AT2061
Multi-channel H.264 Codec SoC

Penta Micro
Professionally Enabled Technology for Advanced Microelectronics

The AT2061 is a multi-channel H.264 audio/video codec with the host CPU and several peripheral devices for highly-integrated system. And it also provides high performance video compression and decompression functions in MPEG-4 ASP@L5, MPEG-2 MP@ML, MPEG-1, H.263 and JPEG. The AT2061 is applicable to digital video recording systems, network camera servers, video-on-demand servers, etc.

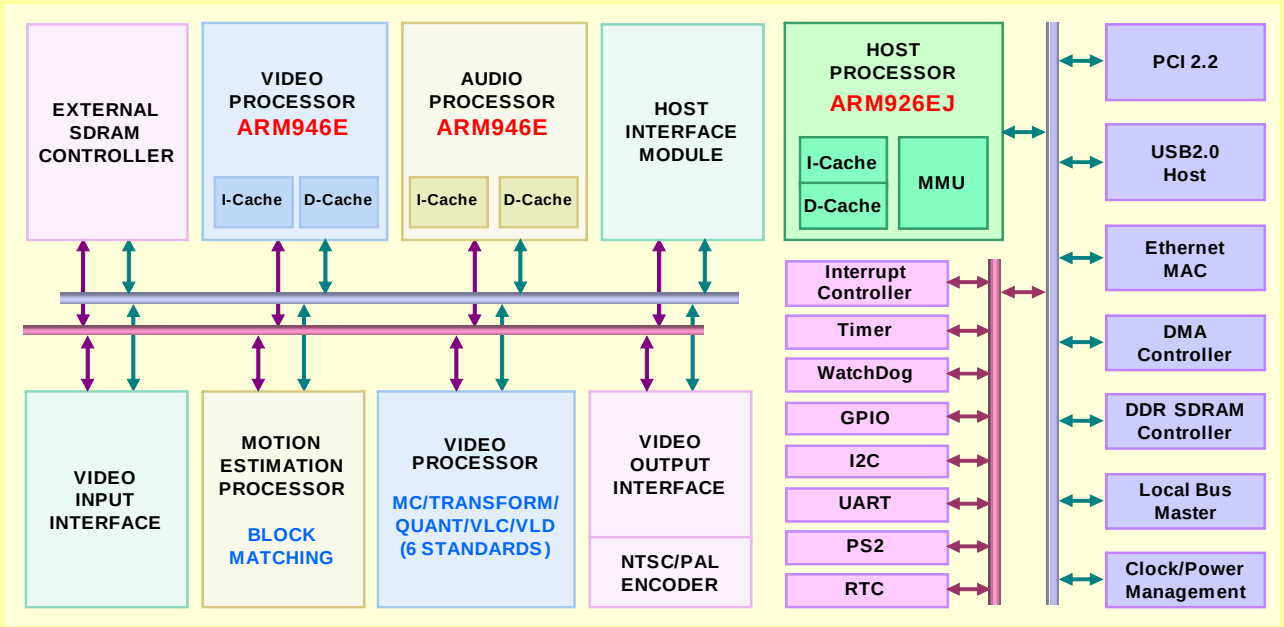
Specifications/Features

- Multi-Standard Video Encoding/Decoding
  - H.264 (MPEG-4 Part 10, AVC) Baseline Profile @ Level 3.0
  - MPEG-4 Advanced Simple Profile @ Level 5
  - MPEG-2 Main Profile @ Main Level
  - MPEG-1, H.263
  - JPEG Baseline (ITU-T Rec. T.81) & Motion-JPEG
- Audio Encoding/Decoding
  - Multi-channel ADPCM speech codec
  - G.711/G.726/G.729/G.723.1 speech codec
  - MPEG-1 Layer I/II, MP3 audio
  - MPEG-2 AAC, MPEG-4 BSAC, WMA and etc.
- System Multiplexing & De-multiplexing
  - Elementary stream for each standard
  - MPEG-1 system stream (ISO/IEC IS 11172-1)
  - MPEG-2 PES/PS/TS (ISO/IEC IS 13818-1)
  - AVI file format and MPEG-4 MP4 file format (ISO/IEC IS 14496-12)
- Multi-channel Video Encoding/Decoding
  - Multi-channel encoding of temporal multiplexed video
  - Multi-channel encoding of spatial sub-divided video
  - Simultaneous decoding of multi-channel encoded stream
  - Multi-channel encoding/decoding in different standards, resolutions, qualities and frame rates
  - Dual H.264 encoders in encoder-only mode
- Various Video Resolutions & Frame Rates
  - 720×480(576) pixels @ 30(25) frames/sec
  - 720×240(288) pixels @ 60(50) fields/sec
  - 360×240(288) pixels @ 120(100) frames/sec
  - 720x480(576) pixels @ 60(50) frames/sec in encoder-only mode
  - High resolution video codec for JPEG standard (2,048×2,048 pixels)
- Video Input Interface & Pre-processing
  - 8-bit digital video interface in ITU-R BT.656 and non-standard format
  - CMOS interface in progressive video format
  - Dedicated input ports for live monitoring video and recording video
  - High performance de-interlace filters & scale-down filters
  - Embedded channel loss detection and scene change detection functions
- Video Output Interface & Post-processing
  - 8-bit digital video interface in ITU-R BT.656 and non-standard format
  - Digital YCbCr/RGB video output and analog composite video output
  - 1~16 split video output for multi-channel video decoding & display
  - High performance de-interlace filter & de-blocking filter
  - Various video scale-down and zoom filters
- Graphical OSD
  - True color OSD, alpha blending over video
  - Background/Preview/Playback/OSD/Border/Cursor planes
- Special Features
  - Internal water-mark embedding function for authentication purpose
  - Proprietary motion detection function with area & sensitivity control function
  - AES (Advanced Encryption Standard)
  - Real-time trans-coding & trans-rating functions
- Internal RISC Processor for Host CPU
  - ARM9 RISC core for host processor (216MHz) with MMU
  - Bus master operation for external device interface
  - External DDR SDRAM and flash memory interface
- Various External Interfaces
  - PCI2.2, USB2.0 Host, UART, PS2, GPIOs, I2C, RTC
  - Watch-dog timer, Ethernet MAC
  - NTSC/PAL video encoder including DAC
  - Audio DAC (Mono)
- Technology & Package
  - 0.13µm low-power design with power management processor
  - 3.3V for I/Os and 1.2V for internal core logics
  - 496 BGA package

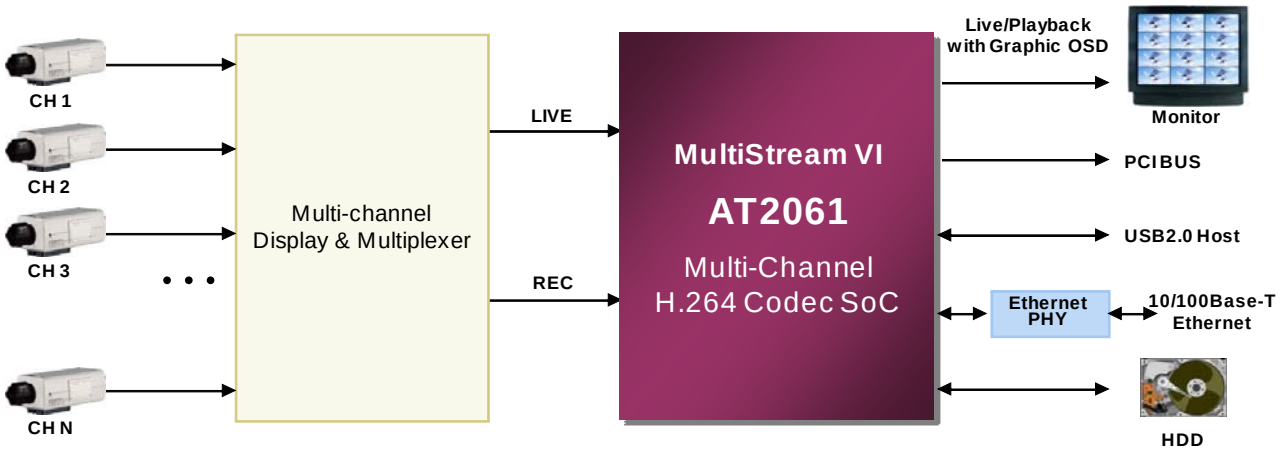
Applications

- Digital Audio/Video Surveillance System
- Network Camera Systems (Web Cam Applications)
- Network Video Recorders
- Internet Protocol TV (IP-TV) Set-top Boxes
- Video Phone & Video Conference Systems
- Video-on-Demand (VOD) Servers
- Personal Video Recorders
- PC-Capture Systems for Audio/Video Capture

Internal Block Diagram



System Application



[Multi-channel Standalone DVR]

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