You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK M3N78D. You'll find the answers to all your questions on the ASROCK M3N78D in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASROCK M3N78D
User guide ASROCK M3N78D
Operating instructions ASROCK M3N78D
Instructions for use ASROCK M3N78D
Instruction manual ASROCK M3N78D

ASRock

M3N78D

User Manual

Version 1.0
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Manual abstract:

In no event shall ASRock, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if ASRock has been advised of the possibility of such damages arising from any defect or error in the manual or product. 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 2 Contents 1 . Introduction ....

4

1. Introduction

Thank you for purchasing ASRock M3N78D motherboard, a reliable motherboard 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 1

and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD. Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website http://www.asrock. com If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp 1.

1 ackage P ack age Contents ASRock M3N78D Motherboard (ATX Form Factor: 12.0-in x 7.5-in, 30.5 cm x 19.1 cm) ASRock M3N78D Quick Installation Guide ASRock M3N78D Support CD Two Serial ATA (SATA) Data Cables (Optional) One I/O Panel Shield 5 1.

2 Specifications - ATX Form Factor: 12.0-in x 7.5-in, 30.5 cm x 19.1 cm - Solid Capacitor for CPU power - Support for Socket AM3 processors: AMD PhenomTM II X4 / X3 / X2 (except 920 / 940) / Athlon II X4 / X3 / X2 / Sempron processors - Supports CPU up to 140W - AMD LIVE!TM Ready - Supports AMD's Cool 'n' QuietTM Technology - FSB 2600 MHz (5.2 GT/s) - Supports Untied Overclocking Technology (see CAUTION 1) - Supports Hyper-Transport 3.0 (HT 3.0) Technology - NVIDIA® nForce 720D - Dual Channel DDR3 Memory Technology (see CAUTION 2) - 4 x DDR3 DIMM slots - Support DDR3 1800(OC)/1600(OC)/1333/1066/800 non-ECC, un-buffered memory (see CAUTION 3) - Max. capacity of system memory: 16GB (see CAUTION 4) - 1 x PCI Express 2.0 x16 slot (blue @ x16 mode) - 3 x PCI Express x1 slots - 3 x PCI slots - 7.

1 CH HD Audio (VIA® VT1718S Audio Codec) - Gigabit LAN 10/100/1000 Mb/s - Giga PHY Realtek RTL8211CL - Supports Wake-On-LAN I/O Panel - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port - 1 x Coaxial SPDIF Out Port - 1 x Optical SPDIF Out Port - 4 x Ready-to-Use USB 2.0 Ports - 2 x Powered eSATAII/USB Connectors - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) - HD Audio Jack: Side Speaker/Rear Speaker/Central/Bass/ Line in/Front Speaker/Microphone (see CAUTION 5) - 4 x SATAII 3.0Gb/s connectors, support RAID (RAID 0, RAID 1, RAID 0+1, RAID 5 and JBOD), NCQ, AHCI and "Hot Plug" functions (see CAUTION 6) - 1 x ATA133 IDE connector (supports 2 x IDE devices) - 1 x Floppy connector Platform CPU Chipset Memory Expansion Slot Audio LAN Rear Panel I/O Connector 6 BIOS Feature Support CD Unique Feature Hardware Monitor OS Certifications - 1 x COM port header - 1 x HDMI_SPDIF header - 1 x Chassis Intrusion header - 1 x Power LED header - CPU/Chassis/Power FAN connector - 24 pin ATX power connector - 8 pin 12V power connector - CD in header - Front panel audio connector - 3 x USB 2.0 headers (support 6 USB 2.0 ports) (see CAUTION 7) - 8Mb AMI BIOS - AMI Legal BIOS - Supports "Plug and Play" - ACPI 1.1 Compliance Wake Up Events - Supports jumperfree - SMBIOS 2.3.1 Support - VCCM, NB Voltage Multi-adjustment - Supports NVIDIA® NVCC (NVIDIA® Clock Calibration) - Drivers, Utilities, AntiVirus Software (Trial Version), ASRock Software Suite (CyberLink DVD Suite and Creative Sound Blaster X-Fi MB) (OEM and Trial Version) - ASRock OC Tuner (see CAUTION 8) - Intelligent Energy Saver (see CAUTION 9) - Instant Boot - ASRock Instant Flash (see CAUTION 10) - ASRock OC DNA (see CAUTION 11) - Hybrid Booster: - CPU Frequency Stepless Control (see CAUTION 12) - ASRock U-COP (see CAUTION 13) - Boot Failure Guard (B.

F.G.

) - CPU Temperature Sensing - Chassis Temperature Sensing - CPU/Chassis/Power Fan Tachometer - CPU Quiet Fan - CASE OPEN detection - Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore - Microsoft® Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit / XP / XP Media Center / XP 64-bit compliant - FCC, CE, WHQL - EuP Ready (EuP ready power supply is required) (see CAUTION 14) 7 * For detailed product information, please visit our website: http://www.asrock.com WARNING Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using the thirdparty overclocking tools. Overclocking may affect your system 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. CAUTION! 1. 2. This motherboard supports Untied Overclocking Technology.

Please read "Untied Overclocking Technology" on page 33 for details. This motherboard supports Dual Channel Memory Technology. Before you implement Dual Channel Memory Technology, make sure to read the installation guide of memory modules on page 15 for proper installation. Whether 1800 / 1600MHz memory speed is supported depends on the AM3 CPU you adopt. If you want to adopt DDR3 1600 memory module on this motherboard, pleaseleted system. According to EuP, the total AC power of the completed system shall be under 1.00W in off mode condition. To meet EuP standard, an EuP ready motherboard and an EuP ready power supply are required. According to Intel's suggestion, the EuP ready power supply must meet the standard of 5v standby power efficiency is higher than 50% under 100 mA current consumption. For EuP ready power supply selection, we recommend you checking with the power supply manufacturer for more details.

9 1.3 Motherboard Layout 1 2 3 4 19.1cm (7.5-in) PS2 Keyboard Coaxial SPDIF 5 6 AM3 140W CPU FSB2.6GHz PS2_USB_PW1 ATX12V1 ATXPWR1 PS2 Mouse eSATAII5/USB2 1 7 DDR3_B1 (64 bit, 240-pin module) DDR3_A1 (64 bit, 240-pin module) USB 2.0 T: USB4 B: USB5 USB 2.0 T: USB0 B: USB1 Top: RJ-45 DDR3_A2 (64 bit, 240-pin module) DDR3_B2 (64 bit, 240-pin module) FSB800 Dual Channel FSB800 HT3.0 Phenom II DDR3 1800 35 Bottom: MIC IN Top: LINE IN Center: FRONT 34 LAN PHY CHA_FAN1 CPU_FAN1 PCIE1 M3N78D PCIE2 30.5cm (12.0-in) Optical SPDIF SOCKET AM3 eSATAII6/USB3 Bottom: CTR BASS IDE1 Top: SIDE SPK Center: REAR SPK 8 33 32 31 30 29 Super I/O PCI Express 2.

0 PCIE3 CMOS BATTERY 9 PCIE4 8Mb BIOS 1 CLRCMOS1 28 27 26 AUDIO CODEC CI1 1 PCI1 NVIDIA nForce 720D Chipset RoHS CD1 PCI2 USB6_7 SATAII_4 (PORT 3) 25 1 10 SATAII_3 (PORT 2) SATAII_2 (PORT 1) 11 12 13 24 HD_AUDIO1 1 PCI3 HDMI_SPDIF1 SPEAKER1 1 PLED1 FLOPPY1 COM1 1 1 PLED PWRBTN PWR_FAN1 USB8_9 USB10_11 1 1 HDLED RESET PANEL 1 1 1 SATAII_1 (PORT 0) 23 22 21 20 19 18 17 16 15 14 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 PS2_USB_PW1 Jumper ATX 12V Power Connector (ATX12V1) CPU Heatsink Retention Module AM3 CPU Socket 2 x 240-pin DDR3 DIMM Slots (Dual Channel A: DDR3_A1, DDR3_B1; Blue) 2 x 240-pin DDR3 DIMM Slots (Dual Channel B: DDR3_A2, DDR3_B2; White) ATX Power Connector (ATXPWR1) Primary IDE Connector (IDE1, Blue) NVIDIA nForce 720D Chipset SATAII Connector (SATAII_4 (PORT 3), Red) SATAII Connector (SATAII_3 (PORT 2), Red) SATAII Connector (SATAII_2 (PORT 1), Red) SATAII Connector (SATAII_1 (PORT 0), Red) USB 2.0 Header (USB6_7, Blue) USB 2.0 Header (USB10_11, Blue) USB 2.0 Header (USB8_9, Blue) Chassis Speaker Header (SPEAKER 1, Purple) Power Fan Connector (PWR_FAN1) 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 System Panel Header (PANEL1, Orange) Power LED Header (PLED1) Serial Port Connector (COM1) Floppy Connector (FLOPPY1) Front Panel Audio Header (HD_AUDIO1, Lime) HDMI_SPDIF Header (HDMI_SPDIF1, Yellow) PCI Slots (PCI1- 3) Internal Audio Connector: CD1 (Black) Chassis Intrusion Header (CI1) SPI BIOS Chip PCI Express x1 Slot (PCIE4, White) Clear CMOS Jumper (CLRCMOS1) PCI Express x1 Slot (PCIE3, White) PCI Express x16 Slot (PCIE2, Blue) PCI Express x1 Slot (PCIE1, White) Chassis Fan Connector (CHA_FAN1) CPU Fan Connector (CPU_FAN1) 10 1.4 I/O Panel 1 2 3 4 5 6 7 8 14 13 12 11 10 9 1 *2 3 4 5 6 ** 7 PS/2 Mouse Port (Green) LAN RJ-45 Port (LAN1) Side Speaker (Gray) Rear Speaker (Black) Central / Bass (Orange) Line In (Light Blue) Front Speaker (Lime) 8 9 *** 10 11 12 13 14 Microphone (Pink) USB 2.

0 Ports (USB01) Powered eSATAII/USB Connector USB 2.0 Ports (USB45) Optical SPDIF Out Port Coaxial SPDIF Out Port PS/2 Keyboard Port (Purple) * There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications. LAN Port LED Indications Activity/Link LED Status Description Status SPEED LED Description ACT/LINK SPEED LED LED Off No Activity Blinking Data Activity Off Orange Green 10Mbps connection 100Mbps connection 1Gbps connection LAN Port ** If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.

TABLE for Audio Output Connection Audio Output Channels Front Speaker Rear Speaker (No. 7) (No. 4) 2 4 6 8 V V V V -V V V Central / Bass (No. 5) --V V Side Speaker (No. 3) ---V 11 To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find "VIA HD Audio Deck" tool on your system. Please follow below instructions according to the OS you install. For Windows® XP / XP 64-bit OS: Please click "VIA HD Audio Deck" icon. Click "Jack" and then click "Configuration". In "Configuration" screen, please check the item "Independent Headphone".

For Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit OS: Please click "VIA HD Audio Deck" icon. Click "Advanced Options" on the right side on the bottom. In "Advanced Options" screen, please check the item "Independent Headphone". *** Due to chipset limitation, the powered eSATAII function can work in RAID / AHCI mode only. If you want to install Windows® XP / XP 64-bit in RAID / AHCI mode, please make a SATA driver diskette first. You may refer to our user manual in the support CD or the quick installation guide for the detail steps of making a SATA driver diskette. If you want to install Windows® 7 / 7 64-bit / VistaTM 64-bit / VistaTM in RAID / AHCI mode, please install the OS directly, and you can enjoy the benefit of powered eSATAII function. 12 2. Installation This is an ATX form factor (12.

0-in x 7.

5-in, 30.5 cm x 19.1 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Pre-installation Precautions Take note of the following precautions before you install motherboard components or change any motherboard settings. Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components. 1. 2. 3.

4. 5. Unplug the power cord from the wall socket before touching any component. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components. Hold components by the edges and do not touch the ICs. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard. 13 2.1 Step 1.

Step 2. Step 3. CPU Installation Unlock the socket by lifting the lever up to a 90 angle. Position the CPU directly above the socket such that the CPU corner with the golden triangle matches the socket corner with a small triangle. Carefully insert the CPU into the socket until it fits in place. The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins. o Step 4. When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

Lever 90° Up CPU Golden Triangle Socker Corner Small Triangle STEP 1: Lift Up The Socket Lever STEP 2 / STEP 3: Match The CPU Golden Triangle To The Socket Corner Small Triangle STEP 4: Push Down And Lock The Socket Lever 2.2 Installation of CPU Fan and Heatsink After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU FAN connector (CPU_FAN1, see Page 10, No.

35). For proper installation, please kindly refer to the instruction manuals of the CPU fan and the heatsink. 14 2.3 Installation of Memory Modules (DIMM) This motherboard provides four 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install identical (the same brand, speed, size and chiptype) DDR3 DIMM pair in the slots of the same color.

In other words, you have to install identical DDR3 DIMM pair in Dual Channel A (DDR3_A1 and DDR3_B1; Blue slots; see p.10 No.5) or identical DDR3 DIMM pair in Dual Channel B (DDR3_A2 and DDR3_B2; White slots; see p.10 No.6), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDR3 DIMMs for dual channel configuration, and please install identical DDR3 DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below. Dual Channel Memory Configurations DDR3_A1 (Blue Slot) Populated Populated DDR3_B1 (Blue Slot) Populated Populated DDR3_A2 DDR3_B2 (White Slot) (White Slot) Populated Populated Populated Populated (1) (2) (3)* * For the configuration (3), please install identical DDR3 DIMMs in all four slots. 1. If you want to install two memory modules, for optimal compatibility and reliability, it is recommended to install them in the slots of the same color.

In other words, install them either in the set of blue slots (DDR3_A1 and DDR3_B1), or in the set of white slots (DDR3_A2 and DDR3_B2). 2. If only one memory module or three memory modules are installed in the DDR3 DIMM slots on this motherboard, it is unable to activate the Dual Channel Memory Technology. If a pair of memory modules is NOT installed in the same Dual Channel, for example, installing a pair of memory modules in DDR3_A1 and DDR3_A2, it is unable to activate the Dual Channel 3. 4. Memory Technology . It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged. 15 Installing a DIMM Please make sure to disconnect power supply before adding or removing DIMMs or the system components. Step 1. Step 2.

Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot. notch break notch break The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. Step 3.

Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated. 16 2.4 Expansion Slots (PCI and PCI Express Slots) There are 3 PCI slots and 4 PCI Express slots on this motherboard. PCI slots: PCI slots are used to install expansion cards that have the 32-bit PCI interface. PCIE slots: PCIE1 / PCIE3 / PCIE4 (PCIE x1 slot; White) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card, SATA2 card, etc.

PCIE2 (PCIE x16 slot; Blue) is used for PCI Express cards with x16 lane width graphics cards. Installing an expansion card Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation. Remove the system unit cover (if your motherboard is already installed in a chassis). Remove the bracket facing the slot that you intend to use. Keep the screws for later use. Align the card connector with the slot and press firmly until the card is completely seated on the slot. Fasten the card to the chassis with screws. Replace the system cover.

Step 2. Step 3. Step 4. Step 5. Step 6. 17 2.5 Jumpers Setup The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short". If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins.

Jumper PS2_USB_PW1 (see p.10, No. 1) Setting 1_2 2_3 Short pin2, pin3 to enable +5VSB (standby) for PS/2 or +5V +5VSB USB wake up events. Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply. Clear CMOS Jumper (CLRCMOS1) (see p. 10, No. 30) 1_2 2_3 Default Clear CMOS Note: CLRCMOS1 allows you to clear the data in CMOS.

The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds.

However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. 18 2.6 Onboard Headers and Connectors Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard! · Floppy Connector (33-pin FLOPPY1) (see p.10, No. 22) Pin1 FLOPPY1 the red-striped side to Pin1 Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector. Primary IDE connector (Blue) (39-pin IDE1, see p.10, No.

8) PIN1 IDE1 connect the blue end to the motherboard connect the black end to the IDE devices 80-conductor ATA 66/100/133 cable Note: Please refer to the instruction of your IDE device vendor for the details. Serial ATA II Connectors (SATAII_1 (PORT 0): see p.10, No. 13) (SATAII_2 (PORT 1): see p.10, No. 12) (SATAII_3 (PORT 2): see p.10, No. 11) (SATAII_4 (PORT 3): see p.10, No. 10) SATAII_2 (PORT 1) SATAII_1 (PORT 0) SATAII_3 (PORT 2) SATAII_4 (PORT 3) These four Serial ATAII (SATAII) connectors support SATA data cables for internal storage devices.

The current SATAII interface allows up to 3.0 Gb/s data transfer rate. Serial ATA (SATA) Data Cable (Optional) Either end of the SATA data cable can be connected to the SATA / SATAII hard disk or the SATAII connector on this motherboard. 19 USB 2.0 Headers (9-pin USB10_11) (see p. 10 No. 15) 1 USB_PWR P-11 P+11 GND DUMMY GND P+10 P-10 USB_PWR (9-pin USB8_9) (see p.10 No. 16) 1 USB_PWR P-9 P+9 GND DUMMY Besides four default USB 2.0 ports on the I/O panel, there are three USB 2.

0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports. (9-pin USB6_7) (see p.10 No. 14) GND P+8 P-8 USB_PWR USB_PWR P-7 P+7 GND DUMMY 1 GND P+6 P-6 USB_PWR Chassis Intrusion Header (2-pin CI1) (see p.10 No. 27) 1 GND Signal This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design.

This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card. This is an interface for the front panel audio cable that allows convenient connection and control of audio devices. Internal Audio Connectors (4-pin CD1) (CD1: see p.10, No. 26) CD-L GND GND CD-R CD1 Front Panel Audio Header (9-pin HD_AUDIO1) (see p.10, No. 23) 1 GND PRESENCE# MIC_RET OUT_RET OUT2_L J_SENSE OUT2_R MIC2_R MIC2_L 1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system. 2.

If you use AC'97 audio panel, please install it to the front panel audio header as below: 20 A. Connect Mic_IN (MIC) to MIC2_L. B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L. C.

Connect Ground (GND) to Ground (GND). D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel. E.

Enter BIOS Setup Utility. Enter Advanced Settings, and then select Chipset Configuration. Set the Front Panel Control option from [Auto] to [Enabled]. System Panel Header (9-pin PANEL1) (see p.10, No. 19) 1 PLED+ PLEDPWRBTN# GND This header accommodates several system front panel functions. DUMMY RESET# GND HDLEDHDLED+ Chassis Speaker Header (4-pin SPEAKER 1) (see p.10, No. 17) 1 SPEAKER DUMMY DUMMY +5V Please connect the chassis speaker to this header. Power LED Header (3-pin PLED1) (see p.

10 No. 20) 1 PLEDPLED+ PLED+ Please connect the chassis power LED to this header to indicate system power status. The LED is on when the system is operating. The LED keeps blinking in S1 state. The LED is off in S3/S4 state or S5 state (power off). Please connect the fan cables to the fan connectors and match the black wire to the ground pin. Chassis and NB Fan Connectors (3-pin CHA_FAN1) (see p.10 No. 34) (3-pin PWR_FAN1) (see p.10 No. 18) GND +12V CHA_FAN_SPEED GND +12V PWR_FAN_SPEED CPU Fan Connector (4-pin CPU_FAN1) (see p.10, No. 35) 4321 GND +12V CPU_FAN_SPEED FAN_SPEED_CONTROL Please connect the CPU fan cable to this connector and match the black wire to the ground pin. 21 Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

Pin 1-3 Connected 3-Pin Fan Installation ATX Power Connector (24-pin ATXPWR1) (see p.10, No. 7) 12 24 Please connect an ATX power supply to this connector. 1 13 Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

20-Pin ATX Power Supply Installation 12 24 1 13 ATX 12V Power Connector (8-pin ATX12V1) (see p.10, No. 2) 8 4 5 1 Please note that it is necessary to connect a power supply with ATX 12V plug to this connector. Failing to do so will cause power up failure. Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5. 8 5 4-Pin ATX 12V Power Supply Installation 4 1 Serial port Header (9-pin COM1) (see p.10, No.21) 1 RRXD1 DDTR#1 DDSR#1 CCTS#1 This COM1 header supports a serial port module. RRI#1 RRTS#1 GND TTXD1 DDCD#1 22 HDMI_SPDIF Header (3-pin HDMI_SPDIF1) (see p.

10 No. 24) 1 GND SPDIFOUT +5V HDMI_SPDIF header, providing SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/ projector/LCD devices. Please connect the HDMI_SPDIF connector of HDMI VGA card to this header. Please connect the black end (A) of HDMI_SPDIF cable to the HDMI_SPDIF header on the motherboard. Then connect the white end (B or C) of HDMI_SPDIF cable to the HDMI_SPDIF connector of HDMI VGA card. C. white end (3-pin) SPDIFOUT GND blue black HDMI_SPDIF Cable (Optional) C B A A. black end +5V SPDIFOUT GND blue black B. white end (2-pin) SPDIFOUT GND blue black 23 2.7 HDMI_SPDIF Header Connection Guide HDMI (High-Definition Multi-media Interface) is an all-digital audio/video specification, which provides an interface between any compatible digital audio/video source, such as a set-top box, DVD player, A/V receiver and a compatible digital audio or video monitor, such as a digital television (DTV).

A complete HDMI system requires a HDMI VGA card and a HDMI ready motherboard with a HDMI_SPDIF header. This motherboard is equipped with a HDMI_SPDIF header, which provides SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/projector/ LCD devices. To use HDMI function on this motherboard, please carefully follow the below steps. · Step 1. Install the HDMI VGA card to the PCI Express Graphics slot on this motherboard.

For the proper installation of HDMI VGA card, please refer to the installation guide on page 17. Connect the black end (A) of HDMI_SPDIF cable to the HDMI_SPDIF header (HDMI_SPDIF1, yellow, see page 10, No. 24) on the motherboard. Make sure to correctly connect the HDMI_SPDIF cable to the motherboard and the HDMI VGA card according to the same pin definition. For the pin definition of HDMI_SPDIF header and HDMI_SPDIF cable connectors, please refer to page 23.

For the pin definition of HDMI_SPDIF connectors on HDMI VGA card, please refer to the user manual of HDMI VGA card vendor. Incorrect connection may cause permanent damage to this motherboard and the HDMI VGA card. Step 2. Step 3. Connect the white end (B or C) of HDMI_SPDIF cable to the HDMI_SPDIF connector of HDMI VGA card. (There are two white ends (2-pin and 3-pin) on HDMI_SPDIF cable. Please choose the appropriate white end according to the HDMI_SPDIF connector of the HDMI VGA card you install. white end (2-pin) (B) white end (3-pin) (C) Please do not connect the white end of HDMI_SPDIF cable to the wrong connector of HDMI VGA card or other VGA card. Otherwise, the motherboard and the VGA card may be damaged. For example, this picture shows the wrong example of connecting HDMI_SPDIF cable to the fan connector of PCI Express VGA card.

Please refer to the VGA card user manual for connector usage in advance. Step 4. Step 5. Connect the HDMI output connector on HDMI VGA card to HDMI device, such as HDTV. Please refer to the user manual of HDTV and HDMI VGA card vendor for detailed connection procedures. Install HDMI VGA card driver to your system. 24 2.8 SAT SATAII Hard Disk Setup Guide Before installing SATAII hard disk to your computer, please carefully read below SATAII hard disk setup guide. Some default setting of SATAII hard disks may not be at SATAII mode, which operate with the best performance. In order to enable SATAII function, please follow the below instruction with different vendors to correctly adjust your SATAII hard disk to SATAII mode in advance; otherwise, your SATAII hard disk may fail to run at SATAII mode.

Western Digital 7 8 5 6 3 4 1 2 If pin 5 and pin 6 are shorted, SATA 1.5Gb/s will be enabled. On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 5 and pin 6. SAMSUNG 7 8 5 6 3 4 1 2 If pin 3 and pin 4 are shorted, SATA 1.

5Gb/s will be enabled. On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 3 and pin 4. HITACHI Please use the Feature Tool, a DOS-bootable tool, for changing various ATA features. Please visit HITACHI's website for details: http://www. hitachigst.com/hdd/support/download.htm The above examples are just for your reference. For different SATAII hard disk products of different vendors, the jumper pin setting methods may not be the same. Please visit the vendors' website for the updates. 25 2.9 AT (SAT AT (SAT Serial ATA (SATA) / Serial ATAII (SATAII) Hard Disks Installation This motherboard adopts NVIDIA® nForce 720D chipset that supports Serial ATA (SATA) / Serial ATAII (SATAII) hard disks and RAID functions. You may install SATA / SATAII hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATAII hard disks. @@STEP 2: Connect the SATA power cable to the SATA / SATAII hard disk.

@@@@@@@@@@AHCI also provides usability enhancements such as Hot Plug. @@@@@@@A. 7-pin SATA data cable B. SATA power cable with SATA 15-pin power connector interface A. SATA data cable (Red) B. @@@@2. @@@@@@@@@3. @@@@@@5. @@@@Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers.

Therefore, the drivers you install can work properly. 2.13 Installing Windows ® 7 / 7 64-bit / Vista TM / Vista TM 64-bit / XP / XP 64-bit Without RAID Functions If you want to install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit / XP / XP 64-bit on your SATA / SATAII HDDs without RAID functions, please follow below procedures according to the OS you install. 2.13.

1 Installing Windows ® XP / XP 64-bit Without RAID Functions If you want to install Windows® XP / Windows® XP 64-bit on your SATA / SATAII HDDs without RAID functions, please follow below steps. Using SATA / SATAII HDDs with NCQ and Hot Plug functions STEP 1: Set Up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B.

Set the "SATA Operation Mode" option to [AHCI]. STEP 2: Make a SATA / SATAII driver diskette. A. Insert the ASRock Support CD into your optical drive to boot your system. B. During POST at the beginning of system boot-up, press <F11> key, and then a window for boot devices selection appears. Please select CD-ROM as the boot device. C. When you see the message on the screen, "Generate Serial ATA driver diskette [YN]?", press <Y>. D.

Then you will see these messages, Please choose: 1. Generate AHCI Driver diskette for WindowsXP 2. Generate RAID Driver diskette for WindowsXP 3. Generate AHCI Driver diskette for WindowsXP64 4. Generate RAID Driver diskette for WindowsXP64 5. Exit Reboot system now Press any key to continue 29 Please insert a floppy diskette into the floppy drive. Select your required item on the list according to the mode you choose and the OS you install. Then press any key. E. The system will start to format the floppy diskette and copy SATA / SATAII drivers into the floppy diskette.

STEP 3: Install Windows® XP / XP 64-bit OS on your system. You can start to install Windows® XP / XP 64-bit on your system. At the beginning of Windows® setup, press F6 to install a third-party AHCI driver. When prompted, insert the SATA / SATAII driver diskette containing the NVIDIA® AHCI driver. After reading the floppy disk, the drivers will be presented.

Select the driver to install according to the OS you install. The drivers are as below: A. NVIDIA nForce Storage Controller (required) Windows XP B. NVIDIA nForce Storage Controller (required) Windows XP64 Please select A for Windows® XP in AHCI mode. Please select B for Windows® XP 64-bit in AHCI mode.

Using SATA / SATAII HDDs without NCQ and Hot Plug functions STEP 1: Set Up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [IDE]. STEP 2: Install Windows® XP / XP 64-bit OS on your system. 2.13.2 Installing Windows ® 7 / 7 64-bit / Vista TM / Vista TM 64-bit Without RAID Functions If you want to install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit on your SATA / SATAII HDDs without RAID functions, please follow below steps.

Using SATA / SATAII HDDs with NCQ and Hot Plug functions STEP 1: Set Up BIOS.

A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [AHCI]. STEP 2: Install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit OS on your system. Insert the Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit optical disk into the optical drive to boot your system, and follow the instruction to install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit OS on your system. When you see "Where do you want to install Windows?" page, please insert the ASRock Support CD into your optical drive, and click the "Load Driver" button on the left on the bottom to load the NVIDIA® AHCI drivers. NVIDIA® AHCI drivers are in the following path in our Support CD: 30 .. \ I386 (For Windows® VistaTM OS) .

. \ AMD64 (For Windows® VistaTM 64-bit OS) After that, please insert Windows® VistaTM / VistaTM 64-bit optical disk into the optical drive again to continue the installation. Using SATA / SATAII HDDs without NCQ and Hot Plug functions STEP 1: Set Up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration.

B. Set the "SATA Operation Mode" option to [IDE]. STEP 2: Install Windows® Vista TM / VistaTM 64-bit OS on your system. 2.14 Installing Windows ® 7 / 7 64-bit / Vista TM / Vista TM 64-bit / XP / XP 64-bit With RAID Functions If you want to install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit / XP / XP 64-bit on your SATA / SATAII HDDs with RAID functions, please follow below procedures according to the OS you install.

2.14.1 Installing Windows ® XP / XP 64-bit With RAID Functions If you want to install Windows® XP / XP 64-bit on your SATA / SATAII HDDs with RAID functions, please follow below steps. STEP 1: Set Up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [RAID]. STEP 2: Make a SATA / SATAII driver diskette. Please make a SATA / SATAII driver diskette by following section 2.

13.1 step 2 on page 29. STEP 3: Use "RAID Installation Guide" to set RAID configuration. Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD: .. \ RAID Installation Guide STEP 4: Install Windows® XP / XP 64-bit OS on your system. You can start to install Windows® XP / XP 64-bit OS on your system. At the beginning of Windows® setup, press F6 to install a third-party RAID driver. When prompted, insert the SATA / SATAII driver diskette containing the NVIDIA® RAID driver.

After reading the floppy disk, the drivers will be presented. Select the drivers to install. The drivers are as below: A. NVIDIA RAID Driver (required) B. NVIDIA nForce Storage Controller (required) 31 Please select A and B for Windows® XP / XP 64-bit in RAID mode.

(There are two RAID drivers needed for RAID mode, you have to select them separately. Please specify the first RAID driver and then specify again for the second one.) NOTE. If you install Windows® XP / XP 64-bit on IDE HDDs and want to manage (create, convert, delete, or rebuild) RAID functions on SATA / SATAII HDDs, you still need to set up "SATA Operation Mode" to [RAID] in BIOS first. Then, please set the RAID configuration by using the Windows RAID installation guide part of the document in the following path in the Support CD: .

. \ RAID Installation Guide 2.14.2 Installing Windows ® 7 / 7 64-bit / Vista TM / Vista TM 64-bit With RAID Functions If you want to install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit on your SATA / SATAII HDDs with RAID functions, please follow below steps. STEP 1: Set Up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen IDE Configuration. B. Set the "SATA Operation Mode" option to [RAID]. STEP 2: Use "RAID Installation Guide" to set RAID configuration.

Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD: .. \ RAID Installation Guide STEP 3: Install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit OS on your system. Insert the Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit optical disk into the optical drive to boot your system, and follow the instruction to install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit OS on your system. When you see "Where do you want to install Windows?" page, please insert the ASRock Support CD into your optical drive, and click the "Load Driver" button on the left on the bottom to load the NVIDIA® RAID drivers. NVIDIA® RAID drivers are in the following path in our Support CD: .. \ I386 (For Windows® VistaTM OS) ..

\ AMD64 (For Windows® VistaTM 64-bit OS) After that, please insert Windows® VistaTM / VistaTM 64-bit optical disk into the optical drive again to continue the installation. NOTE. If you install Windows® 7 / 7 64-bit / VistaTM / VistaTM 64-bit on IDE HDDs and want to manage (create, convert, delete, or rebuild) RAID functions on SATA / SATAII HDDs, you still need to set up "SATA Operation Mode" to [RAID] in BIOS first. Then, please set the RAID configuration by using the Windows RAID installation guide in the following path in the Support CD: ..

\ RAID Installation Guide 32 Technology 2.15 Untied Overclocking Technology This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI / PCIE buses. Before you enable Untied Overclocking function, please enter "Overclock Mode" option of BIOS setup to set the selection from [Auto] to [CPU, PCIE, Async.]. Therefore, CPU FSB is untied during overclocking, but PCI / PCIE buses are in the fixed mode so that FSB can operate under a more stable overclocking environment.

Please refer to the warning on page 8 for the possible overclocking risk before you apply Untied Overclocking Technology. 33 3. BIOS SETUP UTILITY 3.1 Introduction This section explains how to use the BIOS SETUP UTILITY to configure your system. The SPI Memory on the motherboard stores the BIOS SETUP UTILITY. You may run the BIOS SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the BIOS SETUP UTILITY, otherwise, POST will continue with its test routines. If you wish to enter the BIOS 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 BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3 . 1 . 1 BIOS Menu Bar The top of the screen has a menu bar with the following selections: Main To set up the system time/date information OC Tweaker To set up overclocking features Advanced To set up the advanced BIOS features H/W Monitor To display current hardware status Boot To set up the default system device to locate and load the Operating System Security To set up the security features Exit To exit the current screen or the BIOS SETUP UTILITY Use < > key or < > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. 34 3.1.2 Navigation Keys Please check the following table for the function description of each navigation key. Navigation Key(s) // +/<Enter> <F1> <F9> <F10> <ESC> Function Description Moves cursor left or right to select Screens Moves cursor up or down to select items To change option for the selected items To bring up the selected screen To display the General Help Screen To load optimal default values for all the settings To save changes and exit the BIOS SETUP UTILITY To jump to the Exit Screen or exit the current screen 3.2 Main Screen When you enter the BIOS SETUP UTILITY, the Main screen will appear and display the system overview. BIOS SETUP UTILITY Advanced H/W Monitor Main OC Tweaker Boot Security Exit System Overview System Time System Date BIOS Version Processor Type [17:00:09] [Mon 12/22/2009] Use [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time.

: M3N78D P1.00 : AMD Phenom(tm) II X2 545 Processor (64bit) Processor Speed : 3000MHz Microcode Update : 100F42/1000086 : 256KB L1 Cache Size : 1024KB L2 Cache Size : 6144KB L3 Cache Size Total Memory DDR3_A1 DDR3_B1 DDR3_A2 DDR3_B2 : 2048MB Single-Channel Memory Mode : 2048MB/533MHz DDR3_1066 : None : None : None +Tab F1 F9 F10 ESC Select Screen Select Item Change Field Select Field General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. System Time [Hour:Minute:Second] Use this item to specify the system time. System Date [Day Month/Date/Year] Use this item to specify the system date.

35 Tweak weaker 3.3 OC Tweaker Screen In the OC Tweaker screen, you can set up overclocking features. BIOS SETUP UTILITY Advanced H/W Monitor Boot Main OC Tweaker CPU Configuration Security Exit Overclock Mode CPU Frequency (MHz) PCIE Frequency (MHz) CPU/LDT Spread Spectrum SATA Spread Spectrum Boot Failure Guard NVIDIA Core Calibration CPU Active Core Control Processor Maximum Frequency North Bridge Maximum Frequency Processor Maximum Voltage Multiplier/Voltage Change HT Bus Speed HT Bus Width CPU Thermal Throttle [Auto] [200] [100] [Enabled] [Enabled] [Enabled] [Disabled] [All Cores] x15.0 3000 MHZ x10.0 20 00 MHz 1.

3000 V [Auto] [Auto] [Auto] [Enabled] Overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense. Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. CPU Configuration Overclock Mode Use this to select Overclock Mode. The default value is [Auto]. Configuration options: [Auto], [CPU, PCIE, Sync.], [CPU, PCIE, Async.] and [Optimized]. CPU Frequency (MHz) Use this option to adjust CPU frequency.

PCIE Frequency (MHz) Use this option to adjust PCIE frequency. CPU/LDT Spread Spectrum This feature will be set to [Enabled] as default. Configuration options: [Disabled] and [Enabled]. SATA Spread Spectrum This feature will be set to [Enabled] as default. Configuration options: [Disabled] and [Enabled]. Boot Failure Guard Enable or disable the feature of Boot Failure Guard. NVIDIA Core Calibration Setting this item to [All Cores] or [Per Core] will enhance the overclocking ability of the processor. Configuration options: [Disabled], [Auto], [All Cores] and [Per Core]. The default value is [Disabled]. CPU Active Core Control This allows you to adjust CPU Active Core Control feature.

The configuration options depend on the CPU core you adopt. The default value is [All Cores]. 36 Processor Maximum Frequency It will display Processor Maximum Frequency for reference. North Bridge Maximum Frequency It will display North Bridge Maximum Frequency for reference. Processor Maximum Voltage It will display Processor Maximum Voltage for reference.

Multiplier/Voltage Change This item is set to [Auto] by default. If it is set to [Manual], you may adjust the value of Processor Frequency and Processor Voltage. However, it is recommended to keep the default value for system stability. Main OC Tweaker CPU Configuration Overclock Mode CPU Frequency (MHz) PCIE Frequency (MHz) CPU/LDT Spread Spectrum SATA Spread Spectrum Boot Failure Guard NVIDIA Core Calibration CPU Active Core Control Processor Maximum Frequency North Bridge Maximum Frequency Processor Maximum Voltage Multiplier/Voltage Change CPU Frequency Multiplier CPU Voltage NB Frequency Multiplier NB Voltage [Auto] [200] [100] [Enabled] [Enabled] [Enabled] [Disabled] [All Cores] x15.0 3000 MHZ x10.

0 20 00 MHz 1.3000 V [Manual] [x15.0 3000 MHZ] [1.3000 V] [x10.0 2000 MHz] [1.1000 V] BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit Overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense. Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. CPU Frequency Multiplier For safety and system stability, it is not recommended to adjust the value of this item.

CPU Voltage It allows you to adjust the value of CPU voltage. However, for safety and system stability, it is not recommended to adjust the value of this item. NB Frequency Multiplier For safety and system stability, it is not recommended to adjust the value of this item. NB Voltage It allows you to adjust the value of NB voltage. However, for safety and system stability, it is not recommended to adjust the value of this item. HT Bus Speed This feature allows you selecting Hyper-Transport bus speed. Configuration options: [Auto], [x1 200 MHz] to [x10 2000 MHz]. HT Bus Width This feature allows you selecting Hyper-Transport bus width. Configuration options: [Auto], [8 Bit] and [16 Bit]. 37 CPU Thermal Throttle Use this item to enable CPU internal thermal control mechanism to keep the CPU from overheated.

Configuration options: [Enabled] and [Disabled]. The default value is [Enabled]. Memory Configuration Memory Clock This item can be set by the code using [Auto]. You can set one of the standard values as listed: [400MHz DDR3_800], [533MHz DDR3_1066], [667MHz DDR3_1333] and [800MHz DDR3_1600]. DRAM Voltage Use this to select DRAM voltage.

Configuration options: [Auto], [1.300V] to [2.050V]. The default value is [Auto]. Memory Timing BIOS SETUP UTILITY OC Tweaker Memory Timing Memory Controller Mode Power Down Enable Bank Interleaving Channel Interleaving CAS Latency (CL) TRCD TRP TRAS TRTP TRRD TWTR TWR TRC TRWTWB TRWTTO TWRRD [Unganged] [Disabled] [Auto] [HASH 2] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] 9 12 12 30 5 4 5 10 33 8 7 2 +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.

Memory Controller Mode It allows you to adjust the memory controller mode. Configuration options: [Unganged] and [Ganged]. The default value is [Unganged]. Power Down Enable Use this item to enable or disable DDR power down mode. Bank Interleaving Interleaving allows memory accesses to be spread out over banks on the same node, or accross nodes, decreasing access contention. Channel Interleaving It allows you to enable Channel Memory Interleaving. Configuration options: [Disabled], [Address bits 6], [Address bits 12], [Address bits 6], [HASH 1] and [HASH 2]. The default value is [HASH 2]. 38 CAS Latency (CL) Use this item to adjust the means of memory accessing.

Configuration options: [Auto], [4CLK] to [12CLK]. The default value is [Auto]. TRCD Use this to adjust TRCD values. Configuration options: [Auto], [5CLK] to [12CLK]. The default value is [Auto]. TRP Use this to adjust TRP values. Configuration options: [Auto], [5CLK] to [12CLK]. The default value is [Auto]. TRAS Use this to adjust TRAS values. Configuration options: [Auto], [15CLK] to [30CLK].

The default value is [Auto]. TRTP Use this to adjust TRTP values. Configuration options: [Auto], [4CLK] to [7CLK]. The default value is [Auto]. TRRD Use this to adjust TRRD values.

Configuration options: [Auto], [4CLK] to [7CLK]. The default value is [Auto]. TWTR Use this to adjust TWTR values. Configuration options: [Auto], [4CLK] to [7CLK]. The default value is [Auto].

TWR Use this to adjust TWR values. Configuration options: [Auto], [5CLK] to [12CLK]. The default value is [Auto]. TRC Use this to adjust TRC values. Configuration options: [Auto], [11CLK] to [42CLK]. The default value is [Auto]. TRWTWB Use this to adjust TRWTWB values. Configuration options: [Auto], [3CLK] to [18CLK]. The default value is [Auto]. TRWTTO Use this to adjust TRWTTD values.

Configuration options: [Auto], [3CLK] to [17CLK]. The default value is [Auto]. TWRRD Use this to adjust TWRRD values. Configuration options: [Auto], [2CLK] to [10CLK]. The default value is [Auto]. TWRWR Use this to adjust TWRWR values. Configuration options: [Auto], [2CLK] to [10CLK]. The default value is [Auto]. TRDRD Use this to adjust TRWTTD values. Configuration options: [Auto], [3CLK] to [10CLK].

The default value is [Auto]. 39 TRFC0 Use this to adjust TRFC0 values. Configuration options: [Auto], [90ns], [110ns], [160ns], [300ns] and [350ns]. The default value is [Auto]. TRFC1 Use this to adjust TRFC1 values.

Configuration options: [Auto], [90ns], [110ns], [160ns], [300ns] and [350ns]. The default value is [Auto]. MA Timing Use this to adjust values for MA timing. Configuration options: [Auto], [2T], [1T]. The default value is [Auto].

CHA ADDR/CMD Delay Use this to adjust values for CHA ADDR/CMD Delay feature. Configuration options: [Auto], [No Delay], [1/64CLK] to [31/64CLK]. The default value is [Auto]. CHA ADDR/CMD Setup Use this to adjust values for CHA ADDR/CMD Setup feature. Configuration options: [Auto], [1/2CLK] and [1CLK]. The default value is [Auto]. CHA CS/ODT Delay Use this to adjust values for CHA CS/ODT Delay feature. Configuration options: [Auto], [No Delay], [1/64CLK] to [31/64CLK]. The default value is [Auto]. CHA CS/ODT Setup Use this to adjust values for CHA CS/ODT Setup feature.

Configuration options: [Auto], [1/2CLK] and [1CLK]. The default value is [Auto]. CHB ADDR/CMD Delay Use this to adjust values for CHB ADDR/CMD Delay feature. Configuration options: [Auto], [No Delay], [1/64CLK] to [31/64CLK]. The default value is [Auto]. CHB ADDR/CMD Setup Use this to adjust values for CHB ADDR/CMD Setup feature. Configuration options: [Auto], [1/2CLK] and [1CLK]. The default value is [Auto]. CHB CS/ODT Delay Use this to adjust values for CHB CS/ODT Delay feature. Configuration options: [Auto], [No Delay], [1/64CLK] to [31/64CLK].

The default value is [Auto]. CHB CS/ODT Setup Use this to adjust values for CHB CS/ODT Setup feature. Configuration options: [Auto], [1/2CLK] and [1CLK]. The default value is [Auto]. CHA CKE Drive Use this to adjust values for CHA CKE Drive. Configuration options: [Auto], [1.00x], [1.25x], [1.50x] and [2.00x].

The default value is [Auto]. 40 CHA CS/ODT Drive Use this to adjust values for CHA CS/ODT Drive. Configuration options: [Auto], [1.00x], [1.25x], [1.50x] and [2.00x]. The default value is [Auto]. CHA ADDR/CMD Drive Use this to adjust values for CHA ADDR/CMD Drive. Configuration options: [Auto], [1.

00x], [1.25x], [1.50x] and [2.00x]. The default value is [Auto]. CHA CLK Drive Use this to adjust values for CHA CLK Drive. Configuration options: [Auto], [0.75x], [1.00x], [1.25x] and [1.

50x]. The default value is [Auto]. CHA DATA Drive Use this to adjust values for CHA DATA Drive. Configuration options: [Auto], [0.75x], [1.

00x], [1.25x] and [1.50x]. The default value is [Auto]. CHA DQS Drive Use this to adjust values for CHA DQS Drive.

Configuration options: [Auto], [0.75x], [1.00x], [1.25x] and [1.50x]. The default value is [Auto]. CHA Processor ODT Use this to adjust values for CHA Processor ODT. Configuration options: [Auto], [240 ohms], [120 ohms] and [60 ohms]. The default value is [Auto]. CHB CKE Drive Use this to adjust values for CHB CKE Drive.

Configuration options: [Auto], [1.00x], [1.25x], [1.50x] and [2.00x]. The default value is [Auto]. CHB CS/ODT Drive Use this to adjust values for CHB CS/ODT Drive. Configuration options: [Auto], [1.00x], [1.25x], [1.

50x] and [2.00x]. The default value is [Auto]. CHB ADDR/CMD Drive Use this to adjust values for CHB ADDR/CMD Drive. Configuration options: [Auto], [1.

00x], [1.25x], [1.50x] and [2.00x]. The default value is [Auto].

CHB CLK Drive Use this to adjust values for CHB CLK Drive. Configuration options: [Auto], [0.75x], [1.00x], [1.25x] and [1.50x]. The default value is [Auto]. CHB DATA Drive Use this to adjust values for CHB DATA Drive. Configuration options: [Auto], [0.75x], [1.

00x], [1.25x] and [1.50x]. The default value is [Auto]. CHB DQS Drive Use this to adjust values for CHB DQS Drive. Configuration options: [Auto], [0.75x], [1.00x], [1.25x] and [1.50x].

The default value is [Auto]. CHB Processor ODT Use this to adjust values for CHB Processor ODT. Configuration options: [Auto], [240 ohms], [120 ohms] and [60 ohms]. The default value is [Auto]. 41 Chipset Settings Chipset Voltage Use this to select chipset voltage.

Configuration options: [Auto], [1.121V] to [1.255V]. The default value is [Auto]. HT Voltage Use this to select HT voltage.

Configuration options: [Auto], [1.21V] to [1.35V]. The default value is [Auto]. Would you like to save current setting user defaults? In this option, you are allowed to load and save three user defaults according to your own requirements. 42 3.4 Advanced Screen In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, Storage Configuration, PCIPnP Configuration, Floppy Configuration, SuperIO Configuration, and USB Configuration. Main BIOS SETUP UTILITY Boot OC Tweaker Advanced H/W Monitor Security Exit Advanced Settings WARNING : Setting wrong values in below sections may cause system to malfunction.

CPU Configuration Chipset Configuration ACPI Configuration Storage Configuration PCIPnP Configuration Floppy Configuration SuperIO Configuration USB Configuration BIOS Update Utility ASRock Instant Flash Options for CPU Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc.

Setting wrong values in this section may cause the system to malfunction. ASRock Instant Flash ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/ 12 file system. If you execute ASRock Instant Flash utility, the utility will show the BIOS files and their respective information. Select the proper BIOS file to update your BIOS, and reboot your system after BIOS update process completes. 43 3.4.1 CPU Configuration BIOS SETUP UTILITY Advanced CPU Configuration Cool `n' Quiet Secure Virtual Machine Enhanced Halt State L3 Cache Allocation [Auto] [Enabled] [Disabled] [Auto] Enabling this function may reduce CPU voltage and memory freq.
, and lead to system stability or compatibility issue with some memory modules or power supplies. Please set this item to [Disabled] if above issue occurs. Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit +F1 F9 F10 ESC v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Cool `n' Quiet Use this item to enable or disable AMD's Cool `n' QuietTM technology.
The default value is [Auto]. Configuration options: [Auto], [Enabled] and [Disabled]. If you install Windows® VistaTM and want to enable this function, please set this item to [Enabled]. Please note that enabling this function may reduce CPU voltage and memory frequency, and lead to system stability or compatibility issue with some memory modules or power supplies. Please set this item to [Disable] if above issue occurs.
Secure Virtual Machine When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by AMD-V. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. Enhance Halt State All processors support the Halt State (C1). The C1 state is supported through the native processor instructions HLT and MWAIT and requires no hardware support from the chipset. In the C1 power state, the processor maintains the context of the system caches. L3 Cache Allocation The default value is [Auto]. Configuration options: [Auto], [BSP Only] and [All Cores]. 44 3.4.

2 Chipset Configuration BIOS SETUP UTILITY Advanced Chipset Settings Onboard LAN Onboard HD Audio Front Panel Primary Graphics Adapter [Enabled] [Auto] [Auto] [PCI] +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Onboard LAN This allows you to enable or disable the onboard LAN feature. Onboard HD Audio Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged. Front Panel Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio Front Panel. Primary Graphics Adapter This item will switch the PCI Bus scanning order while searching for video card. It allows you to select the type of Primary VGA in case of multiple video controllers. The default value of this feature is [PCI]. Configuration options: [PCI] and [PCI Express].

45 3.4.3 ACPI Configuration BIOS SETUP UTILITY Advanced ACPI Settings Suspend To RAM Away Mode Support Restore on AC / Power Loss Ring-In Power On PCI Devices Power On PS / 2 Keyboard Power On RTC Alarm Power On ACPI HPET Table [Disabled] [Disabled] [Power Off] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] Select auto-detect or disable the STR feature. +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc.
Suspend to RAM Use this item to select whether to auto-detect or disable the Suspend-toRAM feature. Select [Auto] will enable this feature if the OS supports it. If you set this item to [Disabled], the function "Repost Video on STR Resume" will be hidden. Check Ready Bit Use this item to enable or disable the feature Check Ready Bit. Away Mode Support Use this item to enable or disable Away Mode support under Windows® XP Media Center OS.
The default value is [Disabled]. Restore on AC/Power Loss This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers. Ring-In Power On Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode. PCI Devices Power On Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode. PS/2 Keyboard Power On Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode. RTC Alarm Power On Use this item to enable or disable RTC (Real Time Clock) to power on the system. 46 ACPI HPET Table Use this item to enable or disable ACPI HPET Table. The default value is [Disabled].

Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® VistaTM certification. 3.4.4 Storage Configuration BIOS SETUP UTILITY Advanced Storage Configuration Onboard IDE Controller Onboard SATA Controller SATA Operation Mode IDE1 Master IDE1 Slave SATAII_1 SATAII_2 SATAII_3 SATAII_4 eSATA5 eSATA6 [Enabled] [Enabled] [AHCI] [Hard Disk] [Not Detected] [Not Detected] [Not Detected] [Not Detected] [Not Detected] [Not Detected] [Not Detected] IDE RAID AHCI Options +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. Onboard IDE Controller Use this item to enable or disable the "Onboard IDE Controller" feature. Onboard SATA Controller Use this item to enable or disable the "Onboard SATA Controller" feature. SATA Operation Mode Use this item to adjust SATA Operation Mode. The default value of this option is [AHCI]. If you want to operate RAID function on SATA / SATAII HDDs, please select [RAID].
Configuration options: [IDE], [RAID] and [AHCI]. * If you select [RAID] mode, SATA / SATAII HDDs can not be accessed until you finish configuring RAID functions in NVIDIA BIOS / Windows RAID Utility.