

Preliminary Information



AMD-760[™] MPX Chipset Overview

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Revision History

Date	Revision	Description
A	December 2001	Initial Public Release.

Overview

The AMD-760™ MPX chipset is a high performance two-way multiprocessor core logic solution for AMD Athlon™ MP class processors, offering **Multi-Processor eXtended (MPX)** performance over the AMD-760 MP chipset. Extended performance is offered by the 66-MHz/64-bit/32-bit PCI bus and a feature-rich peripheral bus controller offering PCI-to-PCI bridging capability along with AC '97 audio. The high-performance of the chipset is attributed to an enhanced AMD Athlon system bus, support for DDR (Double Data Rate) memory technology, and AGP-4X Graphics Interface.

The AMD-760 MPX chipset consists of the following components:

- AMD-762™ System Controller (Northbridge)
- AMD-768™ Peripheral Bus Controller (Southbridge)

Together, these components provide a powerful solution for Workstation and Server class platforms.

Key features of the chipset are as follows:

- Dual high-speed 266 MHz¹ AMD Athlon system buses, supporting up to two processors
- PC2100² DDR memory subsystem supporting up to 4 GB of memory
- AGP-4X Graphics Interface (supports 1X and 2X modes)
- Primary PCI 2.2 compliant 66-MHz/64-bit/32-bit PCI Bus
- Secondary PCI 2.2 compliant 33-MHz/32-bit PCI Bus
- Two-channel ATA 33/66/100 support
- LPC bus
- Thirty-two general-purpose IO (GPIO) pins
- USB OHCI host controller supporting four ports
- SM-Bus
- IOAPIC support
- Serial IRQ support
- Power Management support
- AC '97 Audio support

These features combine to deliver unprecedented performance to platforms implementing AMD processor technology.

¹ The 266-MHz speed represents a 133-MHz clock signal with data transfers on both clock edges. This is calculated as (a 133-MHz clock) x (2 data transfers/clock) = 266 M transfers/sec = 266-MHz data rate.

² PC2100 represents DDR memory DIMMS that provide data rates of 2100 MB/sec. This is calculated as (a 133-MHz clock) x (2 data transfers/clock) x (8 Bytes/transfer) ≈ 2100 MB/sec.

Figure 1 shows the system architecture of the AMD-760 MPX chipset.

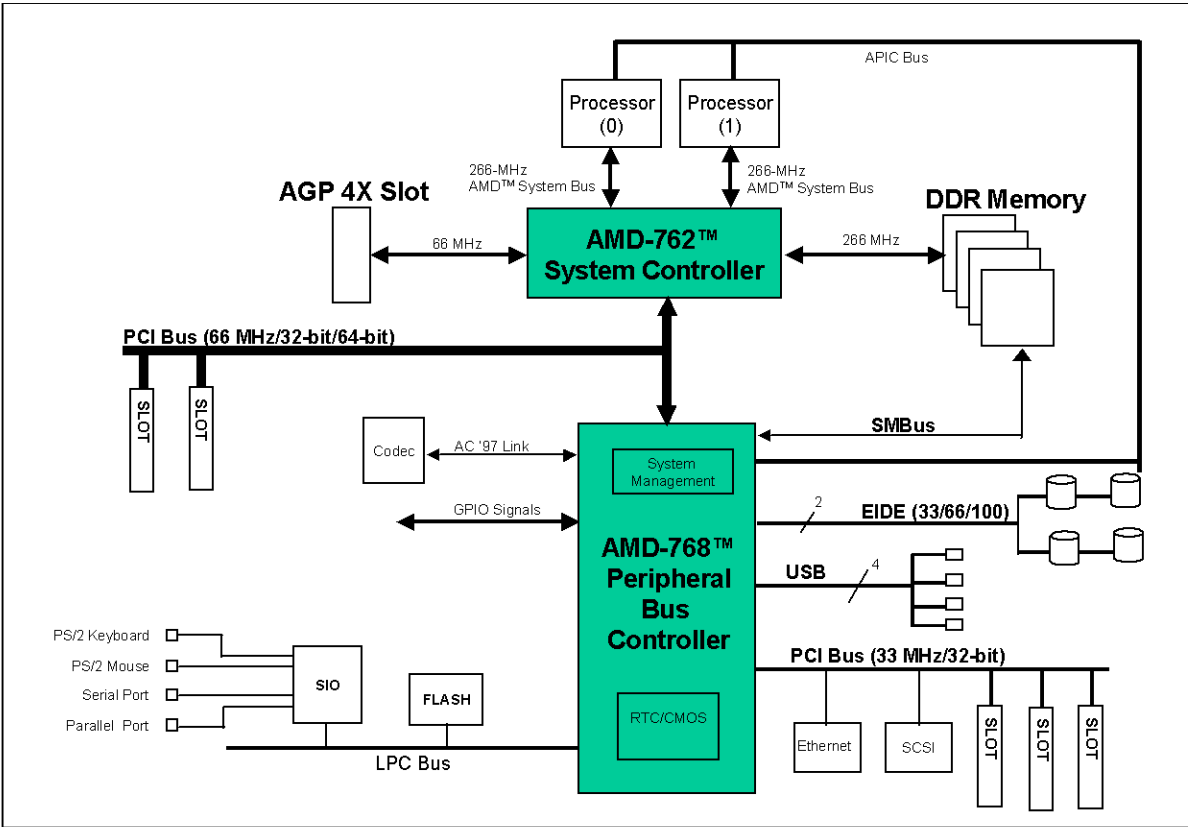


Figure 1. AMD-760™ MPX Chipset High-Level System Architecture

AMD-762™ System Controller

The AMD-762 system controller provides the bridging function between the high-speed host-processor buses, AGP graphics subsystem, DDR memory subsystem, and the PCI interface.

Key features of the AMD-762 system controller are as follows:

- Two 266 MHz point-to-point AMD system buses, providing uniprocessor or two-way symmetric multiprocessor capability
- PC2100 DDR (Double Data Rate) Memory Controller with support for up to 4 GB of memory space (supports four Registered DIMM slots)
- AGP-4X Interface (supporting 1X and 2X modes)
- Dual Mode PCI 2.2-Compliant PCI Bus Interface
 - 66-MHz clock with 32-bit and 64-bit data path support (supports up to two PCI slots³)
 - 33-MHz clock with 32-bit and 64-bit data path support (supports up to seven PCI devices⁴)
- A 949-pin Ceramic Column Grid Array (CCGA) package
- 2.5 V Core

³ The 66-MHz PCI bus mode is supported only with the AMD-768 peripheral bus controller.

⁴ The 33-MHz PCI bus mode is supported only with the AMD-766 peripheral bus controller. For more details, refer to the *AMD-760 MP Chipset Overview*, order # 24229.

AMD-768™ Peripheral Bus Controller

The AMD-768 peripheral bus controller is an Integrated Circuit (IC) that serves as the I/O hub, interface module, or Southbridge component of personal computer chipsets. The AMD-768 peripheral bus controller connects to a host memory controller through the PCI bus and provides a secondary PCI-bus bridge.

- Host (primary) PCI bus utilizing a 66MHz/32-bit interface (PCI 2.2 Compliant)
- Secondary 33MHz/32-bit PCI bus interface (PCI 2.2 Compliant), including PCI bus arbiter with support for up to eight external devices
- AC '97 Soft Audio Controller⁵
- UDMA 33/66/100 compatible EIDE bus master controller:
 - Support for a primary and a secondary dual-drive ports
 - Supports PIO modes 1–4
 - Multi-Word DMA
 - ATAPI
 - Two separate FIFOs for DMA accesses
- OHCI-based USB host
 - Includes a root hub and supports for four ports
 - Supports specification version 1.1
- Extensive ACPI-compliant Power Management logic:
 - Programmable C2, C3, Power-On-Suspend states
 - Suspend-to-RAM
 - Suspend-to-Disk
 - Soft Off states
 - Throttling
 - Device monitors
 - Hardware traps
 - System inactivity timer
- Privacy/security logic, including ROM access control
- Thirty-two General Purpose I/O (GPIO) pins (Many pins are multiplexed with other hard-wired functions.)
- Legacy-AT Compatible Logic:
 - Interrupt Controller (8259-based)

⁵ The AMD-768 peripheral bus controller does not support AC'97 Soft Modem.

- Programmable Interval Timer (8254-based)
- DMA Controller (for LPC bus)
- Legacy Ports
- Real-Time Clock (RTC):
 - 256 bytes of CMOS
 - Battery-powered RAM
 - ACPI-compliant extensions
- I/O APIC Controller
- Support for Distributed DMA and serial IRQ protocols
- SMBus controller with one SMBus port
- Random Number Generator
- A 492-pin BGA package; 26x26 BGA grid; 35x35 millimeters square
- Both 2.5-volt core and 3.3-volt output drivers; 5-volt tolerant input buffers