



Envivio Mobile Series 4Caster M2

Real Time Multi-Standard Mobile TV Encoder Supporting Multiple Output Profiles

Targeting Mobile TV Applications

As millions of users watch video on their mobile devices, operators face the growing challenge of having to deploy as many video headends as there are networks and device types. In anticipation of a converged IP world made up of hybrid networks and hybrid devices, the Envivio® 4Caster™ M2 is the first H.263 / H.264 encoder able to support the widest range of devices on any mobile broadcast and any mobile 3G network.

To support network and device convergence, the 4Caster M2 offers a highly advanced feature set. The system can output and manage up to eight subscriber profiles simultaneously from a single input. The M2 supports Extreme and Elite H.264 video compression, for delivering the best video quality for the mobile device. The M2 offers extensive device support and is compatible with the most popular network standards, including 3GPP, 3GPP2, CMMB, ATSC Mobile DTV and DVB-H / DVB-SH.

The M2 not only addresses network and device convergence, but offers mobile and broadcast operators advanced features such as live bit rate switching, statistical rate control and content security based on open standards. Whatever the network, whatever the video standard, whatever the device, the M2 is the ideal system to support the mobile TV services of today and tomorrow.

Features

- Single channel live mobile video encoder with up to eight simultaneous output profiles
- H.264 Extreme: uncompromised video quality
- H.264 Elite: optimal video quality on mid-range devices
- Advanced processing with logo insertion, display aspect ratio management
- Simultaneous support for 3G and broadcast mobile networks including 3GPP, 3GPP2, CMMB, ATSC Mobile DTV and DVB-H / DVB-SH
- Digital and analog audio / video inputs as well as MPEG-2 TS over IP input
- 3GPP live multi-rate switching
- Network-aware rate controls including constant bit rate (CBR), capped variable bit rate (VBR), available bit rate (ABR) and statistical variable bit rate (Stat VBR) settings
- Optional IP statistical rate control for for DVB-H / DVB-SH and ATSC Mobile DTV
- Optional encryption module with DVB-Simulcrypt interface to multiple third-party Conditional Access Systems for DVB-H / DVB-SH and CMMB
- Comprehensive web-based user interface with support for automatic bit rate and resolution settings
- N+M redundancy and network management available with optional Envivio 4Manager™ system



Product Highlights

- Market leading video quality with H.264 Extreme compression
- H.264 Elite compression for optimizing media playback on mid-range devices
- Video to any network, 3G networks, DVB-H / DVB-SH, CMMB and ATSC Mobile DTV networks
- Extensive device support, including all of the most popular video handsets currently deployed in mobile networks, as tested and verified by Envivio and its partners
- IP-based statistical rate control, allowing up to 40% bandwidth reduction per channel Mobile broadcast networks
- Management and output of up to eight subscriber profiles simultaneously, thereby significantly reducing total cost of ownership
- Headend cost reduction with MPEG-2 TS over IP input
- Content protection for DVB-H / DVB-SH and CMMB

Applications

- Mobile TV
- Mobile Broadcast
- Recording of live events for Video on Demand (VOD) asset creation



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Input

Video

SDI - Serial Digital Interface (625/525)
Component
Analog Composite (PAL/NTSC)

Audio

Up to 4 stereo channels
Embedded SDI: 4 stereo channels available
AES (XLR) input: 1 stereo available
Balanced audio input (2 x XLR connectors): 1 stereo channel available

IP Input and Decoding

Ethernet interface (10/100/1000 Base-T)
DVB or ATSC compliant SPTS over UDP or RTP/UDP
Multicast or Unicast
MPEG-2 Video Main Profile
MPEG-1 Layer II audio, MPEG-2 AAC, AC3

Output

File Output

3GP2, 3GPP, MPEG-4

Output

2 x Ethernet (10/100 and 100/1000 Base -T)

Supported Network Protocols

SAP, SDP, RTSP, RTP, RTCP, UDP, IPv4, IGMPv2.0
Multicast or Unicast
MPEG-4 over RTP/UDP/IP with configurable max packet size

Supported Output Profiles

3GPP2, 3GPPv5, 3GPPv6 single rate and multirate
DVB-H / DVB-SH
ISMA profile 0,1,2 (Compatible with iPod and QuickTime)
CMMB / CMMB data
ATSC Mobile DTV

Video

Input Processing

Video adjustment (brightness, contrast)
Deinterlacing
Frame Resizing
Custom frame rate (from 5 to 30 fps)
Wide Screen Signaling (WSS/AFD) handling
Logo insertion

Encoding

Adaptive GOP
Scene cut detection
Resolutions: from 80x64 to 416x240
H.263 Profile 0, Levels 10, 20 and 30
MPEG-4 Simple Profile, Levels 0, 0b, 1, 2, 3
H.264 Baseline, Levels 1, 1b, 2, 3 with look-ahead and multi reference frames
Data rate: 20 kbps to 2 Mbps

* The number of available profiles is constrained by the following rule:
 $4 \times (\# \text{ Profiles in CIF and above}) + 2 \times (\# \text{ Profiles in QCIF with H.264}) + (\# \text{ Profiles in QCIF}) \leq 12$

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Audio

Input processing

Channel selection from SDI group
Level adjustment
Stereo to mono and 5.1 to stereo downmix (for AC-3 input)
Audio resampling

Encoding

MPEG-4 Advanced Audio Coding (AAC-LC), MPEG-4 HE-AAC and MPEG-4 HE-AAC v2 (with Parametric Stereo)
QCELP, AMR-NB and AMR-WB
Stereo, mono, dual-mono, mono-left, mono-right
Sampling rate: 8 to 48 kHz
Data rate: 8 to 128 kbps per channel

Transmission

Network aware rate control
CBR (Constant Bit Rate), ABR (Available Bit Rate), Capped VBR (Variable Bit Rate) and Statistical rate control modes (option)

Advanced Features

DVB-IPDC encryption with common interface to multiple CAS (option)
CMMB data encryption with common interface to multiple CAS (option)
Stream preview available in 3GPP players (QuickTime for example)
Integrated video recorder, files hinted for VOD streaming

Control

Local

Front-panel LCD control

Remote

1x Ethernet (10/100/1000 Base T) for control or additional streaming output
Web-based interface for monitoring and control
Interface to network management system
Control and system protocol: HTTP, SOAP, NTP
Alarm protocol: SNMPv2
Save/Restore configuration
Firmware remotely upgradeable

Physical and Power

Dimensions & Weight

1RU: 431 mm (W) x 504 mm (D) x 44 mm (H)
17" (W) x 19.8" (D) x 1.73" (H)
11 kg (24 lbs)

Power Supply

100-240 VAC auto-ranging, 330 W maximum

Operating Conditions

Ambient Temperature

Operating temperature: 5 to 35° C (41 to 95° F)
Non-operating/storage: -40 to 70° C (-40 to 158° F)

Relative Humidity

Non-operating: 95% at 30° C (86° F) non-condensing

Available Configurations

4Caster M2-1 : 1 channel / 1 profile
4Caster M2-4 : 1 channel / 4 profiles*
4Caster M2-8 : 1 channel / 8 profiles*

Available Options

DVB-IPDC encryption (ISMACryp) with SOAP or DVB-Simulcrypt interface to third party CAS
Statistical rate control
CMMB data scrambling