

# Mindego Analyzer 4600

## MPEG-4, AVC Stream Analysis Software

**v2.2**

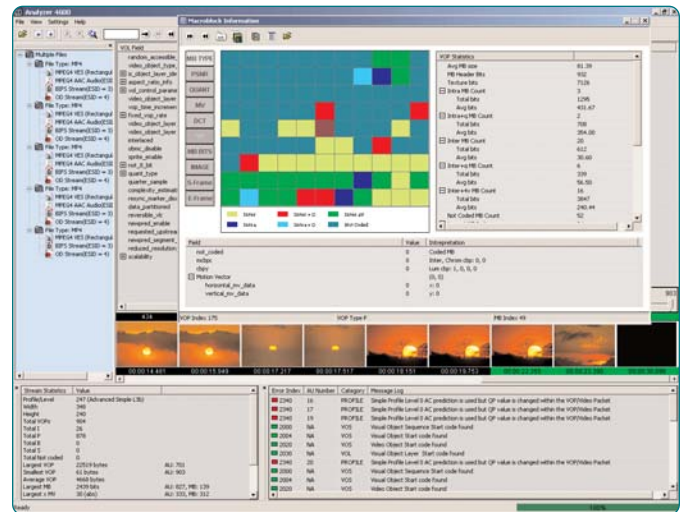
The Mindego Analyzer 4600 (MA-4600) is a powerful, yet easy-to-use software application for analyzing stored MPEG-4 media data. Designed for MPEG professionals involved in the development, testing and support of MPEG-4 products and content, its capabilities are useful for MPEG-4 experts and beginners. The Mindego Analyzer provides high-level discovery tools, visually-aided random access to video stream data, and in-depth interrogation features essential for examining the coding of video streams. It is an essential tool for organizations involved in the deployment of MPEG-4 and AVC technologies.



The Mindego Analyzer offers quick and simple navigation through the various elements of the file. At the top level, MP4 systems and video stream data are displayed in a hierarchical tree view. Clicking on each object displays

header data, statistics, and navigational aids for moving at random about the stream. A timeline sequence of picture thumbnails provides a visual reference for the entire video sequence. Drilling down deeper, you can examine the structure of each picture, producing value readings for macroblocks, motion vectors, slices, quantizer and DCT frequencies, among other variables.

The MA-4600 is useful for engineers, product developers, service technicians, and quality management professionals. It is offered in two configurations, the 4600 and 4000. The MA-4600 helps encoding engineers verify the conformity of their coders, troubleshoot problems, and pinpoint areas for improvement and optimization. The MA-4000 is intended to help decoder developers, testers, systems integrators and service technicians discover and address potential problems with source media streams.



### INPUT FORMATS

- MP4 file format (ISO/IEC 14496:1, 14496:14)
- 3GPP, AVI, ASF, QuickTime, ISO Base Media File Format
- MPEG-2 Transport Stream
- MPEG-4 Video (ISO/IEC 14496:2)
- AVC Video (ISO/IEC 14496:10, ITU-T H.264)

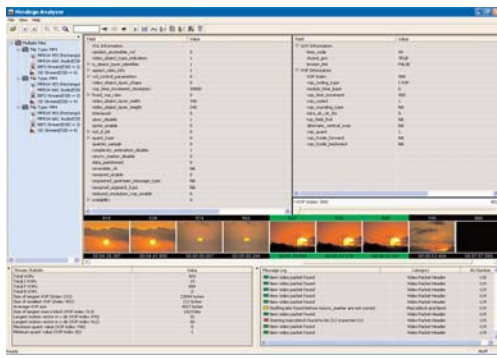
### OPERATIONAL MODES

- Pass-through verification checks
- Timeline-based, random access video navigation
- Video play-through
- Hand-controlled macroblock level analysis
- Side-by-side video stream comparison

### ANALYSIS & VERIFICATION

- MPEG-4 and AVC video, AAC audio
- MP4, 3GPP, ISMA file formats
- Header field data presentation, graphing
- Macroblock level coding analysis
- VBV buffer analysis



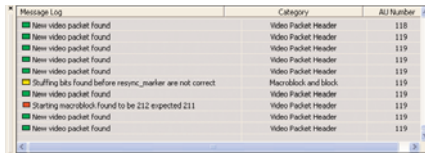


### FILE AND BITSTREAM SUPPORT

- MP4 file format (ISO/IEC 14496:1, 14496:14)
- 3GPP, AVI, ASF, QuickTime, ISO Base Media Format
- MPEG-2 Transport Stream
- AAC, HE-AAC, AMR Narrowband Audio Coding
- MPEG-4 Video (ISO/IEC 14496:2,10)
  - MPEG-4 Part 2: SP L1-L3, ASP L1-L5, Short Video Header
  - MPEG-4 Part 10 (ITU-T H.264): Main, Baseline, Extended, High

### ANALYSIS & VERIFICATION

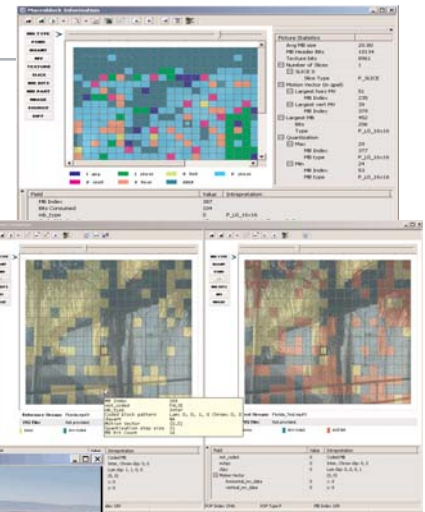
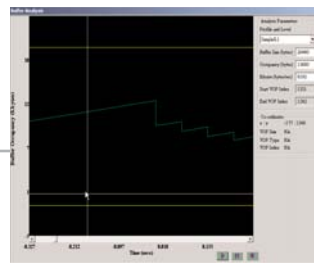
- MPEG-4 video conformance (ISO/IEC 14496:4)
- AVC conformance and profile specific checks
- MP4, 3GPP, ISMA conformance checks
- Reconstructed IODS, OD AUs, ESDS in MP4 file
- Object Descriptor stream data display
- AAC, HE-AAC audio in MP4, 3GPP files
- Header field data presentation
  - MPEG-4 Part 2: VOL, VOP, GOV
  - MPEG-4 Part 10: PPS, SPS, SEI



- Macroblock level analysis
  - MB header data, type and bit distribution
  - Quantizer level distribution
  - DCT, Coded DCT and IDCT values
  - Picture overlay on MB grid
  - Motion vector display on MB grid
  - Peak Signal to Noise Ratio (PSNR) variation
  - AVC slice arrangement, MB and sub-MB partition
- Coding analysis
  - I, B, P picture analysis
  - AC/DC prediction
  - Method 1, 2 quantization
  - 4-MV, Unrestricted and Direct Mode
  - Half-pel, quarter-pel support
  - Data partitioned based coding
  - Video packet passed coding
  - AVC: CABAC CAVLC, entropy coding

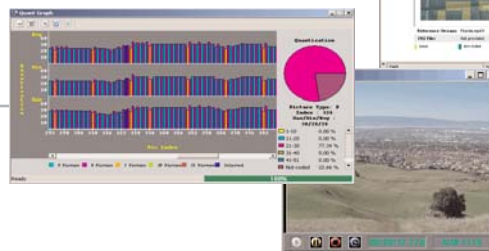
### OPERATIONAL FEATURES

- Pass-through mode
  - Conformance checks
  - Statistics collection
- Hand-controlled picture frame and macroblock analysis
- Visual aided random access to any location in stream
- Command line interface
- Elementary stream extraction facility
- VBV buffer analysis
- Stream, VOP, NAL, and file format level statistics
- Side by side video stream comparison
- Hex/Binary data display



### GRAPHICAL INTERFACE FEATURES

- Structured data display and navigation control
- Multiple file contents in tree view
- Data graphing features
- Random seeking from any location in stream
- Categorized error and information reporting
- Audio-Video timing visualizer
- Video player window



### Computer Requirements

V2 release supports direct capture of MPEG-4 video (part 2) from a streamed source over RTP. RTP Capture is a purchasable option.

1.6 GHz or faster Intel® compatible processor  
 Microsoft® Windows® 2000 or XP  
 256MB+ RAM, 20GB+ HD  
 1024 x 768 display resolution, thousands of colors

### Product Distinction

	4600	4000
Macroblock level analysis	Yes	No
Buffer analysis	Yes	No
Side by Side Comparison	Yes	No
RTP Capture (option)	Yes	No

### DETAILED FEATURE LIST

Mindego Inc.  
 428 Alice Street #228, Oakland, CA 94607 USA  
 Tel: +1 510.647.6166 Fax: +1 408.884.2470  
 www.mindego.com info@mindego.com