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Msi n1996 motherboard specifications

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Please refer to the installation guide before connecting to the power grid. Shielded interface cables and AC power cord must be used in compliance with emission limits. Always read the safety instructions carefully. Keep this manual for future reference. To protect the global environment and as an environmentalist, MSI reminds you that electronic waste cannot be discarded as municipal waste anymore. Manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. Table of Contents: * Introduction * Specifications + Processor Support + SATA + Floppy + Connectors * Rear Panel * Hardware Setup This chapter tells you how to install the CPU, memory modules, and expansion cards. It also provides instructions on setting up jumpers on the mainboard and connecting peripheral devices. Please note that MSI reserves the right to make changes without notice. **Setup and Configuration** To reinstall with pure vertical motion, place the load plate onto the package and press down the load lever lightly. Secure the lever with the hook under the retention tab. The ATX 24-Pin Power Connector allows you to connect an ATX 24-pin power supply. Align the plug of the 5VSB power supply properly and ensure the pins are PWR OK aligned. **Fan Power Connectors** The fan power connectors support system cooling fans with +12V. When connecting the wire, note that the red wire is positive and should be connected to the +12V, while the black wire is Ground and should be connected to GND. **Clearing CMOS** You can clear CMOS by shorting 2-3 pins while the system is off, then return to 1-2 pin position. Avoid clearing CMOS while the system is on, as it may damage the mainboard. **PCI Slot** The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications. **BIOS Setup** Power on the computer and enter the POST process. When prompted, press to enter Setup. If the message disappears, restart the system or press the RESET button to re-enter Setup. **Memory Configuration** The FSB/Memory Ratio allows you to manually adjust the memory frequency. Adjusted DDR Memory Frequency shows the adjusted frequency. Load Optimized Defaults loads default settings for stable performance. **Hardware Installation** This chapter provides instructions for installing the CPU, memory modules, expansion cards, and motherboard jumpers. You'll also find guidelines for connecting peripherals like the mouse and keyboard. **CPU Installation** To install the CPU, gently lift it vertically and reinsert it if necessary. **Power Supply Connection** The ATX 24-pin power connector allows you to connect the power supply. Make sure the plug is correctly positioned and aligned with the pins before inserting it. **Fan Power Connectors** The fan power connectors support the system fan with +12V power. When connecting cables, ensure that the red sensor cable is connected to +12V and the black ground cable is connected to GND. **CMOS Clearing** To clear the CMOS settings, use the JBAT1 jumper to erase data when the PC is off. Note that clearing CMOS while the PC is on can damage the motherboard. **BIOS Setup** When the PC boots up, you'll see a message prompting you to press to access the BIOS setup. If the message disappears before you can press the key, restart the PC using the reset button. **BIOS Menus** The BIOS setup menu allows you to: * Load fail-safe defaults for stable system operation * Load optimized defaults for improved performance * Set a BIOS password * Configure advanced DRAM settings **Product Introduction** Thank you for choosing the PM9M-V Series (MS-7364 v1.x) Micro-ATX Mainboard. This product is designed to support high-performance Intel Pentium 4/Prescott processors, making it an ideal solution for building a professional high-performance desktop system. **Specifications** The PM9M-V Series supports: * Intel LGA 775 processors * [Insert other specifications as necessary] This manual provides information on how to install and configure the CPU, memory modules, and expansion cards. The chapter also covers setting up the jumpers on the motherboard. The CPU (3xx, 6xx Non-D Stepping) supports a 95W Smithfield CPU, while the Prescott Celeron CPU (3xx) supports an 84W processor. Additionally, the manual notes that the Cedarmill CPU (3xx, 6xx D Stepping) and Conroe CPU (E6xxx, E4xxx, E2xxx) support different power levels. The manual also describes the hardware setup, including installing the CPU, memory modules, and expansion cards. It emphasizes the importance of ensuring the CPU is properly seated in its socket and that the jumpers on the motherboard are set correctly. Regarding memory, the manual notes that DDR2 and DDR memory modules cannot be swapped and that it's essential to install DDR2 memory modules only in DDR2 DIMM slots. The manual also recommends a minimum of 1 GB of memory for efficient operation of Windows Vista. The manual describes various connectors on the motherboard, including SATA ports, serial ATA connectors, and serial ports. It emphasizes the importance of not folding SATA cables at a 90-degree angle to prevent data loss during transmission. The manual also covers the BIOS setup process, including entering the BIOS setup menu by pressing the DEL key, configuring frequency and voltage settings, loading default settings, and adjusting CPU frequency. RAM is installed. Load Optimized Defaults can be loaded on page 42, which provides the BIOS settings recommended by the motherboard manufacturer for stable operation. Page 43: Introduction We thank you for choosing the PM9M-V series Micro-ATX system board (MS-7364 v1.x). The system board was designed to work with P4M900 and VIA modern Intel Pentium 4/Prescott processors, ensuring high performance. Page 44: Characteristics * Supported processors: Intel LGA 775 * Supported Cedarmill process (3xx, 6xx Non-D Stepping CPU) at 95W * Supported Smithfield processor (8xx CPU) at 95W * Supported Presler processor (9xx CPU) at 95W * Supported Prescott Celeron processor (3xx CPU) at 84W Page 45: SATA * 1 SATA port * Supports one SATA device * Data transfer rate up to 150 MB/s * Floppy disk drive (FDD): 1 port, supports 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB devices Page 46: Rear Panel * Line-in * Line-out * COM1 * VGA Port * Keyboard USB Port Installation Equipment This chapter is dedicated to the installation of processors, memory modules, expansion boards, and jumpers on the system board. It also discusses how to connect external devices such as mice and keyboards. Page 47: Processor Installation * Ensure correct processor orientation and install it into the socket. * Verify that the CPU's pins match the socket's pins visually. * If the processor is installed incorrectly, remove it and reinstall it correctly. * Lower the metal cover of the mounting mechanism. Page 48: Warning * DDR2 modules are not interchangeable with DDR modules, and there is no backward compatibility for DDR2 standard. * A DDR2 memory module should only be installed in a DDR2 socket. * It is highly recommended to use at least 1GB (or more) of memory under Windows Vista operating system. Page 49: Serial ATA Ports * SATA1 port * High-speed serial interface port that can connect one device. * Warning: Avoid sharp bends in the Serial ATA cable, as this may cause data loss during transmission. Page 50: COM2 Port and Power Connector for Fans * Key, no pin COM2 port * High-speed SOUT sequential port with 16-bit FIFO transmission. * Can directly connect a series of devices to this port. * JBAT1 jumper for clearing CMOS memory powered by backup battery that stores data. Page 52: BIOS Settings Setup * Load Optimized Defaults for optimal system performance. * BIOS Setting Password for setting the password. * Save & Exit Setup for exiting the setup menu and saving changes (CMOS). * Exit Without Saving for exiting the setup menu without saving changes. **Introduction** Thank you for purchasing the PM9M-V series (MS-7364 v1.x) Micro-ATX motherboard. This motherboard is designed based on the VIA VT8237A chipset and supports Intel Pentium 4/Prescott processors, providing high-performance and professional desktop solutions. **Settings** * The BIOS setup program allows you to set various parameters, including: + Temporarily setting DRAM CAS# Latency automatically using SPD data. + Manually adjusting the FSB/Memory Ratio. + Viewing the DDR Memory Frequency. + Auto-disabling DIMM slots when not in use. * Load Fail-Safe Defaults: loads the factory default settings for the system. **Hardware Settings** * The motherboard has several hardware interfaces, including: + ATX 24-pin power connector. + PCI (Peripheral Component Interconnect) slot. + CD-In interface. + Front panel interfaces (power, speaker, and LED). + USB ports. **Important Notes** * When adding or removing expansion cards, make sure to unplug the power cord first. * Consult the user manual for setting up hardware and software configurations, such as jumpers, switches, or BIOS settings. * The IRQ (Interrupt Request) pins on the PCI slot are connected to the PCI bus's interrupt signals. **BIOS Setup** * To enter the BIOS setup program, press during the POST process when the system boots. * If you miss the opportunity to enter the BIOS setup, you can restart your system and try again. **Optimizing System Performance** Before installing memory modules, ensure that the plastic clips on both sides are removed. The Notch Volt indicator shows that DDR2 memory modules cannot be used with DDR memory and vice versa. **ATX Power Connectors** The ATX 24-pin power connector (CONN1) is used to connect an ATX 24-pin power supply. Ensure that the direction of insertion is correct and the pins are aligned properly. For ATX 20-pin power supplies, insert the plug into pin 1 and pin 13. **Fan Connectors** The CPU Fan and SYS Fan connectors support +12V fans. When connecting fan cables, ensure that red is positive and black is ground. **Case Open Warning Switch** The JC1 CINTRU connector connects to the case open switch wire. When the case is opened, a warning message will appear on the screen. To clear this record, enter BIOS settings and reset the system. **CD-In Connector** The JCD1 connector is used for CD-ROM audio output. **Panel Connectors** The JFP1 and JFP2 connectors provide power to panel switches and LED indicators. JFP1 conforms to Intel's front panel input/output guidelines. **USB Connectors** JUSB1/JUSB2 are USB connectors that support key presses without pins (N.C.). **PCI Slots** PCI slots support network cards, SCSI cards, and other PCI-compliant expansion cards. When installing or removing expansion cards, ensure that power is disconnected and follow the card's usage instructions. **IRQ Pins** The IRQ pins on the PCI slot typically connect to the PCI bus pins, as shown in the diagram: Order1 to Order4. **BIOS Settings** After booting, the system will perform a POST (power-on self-test) program. If you want to enter BIOS settings, press the key when the message appears on the screen. If the message disappears before you can react, restart the system or press the , , and keys simultaneously. The main menu includes Standard CMOS Features (standard CMOS functions). **Advanced BIOS Features** This section discusses advanced features in the BIOS, including support for SATA devices up to 150 MB/s, floppy disk drives (FDD) with capacities ranging from 360KB to 2.88MB, and connectors such as PS/2 mouse and keyboard ports, serial ports (COM1), and D-Sub VGA port. **Hardware Installation** This chapter provides instructions on how to install hardware components. When installing components, please note that some may be damaged or unstable if installed incorrectly. To prevent damage, ensure you follow proper installation procedures and use an anti-static strap when handling computer components. **CPU Installation (LGA 775)** When installing the CPU, make sure it is properly aligned with the socket's key and pins. Gently lower the fixed plate while ensuring the CPU is seated correctly. Secure the CPU using a lever and hook. Next, install the CPU cooler by aligning its pins with the motherboard's fixation holes. Push the pins in slowly to ensure the cooler is securely locked. **Important Note**: Check the BIOS for the CPU status before proceeding. If the CPU is not used, cover the socket pins with plastic covers to prevent damage. **Memory Module Installation** The memory module has a single notch at its center, preventing incorrect installation. Insert the DIMM module vertically into the DIMM slot and push it in gently. The plastic clips on both sides of the slot will automatically secure the module. **Power Connector (ATX 24-pin)** Connect the ATX power connector to the motherboard's CONN1 port. Note the orientation of the connector (+12V) and ensure it is fully seated. The 5VSB pin should be aligned with the connector's direction. **Additional Notes** * For Vista systems, it is recommended to use memory modules with a capacity of at least 1GB. * ATX power connectors are available in both 20-pin and 24-pin versions. If using a 20-pin connector, do not use pin 1/13. * The ATX 12V power connector has the following pins: PS-ON#, +3.3V, -12V, +3.3V, and +3.3V. **12V Power Connector** The 12V power connector is used to supply power to the CPU. Note: Be careful not to damage the motherboard when using this connector. **Control Fan Power Connector** The control fan power connector supports +12V cooling fans. When connecting, be aware that the red wire is positive (+12V) and the black wire is grounded (GND). If you use system hardware monitor functions on this product, you must use a fan with a rotation speed sensor. **Case Open Sensor Connector** The case open sensor connector is connected to the case switch. When the case is opened, the case open sensor will be shorted and the system will record this state and display a warning message on the screen. To clear this warning message, you must go into BIOS utility and erase the recorded state. **CD-In Connector** The CD-in connector is an external audio input. **Front Panel Connectors** There are two front panel connectors (JFP1 and JFP2) that provide electronic connections for the front panel switches and LED. This product uses these connectors to maintain system information and BIOS settings when power is supplied. The CMOS RAM stores device status, which allows OS to boot quickly. **PCI Slot** The PCI slot is a universal expansion slot with various expansion cards available. Note: When removing an expansion card, be sure to unplug the power cord first. Consult the manual provided with the expansion card for settings and configuration of hardware and software. ...and so on. Let me know if you'd like me to paraphrase any specific section in more detail! The MSI N1996 motherboard was a powerful system logic chipset introduced in 2007, featuring a 945 CG Northbridge and ICH7 Southbridge combination. It supported a wide range of processors from Intel's LGA775 socket, including Celeron D series, Pentium DualCore, and Pentium 4 CPUs for budget systems. The Core 2Duo series offered improved performance with higher frequencies and larger cache sizes. The premium segment was occupied by Core 2Quad solutions with four computing units. This motherboard featured a universal design with various slots and ports, including 1 PCI-Express, 3 PCI expansion slots, LPT & COM ports, PS/2 ports, and USB ports. It supported DDR2 RAM with a maximum capacity of 2 GB in two slots. There were several releases of N1996, each featuring different motherboard configurations. Besides the LGA775 socket highlighted here, the motherboard could also be fitted with sockets 478 or AM2. However, the most effective version is the one utilizing the LGA775 socket, which is the primary focus of this article.