



# SystemOnChip

Advanced Video Technology



Smart people get it.

When purchasing a switcher you are actually deciding on a technology path that will need to be scalable over a 5 to 10 year period. Such a significant purchase means that you need to select a platform that will adapt to meet your needs now and in the future.

The most important development in Echolab video production switchers is the remarkable System on Chip architecture. The engine for all new Echolab switchers is a single Xilinx Virtex-II Pro chip which is feature-driven through Echolab proprietary firmware.

Video production switchers have historically been built with dedicated hardware to achieve a specific, fixed functionality. As switchers have evolved from devices built with discrete transistors to more modern devices with advanced large-scale integration (LSI) IC's, becomes a common limitation with fixed signal and data paths that pre-define the topology of the switcher.

Thus, most switchers are built specifically for set functionality, with limited or no future adaptability. Echolab seriously breaks with tradition in this regard, moving to a reconfigurable platform based on single chip FPGA technology, creating an entirely re-programmable video switching system.

Echolab's System on Chip architecture takes advantage of two 32-bit PowerPCs running at 270 MHz, embedded directly in the fabric of the Xilinx FPGA. By absorbing all of the interconnects of the switcher into a single FPGA, all the limitations of a fixed signal path architecture have been removed, and the topology of the switcher can be re-defined over and over through the life of the product with substantial ability to grow as you do.

Hundreds of embedded high-speed multipliers within the FPGA fabric allow a variety of video effects such as wipes, mixes, DVE's and keys to be performed effortlessly with very-high precision. Echolab's System on Chip means that future feature-sets and firmware updates will come as simple downloads from the internet. That means no more expensive downtime when servicing or updating the switcher. We give you core system firmware updates for FREE for the lifetime of the switcher.

Echolab has chosen Micrium's uC/OS-II Real-Time Operating System for the entire Echolab range. This OS is a priority based, pre-emptive multitasking kernel, which has been certified for use in safety critical applications in medical and high level reliability aviation instruments. You won't experience delays and freezes in the operating system that most Windows based systems suffer from.

One of the primary benefits of the System on Chip architecture is the reduction of parts. This contributes directly to lower power, higher reliability, less heat and fewer points of failure. It also means a more robust switcher for a longer useful life. Now that's technology with value. And that's why Smart people get Echolab.



[www.echolab.com](http://www.echolab.com)

## Interconnectivity

Under control of Echolab's Real-Time Operating Firmware, the System on Chip topology provides high-speed, next-generation interconnectivity.

Echolab Nova & Opera switchers have 10/100-Mb Ethernet ports, supporting simultaneous connections to the outside world through Web, TFTP & XML-RPC servers. Each Echolab switcher comes with its own unique MAC address and the Web server enables an operator to remotely access the switcher from anywhere in the world to check on status and configuration.

The XML-RPC Server provides a high-bandwidth remote control protocol for operation of any switcher function over a local or remote Internet connection. Hardware and software products can be intergrated without the complex and proprietary serial daisy-chain connections.

The TFTP Server allows an operator to upload and download graphics to the switcher's frame buffer. Working in conjunction with a remote PC or Macintosh running Photoshop, a user can create a full 32-bit image and then transfer the graphics data back and forth directly to the switcher.

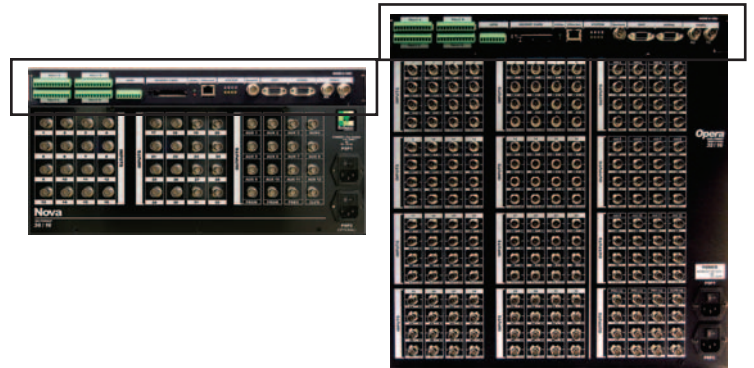
At the heart of the system is a standard Compact Flash card, designed to hold all the system firmware to configure and boot the switcher, along with storage for graphics, user data, key memories and other user settings.

Under control of a user-accessible mode switch, there are up to eight different configurations of firmware and user settings that can be loaded from a single Flash Card.

Echolab Nova & Opera switchers have multiple ports for studio interconnectivity. The RS-422 port allows for implementation of editing protocols so that the switcher may function in a post-production environment.

The RS-232 port is available for PC connectivity, and can also be used for automation.

The interconnectivity is standard across Echolab Nova & Opera.



### TALLIES

Thirty-two mappable contact closure tallies in two banks of eight. The common on either bank can accept either ground or external voltage for flexibility of installation.

### ETHERNET

10/100-Mb Ethernet ports, supporting simultaneous connections to the outside world.

### PANEL CONNECTION

The panel is connected to the frame using standard coax 75ohm BNC cables. The chassis can be up to 300 meters away.

### MEMORY CARD

Flash memory contains the user configuration file, storage for 100's of stills and organic wipes. Allows for graphic and macro storage.

### GPIO

Three general purpose input and two general purpose output triggers can be easily assigned for an array of switcher functions.

### GENLOCK

Serial digital reference for system timing.

### EDIT / SERIAL PORTS

The serial port supports EIA RS-232. The edit port supports EIA RS-422 (SMPTE slave)

