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You can read the recommendations in the user guide, the technical guide or the installation guide for ASUS H81M-K. You'll find the answers to all your questions on the ASUS H81M-K in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASUS H81M-K
User guide ASUS H81M-K
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H81M-K

ASUS

Motherboard



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Manual abstract:

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This offer is valid to anyone in receipt of this information. ASUSTeK is eager to duly provide complete source code as required under various Free Open Source Software licenses. If however you encounter any problems in obtaining the full corresponding source code we would be much obliged if you give us a notification to the email address gpl@asus.com, stating the product and describing the problem (please DO NOT send large attachments such as source code archives, etc. to this email address).

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iii Safety information Electrical safety •••••To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system. When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device. Before connecting or removing signal cables from the

motherboard, ensure that all power cables are unplugged. Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit. Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company. If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package. Before using the product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately. To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry. Operation safety ••••• Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet. Place the product on a stable surface. If you encounter technical problems with the product, contact a qualified service technician or your retailer. About this guide This user guide contains the information you need when installing and configuring the motherboard. How this guide is organized This guide contains the following parts: • This chapter describes the features of the motherboard and the new technology it supports.

This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided. Chapter 2: BIOS information Chapter 1: Product introduction • iv Where to find more information Refer to the following sources for additional information and for product and software updates. 1. The ASUS website provides updated information on ASUS hardware and software products.

Refer to the ASUS contact information. Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package. Optional documentation ASUS websites 2. Conventions used in this guide To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task. **CAUTION:** Information to prevent damage to the components when trying to complete a task **IMPORTANT:** Instructions that you **MUST** follow to complete a task. **NOTE:** Tips and additional information to help you complete a task. **Typography** Bold text Indicates a menu or an item to select. Used to emphasize a word or a phrase. Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key. <Key1> + <Key2> + <Key3> If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).



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Italics <Key> □ Package contents Motherboard Cables Accessories Application DVD Documentation Check your motherboard package for the following items.

ASUS H81M-K motherboard 2 x Serial ATA 6.0 Gb/s cables 1 x I/O Shield Support DVD User Guide If any of the above items is damaged or missing, contact your retailer. H81M-K specifications summary CPU Supports 22nm CPU LGA1150 socket for Intel® 4th Generation Core™ i7/ i5 / i3, Pentium® and Celeron® Processors Supports Intel® Turbo Boost Technology 2.0* * Intel® Turbo Boost Technology 2.0 support depends on the CPU types. ** Refer to www.asus.com for Intel® CPU support list. Intel® H81 Express Chipset Chipset Memory 2 x DIMMs, max. 16GB DDR3 1600/1333/1066MHz, non-ECC, unbuffered memory modules Dual-channel memory architecture Supports Intel® Extreme Memory Profile (XMP) * Hyper DIMM support is subject to the physical characteristics of individual CPUs.

Please refer to Memory QVL for details. ** Refer to www.asus.com for the latest Memory QVL (Qualified Vendors List). *** Due to Intel® chipset limitations, DDR3 1600MHz and higher memory modules on XMP mode will run at the maximum transfer rate of DDR3 1600MHz.

Graphics Integrated Graphics Processor - Intel® HD Graphics support Multi-VGA output support: DVI-D, RGB port - Supports DVI-D with max. resolution up to 1920 x1200@60Hz - Supports RGB with max. resolution 1920x1200@60Hz - Maximum shared memory of 1024MB 1 x PCI Express x16 slot (at x16 mode, yellow) 2 x PCI Express x1 slots Expansion slots Storage Intel® H81 Express Chipset: * Due to the limitation of the Intel® H81 chipset, Intel® Rapid Start Technology can be configured only from the BIOS Setup program. ** These functions will work depending on the CPU installed. - 2 x Serial ATA 6.0

0 Gb/s connectors (yellow) - 2 x Serial ATA 3.0 Gb/s connectors (dark brown) - Supports Intel® Rapid Start Technology* and Intel® Smart Connect Technology** (continued on the next page) vi H81M-K specifications summary LAN Audio Realtek® RTL8111G Gigabit LAN Controller Realtek® ALC887 8-Channel High Definition Audio CODEC - Supports Jack-Detection and Front Panel Jack-Retasking USB * Use a chassis with HD audio module in the front panel to support an 8-channel audio output Intel® H81 Express Chipset * □ upports ASUS USB 3.0 Boost S - 2 x USB 3.0/2.0 ports at rear panel (blue)* - 6 x USB 2.0/1.1 ports (4 ports at mid-board, 2 ports at the rear panel) ASUS unique features ASUS Exclusive Features: - ASUS EPU - ASUS UEFI BIOS EZ Mode featuring a friendly graphical user interface - ASUS USB 3.0 Boost - ASUS-pin PS2_USBPW1~4) ATX power connectors (24-pin EATXPWR, 4-pin ATX12V) Intel® LGA1150 CPU socket DDR3 DIMM slots CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN) Speaker connector (4-pin SPEAKER) System panel connector (10-1 pin F_PANEL) Intel® H81 Serial ATA 6.0Gb/s connector (7-pin SATA6G_1~2 [yellow]) 1-17 1-19 1-18 1-18 1-16 1-12 1-11 1-15 1-15 1-20 10. USB 2.

0 connectors (10-1 pin USB78, USB56) 12. Clear RTC RAM (3-pin CLRTC) 11. USB device wake-up (3-pin USBPW) Intel® H81 Serial ATA 3.0Gb/s connector (7-pin SATA3G_1~2 [dark brown]) 13. Digital audio connector (4-1 pin SPDIF_OUT) 14. Front panel audio connector (10-1 pin AAFP) 15. Onboard LED (SB_PWR) 1.3 This motherboard comes with a surface mount LGA1150 socket designed for the Intel® 4th generation Core™ i7 / Core™ i5 / Core™ i3, Pentium® and Celeron® processors. Central Processing Unit (CPU) H81M-K H81M-K CPU socket LGA1150 Unplug all power cables before installing the CPU. • 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. ASUS will shoulder the cost of repair only if the damage is shipment/ transit-related. Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1150 socket. The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

• • 1-4 Chapter 1: Product introduction 1.3.1 Installing the CPU 1 A B 2 3 4 A C 5 B ASUS H81M-K 1-5 1.3.2 CPU heatsink and fan assembly installation 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 1 B A B 2 A 3 4 1-6 Chapter 1: Product introduction To uninstall the CPU heatsink and fan assembly 1 2 B A B A 1.4 1.4.1 System memory Overview This motherboard comes with two Double Data Rate 3 (DDR3) Dual Inline Memory Module (DIMM) sockets. A DDR3 module is notched differently from a DDR or DDR2 module. DO NOT install a DDR or DDR2 memory module to the DDR3 slot. According to Intel® CPU spec, DIMM voltage below 1.65V is recommended to protect the CPU. DIMM_A1 DIMM_B1 Channel H81M-K Channel A Sockets Channel B DIMM_A1 DIMM_B1 H81M-K 240-pin DDR3 DIMM sockets 1.4.

2 Memory configurations You may install 1GB, 2GB, 4GB, and 8GB unbuffered non-ECC DDR3 DIMMs into the DIMM sockets. ASUS H81M-K 1-7 •••• You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation. Due to Intel® chipset limitations, DDR3 1600MHz and higher memory modules on XMP mode will run at the maximum transfer rate of DDR3 1600MHz. Always install DIMMs with the same CAS latency. For optimal compatibility, we recommend that you install memory modules of the same version or date code (D/C) from the same vendor. Check with the retailer to get the correct memory modules. Due to the memory address limitation on 32-bit Windows® OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following: - □ Install a 64-bit Windows® OS if you want to install 4GB or more on the motherboard. - Use a maximum of 3GB system memory if you are using a 32-bit Windows® OS. • • This motherboard does not support DIMMs made up of 512 megabits (Mb) chips or less. Memory modules with memory frequency higher than 2133 MHz and its corresponding timing or the loaded X.M.P. Profile is not the JEDEC memory standard. The stability and compatibility of these memory modules depend on the CPU's capabilities and other installed devices. The maximum 16GB memory capacity can be supported with 8GB or above DIMMs. ASUS will update the memory QVL once the DIMMs are available in the market.



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The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module.

Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value. For system stability, use a more efficient memory cooling system to support a full memory load (2 DIMMs) or overclocking condition. Refer to www.asus.com for the latest Memory QVL (Qualified Vendors List) • • • 1.4.3 Installing a DIMM Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components. 1. 2.

Press the retaining clips outward to unlock a DIMM socket. Align a DIMM on the socket such that the notch on the DIMM matches the DIMM slot key on the socket. 1-8 Chapter 1: Product introduction DIMM notch 2 1 1 Unlocked retaining clip DIMM slot key A DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket in the wrong direction to avoid damaging the DIMM. 3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated. 3 Locked Retaining Clip 1.4.4 1. Removing a DIMM To remove a DIMM: Simultaneously press the retaining clips outward to unlock the DIMM.

Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force. 2 1 2. Remove the DIMM from the socket. 1 DIMM notch 1.

5 In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support. Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components. Expansion slots ASUS H81M-K 1-9 1.

5.1 1. 2. 3. 4. 5. 6. Installing an expansion card To install an expansion card: Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card. Remove the system unit cover (if your motherboard is already installed in a chassis). Remove the bracket opposite the slot that you intend to use.

Keep the screw for later use. Align the card connector with the slot and press firmly until the card is completely seated on the slot. Secure the card to the chassis with the screw you removed earlier. Replace the system cover. 1.5.2 1. Configuring an expansion card After installing the expansion card, configure it by adjusting the software settings. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.

Assign an IRQ to the card. Install the software drivers for the expansion card. When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable. 2.

3. 1.5.3 1.5.

4 PCI Express x1 slots PCI Express x16 slot This motherboard supports two PCI Express x1 network cards, SCSI cards, and other cards that comply with the PCI Express specifications. This motherboard supports one PCI Express x16 graphics card that complies with the PCI Express specifications. IRQ assignments for this motherboard LAN A shared shared B shared shared C D shared E shared F shared G shared H shared - PCIE x16 PCIE x1_1 PCIE x1_2 HD Audio Intel PCH SATA Controller USB2.0_1 USB2.0_2 USB3.0 1-10 Chapter 1: Product introduction 1.6 1. This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

Clear RTC RAM (3-pin CLRRTC) Jumpers CLRRTC H81M-K 1 2 2 3 Normal (Default) Clear RTC H81M-K Clear RTC RAM To erase the RTC RAM: 1. 2. 3. 4. Turn OFF the computer and unplug the power cord. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5-10 seconds, then move the cap back to pins 1-2. Plug the power cord and turn ON the computer. Hold down the key during the boot process and enter BIOS setup to reenter data. Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position.

Removing the cap will cause system boot failure! • If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery. You do not need to clear the RTC when the system hangs due to overclocking.

@@@ This port is for a PS/2 mouse. LAN (RJ-45) port.

@@ Refer to the table below for the LAN port LED indications. @@ This port connects the tape, CD, DVD player, or other audio sources. Line Out port (lime). This port connects a headphone or a speaker. @@ Microphone port (pink).

@@@ USB 3.0 ports 1 and 2. @@@@ USB 3.0 devices can only be used for data storage. @@@@ DVI-D port. This port is for any DVI-D compatible device. @@@@ Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector. CPU_FAN CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN) CHA_FAN H81M-K CPU fan connector Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors! The CPU_FAN connector supports a CPU fan of maximum 1A (12 W) fan power.

Only the 4-pin CPU fan support the ASUS Fan Xpert feature. 4. These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specifications and supports up to 480Mbps connection speed. USB+5V USB_P5USB_P5+ GND NC USB 2.0 connectors (10-1 pin USB78, USB56) USB56 USB+5V USB_P6USB_P6+ GND USB+5V USB_P8USB_P8+ GND USB+5V USB_P7USB_P7+ GND NC H81M-K USB78 PIN 1 H81M-K USB2.0 connectors Never connect a 1394 cable to the USB connectors.

Doing so will damage the motherboard! The USB 2.0 module is purchased separately. VCC CHA FAN IN CHA FAN PWR GND PIN 1 H81M-K CPU FAN PWM CPU FAN IN CPU FAN PWR GND 1-16 Chapter 1: Product introduction 5. These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation.

Find the proper orientation and push down firmly until the connectors completely fit. ATX12V +12V DC +12V DC ATX power connectors (24-pin EATXPWR, 4-pin ATX12V) EATXPWR +3 Volts +12 Volts +12 Volts +5V Standby Power OK GND +5 Volts GND +5 Volts GND +3 Volts +3 Volts PIN 1 PIN 1 H81M-K GND +5 Volts +5 Volts +5 Volts -5 Volts GND GND GND PSON# GND -12 Volts +3 Volts H81M-K ATX power connectors • We recommend that you use an ATX 12V Specification 2.



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0-compliant power supply unit (PSU) with a minimum of 300W power rating. This PSU type has 24-pin and 4-pin power plugs. DO NOT forget to connect the 4-pin ATX +12V power plug.

Otherwise, the system will not boot up. We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices or when you intend to install additional devices. The system may become unstable or may not boot up if the power is inadequate. If you are uncertain about the minimum power supply requirement for your system, refer to the Recommended Power Supply Wattage Calculator at <http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us> for details. •••6. The 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

Speaker connector (4-pin SPEAKER) H81M-K PIN 1 H81M-K Speaker Out Connector ASUS H81M-K +5V GND GND Speaker Out GND GND SPEAKER 1-17 7. These connectors connect to Serial ATA 3.0 Gb/s hard disk drives via Serial ATA 3.0 Gb/s signal cables. Intel® H81 Serial ATA 3.0 Gb/s connectors (7-pin SATA3G_1~2 [dark brown]) SATA3G_1 GND RSATA_RXP1 RSATA_RXN1 GND RSATA_TXN1 RSATA_TXP1 GND H81M-K SATA3G_2 GND RSATA_RXP2 RSATA_RXN2 GND RSATA_TXN2 RSATA_TXP2 GND H81M-K SATA 3.0Gb/s connectors When using hot-plug and NCQ, set the SATA Mode Selection item in the BIOS to [AHCI]. 8. These connectors connect to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables. Intel® H81 Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1~2 [yellow]) SATA6G_1 GND RSATA_RXP1 RSATA_RXN1 GND RSATA_TXN1 RSATA_TXP1 GND H81M-K SATA6G_2 GND RSATA_RXP2 RSATA_RXN2 GND RSATA_TXN2 RSATA_TXP2 GND H81M-K SATA 6.0Gb/s connectors When using hot-plug and NCQ, set the SATA Mode Selection item in the BIOS to [AHCI]. 1-18 Chapter 1: Product introduction 9.

This connector supports several chassis-mounted functions. F_PANEL +PWR_LED PWR_BTN System panel connector (10-1 pin F_PANEL) PIN 1 H81M-K +HDD_LED H81M-K System panel connector ••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. This 2-pin connector is for the HDD Activity LED.

Connect the HDD Activity LED cable to this connector. The HDD LED lights up or flashes when data is read from or written to the HDD. This connector is for the system power button. Reset button (2-pin RESET) ATX power button/soft-off button (2-pin PWR_BTN) Hard disk drive activity LED (2-pin HDD_LED) System power LED (2-pin PWR_LED) ••This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

ASUS H81M-K HDD_LED+ HDD_LEDGround HWRST# (NC) RESET PWR_LED+ PWR_LED PWR GND 1-19 1.8 1. The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED. Standby Power LED Onboard LEDs H81M-K SB_PWR H81M-K Onboard LED 1-20 Chapter 1: Product introduction 1.

9 1.9.1 Software support Installing an operating system This motherboard supports Windows® 7 (32bit/64bit) and Windows® 8 (32bit/64bit) Operating Systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware. Motherboard settings and hardware options vary. Refer to your OS documentation for detailed information. 1.9.2 Support DVD information The Support DVD that comes with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features. The contents of the Support DVD are subject to change at any time without notice.

Visit the ASUS website at www.asus.com for updates. To run the Support DVD Place the Support DVD into the optical drive. If Autorun is enabled in your computer, the DVD automatically displays the Specials screen which lists the unique features of your ASUS motherboard. Click Drivers, Utilities, AHCI Driver, Manual, Contact and Specials tabs to display their respective menus. The following screen is for reference only. Click an icon to display Support DVD/motherboard information Click to display more items Click an item to install If Autorun is NOT enabled in your computer, browse the contents of the Support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.

EXE to run the DVD. ASUS H81M-K 1-21 1-22 Chapter 1: Product introduction BIOS information 2.1 Managing and updating your BIOS 2 Save a copy of the original motherboard BIOS file to a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility. 2.1.1 EZ Update EZ Update is a utility that allows you to automatically update your motherboard's softwares, drivers and the BIOS version easily. With this utility, you can also manually update the saved BIOS and select a boot logo when the system goes into POST. To launch EZ Update, click EZ Update on the AI Suite 3 main menu bar. Click to automatically update your motherboard's driver, software and firmware Click to find and select the BIOS from file Click to select a boot logo Click to update the BIOS EZ Update requires an Internet connection either through a network or an ISP (Internet Service Provider).

ASUS H81M-K 2-1 2.1.2 ASUS EZ Flash 2 The ASUS EZ Flash 2 feature allows you to update the BIOS without using an OS-based utility. Before you start using this utility, download the latest BIOS file from the ASUS website at www.asus.com. To update the BIOS using EZ Flash 2: 1. 2. 3. 4.

5. 6. Insert the USB flash disk that contains the latest BIOS file to the USB port. Enter the Advanced Mode of the BIOS setup program. Go to the Tool menu to select ASUS EZ Flash 2 Utility and press <Enter> to enable it.

Press <Tab> to switch to the Drive field. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.

Press <Tab> to switch to the Folder Info field. Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

••• This function supports USB flash disks formatted using FAT32/16 on a single partition only. Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. . DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure! 2-2 Chapter 2: Getting started 2.1.3 ASUS CrashFree BIOS 3 utility The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process.



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You can restore a corrupted BIOS file using the motherboard support DVD or a USB flash drive that contains the updated BIOS file. ••Before using this utility, rename the BIOS file in the removable device to H81MK.CAP.

The BIOS file in the support DVD may not be the latest version. Download the latest BIOS file from the ASUS website at www.asus.com. Recovering the BIOS To recover the BIOS: 1. 2. 3. 4. Turn on the system. Insert the support DVD to the optical drive or the USB flash drive that contains the BIOS file to the USB port.

The utility automatically checks the devices for the BIOS file. When found, the utility reads the BIOS file and enters ASUS EZ Flash 2 utility automatically. The system requires you to enter BIOS Setup to recover BIOS setting. To ensure system compatibility and stability, we recommend that you press <F5> to load default BIOS values. DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure! 2.

1.4 ASUS BIOS Updater The ASUS BIOS Updater allows you to update BIOS in DOS environment. This utility also allows you to copy the current BIOS file that you can use as a backup when the BIOS fails or gets corrupted during the updating process. The succeeding utility screens are for reference only. The actual utility screen displays may not be same as shown.

Before updating BIOS 1. 2. Prepare the motherboard support DVD and a USB flash drive in FAT32/16 format and single partition. Download the latest BIOS file and BIOS Updater from the ASUS website at <http://support.asus.com> and save them on the USB flash drive. NTFS is not supported under DOS environment. Do not save the BIOS file and BIOS Updater to a hard disk drive or USB flash drive in NTFS format. 3. Turn off the computer and disconnect all SATA hard disk drives (optional).

ASUS H81M-K 2-3 Booting the system in DOS environment 1. 2. Insert the USB flash drive with the latest BIOS file and BIOS Updater to the USB port. Boot your computer. When the ASUS Logo appears, press <F8> to show the BIOS Boot Device Select Menu. Insert the support DVD into the optical drive and select the optical drive as the boot device. 3. 4. Select the FreeDOS command prompt item by pressing the item number. At the FreeDOS prompt, type d: and press <Enter> to switch the disk from Drive C (optical drive) to Drive D (USB flash drive).

Updating the BIOS file 1. To update the BIOS file using BIOS Updater: At the FreeDOS prompt, type bupdater /pc /g and press <Enter>. 2. The BIOS Updater screen appears as below. ASUSTek BIOS Updater for DOS V1.

30 BOARD: H81M-K VER: 0209 DATE: 06/03/2013 H81MK.CAP 4194304 2013-06-07 17:30:48 2-4 Chapter 2: Getting started 3. Press <Tab> to switch between screen fields and use the <Up/Down/Home/End> keys to select the BIOS file and press <Enter>. BIOS Updater checks the selected BIOS file and prompts you to confirm BIOS update. 4.

Select Yes and press <Enter>. When BIOS update is done, press <ESC> to exit BIOS Updater. Restart your computer. DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure! ••For BIOS Updater version 1.30 or later, the utility automatically exits to the DOS prompt after updating BIOS. Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. Refer to section 2.9 Exit menu for details. Ensure to connect all SATA hard disk drives after updating the BIOS file if you have disconnected them.

•2.2 Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program. BIOS setup program Entering BIOS Setup at startup To enter BIOS Setup at startup: •Press <Delete> during the Power-On Self Test (POST). If you do not press <Delete>, POST continues with its routines. Entering BIOS Setup after POST To enter BIOS Setup after POST: •••Press <Ctrl>+<Alt>+ simultaneously. Press the reset button on the system chassis. Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options. ASUS H81M-K 2-5 Using the power button, reset button, or the <Ctrl>+<Alt>+ keys to force reset from a running operating system can cause damage to your data or system.

We recommend to always shut down the system properly from the operating system. ••••The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen. Visit the ASUS website at www.asus.com to download the latest BIOS file for this motherboard.

Ensure that a USB mouse is connected to your motherboard if you want to use the mouse to control the BIOS setup program. If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. See section 2.9 Exit Menu for details.

If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section 1.6 Jumpers for information on how to erase the RTC RAM. •BIOS menu screen The BIOS setup program can be used under two modes: EZ Mode and Advanced Mode. You can change modes from the Exit menu or from the Exit/Advanced Mode button in the EZ Mode/Advanced Mode screen. EZ Mode By default, the EZ Mode screen appears when you enter the BIOS setup program. The EZ Mode provides you an overview of the basic system information, and allows you to select the display language, system performance mode and boot device priority. To access the Advanced Mode, click Exit/Advanced Mode, then select Advanced Mode. The default screen for entering the BIOS setup program can be changed. Refer to the Setup Mode item in section 2.

7 Boot menu for details. 2-6 Chapter 2: Getting started Selects the display language of the BIOS setup program Displays the CPU/motherboard temperature, CPU/5V/3.3V/12V voltage output, CPU/chassis fan speed Exits the BIOS setup program without saving the changes, saves the changes and resets the system, or enters the Advanced Mode Power Saving mode Selects the Normal mode Advanced mode functions Displays the Advanced mode menus Selects the boot device priority ASUS Optimal mode Loads optimized default Displays the system properties of the selected mode on the right hand side Selects the boot device priority ••The boot device options vary depending on the devices you installed to the system. The Boot Menu(F8) button is available only when the boot device is installed to the system. ASUS H81M-K 2-7 Advanced Mode The Advanced Mode provides advanced options for experienced end-users to configure the BIOS settings.



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The figure below shows an example of the Advanced Mode. Refer to the following sections for the detailed configurations. To access the EZ Mode, click Exit, then select ASUS EZ Mode. Back button Menu items Menu bar General help Submenu item Pop-up window Menu bar Configuration Scroll bar fields Navigation keys Last modified settings Quick note The menu bar on top of the screen has the following main items: My Favorites For saving the frequently-used system settings and configuration Main For changing the basic system configuration Ai Tweaker Advanced Monitor Boot Tool Exit For changing the overclocking settings For changing the advanced system settings For displaying the system temperature, power status, and changing the fan settings For changing the system boot configuration For configuring options for special functions For selecting the exit options and loading default settings 2-8 Chapter 2: Getting started 2.3 The Main menu screen appears when you enter the Advanced Mode of the BIOS Setup program.

The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings. Main menu • If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section 1.6 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. • 2.4 The Ai Tweaker menu items allow you to configure overclocking-related items. Be cautious when changing the settings of the Ai Tweaker menu items. Incorrect field values can cause the system to malfunction.

Ai Tweaker menu The configuration options for this section vary depending on the CPU and DIMM model you installed on the motherboard. ASUS H81M-K 2-9 Scroll down to display the following items: 2-10 Chapter 2: Getting started Scroll down to display the following items: 2.5 The Advanced menu items allow you to change the settings for the CPU and other system devices. Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction. Advanced menu ASUS H81M-K 2-11 2.6 The Monitor menu displays the system temperature/power status, and allows you to change the fan settings. Monitor menu Scroll down to display the following items: 2-12 Chapter 2: Getting started 2.7 The Boot menu items allow you to change the system boot options. Boot menu Scroll down to display the following items: ASUS H81M-K 2-13 2.

8 The Tools menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu. Tools menu 2.9 The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items. You can access the EZ Mode from the Exit menu. Exit menu 2-14 Chapter 2: Getting started Appendices Notices Federal Communications Commission Statement This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: • • This device may not cause harmful interference. This device must accept any interference received including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

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A-2 Appendices ASUS contact information ASUSTeK COMPUTER INC. Address Telephone Fax E-mail Web site 15 Li-Te Road, Peitou, Taipei, Taiwan 11259 +886-2-2894-3447 +886-2-2890-7798 info@asus.

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ASUS COMPUTER GmbH (Germany and Austria) Technical Support Telephone Support Fax Online support * EUR 0.14/minute from a German fixed
landline; EUR 0.42/minute from a mobile phone.

Manufacturer: Address: Authorized representative in Europe: Address: ASUSTeK Computer Inc. 4F, No. 150, LI-TE RD., PEITOU, TAIPEI 112, TAIWAN
R.O.C. ASUS Computer GmbH HARKORT STR. 21-23, 40880 RATINGEN, GERMANY ASUS H81M-K A-3 A-4 DECLARATION OF CONFORMITY We, the
undersigned, Manufacturer: ASUSTeK COMPUTER INC. 4F, No. 150, LI-TE Rd.
, PEITOU, TAIPEI 112, TAIWAN TAIWAN ASUS COMPUTER GmbH HARKORT STR. 21-23, 40880 RATINGEN GERMANY Address, City: Country:
Authorized representative in Europe: Address, City: Country: EC Declaration of Conformity Per FCC Part 2 Section 2. 1077(a) Responsible Party Name:
Product name : Model name : conform with the essential requirements of the following directives: 2004/108/EC-EMC Directive EN 55022:2010+AC:2011
EN 61000-3-2:2006+A2:2009 EN 55013:2001+A1:2003+A2:2006 EN 55024:2010 EN 61000-3-3:2008 EN 55020:2007+A11:2011 Asus Computer
International Motherboard H81M-K declare the following apparatus: Address: 800 Corporate Way, Fremont, CA 94539. Phone/Fax No: 1999/5/EC-R &TTE
Directive (510)739-3777/(510)608-4555 hereby declares that the product Product Name : Motherboard Model Number : H81M-K Conforms to the following
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1(2006-10) EN 300 440-1 V1.6.1(2010-08) EN 300 440-2 V1.4.1(2010-08) EN 301 511 V9.
0.2(2003-03) EN 301 908-1 V5.2.1(2011-05) EN 301 908-2 V5.2.1(2011-07) EN 301 893 V1.6.1(2011-11) EN 302 544-2 V1.1.1(2009-01) EN 302 623 V1.
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1(2010-09) EN 302 326-2 V1.2.2(2007-06) EN 302 326-3 V1.3.1(2007-09) EN 301 357-2 V1.
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