openGear®

The Ultimate openGear Applications Guide

2025

COBALT®

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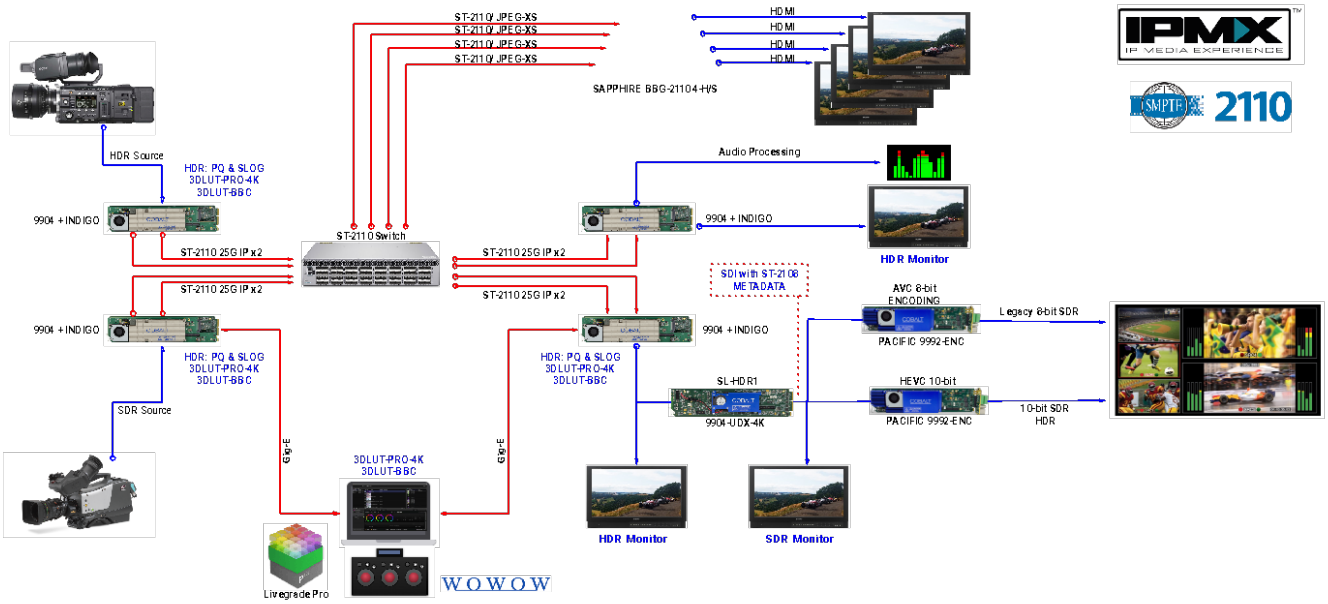
Application

Native HDR Processing in ST 2110



If you want to upgrade your perceived video quality, the best return on investment is High Dynamic Range (HDR) with the deeper color experience provided by Wide Color Gamut (WCG).

The best approach is to produce in HDR. However, there are always legacy SDR sources and content that needs to be integrated into this workflow. For basic static conversion Cobalt has real-time 3D-LUT support, and you can use pre-defined LUTs from NBCU and BBC, or your own. For a more advanced dynamic conversion, Cobalt's 9904-UDX integrated with AHDR technology can analyze the content scene-by-scene and optimize the conversion process.

Once you have produced your HDR content, you may need to create an SDR version to support legacy devices. Cobalt has multiple options for this, including 3D-LUTs for basic static conversion. And, at emission, the Cobalt PACIFIC 9992-ENC/DEC series of encoders and decoders have full support for the required HDR signaling.

Cobalt also offers all the HDR processing natively in ST 2110-enabled devices, which include the legacy SDI interfaces. This is offered as the INDIGO ST 2110 interface to the quad-channel 9905-MPx HD or the 9904-UDX 4K processors, the INDIGO ST 2110 interface to the PACIFIC 9992-ENC series, and the INDIGO ST 2110 bi-directional quad-channel gateway (OG-2110-BIDI4-GATEWAY).

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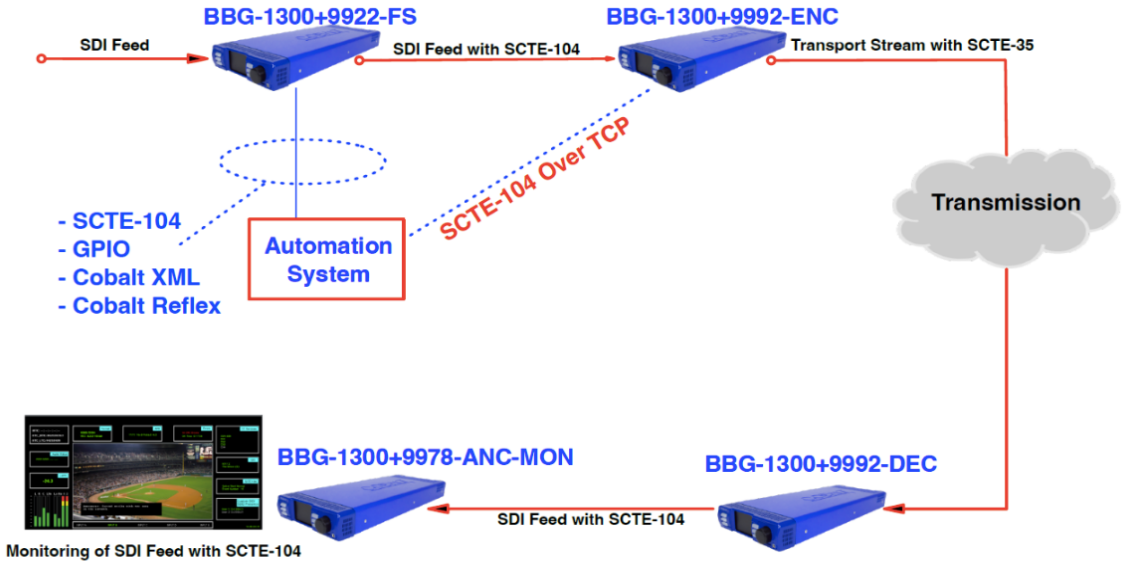
Application

Dynamic Network-Side Ad Insertion with Monitoring



Cobalt offers a complete programmer-side Ad Insertion solution, ready to connect to your traffic system. Our ancillary data inserters and frame syncs can be licensed to add SCTE-104 triggers to an SDI signal, in a frame-accurate manner. These devices can be interfaced with your traffic system using the following options:

- GPIO signals
- SCTE-104 signaling over TCP
- Easy-to-use Cobalt's own openly available XML-based protocol

This functionality is available for the 9902-UDX, 9922-FS, 9950-EMDE-ANC and 9904-UDX cards.

For compression applications, all Cobalt encoders support SCTE-104 to SCTE-35 conversion. The SCTE-104 signaling can be received directly on the SDI signal, or over TCP – thus avoiding the need for an inserter, if your workflow just requires SCTE-35. Additionally, the 9992-ENC encoder supports SCTE- 35 insertion on HLS manifests and is compatible with required YouTube markings. On the receive side, all Cobalt decoders can receive a transport stream with SCTE-35 markers and convert them back to SCTE-104 ancillary data packets on SDI.

If you need monitoring and logging of the triggers, the 9978-ANC-MON can be placed anywhere in the SDI path, and will provide a user-friendly screen output, as well as a downloadable log.

All the solution elements are available as standalone devices using the Cobalt BBG-1300- FR or as openGear cards.

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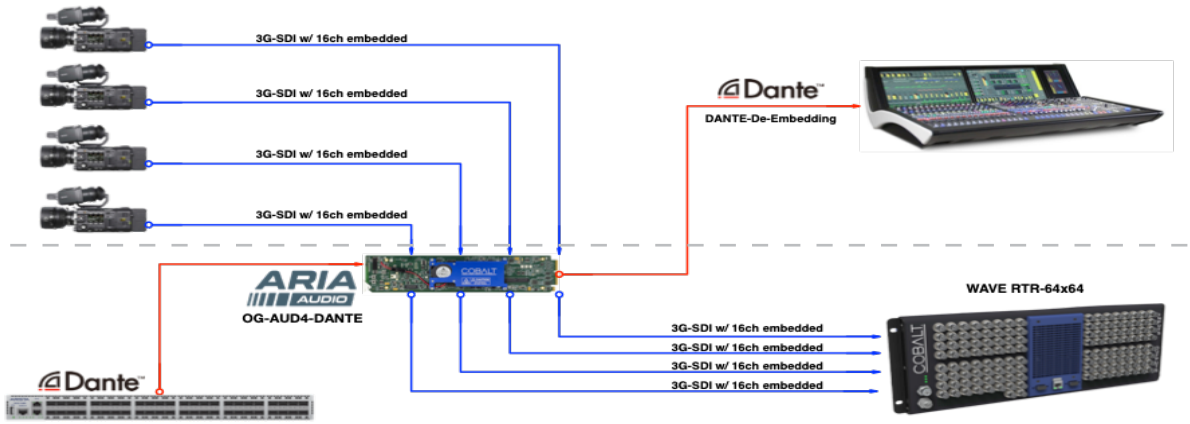
Application

High Density Audio Processing with DANTE



The new Cobalt ARIA OG-AUD4-DANTE card has four video paths supporting up to 12G SDI, as well as DANTE, AES, and MADI inputs and outputs. The card can simultaneously embed and de-embed audio between SDI, DANTE, AES, and MADI with flexible routing and mixing. It also includes a built-in frame sync.

The ARIA OG-AUD4-DANTE card features two gigabit Ethernet ports, and a 64×64 Dante channel matrix mixer. Ten cards can be combined into a single frame to support up to 2,000 audio channels, making it the most comprehensive audio embedding and/or de-embedding solution in the market.

The card inputs and outputs include SDI (supporting resolutions up to 4K/12G-SDI), MADI, AES, and DANTE, as follows:

- Four SDI inputs and four SDI outputs, with a full crosspoint between them, supporting signals up to 12G-SDI.
- Separate and independent MADI input and output, supporting 64 channels.
- Eight AES ports, software configurable as inputs or outputs in groups of four.
- Two Gigabit Ethernet ports for redundant DANTE input and output.
- 64 DANTE inputs and 64 DANTE outputs.
- Built-in four-channel framesync.

ARIA is also available in a dual-channel version for smaller applications, the ARIA OG-AUD2-DANTE card.

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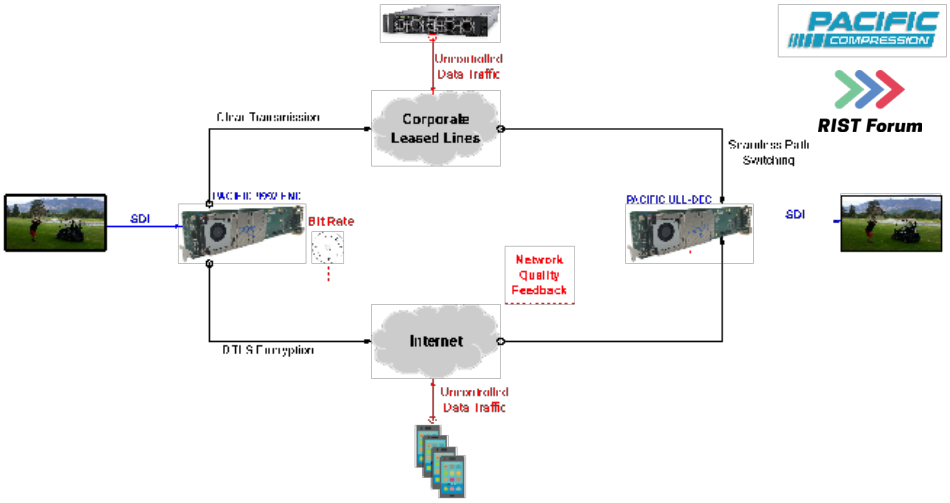
Application

Reliable Internet Stream Transport



With the Reliable Internet Stream Transport (RIST), you can use your current Internet service for low-latency, reliable, secure content contribution – without being tied up to a vendor-proprietary solution. RIST is an open specification from the Video Services Forum and is currently widely available in the industry. RIST support in the Cobalt encoders and decoders combines all the best features of RIST in a single package:

- Latency can be fine-tuned for the network conditions.
- Seamless path switching for increased reliability – no glitches if a path degrades or goes down.
- Top of line DTLS security, supporting AES 128 and AES 256 encryption, as well as certificate-based authentication.
- Support for VSF TR-06-4 Part 1 Source Adaptation: the encoder will dynamically and seamlessly change the bit rate in response to changed network conditions, for situations where there is variable network capacity. Additionally, the PACIFIC ULL-DEC decoder can generate a compliant IP output to drive legacy devices at the receiving site.

If you need extremely low latency, combine the PACIFIC 9992-ENC in Ultra-Low Latency (ULL) mode with the PACIFIC ULL-DEC for sub-frame end-to-end latency.

Additionally, Cobalt offers the SafeLink Gateway, which can add RIST support to legacy devices. The SafeLink gateway is available as an openGear card and (coming soon) as a software package or cloud instance.

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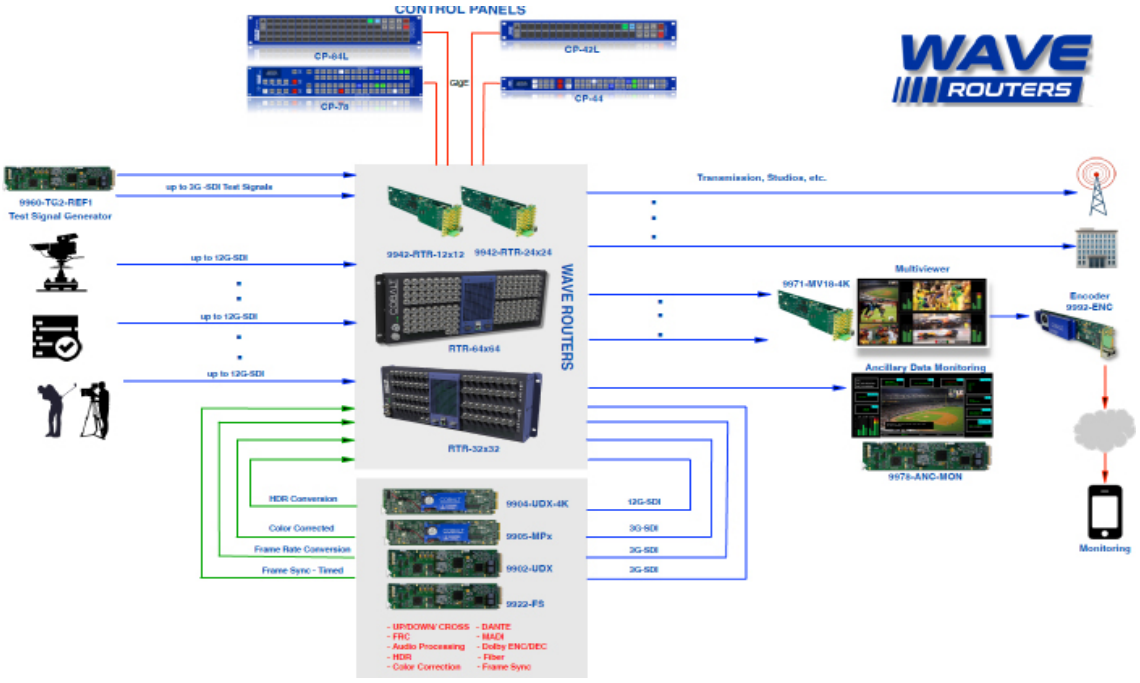
Application

Cobalt Local/Remote Routing/Head-End Management Solution



For most traditional head-end applications, the core is the SDI router, which is now often controlled through an IP network. Cobalt can plan your infrastructure properly so you can do a lot remotely. Cobalt offers the WAVE line of routers, that go from 12x12 and 24x24 openGear based routers, all the way to 32x32 and 64x64 standalone units, all seamlessly integrated. They all support a wide range of signals. Cobalt also offers the WAVE control panels, which can be controlled remotely or via the very intuitive web interface.

If you need the Cobalt general-purpose processing elements, such as framesyncs, up/down/cross converters, or ancillary data inserters, just connect their inputs and outputs to the router and now you can easily switch in and out of these resources.

You can see your sources remotely with one of the Cobalt multiviewers, such as the 9970 or 9971, and feed that to the PACIFIC 9992-ENC Cobalt encoder. These encoders support several protocols that allow you to see the video in real-time on any device.

To debug something you can run a line to the Cobalt 9960-TG2-REF1 test signal generator to have known test patterns available as sources and connect a Cobalt 9978-ANC-MON to monitor the outputs. Now, you can do all this from the comfort of your home!

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