

The MultiStream IV(AT2041) is a multi-channel MPEG-4 video codec chip with advanced simple profile@level 5 that provides a highly integrated video compression and decompression solution in digital video recording systems, video editing systems, network camera, and etc. It also supports various video compression standards such as JPEG , MPEG-1, MPEG-2 and H.263.

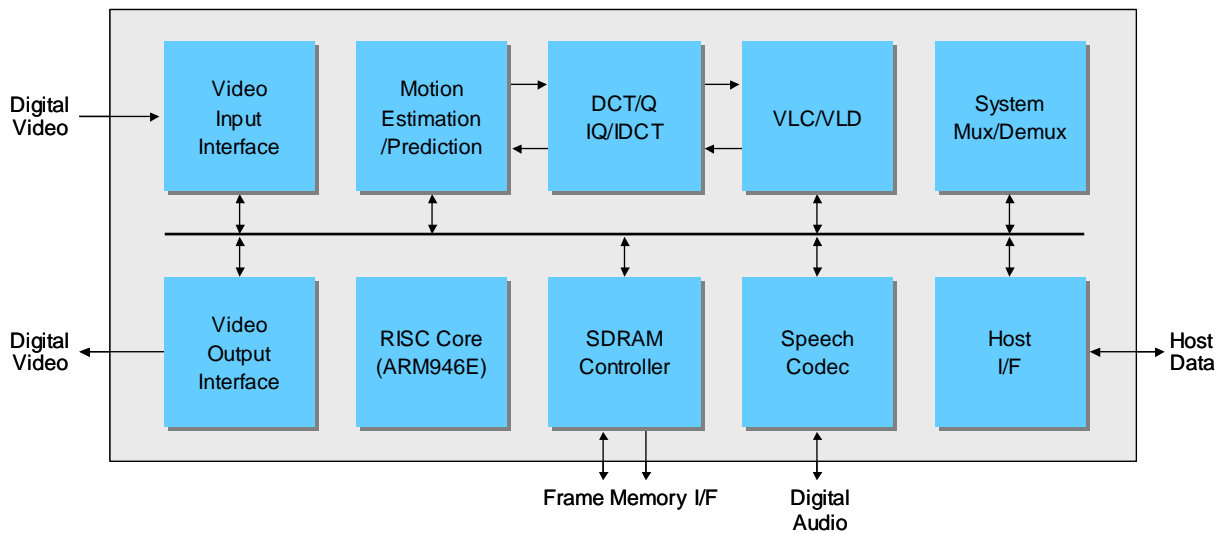
Specifications/Features

- Multi-standards video encoder/decoder
 - ◆ MPEG-4 advanced simple profile@level 5
 - ◆ MPEG-2 main profile@main level
 - ◆ MPEG-1
 - ◆ ITU-T Rec. H.263
 - ◆ JPEG Baseline
- Multi-channel compression/decompression
 - ◆ Encoding/decoding of time-division multiplexed video data up to 16 channels
 - ◆ Simultaneous decoding of multi-channel encoded stream
 - ◆ Encoding/decoding each video channel in different resolution
 - ◆ Multi-channel encoding spatially sub-divided image
 - ◆ Encoding/decoding each video channel in different video standard
- Support various spatial resolutions and frame rates
 - ◆ Up to 720×480(576) pixels@30(25)frames/sec
 - ◆ Up to 720×240(288) pixels@60(50)fields/sec
 - ◆ Up to 360×240(288) pixels@120(100)frames/sec
 - ◆ Up to 176×120(144) pixels@480(400)fields/sec
- Pre-processing in encoding part
 - ◆ High performance horizontal scaler : 9:8, 2:1, 9:4 horizontal scaler (640, 360, 320)
 - ◆ High performance vertical 2:1 scaler
 - ◆ Chroma format conversion filter (4:2:0 format)
 - ◆ Optional noise reduction filter (LPF, Median, etc.)
- Post-processing in decoding part
 - ◆ Histogram equalizer & sharpening enhancement
 - ◆ Chroma format conversion filter (4:2:2 format)
 - ◆ 2×Zoom filter
 - ◆ Various split video for multi-channel decoding
 - ◆ Graphical OSD function
- Encoding/decoding features
 - ◆ Adaptive field/frame prediction
 - ◆ 4MV motion estimation
 - ◆ Unrestricted motion estimation
 - ◆ Direct coding mode
 - ◆ Variable group of VOP
 - ◆ Adaptive field/frame DCT
 - ◆ Resync marker
 - ◆ CBR/VBR encoding mode
- Audio/speech encoder & decoder
 - ◆ Multi-channels speech encoding/decoding
 - ◆ Single channel audio encoding & decoding (MPEG-1 Layer II Audio)
 - ◆ Commercial audio codec interface
- Multiplex & demultiplex
 - ◆ MPEG-1 system stream (ISO/IEC 11172-1)
 - ◆ MPEG-2 PES/PS/TS (ISO/IEC 13818-1)
 - ◆ AVI, ASF, MP4 file formats
- Internal water-marker embedding function for authentication purpose
- Embedded ARM946E core for control processor
- Glue-less CPU interface
 - ◆ Motorola-type CPU interface
 - ◆ Intel-type CPU interface
 - ◆ Strong ARM interface
 - ◆ PCI local interface
 - ◆ General purposed I/Os
- Special Features
 - ◆ Proprietary motion detection (area & sensitivity control)
 - ◆ Multi-channel encoding by frame memory extension
 - ◆ 2-way coding for dual-stream generation
 - ◆ Transcoding & transrating
- Technology
 - ◆ 1.8V power supply and 3.3V I/O
 - ◆ 208 LQFP Package

Applications

- Digital Video Surveillance Systems
- Video Transmission Server Systems
- Network Cameras & Camcorders
- Personal Video Recorders
- Distance Learning Systems
- Video Editing Systems
- Trans-coding & Trans-rating Systems

Functional Block Diagram

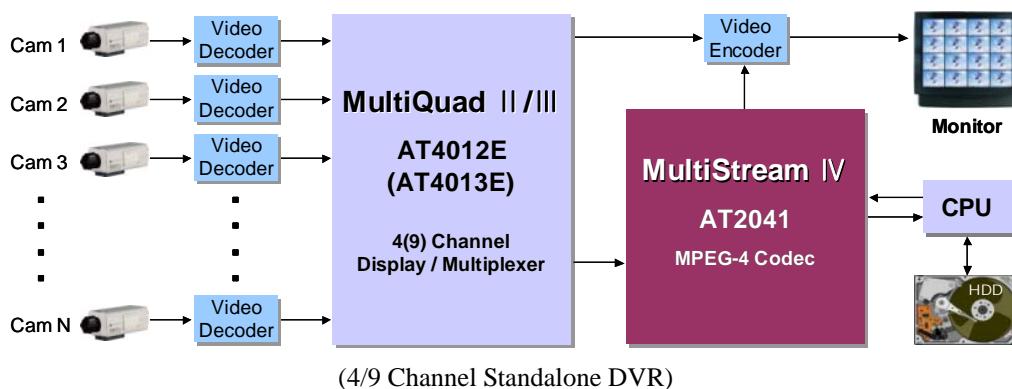


Descriptions

The **AT2041** is a real-time MPEG-4 codec chip that complies with MPEG-4 advanced simple profile@level 5. It also supports various compression standards such as MPEG-2, MPEG-1, H.263, JPEG, and etc. It specifically has essential features for DVR(Digital Video Recorder) supporting simultaneous encoding and decoding of time-division multiplexed video up to 16 channels. It enables simultaneous encoding and decoding of full D1 screen at 30(25) frames per second, CIF at 120(100) frames per second (or fields per second) and QCIF at 480(400) frames per second. It includes not only various pre-processing and scaler in the encoding part but also post-processing and graphical OSD in decoding part. At multi-channel decoding, it can also display 1/4/9/16 sub divided images. And it enables users to insert "Watermark" in the video file during the encoding for authentication in the security field. The **AT2041** provides ADPCM audio compression up to 16 channels and 16 channels decoding.

It carries special features such as motion detection and multi-channel encoding, which are very essential functions for DVR systems. The proprietary motion detection algorithm is adopted for high performance in low-illuminated environment. The users can set up the motion detection area and control the detection sensitivity. The multi-channel encoding function supports compression of multiple video sources up to 16 channels; the function can be simply implemented by adding more frame memories according to the number of video sources.

System Application



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