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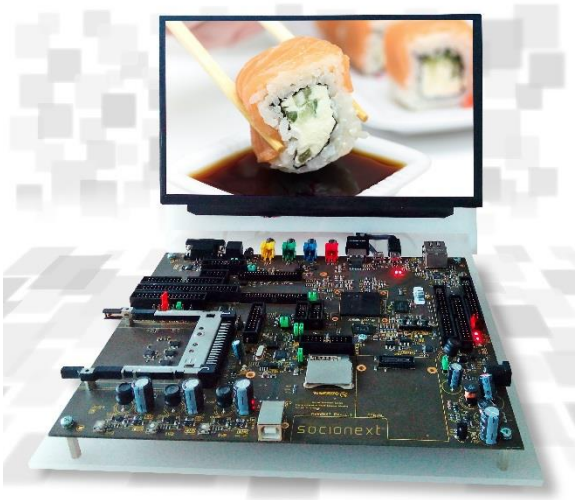
Multi-format HD Decoder LSI MB8AL203x

Introduction

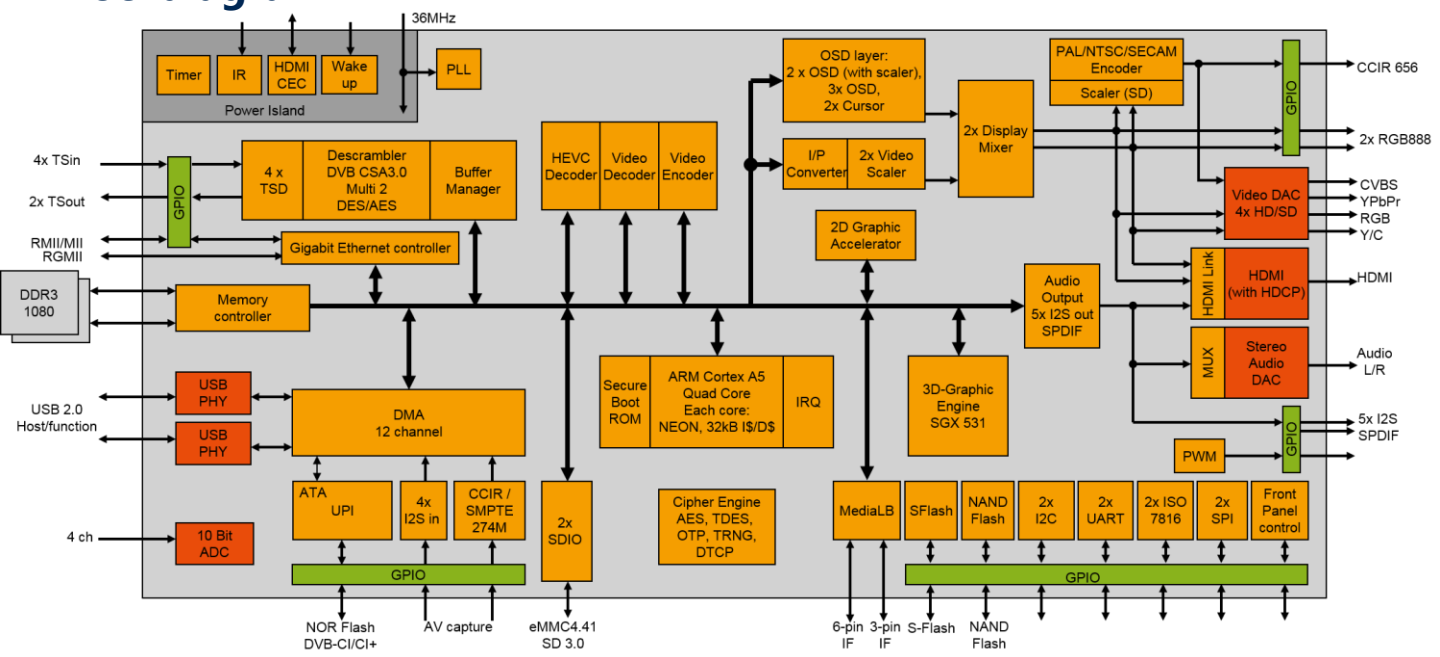
The MB8AL203x is a highly integrated HD Multi-format digital TV decoder and encoder designed to meet the needs of tomorrow's hybrid set-top-boxes, digital signage, home networking solutions and in-car infotainment systems also featuring CI+ and embedded advanced security. The LSI supports up to 1080p HD encode/decode. The high performance multi-media processing allows decoding of various formats including the latest compression standard HEVC and outputting two streams parallel in HD resolution.



Features

- Quad ARM® Cortex™ A5 MPCore ™ incl. Neon™ SIMD Engine
- Multi-format HD Video Decoder incl. HEVC
- HD H.264 Video Encoder
- 3D Engine (OpenGL® ES 2.0) 'POWERVR SGX531-MP1', 2D Engine
- Cipher engine with AES/DES, hash and DTCP accelerator, OTP, secure boot
- Power consumption 2.0W (typ)
- Automotive
  - Temp range -40°C to +85°C
  - I/F: MediaLB® (3-/6-Pin)
  - AEC-Q100

Blockdiagram



Specifications

System

- CPU: quad-core CortexA5 @ 396MHz, NEON, 32kB I$/D$ cache
- Memory: 2x 16-bit DDR3-1080 SDRAM interface.
- Boot devices: NOR, NAND, eMMC4.41 or serial flash
- Standby: Power Island for deep power down

Video/Audio

- 4x Transport stream demultiplexer incl. descramblers for DVB
- CSA 3/2.1/1.0, AES/(T)DES, Multi-2, 4x TS input, 2x TS output
- Cipher engine with AES/DES, hash and DTCP accelerator,
- secure boot, control word protection, OTP & memory encryption
- Multi-format video decoder for HEVC L4.1, H.264 L4.2 HP, MPEG-2 MP@HL, MPEG 4 ASP L5, AVS Jizhun Profile, VP 6/7/8, VC-1 AP L3, RealVideo® 8/9/10, DivX® 3/4/5/6, H.263, Sorenson Spark
- H.264 video encoder up to HD resolution (depend on frame rate)
- JPEG decoder / encoder
- 2 independent video outputs. Layers (flexible order): 2x backplane, 2x video, 2x cursor, 5x OSD (up to true-color in HD resolution, two layer scalable with flicker fixer), YCrCb/RGB color space
- 3D graphic engine (Power VR SGX531); separate 2D bit blitter
- Motion adaptive HD de-interlacer
- PAL/NTSC/SECAM encoder incl. cross color, luminance filters, Teletext, WSS, CC, VBID insertion

Interfaces

- HDMI Link and PHY with HDCP and CEC controller
- 16bit digital video incl. SAV/EAV: 1x Input / 1x Output (compliant to SMPTE 296M/274M)
- 24bit dig. RGB (EIA/CAE-861 compliant), 2x out or 1x out + 1x in
- ITU-R 656 video: 2x Input / 1x Output
- 4x analog video DACs for YPrPb/RGB, YC and CVBS
- Stereo audio DACs, I^2S: 4x input and 5x output, 1x SPDIF output
- 2x USB 2.0 with 16 end-points incl. PHY (host or device)
- Eth. 10/100/1000 Base-T GMAC (RGMII/RMII/MII), IEEE 1588
- Universal processor interface (NAND/NOR,DVB-CI/ CI+,IDE,ATA)
- Universal slave interface (CI, IDE, ATA)
- MediaLB, 6-pin and 3-pin interface (MOST25/50/150)
- 128x Shared GPIO, 2x UART, 2x Smart Card, 2x I^2C, 4x PWM, IR Rx, 2xSPI Master/Slave, 2xSDIO, 4x 7-segment LED, 8x Key Input
- 4 channels Analog-Digital Converter (10bit)

Package/Technology

- PBGA-484 Package / Fujitsu CMOS 55nm technology
- Operating Temperature range: -40° to +85°, AEC-Q100
- Supply: 1.2V core, 1.5V DDR, 1.8V/3.3V I/O (some are 5V tolerant input)
- Power Consumption: 2W (typ)

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