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MICROELECTRONICS Co., Ltd.

AM8672 Datasheet

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Introduction

Overview

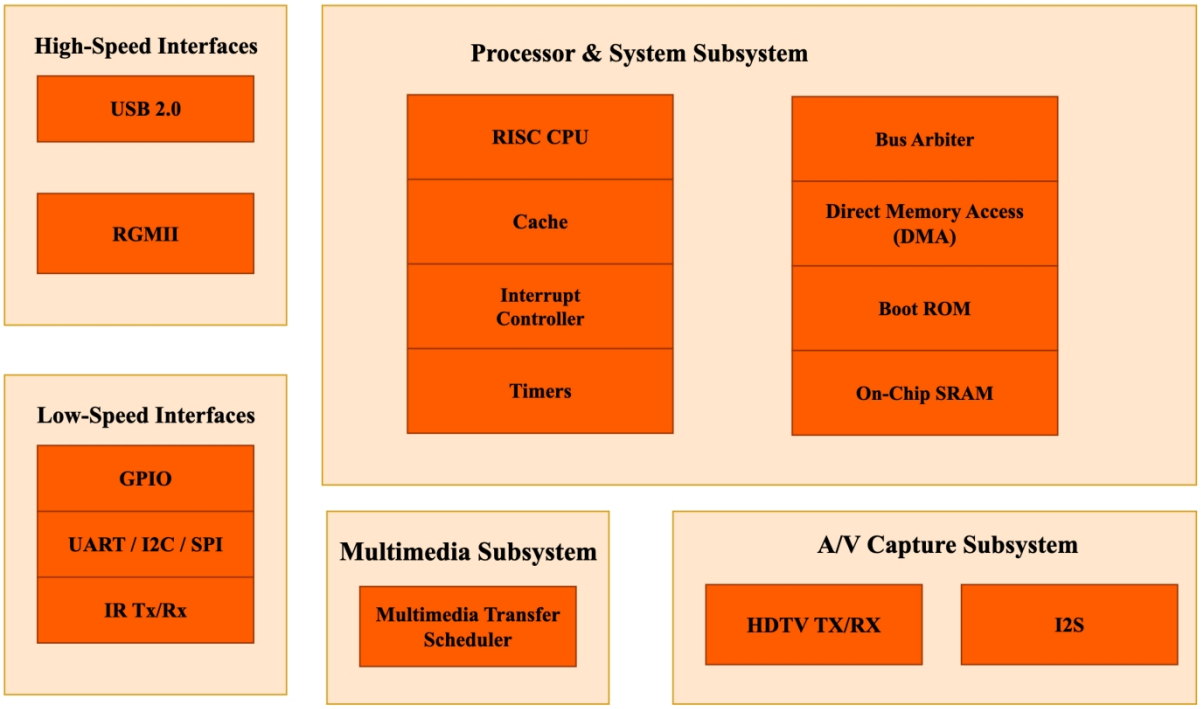
The AM8672 is a highly integrated multimedia system-on-chip (SoC) designed for HDTV audio and video transmission over Ethernet. It integrates a 32-bit RISC CPU operating at up to 1 GHz with DSP instruction extensions for multimedia processing.

The AM8672 embeds a proprietary DisplayPass hardware media processor capable of processing video resolutions up to 4096 × 2160 at 60 frames per second (4K60), paired with a dedicated hardware transfer scheduler that orchestrates real-time audio and video packet transport. For network connectivity, the integrated Gigabit Ethernet MAC features an RGMII interface operating at data rates up to 1 Gbps. When interfaced with an external Ethernet PHY, the SoC enables deterministic wired audio/video distribution and long-reach HDTV extension over standard Ethernet infrastructure.

With a dedicated companion HDTV front-end IC, the AM8672 supports HDTV input processing and a local HDTV loop-through output. USB 2.0 controllers and peripheral interfaces, including UART, I2C, IR, and SPI, provide connectivity for system control and external devices.

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Block Diagram



AM8672 BLOCK DIAGRAM

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Features

The AM8672 integrates multimedia processing, Ethernet transport through RGMII, and peripheral interfaces for wired audio and video applications. Key features include:

✓ **ETHERNET CONNECTIVITY**
- Ethernet MAC with an RGMII interface supporting up to 1 Gbps
- Wired Ethernet connectivity through an external Ethernet PHY

✓ **AUDIO AND VIDEO TRANSFER SCHEDULER**
- Schedules audio and video transfer over Ethernet
- Supports video transport up to 4096 x 2160 at 60 fps

✓ **32-BIT RISC PROCESSOR**
- 32 KB instruction and data caches
- Firmware-programmable CPU clock from DC to 1 GHz
- DSP instruction extensions for multimedia acceleration
- Static design with runtime clock adjustment for power saving

✓ **VIDEO PROCESSING**
- hardware media processor designed for compatibility with the DisplayPass Alliance, supporting resolutions up to 4096 × 2160 at 60 fps.

✓ **HDTV INTERFACE**
- HDTV 2.0 input and loop-through supported via dedicated companion front-end IC

✓ **AUDIO**
- I2S audio interface
- 32-level volume control

✓ **DMA CONTROLLER**
- 8 physical channels and 4 bus channels
- Stride mode support
- Software-configurable channel priority

✓ **BOOT ROM**
- On-chip boot ROM with bootloader
- System boot from SPI NOR flash

✓ **USB 2.0 OTG CONTROLLERS**
- Compliant with the Universal Serial Bus Specification, Revision 2.0
- Compliant with the On-The-Go Supplement to the USB 2.0 Specification, Revision 1.0a

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- Host mode: point-to-point communication with a low-, full-, or high-speed device
- Peripheral mode: full-speed or high-speed operation
- USB Mass Storage Class Bulk-Only Transport, Revision 1.0, in host or device mode
- Programmable endpoint sizes
- Programmable single, double, triple, or quad buffering
- Programmable endpoint types
- High-speed, high-bandwidth ISO and interrupt transfers
- Suspend, resume, and power management support

✓ **OTHER INTERFACES**

- UART, I2C, and SPI
- 3 external interrupts
- Configurable GPIOs shared with function pins

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