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Software-Based Encoding Shows Strength Against Hardware Rivals

Envivio Delivers Support For Live MVC 3D, iPad Content and Mobile DTV

BY FRED DAWSON

The ability of software-based encoding systems to leverage processing power and density gains of general-purpose chips has produced a significant shift in the calculus underlying content owners' and service providers' approaches to the emerging requirements of multi-screen distribution.

Nothing better illustrates the point than the decision by one of the leading suppliers of proprietary hardware-based encoding systems, Ericsson, to turn to Envivio, one of the leading suppliers of software-based systems, to facilitate the mobile encoding part of Ericsson's new "end-to-end best-of-breed ATSC MH ecosystem," a reference to the Mobile DTV Mobile Handset standard developed by the Advanced Television Services Committee for broadcasters.

By selling a complete solution for delivering Mobile DTV including statistical multiplexing support from Axcera, Ericsson simplifies entry into Mobile DTV by broadcasters, says Lisa Hobbs, head of broadcast compression solutions at Ericsson.

"We're selling this as a package to broadcasters so they don't have to pick independently from different vendors," Hobbs says. "The Mobile DTV platform needs to plug into their business models. It's a very different system from what they require for TV broadcast."

Indeed, the adaptability of a system like Envivio's that doesn't require creation of new chipsets to accommodate a new format like ATSC MH is a big reason the market has been drawn to software-based solutions. "Envivio has made itself an important partner by consistently anticipating and being ready with solutions that support the latest standards and market requirements," says Mike Rosso, senior vice president of sales at Axcera, which, apart from the Eric-

son affiliation has made Envivio's 4Caster C42 encoding platform part of its Mobile DTV solution. "We want the best quality video to showcase the power and innovation of Axcera's Mobile DTV transmission systems."

The adaptability of software-based systems was on full display at the National Association of Broadcasters Convention in Las Vegas last month, where, as reported last month (p. 21) Digital Rapids introduced an array of enhancements, including extension of adaptive bit rate streaming and other advances to serve multiple categories of devices at multiple levels of resolution from a single platform. For its part, Envivio introduced an encoding solution for the Apple iPad and, at the far high end of TV quality, demonstrated the use of its technology for transmitting 3DTV.

This included the compacting of two full resolution 1080p HD into the bandwidth-saving stereoscopic 3D compression format known as Multiview Video Coding (MVC), which is employed in the Blu-ray 3D standard. "We're the only ones doing MVC live," says Julien Signes, president and CEO of Envivio. "It was quite easy for us to get to MVC, because we're operating on a software-based platform."

By riding the ongoing capacity and density gains delivered by Intel's multi-core server processors Envivio can outpace the development cycles of competitors who rely on purpose-built ASICs (Application-Specific Integrated Circuits) and FPGAs (Field-Programmable Gate Arrays), Signes notes. With a doubling in capacity every six months resulting from Moore's Law and the efficiency improvements intrinsic to the multi-core architecture, Envivio is not only able to incorporate new formats like MVC, MH and Apple iPad HTTP into its extensible software system; it can consistently reduce the bit rates for hitting specific quality levels and incorporate new functionalities such as encryption and ad insertion, Signes says.

Envivio's latest encoder release, the 4Caster™ C42 Three Screens video encoder, delivers four times the channel density of previous generation encoders, he adds. The encoder ingests up to eight IP, four analog or four SDI channel sources and simultane-



Julien Signes, president & CEO, Envivio

ously encodes and protects the content in multiple profiles and supports adaptive bit rate encoding and integrated statistical multiplexing rate control.

Envivio, which initially focused on the telco IPTV market, has seen a rapid expansion in its market base as content owners seek to directly deliver their assets to users through the Web and to the TV via over-the-top broadband solutions and cable operators move to IP-based distribution for ever more content. "Cable has become more and more important to us as MSOs move to IP backbones and become more interested in mobile," Signes says.

Signes points to the upgrade of the 4Caster C42 to take full advantage of the 9.7-inch LED-backlit iPad display as an example of the incremental optimization that can be performed in the software encoding environment. "We're able to deliver HD video that's perfectly formatted for the iPad at up to 720p resolution," he says. "The multi-profile output of the 4Caster C42 offers customers the capability to simultaneously service iPads and iPhones, as well as PCs, smartphones and other devices." ■