



“High-end video
quality at low bitrate
exists !”

H.264 FULL D1 live encoder



APPLICATIONS

- ▶ **Live Streaming** over limited bandwidth IP links, such as satellite, intranet, E1 lines...
- ▶ **Video archiving in real-time**, with file ingestion from tape or live feed
- ▶ Broadband, e-learning, corporate, telemedicine, military, industrial, videoconference, and other markets
- ▶ Integration in end-to-end solutions by OEMs, VARs and integrators



PROJECT SUPPORT

ATEME is your technology partner. In addition to our high-end products offer, our engineering services can adapt our off-the-shelf hardware and software with specific functions, or build complete custom solutions from the ground up to fit your specific design requirements, including form factor, performances, time and cost target.



FEATURES

MPEG-4 AVC H.264 Full D1
Live encode, IP Streaming and
simultaneous file recording

Baseline, Main and High
Profiles

SDI and analog video BNC
inputs

Two stereo audio inputs,
AES/SBU, S/PDIF, analog, or
SDI embedded

Professional hardware DSP
processing

Remote control through IP
socket

Long duration 24/7 encoding

Demonstrated interoperability
with deployed Set-Top Box

Ready-to-use, with
Windows™ application



BENEFITS

Save storage space and bandwidth: lower bitrate for high **quality picture**, full resolution, and full frame rate

Benefit from all **ATEME latest research techniques** for video quality enhancements (patent pending)

Reduce file production cost: with real-time encoding

Easy integration in existing production environment: remote encoding via IP network



VIDEO INPUTS

- SDI digital input - SMPTE 259M
- Analog video input: Composite CVBS or S-video Y/c
- BNC connectors for all video inputs
- NTSC or PAL

Resolutions:	NTSC	PAL
FD1	720x480	704x480
	640x480	720x576
	704x576	640x576
3/4 D1	544x480	528x480
	544x576	528x576
2/3 D1	480x480	480x576
	352x480	320x480
1/2 D1	384x576	352x576
	720x240	704x240
	640x240	720x288
2CIF	704x288	640x288
	352x240	352x288
	320x240	
SIF/CIF	160x120	176x112
	160x112	192x144
	176x144	160x120

All resolutions at full frame rate
And any resolution multiple of 8 pixels

VIDEO COMPRESSION

- MPEG-4 AVC / H.264 (ISO/IEC 14496-10)
 - Up to Level 3
 - Baseline, Main, High Profiles
- Slice I, P, B, configurable GOP
- Scene change detection with I Frame insertion
- Multi B-frame support
- Interlaced or progressive encoding, with MBAFF, PAFF
- Macro block/sub block partitioning:
 - 16x16, 16x8, 8x16, 8x8, 4x4
- All intra prediction modes
- 4x4 integer transform
- Pixel, 1/2 and 1/4 pixel motion estimation
- In-loop deblocking filter
- CAVLC, CABAC
- DCT 8x8 (High Profile)
- Accurate CBR/ VBR/ VBR max bitrate
- Bitrate from 20 kbps to 4 Mbps

VIDEO PRE-PROCESSING

- Image crop, resize
- De-interlacing, noise filtering,
- 3:2 pulldown (inverse telecine)
- Frame rate subsampling

AUDIO INPUTS

- SDI embedded audio input – 2 channels
- 2 digital AES 110 ohms input (balanced)
- 2 digital SPDIF 75 ohms input (balanced)
- Digital 16, 20, 24 bits,
- Resampling: 44.1kHz, 48 kHz
- 2 analog inputs
- Sampling frequency 8, 16, 22.05, 24, 32, 44.1, 48 kHz
- Gain control: -34 to +12 dB
- Full hardware Frame-based synchronization

AUDIO COMPRESSION

- AAC-LC
- MPEG-1 layer I / II
- AMR
- Channels (Modes): stereo or two mono
- Bit rates (per channel): 8 to 384 kbps
- CBR, VBR modes

OUTPUTS

- RTP/RTSP streaming over UDP
- MPEG-2 TS multiplexing, streaming over UDP or RTP and file recording. Configurable parameters: MPEG-DVB-ATSC, PIDs, packet size, interbyte stuffing mode, ...
- Unicast or multicast streaming
- Time Code capture from input video

MISCELLANEOUS

- Serial link RS422/232 for tape control
- Board Size: Short-length PCI
- PCI Bus Interface: v2.2, 32-bit 33 MHz 3.3V Master/Slave (PCI-X 3V and 5V compatible)
- Temperature: operating +5 to +40°C
- Power Consumption: 1.3A@+5VDC, 0.1A@+12VDC (max 8W)
- Regulatory approvals: CE, FCC Class B

DELIVERABLES

- PCI acquisition board and firmware
- Windows™ driver and application
- Ethernet socket interface documentation

PLATFORM REQUIREMENTS

- Intel Dual Xeon 3.2GHz, 512 MB
- Operating system: Windows XP SP1

COMMERCIAL REF

- AMK 430 AVC: digital and analog inputs
- AMK 410 AVC: analog inputs



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