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Real-Time HD

SES3200 Scalable Encoding System

The Telairity SES3200 is a complete "head-end in a box" solution for customers seeking to maximize encoding density for SD, mobile and PC video while minimizing cost. HD video also can be included if desired. A completely modular design built around the industry-standard ATCA chassis allows for easy scaling of capacity, adding SD encode channels in groups of four. A 12RU 14-slot chassis can accommodate 4 8-input boards, 8 4-channel encoder boards, and 2 multiplexed output boards, providing a total of 32 channels with either full dual redundant output or simultaneous dual output over separate network types (e.g., ASI and IP). A full fabric backplane eliminates the need for external cables, routers, switches, and multiplexers, while providing the ability to route any input to any output under dynamic software control.

Features and Options

Video Encoding Features

- High, Baseline & Main Profiles, H.264/AVC: 1, 1b, 1.1, 1.2, 1.3, 2; AVS: 2.0
  - Supports older 2G and new 3GPP, 3GPP2 networks; 3GPP multirate file format
- Input Video Formats: 576i (PAL), 480i (NTSC) SD or 1080i, 720p HD
- Transcoding, Transrating, Down-sampling, Anamorphic scaling, Deinterlacing
- Output Resolutions:
  - HD – 1080i x 1920 / 1440 / 1280 and 720p x 1280 / 960
  - PAL – 720x576i/p (full SD) to 176x144p (QCIF)
  - NTSC – 720x480i/p (full SD) to 320x240p (QVGA)
  - Other mobile resolutions including CIF, HVGA, HQVGA, QQVGA, SQCIF, etc.
- Rate Control: Constant Bit Rate (CBR) @ 128-2000 Kbps
- Scene change detection with fixed, open, closed, adaptive GOP structures ▪ Spatial preprocessing ▪ Deblocking (Loop) filter ▪ CAVLC entropy coding ▪ All intra- and inter-prediction modes ▪ Qpel ▪ Multiple reference frame prediction ▪ TMC® Chroma ▪ Luma/Gamma correction with De-ringing & Flicker removal

Audio Encoding Features (per channel)

- Embedded or External audio input ; AC-3 pass-through
  - Four programs (stereo pairs): Stereo, Dual Mono, Mono
- Bit Rates: 12 to 128 Kbps; Sample Rates: 32, 44.1, 48 KHz
  - Audio Codecs: MPEG-1 Layer 2; MPEG-4 AAC-LC or -HEv2

Control Features

- Telairity EMS and Configuration Software
- Industry Standard MIB supports interface with 3rd party SMS/NMS

Output

- Multiplexed MPEG-2 transport stream over DVB-ASI
- SPTS IP stream over Gigabit Ethernet
  - Pro-MPEG FEC (Forward Error Correction) with RTP transport protocol
- Other available output options including TCP, HTTP

SES3200 HD/SD/Mobile
Scalable Encoding System

Applications

The Telairity SES3200 Encoding Platform offers state-of-the-art video compression in dense 5U and 12U ATCA chassis form factors. This "head-end in a box" solution is ideal for customers seeking the most cost-effective and reliable way to implement large deployments for:

- IPTV, OTT
- WebTV
- Broadcast Distribution to Mobile
  - Satellite / Cable / Terrestrial
- Supports all digital broadcast standards, including ATSC, DVB-S/S2/SH, DVB-C, DVB-T/T2, DVB-H, CMMB, ISDB-T, DMB-T/H

Benefits

Dense ATCA Chassis system in 12RU and 5RU form factors

Based on the fully programmable Telairity-1 video architecture; easy software upgrades to improve quality, lower bit rates, add new options and convert between codecs

Leading-edge Telairity Mobile Video technology for best video quality at the very low bit rates required for mobile broadcasts

MPEG-4 AAC LC and HE options for high audio quality at very low compressed bit rates; Dolby Digital / AC-3 and Dolby E pass-through also supported

Flexible redundancy schemes from full dual to 31+1

"Instant on" startup and restart times

Wide variety of options for input, encoding, transcoding, and output

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Ordering Information

Part Number: **SES3200**

Contents

- SES3000-series Encoding Platform
- Power Cable: IEC to USA plug; optional Euro plug
- USB flash drive with backup copy of encoder firmware and manual

Requirements

- ATCA Chassis
- Useful minimum of 4 boards:
  1 input, 2 encoder, 1 output
  (8 channels)
- Telairity Network Management System or SNMP
- Cables (input & output)
  - 75 Ohm coaxial with BNC connector
  - Cat5/6 Ethernet with RJ-45 connector

About Telairity

Telairity, based in Santa Clara, California designs, manufactures and markets H.264/AVC and other advanced encoding and transcoding solutions for broadcast and professional video applications. Telairity's breakthrough video architecture (Telairity-1™) is the foundation for all its real time encoding products, which combine outstanding video quality with state-of-the-art, video compression based on the AVC (H.264 / MPEG-4.10) standard to achieve the lowest possible bitrates.

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Video Inputs

Input Format:	SDI, ASI, or IP input ▪ Composite input option
Video Input Formats:	4:2:2 for PAL and NTSC SD, 720p or 1080i HD
Frame Rates: *720p only	Frames per second: progressive mode 23.98, 24, 25, 29.97, 30, 50*, 59.94*, 60* Fields per second: interlaced mode: 50, 59.94, 60
Digital Video In:	Up to 32 BNCs for 75Ω cable (SDI, ASI, composite) Up to 32 RJ-45s for Cat5/6 Ethernet cable (IP)

Audio Input

Input Format:	Embedded per SMPTE 272M (SD-SDI); 299M (HD-SDI) Dolby Digital / AC-3 and Dolby-E pass-through

Compressed A/V Output

Output Interface:	One Digital Video Broadcast – Asynchronous Serial Interface (DVB-ASI), 270Mbps, buffered non-inverting with MPTS of up to 32 channels One GigE Ethernet Interface with SPTS of up to 32 channels ○ 2nd set of Interfaces available on optional output card All channels fed to each output board. Optional 2nd output card provides dual redundant ASI and IP outputs for the same network (primary and backup) or separate networks. Separate networks may be of the same or different types (e.g., broadband and broadcast)
Packet Format:	MPEG-2 188-byte Transport Stream packets in formats: TS/UDP/IP, TS/RTP/UDP/IP with optional FEC, RTCP
Compression Format:	Baseline & Main Profiles H.264: 1 - 1.3; AVS 2.0
Compressed Bitrates:	User programmable: 128 Kbps to 2 Mbps, CBR

Network Management

Telairity EMS or standard SNMP for NMS/SMS

Power Specifications

Input voltage:	-48VDC; or 100 to 242 VAC (auto-sensing) with 1RU AC/DC conversion unit
Line frequency:	47 to 63 Hz
Power consumption:	about 60W per channel

Mechanical Specifications

Dimensions & Weight:	12RU (H) x 19” (W) x 14” (D) rack-mountable Fully loaded with 14 boards, about 100 lbs 5RU (H) x 19” (W) x 14” (D) rack-mountable Fully loaded with 5 boards, about 30 lbs

Environmental Specifications

Cooling:	Forced air, inlets at front, outlets at back. Temperature-controlled fan speed
Temperature:	Operating: 10° to 55°C; Storage -20° to 60°C
Humidity & Pressure:	≤95% (non-condensing); 86kPa ~ 106kPa