

SEGMENT: General Audio Tour Stop 8
COMPANY NAME: AmberFin
CATEGORY: New Compression Codecs
HALL: South Upper Hall, Rear
BOOTH NUMBER: SU8505

H.264 is almost synonymous with HD video. It's an international standard for video compression and it's practically everywhere. If you've watched a video on Netflix, YouTube or Vimeo or you've watched a Blu-ray disc you've experienced H.264. So why is the International Standards Organization at it again, trying to create a new codec for video compression? The answer is simple: 4K

While H.264 is great for Standard Definition and High Definition Video, it simply can't handle the high color depth, the high frame rates, the very high resolution, and the staggering amount of sheer data encompassed by 4K. And H.264 simply doesn't squish those files down small enough to be played back in any kind of practical or economical fashion. That is why the members of the ISO have been hard at work on a new video compression standard called H.265 also known as High Efficiency Video Codec or HEVC. This new codec lives up to its name--supporting the high resolution of 4K and even 8K video while at the same time cutting the required bit rate which is the number of bits processed per second, in half. This technology can be used not only to make delivery of 4K video and above financially feasible, but also to deliver twice as many 2K or HD streams than ever before.

Not surprisingly, HEVC encoding takes quite a bit more computational power than its predecessor. Generally H.265 takes either twice the processing power or twice the time

to encode. However, processors are improving faster than bandwidth is increasing, so more powerful compression is the way to go.

While HEVC is not fully established as an industry standard, the first version of the H.265 standard was approved by the International Telecommunications Union in April of 2013 and published in June. Whenever an international standard is created, implementation in hardware and software lags somewhat behind. But smart workflow companies like AmberFin here in booth #SU8505 understand that HEVC is coming and have been getting ready. AmberFin's iR platform ensures clean content entering the encoding process –and implements the standard in high-quality, high-performance software. One of the ways that the AmberFin system accomplishes this is by passing content through its professional de-interlacer known as the iCR. This is especially important given the fact that HEVC contains no support, at all, for interlaced video. Interlaced video by the way is a technique that allows for a perception of double the frame rate of the image you see giving the sense of higher resolution, without increasing bandwidth. So technically it must be “undone” before compression takes place. iCR also couples its transcoding tools with a sophisticated set of Q/C tools so that your video files can be appropriately evaluated before delivery. AmberFin has made a commitment to HEVC and has even published a great white paper on the subject entitled “HEVC: The Path to Better Pictures,” which you can download from their website, read and become an compression savant.

Although companies like AmberFin have made significant investments in HEVC, the standard is not yet universally implemented in hardware or software. The technology is complex and new. And as this is an international standard, there are some licensing issues still being considered. As with the previous H.264 standard, HEVC licensing will be handled via a patent pool managed by MPEG LA. This group has not yet established exactly how much the licensing fees will be. This uncertainty around licensing fees makes strategic planning difficult—especially for companies developing decoding software and decoding chips where margins are particularly tight. Thus decoders are lagging somewhat behind encoders in product development and roll out.

The uncertainty over licensing is far from the only uncertainty in this field. While HEVC is the only international standard codec developed for 4K and beyond, it is not the only codec in this space. Several open source codecs including Daala (developed by Mozilla Foundation) and Dirac (developed by the BBC) are under development. Perhaps of greatest concern is VP9—an open format competitor to HEVC being developed by Google. Typically International Standards take precedence over open format, industry developed codecs. And in head to head comparisons, HEVC appears to be slightly more efficient than VP9. However Google is a very large company, with huge market share in search, Internet and mobile. Google has announced that it will remain royalty free. And the Blu-Ray disc association is yet to throw its support behind either of the high efficiency codecs. VP9 may very well give HEVC a run for its money.

So what is a developer to do? In short, pick vendors like AmberFin who are committed to keeping their end-to-end solutions up to date with the very latest in video codecs. Keep your 4K video files in RAW and uncompressed formats for as long as is financially feasible. And keep your ear to the ground.

Now let's head outside to the Silver Lot for our next stop in Ooyala in booth SV1000.