



## Broadcast Quality H.264 for Live Internet Video

**Highest Quality Software-Based Internet HD Encoding and Transcoding** The KulaByte™ Internet Encoder and the KulaByte Internet Transcoder are ideal for streaming live events and OTT broadcast channels. 100% software-based, KulaByte combines 4:2:2 High Profile H.264 encoding with advanced bandwidth controls to optimize both uplink and Internet delivery of high definition adaptive bit rate (ABR) video streams.

**The Power of 100% Software** As a software-based platform, KulaByte is equally powerful when deployed for source stream encoding or for highly flexible cloud-based transcoding built upon the very reliable Linux operating system. KulaByte encoding systems support up to four 1080p HD sources, either baseband or as IP streams to be transcoded. When deployed within the cloud, KulaByte stands alone with both Transport Stream and RTMP ingest, allowing existing workflows to immediately take advantage of cloud efficiencies. As a software platform unrestricted by proprietary hardware technology, an investment in KulaByte will extend for many years, assuring the best ROI in its class.

**Technology Designed for Uplink Efficiency** KulaByte provides the highest uplink bandwidth utilization and the highest quality streams for any given bitrate. KulaByte systems combine Constant Bit Rate (CBR) output with Dynamic Stream Shaping (DSS) to dynamically change the bitrate to compensate for fluctuations in uplink bandwidth availability. This assures the best Internet delivery of any source stream over any network condition.

**Adaptive Bit Rate (ABR), Dynamic Flash and Adaptive HLS** Based on an advanced implementation of the highly efficient H.264 codec, KulaByte natively supports both Adobe's Dynamic Flash™ streaming protocol (RTMP) with the largest global penetration of playback devices, and Apple's Adaptive HTTP Live Streaming (HLS) protocol supported by iPhone™, iPad™, and Android phone and tablet devices, as well as set-top boxes such as the Roku™ streaming player.

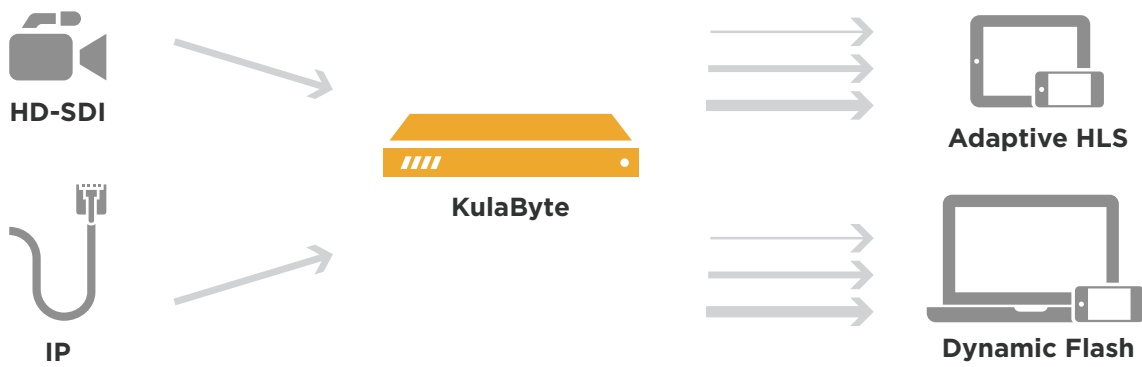
### Product Features

### Product Benefits

<b>100% software-based</b>	High ROI, scalable performance, cloud deployable
<b>H.264 4:2:2 High Profile encoding</b>	Best quality per bit transferred
<b>Dynamic Stream Shaping (DSS)</b>	Best use of restricted / variable uplink connections
<b>RTMP or Transport Stream input</b>	Transcoder accommodates existing IP-based workflows
<b>High density ABR encoding</b>	Encode up to 4 inputs per system and up to 8 outputs per input
<b>Turnkey Internet encoding</b>	Easy to deploy encoding solution in portable or server based configurations
<b>GUI or API control</b>	Operate complex workflows with browser Web UI or custom REST API integration
<b>Linux-based platform</b>	Higher performance & reliability. Take advantage of lower-cost cloud instances
<b>Closed Captioning Support</b>	Closed Captioning for Adobe Flash and Apple iOS devices

<p><b>KULABYTE SYSTEMS</b>  <i>Video Input Resolutions</i>                  up to 1080p50/60 1080i  <i>Video Outputs</i>                  up to 1080p50/60</p> <p><b>Video Encoding</b>  <i>Compression Standard:</i>                  H.264 (highly configurable codec)  <i>Profiles:</i>                  High, Main, Baseline  <i>Bit Rates:</i>                  up to 10 Mbps  <i>Rate Control:</i>                  CBR  <i>Video Sampling:</i>                  up to 4:2:2</p> <p><b>Audio Encoding</b>  <i>Compression Standard:</i>                  AAC-LC/HE  <i>Bit Rates:</i>                  up to 512 Kbps</p>	<p><b>KULABYTE PILOT ENCODER HD SERVER</b>  <i>Video Input (1 input):</i>                  Component Analog      Composite                  S-Video                      SDI</p> <p><i>Audio Input (2 Channel):</i>                  Balanced and Unbalanced (Analog and AES/EBU)                  SDI Embedded</p> <p><i>Stream Outputs:</i>                  1 x 720p ABR<sup>1</sup></p> <p><i>Operating System:</i>                  Windows Server 2008</p> <p><i>Standard IP Interfaces:</i>                  2 x R.J45 Ethernet                      Unicast streaming</p> <p><i>Weight (approx.):</i>                  26 lbs.</p> <p><i>Dimensions:</i>                  1RU: 42.6H x 431W x 393.7D (mm)</p> <p><i>Power (Internal Supply):</i>                  100-240 VAC 250 W</p>	<p><b>KULABYTE HD ENCODER SYSTEM</b>  <i>Video/Audio Inputs:</i>                  up to 4 x HD-SDI                  Each input with 2-channel embedded audio</p> <p><i>Stream Outputs:</i>                  up to 4 x 720p ABR<sup>1</sup></p> <p><i>Operating System:</i>                  Windows Server 2008</p> <p><i>Standard IP Interfaces:</i>                  4 x R.J45 Ethernet                  Unicast streaming</p> <p><b>Physical Characteristics</b>                  1 RU  <i>Weight (approx.):</i>                  57 lbs.</p> <p><i>Dimensions:</i>                  1RU: 42.5H x 431W x 772D (mm)</p> <p><i>Power (Internal Redundant Supply):</i>                  100-240 VAC 717 W</p>
	<p><b>KULABYTE PILOT TRANSCODER HD SERVER</b>  <i>Video Input (1 input):</i>                  RTMP                                      MPEG Transport Stream</p> <p><i>Stream Outputs:</i>                  1 x 1080p ABR<sup>2</sup></p> <p><i>Operating System:</i>                  Linux</p> <p><i>Standard IP Interfaces:</i>                  2 x R.J45 Ethernet                      Unicast streaming</p> <p><i>Weight (approx.):</i>                  26 lbs.</p> <p><i>Dimensions:</i>                  1RU: 42.6H x 431W x 393.7D (mm)</p> <p><i>Power (Internal Supply):</i>                  100-240 VAC 250 W</p>	<p><b>KULABYTE HD TRANSCODER SYSTEM</b>  <i>Video Inputs:</i>                  up to 4 x RTMP and/or MPEG Transport Stream</p> <p><i>Stream Outputs:</i>                  up to 4 x 720p ABR<sup>1</sup>, 2 x 1080p ABR<sup>2</sup> or 10 x SD ABR<sup>3</sup></p> <p><i>Operating System:</i>                  Linux</p> <p><i>Standard IP Interfaces:</i>                  4 x R.J45 Ethernet                  Unicast streaming</p> <p><b>Physical Characteristics</b>                  1 RU  <i>Weight (approx.):</i>                  57 lbs.</p> <p><i>Dimensions:</i>                  1RU: 42.5H x 431W x 772D (mm)</p> <p><i>Power (Internal Redundant Supply):</i>                  100-240 VAC 717 W</p>

<sup>1</sup> 720p ABR = 720p+480p+360p+270p+180p  
<sup>2</sup> 1080p ABR = 1080p+720p+480p+360p+270p+180p  
<sup>3</sup> SD ABR = 480p+360p+270p+180p



**KulaByte Product Portfolio & Ordering Information \*\***

<a href="#">KulaByte Pilot Encoder System</a>	<b>S-KB-HD1-K4-PLT</b>	Entry Level Baseband 1 Input SD/HD Encoding Server, HD-SDI/Component/Composite, 1 HD Cascade Stream Output
<a href="#">KulaByte Encoder Systems</a>	<b>S-KB-HDX-K12-1U</b>	Enterprise Class SD/HD Encoding Server, HD-SDI, up to 4 HD Cascade Stream Outputs
<a href="#">KulaByte Pilot Transcoder System</a>	<b>S-KB-TR1-K4-PLT</b>	Entry Level SD/HD Transcoding Server, RTMP / Transport Stream IP inputs, 1 HD Cascade Stream Output
<a href="#">KulaByte Transcoder System</a>	<b>S-KB-TRX-K12-1U</b>	Enterprise Class SD/HD Transcoding Server, RTMP / Transport Stream IP inputs, up to 4 HD Cascade Stream Outputs
<a href="#">KulaByte Element Manager</a>	<b>FREE DOWNLOAD</b>	Management system for multiple encoder/transcoder systems

\*\* For complete pricing and ordering, contact us at sales@haivision.com or your certified Haivision reseller.