

M1689

Super Athlon™ 64 Single Chipset



- Support AMD Opteron™, Athlon™ 64, Mobile Athlon™ 64 processors
- 2.0G T/S HyperTransport™ technology
- 2 x Serial ATA support
- 8 x USB 2.0/1.1 support
- TPM Rev.1.2 devices support

Over the Top

ULi's Single-Chip Solution

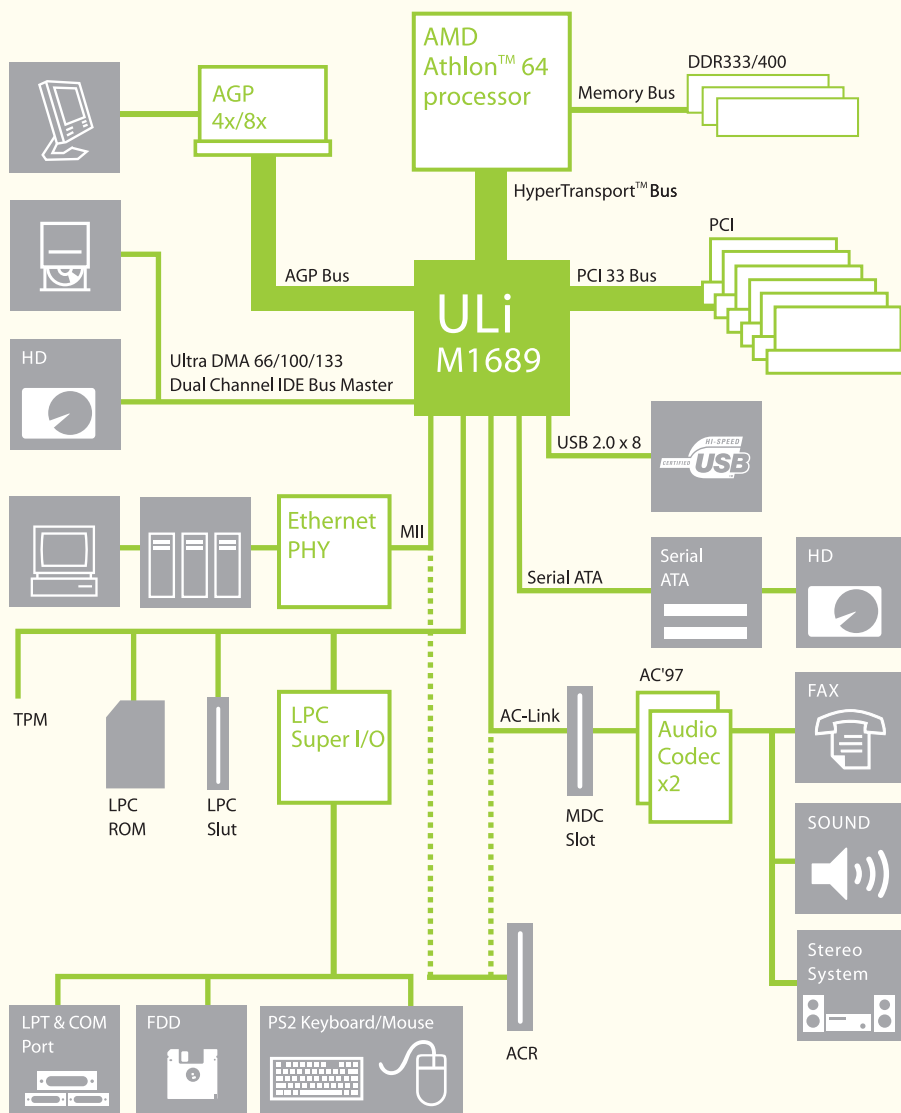
Power⁶⁴ ULi's M1689 Chipset features the advanced Power⁶⁴ Technology which offers full 64-bit computing performance. With its high-performance I/O streaming capability, power users can now experience breathtaking 3D graphics and high-resolution video and audio playback in real-time. In keeping with ULi's strength, all these are achieved in "green" manner.

M1689 single-chip architecture facilitates compatibility to all the processors with pinout of 754/940/939 in the Athlon™ 64 family. This unique feature offers motherboard and OEM vendors design exibility and lower their development cost.

The M1689 integrates AGP8X controller, AC-Link Host Controller, 2-channel dedicated Ultra-66/100/133 IDE Master controller, USB 2.0/1.1 Host controllers with 8 ports in total, IO APIC controller, 1/10/100 Mb/s Fast Ethernet, SATA, and HyperTransport™ Technology Link interface. Additional features include Host Signal Processing (HSP) software modem solution, ACPI support, green function, and Real Time Clock.

The M1689 also provides the best power management solution. The M1689 incorporates ACPI support, deep green function, and 2-channel Ultra DMA-33/66/100/133 IDE bus master controller, all into one 35mmx35mm BGA (Ball Grid Array) chip.

M1689 System Block Diagram



ULi

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Super Athlon™ 64 Single Chipset

Features

Processor Support

- Supports AMD Opteron™, Athlon™ 64, Mobile Athlon™64 processors
- Supports HyperTransport™ Technology

Provides a High Integration Bridge

- HyperTransport™ Technology I/O Link Bus, AGP bus, PCI Bus and Peripheral Bus for Desktop and Notebook Systems

Accelerated Graphics Port (AGP) Interface

- Compliance with AGP 3.0 specification signaling, supporting 4x and 8x transfer rates.
- Compliance with AGP 2.0 specification 1.5 volt signaling, supporting 1x, 2x, and 4x data-transfer modes.
- Supports up to 32 outstanding requests

HyperTransport™ Technology (HTT) I/O Link

- HyperTransport™ Technology I/O Link Protocol Meets the v1.04 Specification
- HTT supports transfer rates of 2000, 1600, 1200, 800, and 400 mega-transfers per second.

PCI Interface

- Supports PCI Master and Slave Interface
- PCI spec. 2.3 Compliant
- PCI Power Management Interface spec. 1.1 Compliant
- Supports up to 7 PCI Masters

Provides Steerable PCI Interrupts for PCI Device Plug-and-Play

Enhanced DMA Controller

- Provides 7 Programmable Channels, 4 for 8-bit Data Size, 3 for 16-bit Data Size
- 32-bits addressing capability

Built-in PCI IDE Controller

- Supports Ultra DMA Mode Transfers up to Mode 6
- Timing (100/133 Mbytes/sec)
- Supports 48-bit LBA (Large Disk), hard drive larger than 137 GB

- Supports PIO Modes up to Mode 4 Timings, and Multiword DMA Mode 0,1,2 with Independent Timing of up to 4 Drives
- Dedicated Pins of ATA Interface for each Channel
- Supports Tri-state IDE Signals for Swap Bay

USB Interface

- One EHCI USB 2.0 and Three OHCI USB 1.1 Host Controllers for supporting up to eight USB Ports
- Supports HS (480Mbps/sec), FS (12Mbps/sec) and LS (1.5Mbps/sec) data transfer rate
- Supports system wake up from S1 – S4
- Supports Legacy Keyboard and Mouse emulation in DOS environment

Low Pin Count (LPC Rev1.1) Interface

- Supports LPC interface for legacy devices
- Supports 2 LPC Master and 7 DMA devices
- Supports TPM (Trusted Platform Module)

Audio System

- Fully Plug-and-Play PCI controller and software
- PCI 2.3 compliant bus master optimized for multiple stream operation

1/10/100 Mb/s Fast Ethernet MAC

- Provide the 1/10/100 Mbps Media
- Access Control (MAC) controller for the best solution of the phone-line/Ethernet LAN connectivity.
- Compliant with IEEE 802.3u 100BASE-TX, IEEE 802.3 10BASE-T standard

Serial ATA Host Controller

- Supports SATA 1.0 (High Speed Serialized AT Attachment, Revision 1.0), 1.5 Gb/s data rate.
- Supports Host adapter register interface (SCR, Status and Control Registers).
- Independent DMA operation on two ports

Security

- Supports TPM device revision 1.2

PC 2001 Compliance

Package

- 35 x 35 millimeter, 748-ball BGA package.