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Intel Pentium LPX motherboard

Part numbers: 4000271 (without processor); also MBDSAC153AAWW, MBDSAC158AAWW, MBDSAC159AAWW, MBDSAC160AAWW, and MBDSAC161AAWW (with processors)



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Atapi connections

This is the CD-ROM connector on the board. It is on the right rear of the board in the full picture. It is keyed and thus will only fit one way.



This is the TAD connector on the board. It is located

directly down from the DIMM slots in the full picture. It is keyed and thus will only fit one way.



Battery

This is the battery present on the Pentium LPX motherboard. When replacing the battery, make sure to use the same part number. The battery is designed for easy removal and replacement.

Bios

The latest BIOS revision for this motherboard can be found in our [Driver download](#) section.



DIMM configuration

The two DIMM sockets are arranged as Bank 0 and Bank 1. Each bank consists of one socket and a 64-bit wide data path. Bank 0 only, Bank 1 only, or both banks may be populated. Either EDO and SDRAM may be installed. Do not use together in the same computer. Only gold-plated DIMMs are to be used with this motherboard.

Memory configuration table

| (Bank 0) DIMM Type (Amount) | (Bank 1) DIMM Type (Amount) | Total System Memory |
|-----------------------------------|-----------------------------------|------------------------|
| Empty | 1M X 64 (8MB) | 8 MB |
| 1M X 64 (8MB) | Empty | 8 MB |
| 1M X 64 (8MB) | 1M X 64 (8MB) | 16 MB |
| 1M X 64 (8MB) | 2M X 64 (16 MB) | 24MB |
| 1M X 64 (8MB) | 4M X 64 (32 MB) | 40MB |
| 1M X 64 (8MB) | 8M X 64 (64 MB) | 72MB |
| 1M X 64 (8MB) | 16M X 64 (128 MB) | 136MB |
| Empty | 2M X 64 (16MB) | 16 MB |
| 2M X 64 (16 MB) | Empty | 16 MB |
| 2M X 64 (16 MB) | 1M X 64 (8MB) | 24 MB |
| 2M X 64 (16 MB) | 2M X 64 (16 MB) | 32 MB |
| 2M X 64 (16 MB) | 4M X 64 (32 MB) | 48 MB |
| 2M X 64 (16 MB) | 8M X 64 (64 MB) | 80 MB |

| | | |
|-------------------|-------------------|--------|
| 2M X 64 (16 MB) | 16M X 64 (128 MB) | 144 MB |
| Empty | 4M X 64 (32 MB) | 32 MB |
| 4M X 64 (32 MB) | Empty | 32 MB |
| 4M X 64 (32 MB) | 1M X 64 (8MB) | 40MB |
| 4M X 64 (32 MB) | 2M X 64 (16MB) | 48MB |
| 4M X 64 (32 MB) | 4M X 64 (32 MB) | 64MB |
| 4M X 64 (32 MB) | 8M X 64 (64 MB) | 96MB |
| 4M X 64 (32 MB) | 16M X 64 (128 MB) | 160MB |
| Empty | 8M X 64 (64 MB) | 64MB |
| 8M X 64 (64 MB) | Empty | 64MB |
| 8M X 64 (64 MB) | 1M X 64 (8 MB) | 72MB |
| 8M X 64 (64 MB) | 2M X 64 (16 MB) | 80MB |
| 8M X 64 (64 MB) | 4M X 64 (32 MB) | 96MB |
| 8M X 64 (64 MB) | 8M X 64 (64 MB) | 128MB |
| 8M X 64 (64 MB) | 16M X 64 (128 MB) | 192MB |
| Empty | 16M X 64 (128 MB) | 128MB |
| 16M X 64 (128 MB) | Empty | 128MB |
| 16M X 64 (128 MB) | 1M X 64 (8 MB) | 136MB |
| 16M X 64 (128 MB) | 2M X 64 (16 MB) | 144MB |
| 16M X 64 (128 MB) | 4M X 64 (160 MB) | 160MB |
| 16M X 64 (128 MB) | 8M X 64 (64 MB) | 192MB |
| 16M X 64 (128 MB) | 16M X 64 (128 MB) | 256MB |



Drive connections

Shown in this picture are the primary and secondary IDE controllers that are integrated on the motherboard. They are located on the lower left hand corner of the main motherboard picture. These connectors are keyed for easy connection. The left IDE connector is the primary IDE controller, and the secondary controller is the one located to the right in the picture.



This is the Integrated floppy connector on the motherboard. The connector is keyed to make it easier to connect the floppy cable correctly. Pin 1 is located

on the edge of the motherboard, which is towards the far left on the main motherboard picture.



I/O ports

This is a closer view of the I/O connections present on the Pentium LPX motherboard. All of the ports are integrated into the motherboard. There are no separate cables that connect the ports to the motherboard. This I/O panel features one parallel port, one serial port, two PS/2 ports to which the keyboard and mouse are connected, a LAN Port, and two USB (Universal Serial Bus) connectors. To view the signals that are routed through each port, click on the individual connector of interest.

Serial ports

The Pentium motherboard has one 9-pin D-Sub serial port connector located on the back panel. The 16450 and 16550A compatible UARTs support data transfers at speeds up to 921.6 Kbaud, while the extended UART mode supports data rates up to 1.5 Mbaud. Both of these ports can be configured in several different combinations in the CMOS Setup.

Parallel port

The connector for the multimode bidirectional parallel port is a 25-pin D-Sub connector located on the back panel of the Pentium Motherboard. In the Setup program, there are three options for the parallel port operation:

- Compatible (standard mode)
- Bidirectional Enhanced Parallel Port (EPP). A driver from the peripheral manufacturer is required for operation.
- Bidirectional high-speed Extended Capabilities Port (ECP)

Keyboard and mouse interface

PS/2 keyboard and mouse connectors are located on the back panel of the motherboard. The 5 volt lines to these connectors are protected with a PolySwitch circuit that, like a self-healing fuse, reestablishes the connection after an over-current condition is removed. While this device eliminates the possibility of having to replace a fuse, power to the computer should be turned off before connecting or disconnecting a keyboard or mouse.

The keyboard also supports the following hot-key sequences:

<ctrl><alt> Software reset.

This key sequence resets the computer's software by jumping the beginning of the BIOS code and running the Power On Self Test (POST).

USB-Universal serial bus

USB is basically a bigger and better bus. USB accommodates any number of peripherals on a single connection as long as their cumulative bandwidth demands do not exceed 12 Mbps. That is about 100 times the limit of current serial buses. USB is wide enough to daisy-chain a printer, scanner, still camera, and removable hard disk drive from one port. Another key feature of USB is hot plugging. This will provide the ability to plug a device into the USB port, and have it automatically be recognized by the operating system. Drivers will not have to be loaded and the computer will not have to be reconfigured or restarted. After plugging the USB peripheral into the USB port, the peripheral automatically becomes fully functional.



LPX riser card

Here is the riser card slot. Rather than having the expansion slots on the motherboard, the LPX form factor makes use of a riser card for expansion slots. The two types of riser cards can either have 1 PCI slot and 1 Shared ISA/PCI slot or have 2 PCI slots.



Onboard network interface

This is the AMD PCnet Networking chipset controller.

This controller consists of the following features:

- 32 bit direct bus mastering on the PCI bus
- 10Base-T and 100Base-TX capability using a single RJ-45 Connector
- IEEE 802.3u Auto-Negotiation for hardware selection of highest operating speed
- Support for boot ROM (Flash or EPROM) up to 256 KB
- Jumperless configuration; the LAN subsystem is totally software configurable
- Integrated Magic Packet™ technology support for remote power of networked computers
- Includes two power-saving sleep modes (sleep and snooze)



Onboard audio

Crystal CS4236 The drivers for this chipset can be found in our [Driver download](#) area.

The CS4236 provides all the digital audio and analog mixing functions required for playing and recording of audio on personal computers. These functions include stereo analog-to-digital and digital-to-analog converters, analog mixing, anti-aliasing and reconstruction filters, line and microphone level inputs, and digital audio compression using selectable A-law / mlaw, and full digital control of all mixer and volume control functions. With the integrated Sound Blaster OPL3 compatible FM synthesizer, the CS4236 also supports full-duplex operation which ensures support for future applications, such as video conferencing. The CS4236 includes a full Plug and Play ISA interface and is comprised of seven logical devices, including the Synthesizer, Game Port, Sound Blaster, Sound System, MPU-401, CD-ROM interface and the CS4236 device itself. Each logical device is configured into the host environment using the ISA Plug and Play configuration methodologies. The audio subsystem requires up to two DMA channels and one interrupt. The system can be configured to use either DMA channels 0, 1, or 3. The interrupt and can be mapped to interrupt 5, 7, 9, 11, 12, or 15.



Onboard video

The Pentium LPX motherboard is available with a factory option of either an S3 Trio64 V+, V2, or ViRGE SVGA graphics. The Pentium motherboard supports the S3 media channel, LPB, for HW MPEG. Drivers for these chipsets can be found in our [Driver download](#) area. Please go to the STB section and select the appropriate video chipset.

S3 ViRGE graphics

The factory option of an S3 ViRGE SVGA graphics controller, with 2 MB of 50 ns EDO SOJ DRAM, has a high performance 64-bit 2D/3D graphics engine. It incorporates the S3 Streams processor that enables the device to convert YUV formatted video data to RGB, and provides acceleration for scaling video display without compromising picture quality or frame rate. The on-chip RAMDAC/clock synthesizer is capable of output pixel data rates of 130MHz providing

non-interlaced screen resolutions of up to 1280x1024x256 colors at 75 Hz. The 64-bit S3d Engine incorporates the key Windows and other GII accelerator functions of BitBLT, line draw, and polygon fill. 3D features include flat shading, Gourand shading and texture mapping support. Advanced texture mapping features include perspective correction, bi-linear and tri-linear filtering, MIP-mapping, and Z-buffering. These features provide the most realistic user experience for 3D applications. In addition, a fast linear addressing scheme based upon DCI reduces software overhead by mapping the display memory into the microprocessor's upper memory address space and permitting direct microprocessor access to the display memory.

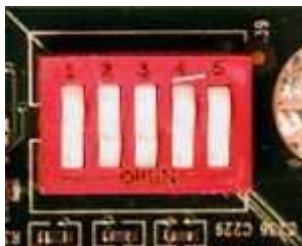
ViRGE resolutions and refresh rates

| 2 MB Memory Resolution | Refresh Rate (Hz) at 4-bit color | Refresh Rate (Hz) at 8-bit color | Refresh Rate (Hz) at 15/16-bit color | Refresh Rate (Hz) at 24-bit color | Refresh Rate (Hz) at 32-bit color |
|------------------------|----------------------------------|----------------------------------|--------------------------------------|-----------------------------------|-----------------------------------|
| 640 x 480 | 60 | 60, 72, 75, 85 | 60, 72, 75 | 60, 72, 75* | 60, 72, 75 |
| 800 x 600 | not supported | 56, 60, 72, 75, 85 | 60, 72, 75 | 60, 72, 75* | 60, 72, 75 |
| 1024 x 768 | not supported | 43(IL), 60, 70, 75, 85 | 43(IL), 60, 70, 75 | 43(IL), 60, 70, 75* | not supported |
| 1152 x 864 | not supported | 60 | not supported | not supported | not supported |
| 1280 x 1024 | 43(IL), 45(IL), 60, 72, 75* | 45(IL), 60, 72, 75 | not supported | not supported | not supported |
| 1600 x 1200 | not supported | 48.5(IL) | not supported | not supported | not supported |

* Non-accelerated mode only

IL Interlaced

Processor support Depending on jumper setting, this motherboard can socket a wide variety of Pentium, Pentium MMX, and compatible processors. For jumper/switch settings, see the information below.



System jumper

Switch / Jumper Settings

These allow the motherboard to be switched between different speeds of the Pentium processor. These

switches also affect the PCI and ISA clock speeds according to the following tables.

Configuration switch settings

| Function | Switch | Configuration |
|-------------------------------|--------|---|
| Processor Bus Speed Selection | SWT1-1 | Open=66Mhz, Closed=60Mhz |
| Processor Bus to Core Ratio | SWT1-2 | See Table Below |
| Processor Bus to Core Ratio | SWT1-3 | See Table Below |
| K6 Extended Bus to Core Ratio | SWT1-4 | See Table Below |
| Enable/Disable On-board BIOS | SWT1-5 | Open=On-board BIOS Enabled, Closed=Disabled |

Microprocessor configuration- SW1 A, B, C, D

| Microprocessor Freq. (MHz) | Host Bus Freq. (MHz) SWT1-A | SWT1-4 | SWT1-3 | SWT1-2 | Bus Clock Multiplier |
|----------------------------|--------------------------------|--------|--------|--------|----------------------------------|
| 233 | 66 | Open | Open | Open | 3.5 |
| 200 | 66 | Open | Closed | Open | 3.0 |
| 180 | 60 | Open | Closed | Open | 3.0 |
| 166 | 66 | Open | Closed | Closed | 2.5 |
| 130 | 60 | Open | Closed | Closed | 2.5 |
| 130 | 66 | Open | Open | Closed | 2.0 |
| TBD | TBD | Closed | Open | Closed | 4.0 (Future settings for AMD K6) |
| TBD | TBD | Closed | Closed | Closed | 4.5 |
| TBD | TBD | Closed | Closed | Open | 5.0 |
| TBD | TBD | Closed | Open | Open | 5.5 |

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