

PC PLATFORMS & PRODUCTS

PhoenixBIOS™ 4.0 and related products for the 440LX AGPset

- **PhoenixBIOS for Pentium® II**
 - Multi-processor support
 - Dual Independent Bus (DIB) architecture
 - Pentium® II L2 cache initialization
- **Full Suite of ACPI Solutions**
 - LogoPlus ACPI BIOS
 - Advanced ACPI BIOS
 - ACPI Architect
 - OnNow, PC97/98 compliance
 - Customization for OEM preferences
- **PhoenixFLASH™**
 - Flash upgrade utility
 - Intel and AMD-compatible architectures supported



EPA POLLUTION PREVENTER



PhoenixBIOS™ 4.0 Release 6 Support for the Intel® 440LX AGPset

PhoenixBIOS Support for Intel's 440LX AGPset

Phoenix Technologies provides comprehensive support for the Intel 440LX AGP (Accelerated Graphics Port) chipset. Phoenix engineers worked closely with Intel during each phase of the 440LX development to solve design issues and develop an initial BIOS. The engineering groups from both companies continue to work side-by-side to ensure full support for the 440LX as it is developed and deployed.

The Intel 440LX AGPset

The Intel 440LX AGPset is the first AGP chipset solution designed to optimize Pentium® II processor-based PC's. Phoenix is proud to offer the general purpose PC market a complete and well-tested BIOS to support all of the features provided by this highly integrated two-chip set.

The Intel 440LX AGPset consists of the following components:

- 1) **PCI AGP Controller (PAC)** — Composed of two PCI devices, the PAC includes a PCI host bridge and an Accelerated Graphics Port controller. Introduced with this chip, AGP is a high performance component-level interconnect for 3D graphics applications that can handle up to 133MHz data transfer rates. The PCI host bridge supports up to two Pentium® II processors, includes a memory controller, and provides an optimized 72-bit DRAM interface (64-bit data plus ECC). The interface to a 33MHz PCI bus is compliant with the PCI 2.1 specification.
- 2) **PCI ISA IDE Accelerator (PIIX4)** — The PIIX4 is the most tightly integrated I/O bridge produced by Intel. The PIIX4 PCI-to-ISA bridge includes Deep Green Power Management support and an enhanced DMA with a standard interrupt controller and timer functions. A host/hub interface for two Universal Serial Bus (USB) ports is also integrated into the PIIX4.

PhoenixBIOS 4.0 support for the Intel 440LX PCI/AGP Controller:

- Single or dual Pentium® II processor configurations
- 66MHz bus frequency
- Ultra DMA - 33MB/s
- Greater than 100MB/s data streaming for PCI to DRAM accesses
- AGP interface
- Quad Port Acceleration
 - Four port (processor bus, graphics, PCI and DRAM) concurrent arbitration
 - Direct connect AGP
 - Dynamic distributed arbitration
 - Multi-stream memory access
- Integrated DRAM controller including:
 - EDO and SDRAM
 - Memory type auto-detection (Serial Presence Detect)
 - Symmetrical and asymmetrical DRAM addressing
 - 64/72-bit data path to memory
 - 8MB to 1GB main memory
 - 4MB, 16MB, and 64MB DRAM technologies
 - Configurable ECC/EC support
 - Read-Around-Write support for host and PCI DRAM read accesses
 - 3.3V DRAM support

Intel Pentium® II Processor BIOS Optimizations

- Multi-processor support (MP, MPS)
- 64- and 72-bit data bus support
- Pentium® II L2 cache initialization/configuration support
- Uncached Speculative Write Combining (USWC) for video memory

PhoenixBIOS Support for AGP Interface

- AGP specification compliant
- AGP 66/133 MHz 3.3v device support
- Synchronous coupling to the host bus frequency

Memory Configuration

- New memory detection and sizing algorithm
- Serial Presence Detect

Universal Serial Bus (USB) BIOS

- Modifications to core BIOS to support USB
- Enable USB host controller
- Enumerate USB and configure USB devices
- Support USB keyboards, mice and hubs at POST

PCI 2.1 Compliant BIOS

- Modification of core BIOS to initialize and support PCI
- PCI bus configuration
- Five PCI bus master support, in addition to the host and PCI-to-ISA I/O bridge
- Expansion bus capability
- Option for Plug and Play capabilities
- PCI parity checking and generation

Power Management

- APM (Advanced Power Management) version 1.2 core BIOS support
- Enhanced setup to support power management configuration
- Support for all power management devices collectively and/or individually
- System and device power management support
 - System state machine: table driven state definitions and transitions
 - Device supervisor: device power management coordination with APM 1.2 and plug and play

PhoenixBIOS 4.0 -- Worldwide Support and Custom BIOS Solutions

Phoenix Technologies, with development offices around the world, provides local support to manufacturers, system integrators, and system designers. In addition to providing standard BIOS support, as the leading BIOS supplier of AGP, PCI, Plug and Play, and Power Managed systems, Phoenix also provides highly customized desktop firmware solutions for today's successful manufacturers.

Today's manufacturers require more from their firmware supplier. Phoenix meets not only the demands for current firmware, but also helps manufacturers deploy new technologies quickly and get their products to market faster. Successful PC suppliers depend on Phoenix Technologies as their technology partner.

Contact your Phoenix sales or support representative for information on PhoenixBIOS 4.0 silicon support.