Barracuda

H.264 Encoder

Intelligent IP Video

Compact SD H.264 Encoding
One Video Source Delivering Multiple Bitrates to Multiple Destinations

Barracuda^{TM} delivers high performance H.264 encoding in a uniquely compact form factor. For standard definition encoding needs, the Barracuda adheres to Haivision's "Encode Once" design, offering the ability to deliver multiple streams at different resolutions and bitrates to multiple destinations. Supporting a wide variety of IP streaming standards, the Barracuda is an ideal contribution tool for almost any application. The Barracuda also supports both forward error correction (FEC) and encryption, making it a perfect fit within Haivision's Furnace end-to-end H.264 IP video solution.

Integrated with the Furnace. Haivision's Furnace system is an end-to-end IP video system that provides network resiliency through forward error correction and absolutely secure video distribution to the "zero footprint" InStream™ player and the Stingray™ set-top box through the support of AES encryption. The Barracuda supports these critical standards so that companies can be confident that the video is 100% secure - from the point of encoding all the way to the viewers. The Barracuda provides end-to-end confidence that only those who are allowed to view specific content can access that content, and that they cannot record or copy that content directly.

Efficient H.264. The Barracuda is based on the highly efficient H.264 compression standard, saving over 50% of the bandwidth and disk space required by MPEG-2 IP video deployments. The Barracuda accepts Composite, S-Video, and Serial Digital Interface (SDI) standard definition inputs. It also supports both balanced and unbalanced stereo audio as well as digital audio embedded within the SDI signal. The Barracuda can produce H.264 streams at full resolution and full frame rate at up to 8 Mbps, and yet with built-in downscaling and partial frame rate support can emit streams as low as 150 kbps.

IPTV DISTRIBUTION
Delivering video channels to viewers in schools, financial institutions, live event venues, control rooms, and within government organizations.

MEDICAL SYSTEMS
Driving controlled and secure video throughout healthcare facilities enabling education, consultation, and procedural review.
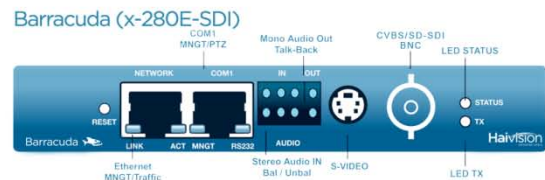
STREAMING SERVICES
Connecting facilities, affiliates, and event locations with real-time high definition video, simultaneously addressing streaming and distribution challenges.

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"Encode Once" technology. The Barracuda marries the most advanced IP video networking video features with the power and ubiquity of the H.264 standard. Supporting HiLo-Streaming™, each Barracuda can encode the same incoming SD stream using two different encoder settings simultaneously. For example, one setting might support full resolution full bandwidth for LAN distribution and another setting might provide CIF resolution at a much lower bandwidth for internet streaming. In addition, up to 8 H.264 streams can be emitted by the Barracuda, with each stream assigned an encoder setting, its unique IP encapsulation, and with or without encryption and forward error correction. A single Barracuda with a single video source can simultaneously power diverse delivery systems allowing companies to encode their live video once and deliver it across their networks and the internet, without having to introduce intermediary trans-rating systems that reduce reliability and add cost and latency.

Extreme Performance in a Compact Form Factor. The Barracuda is based on Haivision's progressive ASIC / DSP mini-blade architecture and is available as an ultra compact appliance for single channel encoding, within a 4RU chassis that can contain up to 21 Barracuda H.264 encoders or a 1RU chassis that can contain up to 6 Barracuda encoders for high density challenges. The Barracuda encodes standard definition video to H.264 in well under 70 milliseconds.

Easy. Although the Barracuda is complete with the latest compression and networking features, it remains an easy to use, easy to deploy, robust appliance. Users can control the Barracuda through its intuitive web interface (complete with on-line help facilities). Integrators may opt to control the Barracuda over IP or serial port via its comprehensive command line interface or even through SNMP. Additionally advanced encoder control is available directly through Haivision's Furnace IP video system.

H.264 Compatibility. The Barracuda fully supports H.264 video compression and AAC audio compression, industry standards that have been adopted by every major company in the IP video market segment. End-to-end solutions rely on seamless interoperability. Haivision's applications team takes compliance, third party, and quality assurance testing seriously. The Barracuda is interoperable with industry standard set top boxes, with HaiPLAY (Haivision's open source free performance soft player) and VideoLAN's VLC player. With the release of Haivision's Furnace, the Barracuda is also integrated with and compatible with the Furnace Portal Manager, the InStream player, and the Stingray set top box, providing a complete end-to-end H.264 IP video distribution system.

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Specifications

Barracuda (x-280E-SDI)

Video (Inputs):
  S-Video   NTSC/PAL
  Composite NTSC/PAL
  SD-SDI   SMPTE 259M-C
Video Resolutions:
  720x480/576i 60/59.94/50 Hz
  (interlaced shown in fields per second)
Audio (Input):
  Available through terminal block connector:
    Balanced Stereo Analog Audio
    Unbalanced Stereo Analog Audio
  Embedded Audio
    SD-SDI   SMPTE 272M

VIDEO ENCODING

Compression Standard:
  H.264 (MPEG-4 AVC part 10)
  ISO/IEC 14496-10
  Main Profile
  Level 3.0 and lower Intermediate Levels
  I, IP framing
  Configurable Group of Picture (GOP) size
  Configurable frame rate
Bit Rates:
  SD from 150 kbps to 8 Mbps
Rate Control:
  Traffic Shaping
Latency (encode only):
  Less than 70ms

AUDIO ENCODING

Compression Standard:
  MPEG-2 AAC-LC ISO/IEC 13818-7
  MPEG-4 AAC-LC ISO/IEC 14496-3
Audio Channels:
  2 per video channel
Bit Rates:
  From 32 to 448 kbps per audio pair
Frequency Response:
  From 20 Hz to 22 kHz

ADVANCED FEATURES

HiLo-Streaming
De-interlacing
Deblocking Filter
EIA-608-B Closed Captioning (NTSC Line 21)
Forward Error Correction
AES Encryption
Logo overlay
Still image transmission
Aspect ratio configuration
AFD and WSS support
Board is hot swappable in the 6 and 21 slot chassis

IP NETWORK INTERFACES

Standard:
  Ethernet 10/100/1000 Base-T, auto-detect,
  Half/Full-duplex
Connector:
  RJ45
Networking Protocols:
  Unicast Streaming
  Multicast Streaming (IGMP v3)
  Multiple Unicast Streaming
  MPEG Transport Stream over UDP / RTP
  Direct RTP - H.264 over RTP (RFC 3984)
  RTP / RTCP (RFC 3550)
  QuickTime RTSP* (RFC 3640)
  SAP (RFC 2974)
  * Progressive resolutions only

MANAGEMENT INTERFACES

Standard:
  RS-232 (optional for x-290E-DVI)
  RJ45 to RS-232 (DB-9 Management Cable Req'd.)
Management:
  HTTP (web browser)
  Command line over Telnet/RS-232
  FTP/TFTP
  Furnace Portal Server (VF Pilot)

METADATA (Optional)

  Key Length Value (KLV) or Cursor on Target
  Metadata Multiplexing per MISB RP 0604
  Synchronous Mode
  KLV per SMPTE 336M
  MISB EG0601.1
  CoT/KLV Conversion (EG0805)

Single Blade Appliance (S-290E-HDSDI/DVI)

Dimensions :
  24mm H x 149mm W x 202mm D
  0.92"H x 5.85"W x 8.0"D
Weight:
  2.5 lbs
Power:
  5VDC, 13W (each blade),
  100-240VAC 15W external locking power supply

6 Blade Chassis (F-MB6-XX)

Dimensions:
  19" rack mountable, 1RU
  44.45mm H x 438.15mm W x 425.45mm D
  1.75"H x 17.25 W x 16.75"D
Weight:
  6 slot empty chassis – 10lbs
  Single encoder blade – 0.5lbs
Power – Internal Power Supplies:
  AC type 90-264VAC 47Hz-63Hz
    200 Watt max.
  Medical Grade 90-264VAC 47Hz-63Hz
    300 Watt max.
  DC type 20-36 VDC
    200 Watt max.

21 Blade Chassis (F-280-21DPS)

Dimensions:
  19" rack mountable, 4 RU
  178mm H x 445mm W x 400mm D
  7.00"H x 17.50"W x 15.75"D
Weight:
  21 slot empty chassis – 20lbs
  Single encoder blade – 0.5lbs
Power – Internal Power Supply:
  90-132V and 180-240VAC 47Hz-63Hz
  400 Watt max.

Ordering information (please obtain complete system quotations from Haivision or an authorized Haivision integration partner)

S-280E-SDI	**Barracuda Encoder Appliance** - SD H.264 IP Video Encoder - SDI, Composite, S-Video, and Audio input; 150 kbs to 8 Mbps.	
B-280E-SDI	**Barracuda Encoder Blade** - SD H.264 IP Video Encoder - SDI, Composite, S-Video, and Audio input; 150 kbps to 8 Mbps; chassis required.	
F-280-21DPS	**MB21 - Makito/Barracuda 21 Slot Chassis** - Rackmount 4RU Chassis - Up to 21 Makito/Barracuda mini-blades, dual AC power supply.	
F-MB6-AC	**MB6 - Makito/Barracuda 6 Slot Chassis** - Rackmount 1RU Chassis - Up to 6 Makito/Barracuda mini-blades, AC power supply.	
F-MB6-MED	**MB6 - Makito/Barracuda 6 Slot Chassis** - Rackmount 1RU Chassis - Up to 6 Makito/Barracuda mini-blades, Medical Grade AC power supply.	
F-MB6-DC	**MB6 - Makito/Barracuda 6 Slot Chassis -** Rackmount 1RU Chassis - Up to 6 Makito/Barracuda mini-blades, DC power supply.	

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