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You can read the recommendations in the user guide, the technical guide or the installation guide for ASUS P5LD2-VM DH. You'll find the answers to all your questions on the ASUS P5LD2-VM DH in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual ASUS P5LD2-VM DH**  
**User guide ASUS P5LD2-VM DH**  
**Operating instructions ASUS P5LD2-VM DH**  
**Instructions for use ASUS P5LD2-VM DH**  
**Instruction manual ASUS P5LD2-VM DH**

**P5LD2-VM DH**

**ASUS**

**Motherboard**



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**Manual abstract:**

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A-4 Using the Hyper-Threading Technology .....

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A-4 v 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, and · 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. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: · Reorient or relocate the receiving antenna. · Increase the separation between the equipment and receiver. · Connect the equipment to an outlet on a circuit different from that to which the receiver is connected. · Consult the dealer or an experienced radio/TV technician for help. The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. Canadian Department of Communications Statement This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications. This class B digital apparatus complies with Canadian ICES-003.

vi 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. · Make sure 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.

Operation safety · Before installing the motherboard Intel® Graphics Media Accelerator 950 1 x PCI Express x16 slot for discrete graphics cards 1 x PCI Express x1 2 x PCI slots Intel® ICH7 DH SouthBridge supports: - 1 x Ultra DMA 100/66/33 - 4 x Serial ATA 3Gb/s devices, RAID0,1,5,10 - Supports Intel Matrix Storage Technology ITE IDE controller supports: - 1 x Ultra DMA 133/100 Realtek® ALC882 8-channel High-Definition audio CODEC S/PDIF out interface support Universal Audio Jack (UAJ®) Sensing Technology Supports Multi-Streaming and Enumeration Technology Intel® Gigabit LAN controller Supports up to 8 USB 2.



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0 ports 1 x Parallel port 1 x LAN (RJ-45) port 4 x USB 2.0 ports 1 x VGA port 1 x Serial port (COM) 1 x PS/2 keyboard port 1 x PS/2 mouse port 8-channel High-Definition Audio ports Chipset Front Side Bus Memory VGA Expansion slots Storage Audio LAN USB Rear panel (continued on the next page) x P5LD2-VM DH specifications summary BIOS features 8 Mb Fln entertainment center, allowing you to enjoy and share digital multi-media content like never before. With Intel® ViivTM Technology-based computers, you can record, playback, organize, and edit digital media content easily. Enjoy the entertainment experience even more with sharp graphics, flawless video playback, and support for up to 7.

1 channel surround sound. To enable Intel® ViivTM Technology, make sure you enable the *Q u i c k R e s u m e* function in the BIOS. Refer to the BIOS screen on page 2-33. You also need to install the Intel® ViivTM Technology driver and software. See pages 3-4 and 3-5 for details.

Enabling Intel Viiv platform also requires: - Intel® Pentium® D processor or Intel® Pentium® processor Extreme Edition - Native Command Queuing (NCQ) SATA hard drive - Microsoft Windows XP Media Center Edition Update Rollup 2 Refer to [www.Intel.com](http://www.Intel.com) for more information. DDR2 memory support The motherboard supports DDR2 memory which features data transfer rates of 600 MHz (FSB 800) or 533 MHz (FSB 1066/800) to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications. The dual-channel DDR2 architecture doubles the bandwidth of your system memory to boost system performance, eliminating bottlenecks with peak bandwidths of up to 8.5 GB/s. See pages 1-16 to 1-18 for details. ASUS P5LD2-VM DH 1-3 . PCI Express™ interface The motherboard fully supports PCI Express, the latest I/O interconnect technology that speeds up the PCI bus. PCI Express features point-to-point serial interconnections between devices and allows higher clockspeeds by carrying data in packets.

This high speed interface is software compatible with existing PCI specifications. See page 1-22 for details. 64-bit CPU support The motherboard supports 64-bit processors that provides high-performance computing and faster memory access required for memory and data intensive applications. Serial ATA technology The motherboard supports the Serial ATA technology through the Serial ATA interfaces and the Intel® ICH7 DH chipset. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, and up to 300 MB/s data transfer rate. 8-channel high definition audio The onboard Realtek® ALC882 8-channel high-definition audio CODEC provides 192 KHz/ 24-bit audio output, jack-sensing and restasking functions.

With the 8-channel audio ports and S/PDIF interfaces, you can connect your computer to home theater decoders to produce crystal-clear digital audio. S/PDIF digital sound ready The motherboard supports the S/PDIF Out function through the S/PDIF interfaces at midboard. The S/PDIF technology turns your computer into a high-end entertainment system with digital connectivity to powerful audio and speaker systems. See page 1-31 for details. Temperature, fan, and voltage monitoring The CPU temperature is monitored by the ASIC (integrated in the Winbond Super I/O) to prevent overheating and damage. The system fan rotations per minute (RPM) is monitored for timely failure detection. The ASIC monitors the voltage levels to ensure stable supply of current for critical components. See pages 2-32 and 2-33 for details. 1-4 Chapter 1: Product introduction 1.

3.2 Innovative ASUS features CrashFree BIOS 2 This feature allows you to restore the original BIOS data from the support CD in case when the BIOS codes and data are corrupted. This protection eliminates the need to buy a replacement ROM chip. See details on page 2-6. ASUS MyLogo™ This new feature present in the motherboard allows you to personalize and add style to your system with customizable boot logos.

See page 2-35. ASUS EZ Flash BIOS With the ASUS EZ Flash, you can easily update the system BIOS even before loading the operating system. No need to use a DOS-based utility or boot from a floppy disk. See page 2-3 for details. C.P.R. (CPU Parameter Recall) The C.P.R.

feature of the motherboard BIOS allows automatic re-setting to the BIOS default settings in case the system hangs due to overclocking. When the system hangs due to overclocking, C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and the

BIOS automatically restores the CPU default setting for each parameter. ASUS P5LD2-VM DH 1-5 1.4 Before you proceed Take note of the following precautions before you install motherboard components or change any motherboard settings. · · Unplug the power cord from the wall socket before touching any component. Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity Hold components by the edges to avoid touching the ICs on them.

Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component. Before you install or remove any component, ensure that the ATX power supply is switched off or the *p o w e r c o r d i s d e t a c h e d f r o m t h e p o w e r s u p p l y*. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components. · · Onboard LED 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. P5LD2-VM DH © SB\_PWR P5LD2-VM DH Onboard LED ON Standby Power OFF Powered Off 1-6 Chapter 1: Product introduction 1.5 Motherboard overview Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

1.5.1 Placement direction When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below. 1.5.2 Screw holes Place eight (8) screws into the holes indicated by circles to secure the motherboard to the chassis. Do not overtighten the screws! Doing so can damage the motherboard. Place this side towards the rear of the chassis ASUS P5LD2-VM DH P5LD2-VM DH © 1-7 1.



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3 Motherboard layout CPU\_FAN COM1 ATX12V PARALLEL PORT P5LD2-VM DH DDR DIMM\_A1 (64 bit,240-pin module) DDR DIMM\_A2 (64 bit,240-pin module) DDR DIMM\_B1 (64 bit,240-pin module) DDR DIMM\_B2 (64 bit,240-pin module) PWR\_FAN LGA775 VGA1 F\_USB12 LAN\_USB34 Top:Rear Speaker Out Center: Side Speaker Out Below: Center/Subwoofer Top:Line In Center:Line Out Below:Mic In CHA\_FAN SB\_PWR PCI2 CD Intel ICH7-DH CR2032 3V Lithium Cell CMOS Power ® Intel FWH 4Mb SATA3 SATA4 SATA2 BUZZ ITE 8211 PLED CHASSIS SPEAKER PRI\_EIDE Intel 82573V PCI1 PRI\_IDE PCIEX16 EATXPWR F\_PANEL Intel GMCH 945G ® ® PCIEX1\_1 SATA1 CLRTC AAFP SPDIF\_OUT USB56 USB78 1-8 Chapter 1: Product introduction FLOPPY Super I/O PS/2KBMS T: Mouse B: Keyboard 1.6 Central Processing Unit (CPU) The motherboard comes with a surface mount LGA775 socket designed for the Intel® Pentium® 4 processor in the 775-land package. · Your boxed Intel® Pentium® 4 LGA775 processor package should come with installation instructions for the CPU, fan and heatsink assembly. If the instructions in this section do not match the CPU documentation, follow the latter. Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket pins are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket pins/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 LGA775 socket. The product warranty does not cover damage to the socket pins resulting from incorrect CPU installation/removal, or misplacement/ loss/incorrect removal of the PnP cap.

· · · 1.6.1 1. Installing the CPU To install a CPU: Locate the CPU socket on the motherboard. P5LD2-VM DH CPU Socket 775 Before installing the CPU, make sure that the socket box is facing towards you and the load lever is on your left.

ASUS P5LD2-VM DH ® 1-9 2. Press the load lever with your thumb (A) and move it to the left (B) until it is released from the retention tab. PnP Cap Retention tab A Load lever B This side of the cam box should face you. To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU. 3.

Lift the load lever in the direction of the arrow to a 135° angle. 4. Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B). B A Load plate 5. Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket. The socket alignment key should fit into the CPU notch. Alignment key Gold triangle mark 1-10 Chapter 1: Product introduction 6. Close the load plate (A), then push the load lever (B) until it snaps into the retention tab. B A The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU! The motherboard supports Intel® Pentium® D or Intel® Pentium® 4 LGA775 processors with the Intel® Enhanced Memory 64 Technology (EM64T), Enhanced Intel SpeedStep® Technology (EIST), and Hyper-Threading Technology.

Refer to the Appendix for more information on these CPU features. ASUS P5LD2-VM DH 1-11 1.6.2 Installing the CPU heatsink and fan The Intel® Pentium® 4 LGA775 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance. · · Install the motherboard to the chassis before you install the CPU fan and heatsink assembly When you buy a boxed Intel® Pentium® 4 processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan. Your Intel® Pentium® 4 LGA775 heatsink and fan assembly comes in a push-pin design and requires no tool to install. · If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.

To install the CPU heatsink and fan: 1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.

Fastener Motherboard hole Make sure each fastener is oriented as shown, with the narrow groove directed outward. 1-12 Chapter 1: Product introduction 2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place. A B B A A B B A 3. When the fan and heatsink assembly is in place, connect the CPU fan cable to the connector on the motherboard labeled CPU\_FAN.

CPU\_FAN CPU FAN PWM CPU FAN IN CPU FAN PWR GND P5LD2-VM DH CPU fan connector Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector. ASUS P5LD2-VM DH P5LD2-VM DH ® 1-13 1.6.3 1. Uninstalling the CPU heatsink and fan To uninstall the CPU heatsink and fan: Disconnect the CPU fan cable from the connector on the motherboard.

Rotate each fastener counterclockwise. 2. 3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard. A B B A A B B A 1-14 Chapter 1: Product introduction 4. Remove the heatsink and fan assembly from the motherboard. 5. Rotate each fastener clockwise to reset the orientation. Narrow end of the groove The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.

) ASUS P5LD2-VM DH 1-15 1.7 1.7.1 System memory Overview The motherboard comes with four Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets. A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket. The figure illustrates the location of the DDR2 DIMM sockets: DIMM\_A1 DIMM\_A2 DIMM\_B1 DIMM\_B2 P5LD2-VM DH 240-pin DDR2 DIMM sockets Channel Channel A Channel B P5LD2-VM DH ® Sockets DIMM\_A1 and DIMM\_A2 DIMM\_B1 and DIMM\_B2 1.7.2 Memory Configurations · IF you installed four 1GB memory modules, the system may detect less than 3GB of total memory because of address space allocation for other critical functions. This limitation applies to Windows XP 32-bit version operating system since it does not support PAE (Physical Address Extension) mode.



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This connector supports two IDE hard disk drives for easier data storage.

P5LD2-VM DH ® PRI\_EIDE PIN 1 NOTE: Orient the red markings (usually zigzag) on the IDE connector cable to PIN 1. P5LD2-VM DH PRI\_EIDE 4.

Serial ATA connectors (7-pin SATA1, SATA2, SATA3, SATA4) These connectors are for the Serial ATA signal cables for Serial ATA hard disk drives.

P5LD2-VM DH GND RSATA\_RXN3 RSATA\_RXP3 GND RSATA\_TXN3 RSATA\_TXP3 GND SATA3 SATA1 GND RSATA\_TXP1 RSATA\_TXN1 GND RSATA\_RXP1 RSATA\_RXN1 GND GND RSATA\_TXP2 RSATA\_TXN2 GND RSATA\_RXP2 RSATA\_RXN2 GND GND RSATA\_RXN4 RSATA\_RXP4 GND RSATA\_TXN4 RSATA\_TXP4 GND ® SATA4 SATA2 P5LD2-VM DH SATA connectors Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack 1 or later before using Serial ATA. 1-28 Chapter 1: Product introduction 5. Speaker connector (4-pin SPEAKER) This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings. P5LD2-VM DH ® SPEAKER +5V GND GND Speak Out 1 P5LD2-VM DH Speaker out connector 6. CPU, Power and Chassis fan connectors (4-pin CPU\_FAN, 3-pin PWR\_FAN, 3-pin CHA\_FAN) The fan connectors support cooling fans of 350mA~740mA (8.88W max.

) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the 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. CPU\_FAN P5LD2-VM DH CPU FAN PWM CPU FAN IN CPU FAN PWR GND ® PWR\_FAN GND +12V Rotation CHA\_FAN P5LD2-VM DH Fan connectors GND +12V Rotation ASUS P5LD2-VM DH 1-29 7. Digital Audio connector (4-1 pin SPDIF\_OUT) This connector is for the S/PDIF audio module to allow digital sound output.

Connect one end of the S/PDIF audio cable to this connector and the other end to the S/PDIF module. P5LD2-VM DH ® SPDIF\_OUT SPDIFOUT GND P5LD2-VM DH Digital audio connector The S/PDIF out module is purchased separately. 8. Power LED connector (3-pin PLED) This 3-pin connector is for the system power LED. P5LD2-VM DH ® PLED PLEDNC PLED+ 1 P5LD2-VM DH Power LED connector 1-30 Chapter 1: Product introduction +5V 9. ATX power connectors (24-pin EATXPWR and 4-pin ATX12V) 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. · Do not forget to connect the 4-pin ATX +12 V power plug; otherwise, the system will not boot. Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices.

The system may become unstable or may not boot up if the power is inadequate. Make sure that your power supply unit (PSU) can provide at least the minimum power required by your system. See the table below for details. · EATXPWR P5LD2-VM DH P5LD2-VM DH ATX power +3 Volts +12 Volts GND +12V DC +12 Volts +5V Standby Power OK Ground GND +12V DC +5 Volts Ground +5 Volts Ground +3 Volts connectors +3 Volts ATX12V Ground +5

Volts +5 Volts +5 Volts -5 Volts Ground Ground Ground PSON# Ground -12 Volts +3 Volts ASUS P5LD2-VM DH ® 1-31 10. Optical drive audio connector (4-pin CD) This connector is for the 4-pin audio cable that connects to the audio connector at the back of the optical drive. P5LD2-VM DH ® CD Right Audio Channel Ground Left Audio Channel P5LD2-VM DH CD audio connector Enable the CD-IN function in the audio utility when using this connector. 11. USB connectors (10-1 pin USB56, USB78) These connectors are for USB 2.0 ports. Connect the optional 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 specification that supports up to 480 Mbps connection speed. P5LD2-VM DH ® USB+5V USB\_P6USB\_P6+ GND NC USB56 P5LD2-VM DH USB 2.0 connectors 1-32 Chapter 1: Product introduction USB+5V USB\_P5USB\_P5+ GND USB+5V USB\_P7USB\_P7+ GND 1 USB78 1 USB+5V USB\_P8USB\_P8+ GND NC 12. Front panel audio connector (10-1 pin AAFP) This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC'97 audio standard. AAFP P5LD2-VM DH Azalia compliant definition GND PRESENCE# SENSE1\_RETUR SENSE2\_RETUR Legacy AC'97 compliant definition AGND +5VA BLINE\_OUT\_R BLINE\_OUT\_L ® PORT1 L PORT1 R PORT2 R SENSE\_SEND PORT2 L P5LD2-VM DH Analog front panel connector It is recommended that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability. 13. Chassis intrusion connector (4-1 pin CHASSIS) This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced.

The signal is then generated as a chassis intrusion event. By default, the pins labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature. P5LD2-VM DH ® CHASSIS GND Chassis Signal +5VSB\_MB (Default) P5LD2-VM DH Chassis intrusion connector ASUS P5LD2-VM DH MIC2 MICPWR Line out\_R NC Line out\_L 1-33 14. System panel connector (10-1 pin F\_PANEL) This connector supports several chassis-mounted functions.

P5LD2-VM DH ® F\_PANEL PWRSW PWRLD P5LD2-VM DH System panel connector The system panel connector is color-coded for easy connection. Refer to the connector description below for details. GND PWR PWR\_LED PWR\_LED+ Reset Ground IDE\_LED IDE\_LED+ RESET IDE LED \* Requires an ATX power supply. · Power/Soft-off button (Black 2-pin PWRSW) This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings.

Pressing the power switch for more than four seconds while the system is ON turns the system OFF. @@@@ Connect the HDD Activity LED cable to this connector. @@@@ 1. 2. 3. @@@@ Insert a 1.44MB floppy disk into the drive. b. @@@@ Insert a 1.44 MB floppy disk to the floppy disk drive.

b. Click Start from the Windows® desktop, then select My Computer. c. Select the 3 1/2 Floppy Drive icon. d. @@@@ e. @@@@ Insert a formatted, high density 1.44 MB floppy disk into the drive. b.

Insert the Windows® 2000 CD to the optical drive.



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c. Click **S t a r t** then select **R u n t, n. 2-2 Chapter 2: BIOS setup** d. From the **O p e n** field, type **D:\bootdisk\makeboot a:** assuming that **D:** is your optical drive.

e. Press **<Enter>**, then follow screen instructions to continue. 2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk. 2. 1.2 **ASUS EZ Flash utility** The **ASUS EZ Flash** feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The **EZ Flash** utility is built-in the BIOS chip so it is accessible by pressing **<Alt> + <F2>** during the **Power-On Self Tests (POST)**. To update the BIOS using **EZ Flash**: 1. 2. 3. Visit the **ASUS website (www.asus.com)** to download the latest BIOS file for the motherboard and rename the same to **P 5 L D 2 V M . R O M M**.

Save the BIOS file to a floppy disk, then restart the system. @@@@Floppy found! Reading file "P5LD2VM.ROM". Completed. Start erasing.....  
.\ Start programming... \ Flashed successfully.

@@@@@@@@@@@@The succeeding BIOS screens are for reference only. @@@@@@@@@@All rights reserved. Reading flash ...  
.. @@@@@@@@@@You need to type the exact BIOS filename at the DOS prompt. 2. @@@@@@All rights reserved. Reading file .....

done Erasing flash .... done Writing flash .... @@5. @@@@@@All rights reserved.  
Reading file .....

done Erasing flash .... done Writing flash .

... 0x0008CC00 (9%) Verifying flash .. @@@@@@R O M M. Recovering the BIOS from a floppy disk To recover the BIOS from a floppy disk: 1. 2. 3. Turn on the system.

Insert the floppy disk with the original or updated BIOS file to the floppy disk drive. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file. Bad BIOS checksum. Starting BIOS recovery... Checking for floppy... When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.

Bad BIOS checksum. Starting BIOS recovery... Checking for floppy.  
.. Floppy found! Reading file "P5LD2VM.ROM". Completed.

Start flashing... DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure! 4. Restart the system after the utility completes the updating process. 2-6 Chapter 2: BIOS setup Recovering the BIOS from the support CD To recover the BIOS from the support CD: 1. 2. 3. Remove any floppy disk from the floppy disk drive, then turn on the system. Insert the support CD to the optical drive.

The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file. Bad BIOS checksum. Starting BIOS recovery... Checking for floppy... When no floppy disk is found, the utility automatically checks the optical drive for the original or updated BIOS file. The utility then updates the corrupted BIOS file.

Bad BIOS checksum. Starting BIOS recovery... Checking for floppy.  
.. Floppy not found! Checking for CD-ROM...

CD-ROM found! Reading file "P5LD2VM.ROM". Completed. Start flashing... DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure! 4. Restart the system after the utility completes the updating process. The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the **ASUS website (www.**

asus.com) to download the latest BIOS file. **ASUS P5LD2-VM DH 2-7 2.1.5 ASUS Update utility** The **ASUS Update** is a utility that allows you to manage, save, and update the motherboard BIOS in **Windows®** environment. The **ASUS Update** utility allows you to: · Save the current BIOS file · Download the latest BIOS file from the Internet · Update the BIOS from an updated BIOS file · Update the BIOS directly from the Internet, and · View the BIOS version information. This utility is available in the support CD that comes with the motherboard package. **ASUS Update** requires an Internet connection either through a network or an Internet Service Provider (ISP). Installing **ASUS Update** To install **ASUS Update**: 1. 2.

3. Place the support CD in the optical drive. The **D r i v e r s** menu appears. Click the **U t i l i t i e s** tab, then click **I n s t a l l A S U S U p d a t e X . V X . X X . X X** See page 3-4 for the **U t i l i t i e s** screen menu. The **ASUS Update** utility is copied to your system. Quit all **Windows®** applications before you update the BIOS using this utility. 2-8 Chapter 2: BIOS setup Updating the BIOS through the Internet To update the BIOS through the Internet: 1.

Launch the **ASUS Update** utility from the **Windows®** desktop by clicking e. @@@@@@Click Next. @@@@@@A S U S U p d a t e The **ASUS Update** main window appears. @@@4. Locate the BIOS file from the e. @@@@@@This requires you to reconfigure your system using the **BIOS Setup** program so that the computer can recognize these changes and record them in the **CMOS RAM** of the firmware hub. The firmware hub on the motherboard stores the **Setup** utility. When you start up the computer, the system provides you with the opportunity to run this program. Press **<Del>** during the **Power-On-Self-Test (POST)** to enter the **Setup** utility; otherwise, **POST** continues with its test routines. If you wish to enter **Setup** after **POST**, restart the system by pressing **<Ctrl+Alt+Delete>**, or by pressing the reset button on the system chassis.

You can also restart by turning the system off and then back on. Do this last option only if the first two failed. The **Setup** program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys. · The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **L o a d D e f a u l t S e t t i n g s** item under the **Exit Menu**. See section "2.7 Exit Menu." 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 (www.asus.com)** to download the latest BIOS file for this motherboard and . . **ASUS P5LD2-VM DH 2-11 2.2.**

1 **BIOS menu screen** Menu bar Configuration fields General help Menu items System Time System Date Legacy Diskette A Primary IDE Master Primary IDE Slave Third IDE Master Third IDE Slave Fourth IDE Master Fourth IDE Slave IDE Configuration System Information [11:51:19] [Thu 05/07/2004] [1.44M, 3.5 in] : [ST320413A] : [Not Detected] : [Not Detected] : [Not Detected] : [Not Detected] Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+ ] or [- ] to configure system time. Sub-menu items Navigation keys 2.

2.2 Menu bar For changing the basic system configuration For changing the advanced system settings For changing the advanced power management (APM) configuration For changing the system boot configuration For selecting the exit options and loading default settings The menu bar on top of the screen has the following main items: Main Advanced Power Boot Exit To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.



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2.2.3 Navigation keys At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings. Some of the navigation keys differ from one screen to another. 2-12 Chapter 2: BIOS setup 2.2.4 Menu items The highlighted item on the menu bar displays the specific items for that menu.

For example, selecting *M a i n* shows the Main menu items. The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items. Main menu items 2.2.5 Sub-menu items A solid triangle before each item on any menu screen means that the item has a sub-menu. To display the sub-menu, select the item and press <Enter>. 2.2.6 Configuration fields These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item.

You cannot select an item that is not user-configurable. A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "2.2.

7 Pop-up window." 2.2.7 Pop-up window Select a menu item then press <Enter> to display a pop-up window with the configuration options for that item. 2.2.8 Scroll bar A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> / <Page Down> keys to display the other items on the screen. Pop-up window 2.2.9 General help Scroll bar At the top right corner of the menu screen is a brief description of the selected item. ASUS P5LD2-VM DH 2-13 2.3 Main menu When you enter the BIOS Setup program, the Main menu screen appears, giving you an overview of the basic system information. Refer to section "2.2.

1 BIOS menu screen" for information on the menu screen items and how to navigate through them. System Time System Date Legacy Diskette A Primary IDE Master Primary IDE Slave Third IDE Master Third IDE Slave Fourth IDE Master Fourth IDE Slave IDE Configuration System Information [11:51:19] [Thu 05/07/2004] [1.44M, 3.5 in.] : [ST320413A] : [Not Detected] : [Not Detected] : [Not Detected] : [Not Detected] : [Not Detected] Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system time. 2.3.1 2.3.2 2.

3.3 System Time [xx:xx:xx] System Date [Day xx/xx/xxxx] Legacy Diskette A [1.44M, 3.5 in.] Allows you to set the system time. Allows you to set the system date. Sets the type of floppy drive installed. Configuration options: [Disabled] [360K, 5.25 in.] [1.2M, 5.25 in.] [720K, 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

] 2-14 Chapter 2: BIOS setup 2.3.4 Primary, Third and Fourth IDE Master/Slave While entering Setup, the BIOS automatically detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE device information. Primary IDE Master Device : Hard Disk Vendor : ST320413A Size : 20.0GB LBA Mode : Supported Block Mode : 16 Sectors PIO Mode : Supported Async DMA : MultiWord DMA-2 Ultra DMA : Ultra DMA-5 SMART Monitoring: Supported Type LBA/Large Mode Block(Multi-sector Transfer) PIO Mode DMA Mode Smart Monitoring 32Bit Data Transfer [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Disabled] The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system. Type [Auto] Selects the type of IDE drive.

Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD] LBA/Large Mode [Auto] Enables or disables the LBA mode. Setting to Auto enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled.

Configuration options: [Disabled] [Auto] Block (Multi-sector Transfer) [Auto] Enables or disables data multi-sectors transfers. When set to Auto, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to [Disabled], the data transfer from and to the device occurs one sector at a time. Configuration options: [Disabled] [Auto] ASUS P5LD2-VM DH 2-15 PIO Mode [Auto] Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4] DMA Mode [Auto] Selects the DMA mode.

Configuration options: [Auto] [SWDMA0] [SWDMA1] [SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2] [UDMA3] [UDMA4] [UDMA5] SMART Monitoring [Auto] Sets the Smart Monitoring, Analysis, and Reporting Technology. Configuration options: [Auto] [Disabled] [Enabled] 32Bit Data Transfer [Disabled] Enables or disables 32-bit data transfer. Configuration options: [Disabled] [Enabled] 2.3.5 IDE Configuration The items in this menu allow you to set or change the configurations for the IDE devices installed in the system. Select an item then press <Enter> if you wish to configure the item. IDE Configuration Configure SATA As Onboard IDE Operate Mode Enhanced Mode Support On OnBoard Serial-ATA BOOT ROM IDE Detect Time Out (Sec) [Standard IDE] [Enhanced Mode] [S-ATA] [Disabled] [35] Configure SATA As [Standard IDE] Sets the Serial ATA configuration. If you want to use your Serial ATA like a Parallel ATA physical storage interface, select the Standard IDE option. Configuration options: [Standard IDE] Onboard IDE Operate Mode [Enhanced Mode] Disables or allows selection of the IDE operation mode depending on the operating system (OS) that you installed. Set to Enhanced Mode if you are using native OS, such as Windows® 2000/XP/2003 Server.

Configuration options: [Disabled] [Compatible Mode] [Enhanced Mode] 2-16 Chapter 2: BIOS setup Enhanced Mode Support On [S-ATA] The default setting S-ATA allows you to use native OS on Serial ATA and Parallel ATA ports. We recommend that you do not change the default setting for better OS compatibility. In this setting, you may use legacy OS on the Parallel ATA ports o n l y if you did not install any Serial ATA device. The P-ATA+S-ATA and P-ATA options are for advanced users only. If you set to any of these options and encounter problems, revert to the default setting S - A T A Configuration options: [P-ATA+S-ATA] A. [S-ATA] [P-ATA] Onboard SATA Boot Rom [Disabled] Allows you to enable or disable the onboard Serial ATA Boot ROM. Set this item to [Enabled] to configure Serial ATA RAID. Configuration option: [Disabled] [Enabled] IDE Detect Time Out [35] Selects the time out value for detecting ATA/ATAPI devices.



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Configuration options: [0] [5] [10] [15] [20] [25] [30] [35] ASUS P5LD2-VM DH 2-17 2.3.

6 System Information This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu. AMIBIOS Version : 0128 Build Date : 05/11/05 Processor Type Speed Count : Genuine Intel(R) CPU 3.20GHz : 3200 MHz : 1 System Memory Size : 512MB Appropriated : 0MB Available : 504MB AMI BIOS Displays the auto-detected BIOS information Processor Displays the auto-detected CPU specification System Memory Displays the auto-detected system memory 2-18 Chapter 2: BIOS setup 2.4 Advanced menu The Advanced menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction. JumperFree Configuration USB Configuration CPU Configuration Chipset Onboard Devices Configuration PCI PnP 2.4.1 JumperFree Configuration Select the target CPU frequency, and the relevant parameters will be auto-adjusted.

Frequencies higher than CPU manufacturer recommends are not guaranteed to be stable. If the system Configure System Frequency/Voltage AI Overclocking [Auto] AI Overclocking [Auto] Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking configuration options: M a n u a l - allows you to individually set overclocking parameters. A u t o - loads the optimal settings for the system. S t a n d a r d - loads the standard settings for the system. O v e r c l o c k P r o f i l e - loads overclocking profiles with optimal parameters for stability when overclocking. ASUS P5LD2-VM DH 2-19 The following item appears only when you set the A I O v e r c l o c k i n g item to [Manual]. CPU Frequency [XXX] Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the < + > and < - > keys to adjust the CPU frequency.

You can also type the desired CPU frequency using the numeric keypad. The values range from 100 to 400. Refer to the table below for the correct Front Side Bus and CPU External Frequency settings. FSB/CPU External Frequency Synchronization Front Side Bus FSB 1066 FSB 800 FSB 533 CPU External Frequency 266 MHz 200 MHz 133 MHz DRAM Frequency [Auto] Allows you to set the DDR2 operating frequency. Configuration options: [Auto] [DDR2-400MHz] [DDR2-533MHz] [DDR2-667MHz] Selecting a very high DRAM frequency may cause the system to become unstable! If this happens, revert to the default setting. PCI Express Frequency [Auto] Allows you to set the PCI Express frequency. This item is set to [Auto] by default. Configuration options: [Auto] [90]...

[150] PCI Clock Synchronization Mode [To PCI Express] Allows you to synchronize the PCI frequency with the PCI Express or CPU frequency.

Configuration options: [To PCI Express] [Fixed 33.3MHz] [Fixed 36.3MHz] [Fixed 40.0MHz] Memory Voltage [Auto] Allows you to select the DDR2 reference voltage.

Configuration options: [Auto] [1.812V] [1.904V] Refer to the DDR2 documentation before adjusting the memory voltage. Setting a very high memory voltage may damage the memory module(s)! 2-20 Chapter 2: BIOS setup MCH Chipset Voltage [Auto] Allows you to select the memory controller hub (MCH) voltage. Configuration options: [Auto] [1.

50V] [1.60V] [1.70V] CPU VCore Voltage [Auto] Sets the operating VCore voltage. Configuration options: [Auto] [1.7000V] [1.6875V] [1.6750V] [1.6625V] [1.6500V] [1.6375V] [1.

6250V] [1.6125V] [1.6000V] [1.5875V] [1.5750V] [1.5625V] [1.5500V] [1.5375V] [1.5250V] [1.5125V] [1.

5000V] [1.4875V] [1.4750V] [1.4625V] [1.4500V] [1.

4375V] [1.4250V] [1.4125V] [1.4000V] [1.3875V] [1.

3750V] [1.3625V] [1.3500V] [1.3375V] [1.3250V] [1.3125V] [1.3000V] [1.2875V] · Setting to a very high CPU VCore voltage can damage the CPU or may cause the system to become unstable. If this happens, revert to default settings. The following item appears only when the A I O v e r c l o c k i n g item is set to [Overclock Profile].

· Overclock Options [Overclock 5%] Allows you to overclock the CPU speed through the available preset values. Configuration options: [Overclock 5%] [Overclock 10%] [Overclock 15%] [Overclock 20%] [Overclock 30%] ASUS P5LD2-VM DH 2-21 2.4.2 USB Configuration The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options. USB Configuration Module Version - 2.23.0-F.4 USB Devices Enabled: None USB Function Legacy USB Support USB 2.0 Controller USB 2.

0 Controller Mode BIOS EHCI Hand-Off [Enabled] [Auto] [Enabled] [HiSpeed] [Disabled] The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None. USB Function [Enabled] Allows you to enable or disable the USB function.

Configuration options: [Disabled] [Enabled] Legacy USB Support [Auto] Allows you to enable or disable support for USB devices on legacy operating systems (OS). Setting to Auto allows the system to detect the presence of USB devices at startup.

If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto] USB 2.0 Controller [Enabled] Allows you to enable or disable the USB 2.0 controller.

Configuration options: [Disabled] [Enabled] USB 2.0 Controller Mode [HiSpeed] Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [HiSpeed] [Full Speed] BIOS EHCI Hand-off [Disabled] Allows you to enable support for operating systems without an EHCI hand-off feature. Configuration options: [Enabled] [Disabled] Do not disable the BIOS EHCI Hand-Off option if you are running a

Windows® operating system with USB device. 2-22 Chapter 2: BIOS setup 2.4.3 CPU Configuration The items in this menu show the CPU-related information that the BIOS automatically detects. Configure Advanced CPU settings Manufacturer: Brand String: Frequency : FSB Speed : Cache L1 Cache L2 Cache L3 Intel Genuine Intel(R) CPU 3.20GHz 3200 MHz 800 MHz : 16 KB : 1024 KB : 0 KB Min:14) [ 14] [ 45] [Enabled] [Disabled] [Auto] [Auto]

[Enabled] [Automatic] Sets the ratio between CPU Core Clock and the FSB Frequency.

NOTE: If an invalid ratio is set in CMOS then actual and setpoint values may differ. Ratio Status: Unlocked (Max:16, Ratio Actual Value : 16 Ratio CMOS Setting: VID CMOS Setting: Microcode Updation Max CPUID Value Limit Enhanced C1 Control CPU Internal Thermal Control Hyper Threading Technology Intel(R) SpeedStep(tm) Tech. CPU Lock Free [Auto] Allows you to adjust the CPU multiplier to 14x. Setting this item to [Auto] allows the motherboard to automatically reduce the CPU multiplier value for more flexibility when increasing the external FSB.



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