • We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

[Page 27](#) RSATA_RXP1 SATA6G_4 SATA6G_3 SATA6G_2 H310M-IM-A SATA 6.0Gb/s connectors LPT connector (26-1 pin LPT) The LPT (Line Printing Terminal) connector supports devices such as a printer. LPT standardizes as IEEE 1284, which is the parallel port interface on IBM PC-compatible computers.

[Page 28: Chapter 3 Bios Setup](#)

Always shut down the system properly from the operating system. IMPORTANT: • Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard. • The default BIOS settings for this motherboard apply to most working conditions and ensures optimal performance.

[Page 29: Bios Menu Screen](#)

Clock (RTC) RAM to clear the BIOS password. See section 2.5 Jumpers for information on how to erase the RTC RAM. • The Administrator or User Password items on top of the screen show the default Not Installed. After you set a password, these items show Installed. H310M-IM-A...

[Page 30](#) Administrator Password If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. To set an administrator password: Select the Administrator Password item and press <Enter>. From the Create New Password box, key in a password, then press <Enter>.

[Page 31: Ai Tweaker Menu](#)

If you assign a value for 2-Core Ratio Limit, do not set the 1-Core Ratio Limit to [Auto]. 3-Core Ratio Limit Enter [Auto] to apply the CPU default Turbo Ratio setting or manually assign a 3-core ratio limit that must be higher than or equal to the 4-core ratio limit. H310M-IM-A...

[Page 32: Dram Odd Ratio Mode](#)

If you assign a value for 3-Core Ratio Limit, do not set the 1-Core Ratio Limit and 2-Core Ratio Limit to [Auto]. 4-Core Ratio Limit Enter [Auto] to apply the CPU default Turbo Ratio setting or manually assign a 4-core ratio limit that must be higher than or equal to the 5-core ratio limit.

[Page 33: Dram Timing Control](#)

DRAM FOUR ACT WIN Time Configuration option: [Auto] DRAM WRITE to READ Delay Configuration option: [Auto] DRAM WRITE to READ Delay L Configuration option: [Auto] DRAM WRITE to READ Delay S Configuration option: [Auto] DRAM CKE Minimum Pulse Width H310M-IM-A...

[Page 34](#) Configuration option: [Auto] DRAM Write Latency Configuration option: [Auto] Skew Control ODT RTT WR (CHA) Configuration options: [Auto] [0 DRAM CLOCK] [80 DRAM CLOCK] [120 DRAM CLOCK] [240 DRAM CLOCK] [255 DRAM CLOCK] ODT RTT PARK (CHA) Configuration options: [Auto] [0 DRAM CLOCK] [34 DRAM CLOCK] [40 DRAM CLOCK] [48 DRAM CLOCK] [60 DRAM CLOCK] [80 DRAM CLOCK] [120 DRAM CLOCK] [240 DRAM CLOCK] ODT RTT NOM (CHA)

[Page 35](#) DRAM RTL (CHB DIMM0 Rank0) Configuration option: [Auto] DRAM RTL (CHB DIMM0 Rank1) Configuration option: [Auto] DRAM RTL (CHB DIMM1 Rank0) Configuration option: [Auto] DRAM RTL (CHB DIMM1 Rank1) Configuration option: [Auto] DRAM IOL (CHA DIMM0 Rank0) Configuration option: [Auto] H310M-IM-A...

[Page 36](#) DRAM IOL (CHA DIMM0 Rank1) Configuration option: [Auto] DRAM IOL (CHA DIMM1 Rank0) Configuration option: [Auto] DRAM IOL (CHA DIMM1 Rank1) Configuration option: [Auto] DRAM IOL (CHB DIMM0 Rank0) Configuration option: [Auto] DRAM IOL (CHB DIMM0 Rank1) Configuration option: [Auto] DRAM IOL (CHB DIMM1 Rank0) Configuration option: [Auto] DRAM IOL (CHB DIMM1 Rank1)

[Page 37](#) Configuration options: [Auto] [Enabled] [Disabled] Turn Around Timing Training Configuration options: [Enabled] [Disabled] Rank Margin Tool Configuration options: [Enabled] [Disabled] Memory Test Configuration options: [Enabled] [Disabled] DIMM SPD Alias Test Configuration options: [Enabled] [Disabled] Receive Enable Centering 1D Configuration options: [Enabled] [Disabled] H310M-IM-A 3-10...

[Page 38](#) Retrain Margin Check Configuration options: [Enabled] [Disabled] Write Drive Strength Up/Dn independently Configuration options: [Enabled] [Disabled] Third Timings tRDRD_sg Configuration option: [Auto] tRDRD_dg Configuration option: [Auto] tRDWR_sg Configuration option: [Auto] tRDWR_dg Configuration option: [Auto] tWRWR_sg Configuration option: [Auto] tWRWR_dg Configuration option: [Auto] tWRRD_sg Configuration option: [Auto] tWRRD_dg...

[Page 39](#) Enable this item to enhance the stability of your system. Disable this item to

enhance the DRAM overclocking capability. Configuration options: [Auto] [Enabled] [Disabled]
Training Profile Configuration options: [Auto] [Standard Profile] [ASUS User Profile] DLLBwEn
Configuration option: [Auto] SPD Write Disable...

[Page 40: Digi+ Vrm](#)

[Standard] The phase control will be based on the CPU command. [Optimized] Set to the ASUS optimized phase tuning profile. [Extreme] Set to the full phase mode. DO NOT remove the thermal module when setting this item to [Extreme]. The thermal conditions should be monitored.

[Page 41: Internal Cpu Power Management](#)

CPU Core/Cache Current Limit Max. This item allows you to configure a higher current limit to prevent a frequency or power throttling when overclocking. Use the <+> and <-> keys to adjust the value. Configuration options: [Auto] [0.00] - [255.50] H310M-IM-A 3-14...

[Page 42: Cpu Graphics Current Limit](#)

3.3.10 CPU Graphics Current Limit Allows you to set a higher current limit to prevent a frequency or power throttling when overclocking. Use the <+> or <-> keys to adjust the value.
3.3.11 Min. CPU Cache Ratio This item allows you to set the minimum possible CPU cache ratio. Use the <+> and <-> keys to adjust the value.

[Page 43: Advanced Menu](#)

This item allows you to select the PCI Express L1 Substates settings. Configuration options: [Disabled] [L1.1] [L1.1 & L1.2] PCI Express Clock Gating [Enabled] This item allows you to enable or disable PCI Express Clock Gating for each port. Configuration options: [Disabled] [Enabled] H310M-IM-A 3-16...

[Page 44: Cpu Configuration](#)

CPU and PCH sides must be enabled for the ASPM to take effect. Configuration options: [Disabled] [L0s] [L1] [L0sL1] PEG-ASPM [Disabled] This item allows you to select the ASPM state for energy-saving conditions, or use the ASUS optimized energy saving profile. Configuration options: [Disabled] [Auto] [ASPM L0s] [ASPM L1] [ASPM L0sL1] 3.4.2 CPU Configuration The items in this menu show CPU-related information the BIOS automatically detects.

[Page 45](#) The following items appear only when you set the CPU C-States to [Enabled].
Enhanced C-states [Enabled] [Enabled] Enables enhanced C1 state. [Disabled] Disables enhanced C1 state. CPU C3 Report [Enabled] Allows you to disable or enable the CPU C3 report to OS. Configuration options: H310M-IM-A 3-18...

[Page 46: System Agent \(Sa\) Configuration](#)

[Enabled] [Disabled] CPU C6 Report [Disabled] Allows you to disable or enable the CPU C6 report to OS. Configuration options: [Enabled] [Disabled] CPU C7 Report [Disabled] Allows you to disable or enable the CPU C7 report to OS. Configuration options: [Disabled] [CPU C7] [CPU C7s] CPU C8 Report [Disabled] Allows you to disable or enable the CPU C8 report to OS.

[Page 47: Pch Configuration](#)

Allows you to select source of system time and alarm functions. Configuration options: [ACPI Time and Alarm Device] [Legacy RTC] 3.4.5 PCH Storage Configuration While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show Empty if no SATA device is installed to the H310M-IM-A 3-20...

[Page 48: Pch-Fw Configuration](#)

corresponding SATA port. SATA Controller(s) [Enabled] Enables or disables onboard the SATA device. Configuration options: [Disabled] [Enabled] The following items appear only when you set SATA Controller(s) to [Enabled]. SATA Mode Selection [AHCI] Determines how SATA controller(s) operate. This PCH SKU does not support RST feature. Configuration options: [AHCI] Aggressive LPM Support [Disabled] This item is designed for LPM (link power management) support with a better...

[Page 49](#) The following item appears only when you set Serial Port to [Enabled]. Change Settings [IO=2F8h; IRQ=3] Allows you to choose the setting for Super IO device. Configuration options: [IO=3F8h; IRQ=4] [IO=2F8h; IRQ=3] [IO=3E8h; IRQ=4] [IO=2E8h; IRQ=3] Parallel Port

Configuration Allows you to set parameters of Parallel Port. H310M-IM-A 3-22...

[Page 50: Apm Configuration](#)

Parallel Port [Enabled] Allows you to enable or disable the parallel port (LPT/LPTE). Configuration options: [Disabled] [Enabled] The following item appears only when you set Serial Port to [Enabled]. Change Settings [Auto] Allows you to choose the setting for Super IO device. Configuration options: [IO=378h;...

[Page 51: Pci Subsystem Settings](#)

Refer to the manual for the location of the USB ports. 3.4.11 Network Stack Configuration Network Stack [Disabled] This item allows user to disable or enable the UEFI network stack. Configuration options: [Disabled] [Enabled] The following two items appear only when you set the previous item to [Enabled]. H310M-IM-A 3-24...

[Page 52: Nvme Configuration](#)

Ipv4 PXE Support [Enabled] This item allows user to disable or enable the Ipv4 PXE Boot support. Configuration options: [Disabled] [Enabled] Ipv6 PXE Support [Enabled] This item allows user to disable or enable the Ipv6 PXE Boot support. Configuration options: [Disabled] [Enabled] 3.4.12 NVMe Configuration This menu displays the NVMe controller and drive information of the connected...

[Page 53](#) Use the <+> and <-> keys to adjust the maximum CPU fan duty cycle. The values range from 20% to 100%. When the CPU temperature reaches the upper limit, the CPU fan will operate at the maximum duty cycle. H310M-IM-A 3-26...

[Page 54](#) CPU Middle Temperature [25] Use the <+> or <-> keys to set the value for CPU Middle Temperature. The range of the values depends on the CPU installed. CPU Fan Middle Duty Cycle(%) [20] Use the <+> or <-> keys to adjust the CPU fan middle duty cycle. When the CPU temperature reaches the middle value, the CPU fan operates at the middle duty cycle.

[Page 55](#) 20% to 100%. When the chassis temperature is under 40°C, the chassis fan will operate at the minimum duty cycle. The following four items appear only when you set Chassis Fan Q-Fan Control to [DC Mode] and Chassis Fan Profile to [Manual]. H310M-IM-A 3-28...

[Page 56: Boot Menu](#)

Chassis Fan Upper Temperature [70] Use the <+> and <-> keys to adjust the upper limit of the chassis temperature. Chassis Fan Max. Duty Cycle(%) [100] Use the <+> and <-> keys to adjust the maximum chassis fan duty cycle. When the chassis temperature reaches the upper limit, the chassis fan will operate at the maximum duty cycle.

[Page 57](#) [Disabled] [Enabled] AMI Native NVMe Driver Support [Enabled] Configuration options: [Disabled] [Enabled] Secure Boot Allows you to configure the Windows Secure Boot settings and manage its keys ® to protect the system from unauthorized access and malwares during POST. H310M-IM-A 3-30...

[Page 58](#) OS Type [Other OS] Allows you to select your installed operating system. [Windows UEFI This item allows you to select your installed operating system. mode] Execute the Microsoft Secure Boot check. Only select ® this option when booting on Windows UEFI mode or other ®...

[Page 59](#) DBX Management The DBX (Revoked Signature database) lists the forbidden images of db items that are no longer trusted and cannot be loaded. Save to File Allows you to load the downloaded dbx to a USB storage device. H310M-IM-A 3-32...

[Page 60: Tool Menu](#)

<Enter> to display the submenu. ASUS EZ Flash 3 Utility This item allows you to run ASUS EZ Flash 3 utility. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter>...

[Page 61: Exit Menu](#)

When you select this option or if you press <Esc>, a confirmation window appears. Select Yes to discard changes and exit. Launch EFI Shell from USB drives This item allows you to attempt

to launch the EFI Shell application (shellx64.efi) from one of the available filesystem devices.
H310M-IM-A 3-34...

[Page 62: Appendix](#)

Appendix Notices FCC Compliance Information Responsible Party: Asus Computer International
Address: 48720 Kato Rd., Fremont, CA 94538, USA Phone / Fax No: (510)739-3777 /
(510)608-4555 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.

[Page 63](#) : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit
accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en
compromettre le fonctionnement. CAN ICES-3(B)/NMB-3(B) VCCI: Japan Compliance Statement
Class B ITE KC: Korea Warning Statement H310M-IM-A...

[Page 64](#) ASUS Recycling/Takeback Services ASUS recycling and takeback programs come
from our commitment to the highest standards for protecting our environment. We believe in
providing solutions for you to be able to responsibly recycle our products, batteries, other
components as well as the packaging materials.

[Page 65](#) доступний на: www.asus.com/support Cijeli tekst EU izjave o sukladnosti dostupan
je na: www.asus.com/support Türkçe AsusTek Computer Inc., bu aygıtın temel gereksinimlerle
ve ilişkili Čeština Společnost ASUSTeK Computer Inc. tímto prohlašuje, že toto Yönergelerin
diğer ilgili koşullarıyla uyumlu olduğunu beyan eder.

[Page 66: Asus Contact Information](#)

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