Actions

MICROELECTRONICS Co., Ltd.

Actions-micro AM8370 Datasheet

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1 Introduction

1.1 Overview

The AM8370 processor from Actions-Micro is a highly integrated mix signal SoC target at multi-media applications. The AM8370 emmedded CPU is a high performance, low power 32bit RISC core with DSP instruction extension, which can run as fast as 700MHz.

The AM8370 integrated lossless or near-lossless image/video compress and de-compress module which can transfer 1080P video with format RGB888 through 1Gbit/s Ethernet.

The AM8370 multi-media processor provided display solutions with the help of on chip HDMI transmitter and receiver interface.

AM8370 is also integrated with 1 USB OTG controllers, UART, I2C, SPI, etc.

2 Feature

The AM8370 provides high level of system integration to support a wide variety of applications. The features of the AM8370 include:

✓ **32BIT RISC CORE**
- 32K byte instruction cache and data cache
- F/W can program from DC up to 800MHz transparently
- DSP instruction for multi-media acceleration
- Static design allows changing clock at run-time for power saving

✓ **VIDEO ENCODER**
- 60 frames per second at 1920x1080 resolution for video all format

✓ **IMAGE/VIDEO COMPRESSOR**
- Support upto 1080P Resolution
- Support 8bit YCbYCr/RGB
- Adaptive compress ratio up to 1:6
- Lossless or Near-lossless compress

✓ **OSD**
- 1,2 OSD bitmap data width
- 256x128 size in 2 bit or 256x256 in 1 bit

✓ **DISPLAY INTERFACE**
- HDMI Tx support, industry standard compliance HDMI 1.2
- HDMI Rx support, industry standard compliance HDMI 1.3a

✓ **AUDIO**
- I2S IN & I2S OUT interface
- Support 32 levels volume control

✓ **Ethernet MAC**
- Support MII/RMII/RGMII up to 1Gbps rate
- Support SDIO interface for WIFI transfer

✓ **Transfer Schedule Manager**
- Transfer compressed video/audio data through Ethernet
- Receive compress video/audio data through Ethernet
- The transferred video upto 1920x1080 60fs

✓ **MEMORY Storage**

- DDR2/3 SDRAM up to 4Gb @ 16bit up to 1066Mbps
- OTP ROM 64bit Chip ID

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

✓ **Boot ROM**
- On chip boot ROM with boot loader
- The system could be loaded from SPI Nor flash

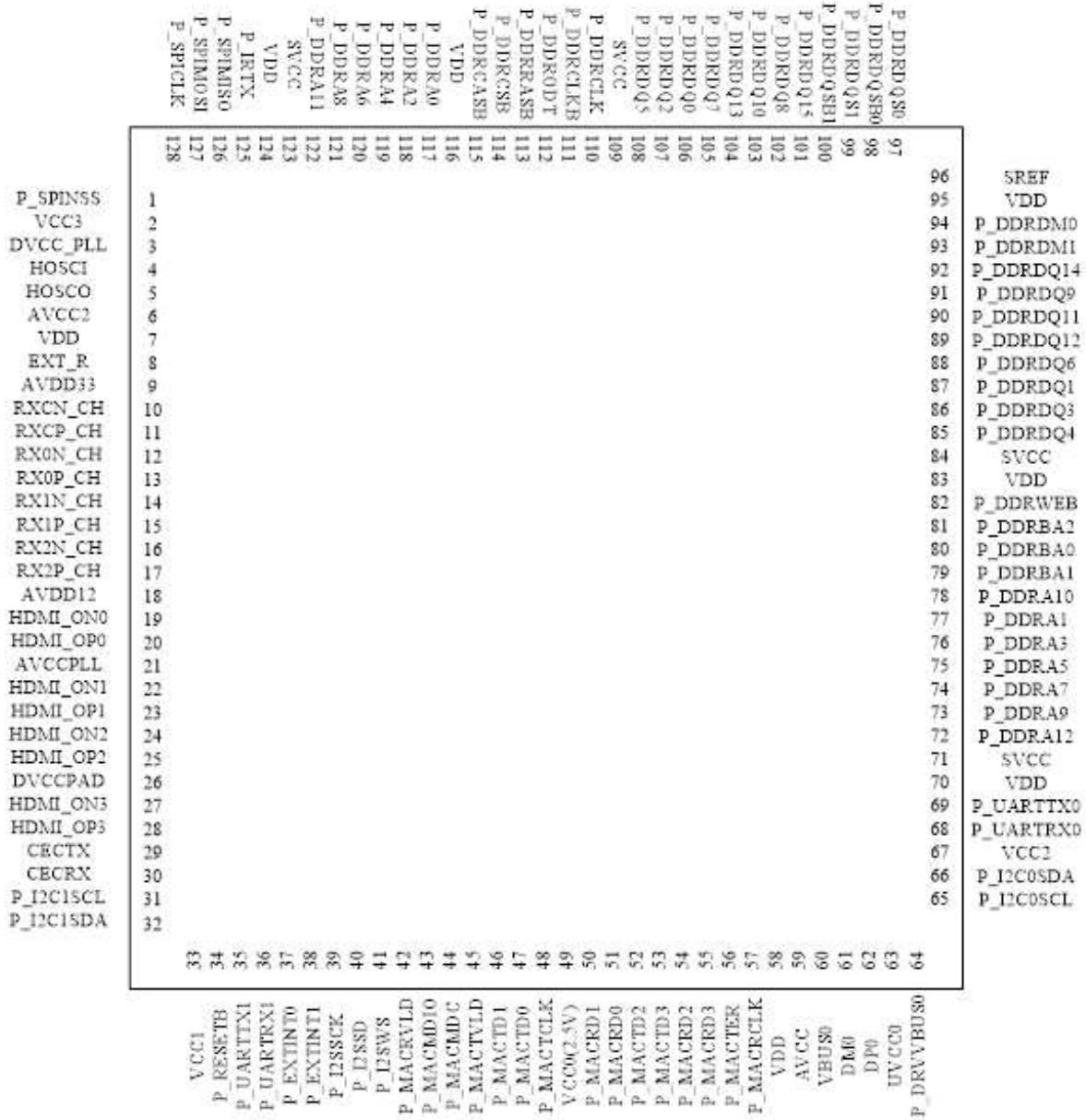
✓ **USB 2.0 OTG**
- Complies with Universal Serial Bus Specification. Revision 2.0.
- Complies with On-The-Go Supplement to the USB2.0 Specification Revision 1.0a.
- Supports point-to-point communication with one low-speed, full-speed or high-speed device in Host mode.
- Supports full-speed or high-speed in peripheral mode.
- Supports USB Mass Storage Class Bulk-Only Transport Revision 1.0 as host or device.
- Supports Electronic still picture imaging Picture Transfer Protocol (PTP)
- Supports direct print function using pict-bridge
- Supports Universal Serial Bus Device Class Definition for Printing Devices Version 1.1 as host
- Supports Universal Serial Bus Still Image Capture Device Definition Revision 1.0 as host
- Configurable/programmable size of endpoints.
- Configurable/programmable single, double, triple or quad buffering.
- Programmable type of endpoints.
- Supports high-speed high-bandwidth Isochronous and Interrupt transfer.
- Supports suspend, resume and power managements function.
- Support USB wakeup

✓ **OTHER INTERFACE**
- UART/I2C/SPI
- 3 external interrupts
- 35 configurable GPIO shared with function pins

✓ **POWER**
- 1.3v for core
- 3.3v/2.5v/1.8/1.5v for mac io,3.3v for others
- Core PLL, LCD PLL,Audio PLL and DDR PLL support spread spectrum

✓ **PACKAGE**
- QFP 128pin (epad), 14x14mm

4.1 Pin out diagram



AM8370 PIN-OUT DIAGRAM