Overview

The MV8739 is a highly-programmable Mobile Multimedia Processor designed to handle multimedia functions for applications such as media-rich handheld device. The MV8739 Media Processor provides a high performance, extremely flexible, low power and cost effective multimedia platform solution for high-end mobile phone/TV handset and personal media player (PMP) applications.

Key Features

High Performance

- ARM926EJ™ master processor at 350MHz
- Programmable DSP sub-system using Array Processor Unit (APU) and 2nd ARM926 for configurable video post-processing H/W acceleration blocks and Internal dual 64-bit AXI data buses to/from all blocks for computationally intensive multimedia applications
- Supports all video codecs at up to D1(720x480), 30fps .
- Complete MMP Software Platform enables execution of concurrent applications and provides system support functions such as file system support for MTP and other protocols.

Fully Programmable

- Multimedia software suite including wide range of video, audio and still image codecs
- Programmable multimedia DSP sub-system enables support of new emerging multimedia codec standards that are not yet in existence today
- Common API for controlling embedded applications and managing peripherals from external host processor.
- Field upgradeable to support emerging multimedia standards
- SDK for easy porting of 3rd party applications.

Low Power Operation

- Multiple power domains and voltage islands support multiple pass-through modes for:
  - low power direct host access to LCD
  - low power audio for music playing
- Effective clock gating and dynamic frequency scaling

Target Application

Mobile Phones and Personal Media Players

- Picture viewer with image editing options.
- Video/audio recorder with hand shake compensation
- Video/audio player; dual picture in picture for DVB-T DVB-H/DMB/ISDB-T
- Video editing, VOD, Video-telephony (VT), Multimedia Messaging Service (MMS)
- WM-DRM, OMA-DRM, DivX-DRM ready
- Composite analog TV output(NTSC/PAL)

Programmable High-Performance Media Processing

Programmable Video Codec

- Video decoding: MPEG-4, H.263, DiVX/XViD, MPEG2, H.264, WMV, On2 VP6, RV, RMVB, Sorenson at D1@30fps
- Dual MPEG2 PAL decoding (for PinP DVB-T)
- Video encoding: MPEG4, H.263, DiVX at D1@30fps
- All new codec standards may be supported with SW change only

Programmable Voice, Audio Melody

- Voice/audio codecs: AMR-NB/WB, CELP, EVRC, G.723.1, G.726, AAC, AAC+, OGG, HE AAC V2, BASC, WMA, RA, MP3 and others
- Software MIDI synthesis

Programmable Digital Still Camera

- JPEG, PNG, GIF, TIFF, raw Bayer and others
- Supports up to 12 Mega pixel resolution
- Scalado SpeedView support (faster JPEG decoding , fast zoom, panorama creation and image editing)
- Image editing and video editing functions

Graphics Acceleration

- Support for WVGA displays
- 2D graphics functions including: BitBLT, font-cashing, font-anti-aliasing, line draw, overlay, pixel-based alpha-blending, rotation, scaling
- OpenGL ES and Direct3D API acceleration
- Open VG acceleration (Flash-Lite available)

GPS Demodulation

- Low-cost GPS demodulation from Fastrax on DSP sub-system combined with external GPS RF module
- Smallest solution footprint. -162dBm tracking
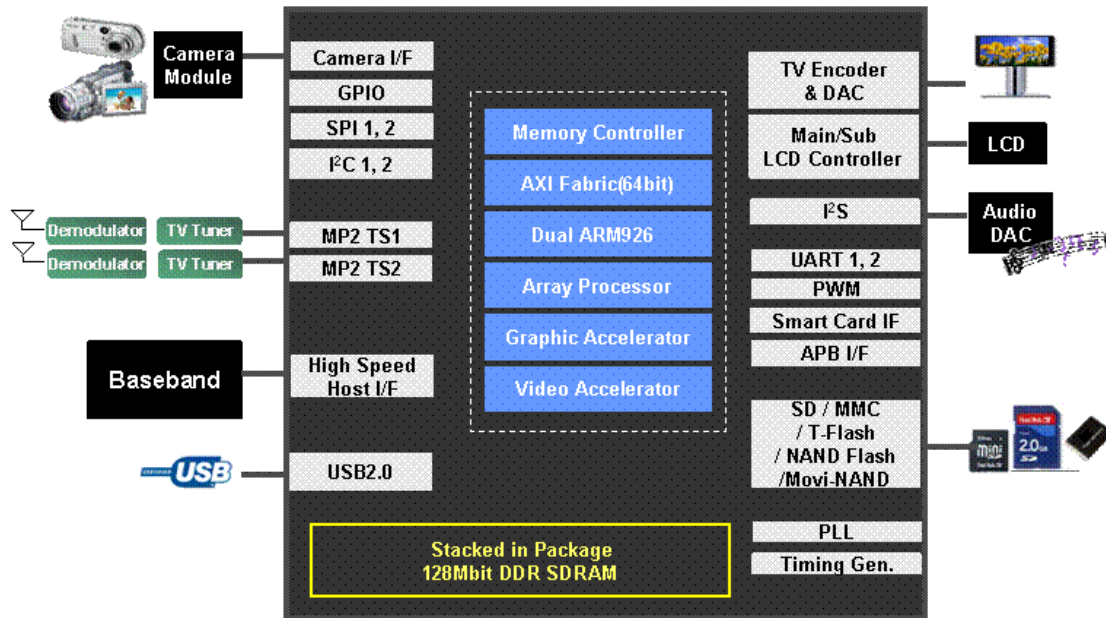
Peripheral Interfaces

Host Port Interface

- 8/16-bit mode of operation
- Host can access MV8739 memory and peripherals
- Supports low-power display pass-through for RAM-less LCD display

Sensor/ISP Interface

- 10-bit parallel data input with serial control I/F; Supports YUV, raw RGB Bayer and native JPEG compressed data I/F formats

USB Interface

- USB 2.0 High Speed

Media Storage Interface

- Supports SD/MMC, SDHC, T-Flash, NAND, MoviNAND,
- Up to four 8-bit NAND flash devices
- FAT-16 and FAT-32 file system with long name support and international characters

Display Output

- Up to 4 CPU-type LCDs (12/16/18-bit data width) simultaneous with NTSC/PAL TV output
- A WVGA resolution RAM-less RGB LCD simultaneous with NTSC/PAL TV composite output
- XGA output with external triple DAC
- low power host to RGB LCD operation

Serial Interfaces

- 2 UART, I^{2}C, I^{2}S/ AC'97, Smart Card, Power Management Interface
- 2 MP2TS and 2 SPI for true mobile TV PIP support

Other Interfaces

- Multiplexed GPIO signals
- Two PWM outputs, PWI
- JTAG interface for debugging and testing

Reference Input Clock

- 10-30 MHz supplied by the X-tal or the oscillator

Boot Options

- Boot from HPI, MLC NAND, or SPI

Memory Options

- Stacked 128 Mbit DDR SDRAM
- Nand Flash with PoP solution

Packages

- MV8739 9x9 mm BGA (stacked 128Mbit SDRAM)

Power Supply

- 1.0V core and 1.8/2.5/3.3 V I/O
- Active, Sleep, Power Down, Core Power OFF control
- Sleep Current : Typ 200 ~ 300μA
- Power Down : Typ 100μA

Operating Temperature

- -40°C to +85°C