Hi3716M V410 Brief Data Sheet

Key Specifications

CPU

- High-performance ARM Cortex A9 processor
- Integrated multimedia acceleration engine NEON
- Embedded I-cache, D-cache, and L2 cache
- Hardware Java acceleration
- Floating-point coprocessor

Memory Controller Interfaces

- DDR3/DDR3L interface
    - Maximum 512 MB capacity
    - 16-bit memory
- SPI flash
- NAND/SPI NAND flash

HiVXE Video Decoding

- H.265 Main Profile@L4.1 High-tier
- H.264 BP/MP/HP@L4.2; MVC
- MPEG1
- MPEG2 SP@ML, MP@HL
- MPEG4 SP@L0−3, ASP@L0−5, GMC
- MPEG4 short header format (H.263 baseline)
- AVS baseline@L6.0 and AVS-P16
- VC-1 SP@ML, MP@HL, AP@L0−3
- VP6/8
- One 1080p@30 fps and one SD decoding
- Maximum 1080p@60 fps decoding
- Low-delay decoding

Image Decoding

- JPEG decoding, maximum 64 megapixels
- PNG decoding, maximum 64 megapixels

Audio/Video Decoding

- MPEG L1/L2
- Dolby Digital/Dolby Digital Plus Decoder-Converter
- Dolby True HD decoding
- DTS and DTS HD core decoding
- Dolby Digital/DTS transparent transmission
- AAC-LC and HE AAC V1/V2 decoding
- APE, FLAC, Ogg, AMR-NB, and AMR-WB decoding
- G.711 (u/a) audio decoding
- Downmixing, resampling, and highly dynamic volume control

TS Demultiplexing/PVR

- One embedded DVB-C QAM demodulator, compliant with J.83 A/B/C
- Two standard serial TS input and one DVB-C IF input; or four two-line serial inputs
- Maximum one TS output
- Maximum 96 hardware packet identifier (PID) channels
- Recording of scrambled and non-scrambled streams

Security Processing

- Advanced conditional access (CA) feature
- Digital rights management (DRM)
- One time programmable (OTP)
- AES, DES, and 3DES data encryption and decryption
- Hardware hash algorithm
- Content protection for USB devices
- Downloadable CA

Graphics and Display Processing

- Enhanced full-hardware two-dimensional engine (TDE)
- 3-layer on-screen display (OSD)
- Three video layers
- Mosaic and multi-region display
- 16-bit or 32-bit color depth
- 3D video processing and display
- Full-hardware anti-aliasing and anti-flicker
- Image enhancement and noise reduction
- Deinterlacing
- Low-delay display

Audio/Video Interfaces

- PAL, NTSC, and SECAM standard output, and forcible standard conversion
- Aspect ratio of 4:3 or 16:9, forcible aspect ratio conversion, and free scaling
- 1080p50(60)/1080i/720p/576p/576i/480p/480i outputs
- HD and SD outputs from the same source
- Color gamut compliant with the xvYCC (IEC 61966-2-4) standard
- HDMI 1.4b with HDCP1.4
- Analog video interfaces
    - One CVBS interface
    - One YPrPb interface
    - Four embedded VDACs
    - Configurable output interfaces
    - Rovi copy protection for analog signals
    - VBI
- Audio interfaces
    - Audio-left and audio-right channels: RCA, low-impedance, and unbalanced output interfaces
    - S/PDIF interface
    - One embedded ADAC

Peripheral Interfaces

- Two USB 2.0 host ports (integrated with the PHY)
- Two 10/100 Mbit/s adaptive Ethernet ports with an integrated FE PHY
- One UART interface
- One smart card interface, supporting T0, T1, and T14 protocols
- One IR receiver

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- One LED and keypad control interface
- Inter-integrated circuit (I^2C) interface
- General-purpose input/output (GPIO) interface
- Integrated power-on reset (POR) module

Others

- Fast startup

- Integrated dedicated standby processor, supporting various low-power modes and less than 30 mW standby power consumption
- Thin & fine ball grid array (TFBGA) package
- 2-layer printed circuit board (PCB)

Functional Block Diagram
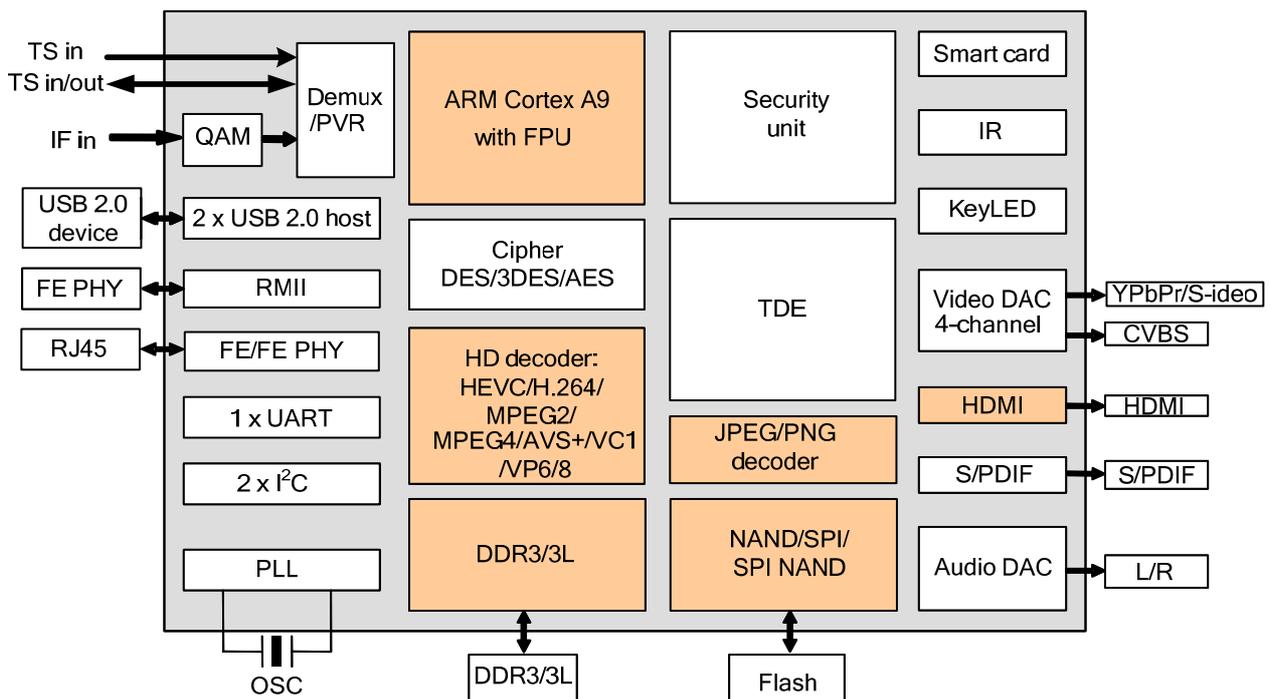
Hi3716M V410 is a cost-effective full high-definition (FHD) high efficiency video coding (HEVC) STB chip solution provided by HiSilicon. It creates the industry's best user experience in stream compatibility, smoothness and picture quality of live video playback, and STB performance. With an integrated high-performance Cortex A9 processor and embedded NEON, Hi3716M V410 meets differentiated service requirements. To meet the growing requirements on multimedia playback, Hi3716M V410 supports Dolby and DTS audio processing and HD video decoding in various formats (including H.265, H.264, AVS+, MPEG2, MPEG4, VC-1, VP6, and VP8). Hi3716M V410 leverages a high-performance 2D/3D acceleration engine to provide a smooth man-machine interface and rich gaming experience. It also enables flexible connection schemes with two Ethernet ports, two USB 2.0 ports, and more peripheral interfaces.

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- In the four two-line serial input mode, the embedded QAM is not supported. The two-line refers to the clock and data lines, and the clock is the output after the clock signal is ANDed with the valid signal.