M1697

High Definition PCI Express™ Single Chip

- AMD Athlon™ 64 X2 / Athlon™ 64 Processor
- 16x16 HyperTransport™ 2.0 GT/s to CPU
- PCI Express™ Graphics and I/O Device Interface
- SATA II 3Gbps (AHCI) with NCQ Support
- RAID 0, 1, 0+1, 5, JBOD
- High Definition Audio

Single Chip Solution for True 64-bit Performance

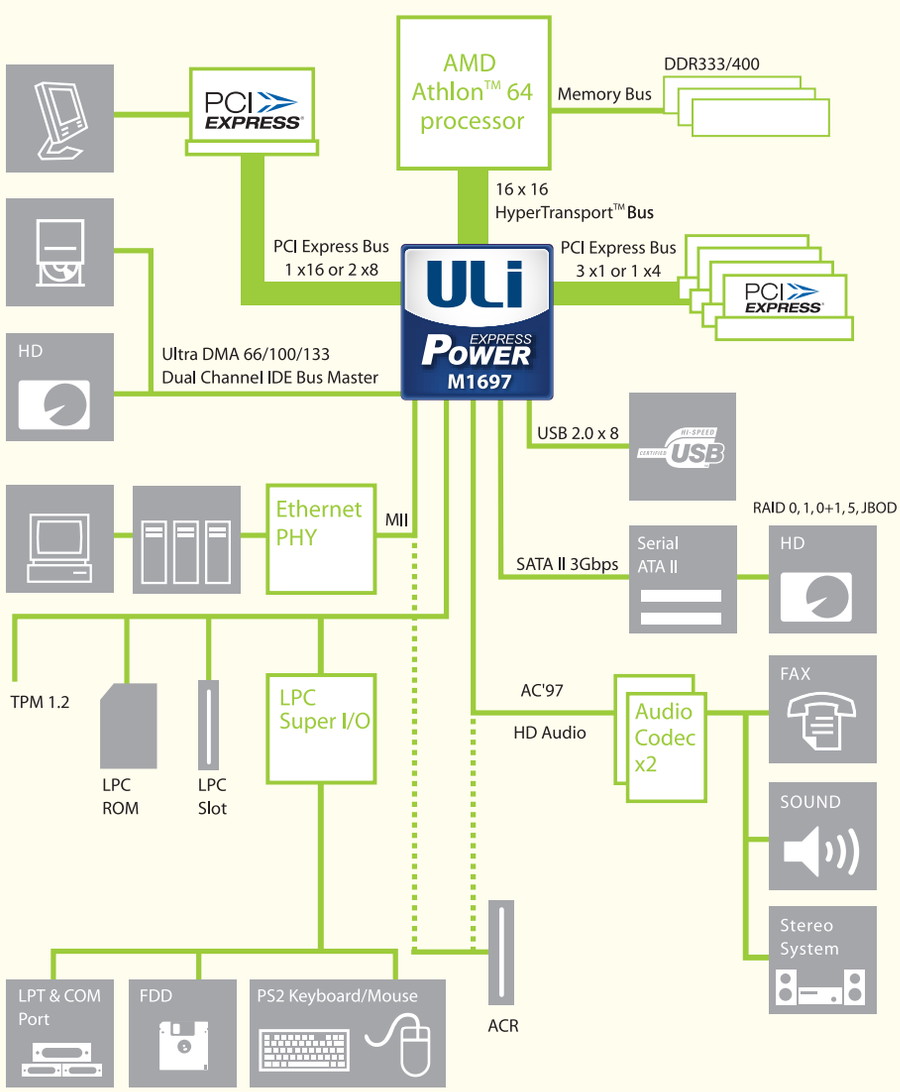
M1697 is ULi's latest PCI Express™ single chip designed to empower high-performance PCI Express™ - based PC systems to complement AMD Athlon™ 64 X2, Athlon™ 64 and Sempron processors for: 940, 939 and 754 sockets.

Built upon the innovative architecture of its predecessor M1689, ULi M1697 delivers the lowest latency to achieve maximum system performance while providing manufacturers unmatched design-flexibility and worthily inexpensive manufacturing cost.

M1697 features highly scalable PCI Express™ interfaces at 1 x16 or 2 x8 (4GB/sec peak bandwidth per direction) for graphics and 3 x1 /or 1 x4 for high-speed I/O devices to fulfill various market requirements. The employment of the HyperTransport™ technology between M1697 and the connecting processor delivers the highest continuous throughput of up to 8 GB/sec that ensures sufficient bandwidth to boost overall system performance.

On board M1697 are 3 key powerful features. The High Definition (HD) Audio technology delivers breathtaking 7.1-channel surround audio experience. The AHCI-based SATA II 3Gbps host controller module is embedded with NCQ (Native Command Queuing) capability and supports up to 4 ports. The added implementation of the RAID 0, 1, 0+1, 5, JBOD technologies help optimize storage performance and improve disk efficiency.

M1697 Block Diagram



M1697

High Definition PCI Express™ Single Chip

Features

Processor Support

- Supports all AMD Athlon™ 64 X2 dual-core, Athlon™ 64, Sempron™ processors for: 940, 939 and 754 Sockets

HyperTransport™ Link Bus

- HyperTransport™ I/O Specification 1.05 and 2.0 compliance
- 16 x 16 HyperTransport™ at 2GT/sec Bus to Processor
- Clock frequency up to 1GHz with peak bandwidth up to 8.0GB/s

PCI Express™ Interface

- PCI Express™ Specification 1.0a and 1.1 compliance
- PCI Express™ 1 x16 or 2 x8 for Graphics / I/O devices
- PCI Express™ 3 x1 or 1 x4 for High Speed I/O devices
- ExpressCard Hot-plug support

Serial ATA II 3Gb/s Host Controller

- AHCI (Advanced Host Controller Interface) with NCQ (Native Command Queuing) support
- Supports SATA 3Gbps data rate
- Host adapter register interface (SCR, Status and Control Registers)
- Independent DMA operation on four ports

High Definition Audio Controller

- Intel HD Audio compliant
- Microsoft Universal Audio Architecture (UAA) compliant
- Modem wake-up and Codec hot-plug support
- Dual links for HD Audio/AC'97 co-exist

AC'97 Audio System

- Fully Plug-and-Play PCI controller and software
- PCI 2.3 compliant bus master for multiple stream operation
- Scatter-gathering support
- Dual PCM inputs and dual microphone inputs support
- 20-bit sample resolution support
- Up to 3 AC'97 SDATA_IN pins - 3 Codecs (2 audio /1 modem)

1/10/100 Mb/s Fast Ethernet MAC

- Provides 1/10/100 Mbps MAC controller
- Compliant with IEEE 802.3u 100BASE-TX and IEEE 802.3 10BASE-T standards
- EEPROM interface to store configuration information
- Two large independent receive FIFO (2K) and transmit FIFO (2K) with programmable FIFO threshold and full packet burst processing

USB Interface

- 8 ports of 1 EHCI USB 2.0 and 3 OHCI USB 1.1 Host Controllers
- Supports HS (480Mb/s), FS (12Mb/s) and LS (1.5Mb/s) transfer rate

PCI Interface

- PCI spec. 2.3 compliant supporting PCI Master and Slave Interfaces
- PCI Power Management Interface spec.1.1 compliant
- Supports up to 5 PCI Masters
- Provides Steer-able PCI Interrupts for PCI Device Plug-and-Play

Pin Count (LPC Rev1.1) Interface

- Supports LPC interface for legacy devices
- Supports 2 Master/DMA devices
- Supports TPM (Trusted Platform Module) specification v2.1

Serial Peripheral Interface (SPI)

- Supports SPI flash ROM
- Supports both Read and Fast Read commands

Build-in Real Time Clock

- Common calendar year and leap year compensation
- Binary or BCD data representation
- 12/24 hour mode and Daylight saving time option
- 241 bytes of general-purpose RAM

PMU Features

- Full Support for ACPI and OS Directed Power Management
- CPU SMM Legacy Mode and SMI Feature support
- External PCI bus I/O and Memory Trap for issuing SMI function
- High Precision Event and Microsoft Watch-Dog Timers function

Package

- 838-Ball (35mmx35mm) HSBGA Package

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