

BroadcastEngineering®

Ross Video's openGear

The open architecture platform for signal processing and distribution saves space and reduces complexity.

BY ERIC GOODMURPHY

A common challenge the broadcast industry faces today is finding solutions for signal processing and distribution in one single platform. It's not uncommon to find an installation requiring numerous platforms, many only half-filled, in order to meet the needs of that particular day. Numerous issues arise, including wasted rack space, the need for multiple platform spares, multiple control systems and increased complexity. The ultimate solution is to develop one industry standard, open platform, available to all manufacturers with one standard control system. A standard signal processing and distribution platform saves space, reduces complexity and offers a unified control infrastructure.

An open architecture platform is

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driven by the desire to achieve standardization in the industry. This pushes manufacturers to excel in their field of expertise, becoming leaders of their respective technology without being penalized for not offering a complete solution. The simplified solution is one platform and control system.

The Ross Video openGear platform, DFR-8321, offers a total of 21 slots with 20 slots reserved for signal



Ross Video's openGear signal processing and distribution open architecture platform is driven by the desire to achieve standardization in the industry.

processing and a dedicated 21st slot reserved for network control. Power, fault and fan fail indicators on the front door make it easy to quickly identify frame issues. Unique to the

frame design is a hot-swappable fan assembly enclosed in the frame door, which is removable without the use of any tools. A modular backplane offers enhanced flexibility with a variety of I/O connections customized to the front module solution to meet the needs of any interface requirements.

An open platform

The openGear concept was designed as an open architecture plat-

form with well-defined specifications, protocols, flexible rear I/O modules, branding areas, SNMP interfaces and control interfaces localized on the card. All of the design considerations make the openGear platform easy for other manufacturers to adopt and develop solutions to expand the offering within the portfolio.

The core components of the platform consist of two fully redundant hot-swappable power supplies with independent mains input for both power and mains redundancy. Five fans located in the front door, with cooling vents in the rear, offer front-to-back air flow, dual frame-wide genlock inputs, Ethernet connectivity for remote control. The Ethernet frame controller offers DataSafe, a feature where card parameters are stored and then restored when a hot swap is performed. External remote

control to the platform is available from DashBoard and SNMP.

The challenge with any design is the ability to process any mix of signal types, analog audio and video, digital audio and video, HD video up to 1080p at 3Gb/s, to state a few. The backplane connections must be flexible to manage numerous interfaces for today and into the future. Signal integrity becomes critical at high speed to guarantee error-free reception and transmission. To further challenge the design, processing cards must be removable from the front without the need to disconnect connections from the back. The openGear solution uses a rear module design that houses a high-speed connector to carry signals on and off the front processing solution. The advantage of this approach, in an open system, is it allows developers and partners freedom to custom design rear modules for specific solutions without impacting the base frame architecture.

In the world of control systems, the manufacturer is faced with the dilemma of acceptable reactive control speed, alarm monitoring and

interoperability. The solution is to create a proprietary protocol to offer real-time operation with alarming and then offer the industry standard simple network management protocol (SNMP) for interoperability with other control systems. SNMP was designed as a generic monitoring protocol, which is extremely useful for monitoring, but does not offer any real-time control.

A control and monitoring system must allow the user to configure all parameters on a card and monitor the status from anywhere. The configuration for the parameters should be in real time, so when a parameter is changed in the control system, the card makes the changes immediately without visible lag. Providing a control system that is easy, intuitive and supports multiple vendors presents a few challenges. The manufacturer of the control system does not want to have to write custom software for every vendor. In fact, the manufacturer will not be aware of every vendor's cards and features. The solution is to define a protocol that the cards on startup can communicate with the host application and self-describe

themselves. With this type of platform, every card reports to the host how many parameters it has, the data types, constraints on the values and the type of control element needed. The host application can then build the control screens for any card on the fly, with no custom software required in the field.

The challenges of developing a frame and allowing the processing platform to be an open standard to freely share with a variety of manufacturers is unique. openGear now has more than 20 partners, all working toward a common standard, offering the industry an extensive and diversified portfolio, all in one platform, all under one control system. **BE**

Eric Goodmurphy is Gear marketing product manager for Ross Video.

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**8 John Street, Iroquois,
Ontario, Canada K0E 1K0**