UltriX

The Ultimate Software Defined Routing Platform.
What happens when you combine a passion for technology, decades of domain knowledge, and a focus on creating a high-quality solution that solves your problems? In a word, you get Ultrix.

Ross Video, the company that has brought countless cutting edge innovations to production switcher solutions, is proud to present a similar kind of generational leap to the development of a video routing switcher platform. Ultrix is a powerful, state-of-the-art software defined routing platform that lets you realise significant cost, space and power efficiently with unparalleled flexibility and agility. As well Ultrix provides you with the peace of mind that comes with an extremely reliable system designed for future requirements.
Agile
• Incrementally add UHD with software licenses only!
• License MultiViewer outputs as need arises (no special HW)
• Utilize advanced audio processing and clean/quiet audio/video switching as standard functionality with no additional hardware
• Assign frame syncs to one or multiple inputs with software licensing and no additional hardware
• Easily expand base I/O as required due to the modular architecture that the frame provides

Unrivaled Connectivity
• Route SD, HD, 3G, and 12G video signals in the same system
• Use a combination of single link and multi-link interfaces for UHD with integrated gear-box capability
• Choose from embedded or discrete audio to fit a range of requirements
• Connect with various video interfaces such as HDMI, SDI, Analog, IP and Fiber to maximize flexibility

Efficient
• Smallest footprint in the market with high density, compact frames
• Leverage latest technology advancements in signal integrity & FPGA processing for exceptional performance and function consolidation
• Enjoy easy deployment and maintenance with an integrated control system that provides configuration, soft panels, discovery, and interoperability
• Software defined puts functionality on demand. No specialized hardware, crosspoints, or cabling and no throwaway or replacement boards. Plus no lost time or occupied I/O slots

Ranging in sizes from 16x16 to 144x144, the compact design of Ultrix provides big performance in little space. Its small footprint makes it the clear choice for space conscious applications like Mobile Production. The powerful new Ultricore control system provides users a great way to configure, monitor, and control Ultrix via both Software and Hardware panels that scale based on budget and size.

And software defined means users can enable the functionality they need. MultiViewer, frame syncs, clean/quiet switches, etc. - when they need them without being critical time occupying scarce I/O slots.

Like all good stories, there is so much more to Ultrix than simple video routing - Ultra-Powerful. Ultra-Fast. Ultra-Cool.
Ultra Powerful

Ultrix is a compact, but incredibly powerful processing platform capable of fast and accurate video routing, clean/crystal switching of audio along with video signals from SD to 12G, with advanced audio routing and processing as standard functions. The unique design permits users to software license additional capabilities such as adding integrated Multiviewers, frame synchronizers, and 12G I/O. No special hardware is required for any of these capabilities. Robust hardware, along with the implementation of Ross Video’s Software Defined Production strategy means a platform that will grow with your needs.
Ultrispeed
12G Performance Available Through Every Signal Path

Ultrix provides maximum performance and quality with standard configurations supporting data rates up to 3G. Users can purchase Ultrispeed software license that enable 12G performance throughout every signal path within the router. 12G is the standard for single link UHD (4K) SDI routing.

Software License That Enables High Speed Data Rates Within The Frame
• Supports the Next Generation of SDI Signals!
• From SD to Single-Link 12G
• 3G standard & up to 12G with Ultrispeed SW upgrade
• Improved pathological performance using advanced processing and improved signal integrity capabilities
• Gearbox capability
• 1 Terabit switching capacity per RU positions the platform perfectly for the hybrid facilities today and in the future
• License is purchased per frame

Gearbox Features
• Supports both multi-link and single-link SDI
• 12G or Combination of multi-link and single-link
• Enabled with Ultrispeed SW license
• Converts between Quad-Link 3G 2 Sample Interleave and 12G SDI
• Patent Ross Video Signal Medic features:
  - Auto Inter-channel skew correction
  - Self-healing channel replacement

Ultriscape
Software Defined MultiViewer Integration

Ultriscape is one of the many industry firsts with Ultrix. Ultriscape is the first software defined MultiViewer. No special output boards, crosspoints, or multichannel connection cables are needed. Simply enable the desired number of outputs to drive the monitors required, and route any input to whichever MultiViewer head is chosen. Up to 6 MultiViewer heads can be enabled in 1RU, up to 12 MultiViewer heads in a 2RU and up to 24 MultiViewer heads in a 5RU chassis. This makes Ultriscape the most compact solution currently available. Because MultiViewer outputs can be assigned to both standard HD BNC or SFP outputs, users have the flexibility to choose the output type they need for each monitor, thus eliminating the hassle of matching standard MultiViewer outputs to the monitors being driven. Low latency, metering, tally, and LUMD support via standard protocols make for easy integration into existing facilities.

• Up to 6 MultiViewer heads in 1RU, 12 MultiViewer heads in 2RU, or 24 MultiViewer heads in 5RU
• Can use standard HD BNC I/O or AUX ports
• SFP output design permits users to choose output format (HDMI, SDI, FIBER...)
• Each Ultriscape license enables 1 MultiViewer head
• Fast (<1 frame latency)
• Video input support for signals from SD up to single link 12G
• Flexible layout configurations to meet a wide range of applications
• Multiple output formats that are configurable by the user
• 2 PIP sizes from an array of choices
• 100 non blocking PIPs per MultiViewer output
• Integrated audio metering with customizable look and feel
• Multiple tally indicators including borders, lamps, and label LUMDs
• Tally support TSL 3.1, 4.0, and 5.0 native
• Simple control and configuration
• Configure / update a single or multiple MultiViewers across many frames quickly using DashBoard

KEY FEATURES
• Tight integration with router database
• Simultaneous access to all router inputs
• Customizable layouts
• Recall layouts from router hardware and software panels, and via third party automation systems
• Multiple modes of operation including direct PIP control and destination follow
• Industry leading image quality with award winning Ross scaling technology
Ultrimix

Audio Integration And Processing

In another industry first, Ultrimix provides advanced audio integration and processing, including the ability to embed and de-embed audio on all of the inputs and outputs of the router, as well as route discrete audio, all standard in every frame. No special hardware, crosspoints, or I/O boards are required, as with other systems. Users have complete flexibility to process, swap, sum, mute, or route any discrete or embedded audio input to any output. This is an enormous amount of audio. Up to 768x768 in 1RU, up to 1536x1536 in 2RU, and up to 3072x3072 in 3RU, means enough channels for even the most demanding audio operations. Ultrimix is perfect for applications where audio is constantly changing, and it can be added as needed without throwing away any initial investment in the system.

**KEY FEATURES**

- Complete non blocking audio support
  
  - Route and process both embedded and discrete audio.
  
  - Up to 768x768 channels in 1RU
  
  - Up to 1536x1536 channels in 2RU
  
  - Up to 3072x3072 channels in 3RU

- Full audio processing and transitions
  
  - Level Adjust, Sum, Invert, Tone Insertion (in outputs)
  
  - Cut, Fade/Cut, Cut/Fade, V-Fade, and Quiet on a per channel basis

- Ease of operation
  
  - Standard and custom control panels available within Dashboard
  
  - Control and switching via standard SW and HW router control panels

- Discrete audio via MADI I/O
  
  - Support for up to 64 channels per MADI stream
  
  - AES and Analog audio support via external breakout box

- Ultra core - Full Featured Control System

Great hardware is only as good as the control system running it. Ultricore is a full featured control system that significantly reduces setup time, simplifies configuration, and enhances the user experience by providing powerful, yet intuitive workflows and interfaces that make operations run smoothly.

Ultrimix is standard on all Ul trie frames. Integrated control is great for small systems as it does not require the use of a central controller. For larger or more sophisticated systems, the Ultricore-CC 1RU central controller is available to provide for greater client integration as well as enhanced control and connectivity capabilities.

When interoperability is required, reliable third party integration is assured by the ability to interface with industry standard protocols (DV Native / Probel SW-P-08), and by providing redundant physical communications links over serial, Ethernet, and interface.

Ultrimix can interface with existing Ross NK series routers via T-Bus links to be backward compatible. Organizations currently using Ross routing systems can integrate new Ultra frames within their facilities easily, as well as reuse current NK control panels. Because the Ultrimix UI is integrated with the Ross Dashboard control software, consistency and familiarity is easily achieved for a smooth user experience.

**KEY FEATURES**

- System Discovery and Setup
  
  - Walkabout system discovery tool
  
  - Configure device communication settings
  
  - Establish server profiles
  
  - Check network performance links and status and locate devices

- Router and MultiViewer Database and Canvas Configuration
  
  - Create and save Ultrimix MultiViewer configurations with the database editing tool
  
  - Create, change, and update sophisticated mappings, and source/destination groupings that are available to all control clients within the system

- Enhanced operational tools
  
  - Series of standard software panels
  
  - Ability to create custom panels
  
  - Monitoring, mapping matrices, and adjusting parameter adjustments are easy with a powerful, intuitive frame view

**Hardware feature set**

- 2 Ethernet ports, 2 Serial ports, and 2 T-Bus ports

- Optional redundant power
Ultrisync
Software Defined Frame syncs
Ultrisync is a software defined frame sync feature that can be added to any video input on the system. Ultrisync assures compliant timing for sources, and guarantees audio processing on all inputs. When used with Ultriclean enabled outputs, Ultrisync licensed inputs guarantee that signals fall within a timing window for clean switch applications. Licenses available for single or multiple inputs, and can act as floating licenses that affect whatever inputs are desired. The function can be applied to every input in the chassis, and with data rates of 3G and below, the entire frame can be populated. This software feature is much more cost effective than having to use an external frame sync.

KEY FEATURES:
• Software enable frame syncs
• Up to 36 Frame syncs in 1RU, up to 72 Frame syncs in 2RU, up to 144 Frame syncs in 5RU
• Audio SRC for all embedded channels
• Support for signals from SD to 3G
• Simple enable/disable via checkbox
• Input timing status

Ultriclean
Clean / Quiet Switching
Ultriclean offers completely clean video switching on a per output port basis that guarantees glitch free video, and quiet switch audio routing. Ultriclean is the world’s first video clean switch to support switching of data rates up to 12G. Other routers cannot offer this and require dedicated, special hardware with complex systemization that must be planned in advance, which only makes Ultra even more cost effective. Key applications for Ultriclean are master control bypass, as well as for situations where disruption of a source signal can cause downstream equipment to reclock.

KEY FEATURES:
• Up to 36 Clean switches in 1RU, up to 72 Clean switches in 2RU, up to 144 Clean switches in 5RU
• Works in SD/HD/3G/12G
• Scales to offer as many outputs as needed – even up to 100% clean outputs
• Variable timing delay
• Easy setup and operation
• No manual timing steps required – automatically detects delay and adjusts appropriately to maintain clean switching
• When combined with Ultrimix, also provides “Quiet” switching for embedded audio during a video switch
The RCP-QE Series offers unmatched flexibility and ease of use. They are ideal for use in OB vans or production houses where configurations change regularly, and are equally useful in studios where unlimited configurations enable fast and simple customized setups of each panel. Ethernet-based connectivity means ease of configuration, and provides for flexible control architectures. The RCP-QE Series remote control panel offers 18 or 36 colored backlit graphic LCD keys with multiple menus, enabling users to easily navigate through the system with just a few key presses.

The RCP-ME is an Ethernet-based panel, which means ease of configuration and flexible control architectures. When combined with the NK-NET, the NK-ME panel offers users the most redundant communications set up for small systems in the industry. The RCP-ME has button programmability including source, destination, breakaway, level select, macro, protect, take and panel lock, as well as a backlit 16x2 LCD display for display of source and destination names, system warnings and errors.

Ultripower is a rack-mountable power supply. In environments where equipment ruggedness, security, and maximum space savings are critical. Ultripower is a great fit. Rack-mountable, shallow, as well as easy to access and maintain, it is perfect for things like flypads, OB Production, or equipment rooms where rack space is at a premium. Ultripower is also able to power multiple Ultrix chassis from a single system. One Ultripower chassis can provide redundant power for up to (4) 1RU Ultrix frames, or (2) 2RU Ultrix frames or (1) Ultrix 5RU frame.

Key Features:
- 1RU external, rack-mountable power supply
- Front loading, hot swappable, redundant 1200W power supplies
- Power up to (4) 1RU Ultrix, and (2) 2RU Ultrix or (1) 5RU Ultrix with redundant power
- Adjustable rack ears
- Control/Monitoring via Ethernet via Dashboard
- LED indicators for Fan & Power

RCP-QE Series offers unmatched flexibility and ease of use. They are ideal for use in OB vans or production houses where configurations change regularly, and are equally useful in studios where unlimited configurations enable fast and simple customized setups of each panel. Ethernet-based connectivity means ease of configuration, and provides for flexible control architectures. The RCP-QE Series remote control panel offers 16 or 36 colored backlit graphic LCD keys with multiple menus, enabling users to easily navigate through the system with just a few key presses.

Key Features:
- 18 (RCP-QE18) or 36 (RCP-QE36) backlit graphic LCD keys
- 8 programmable function keys
- Slim design: 1RU, depth 4.4cm
- Ethernet based control
- Ability to connect to primary and backup IP addresses for control redundancy
- Full function, programmable control panel
- Menu driven single key configurations
- Unique multi-level menu programming
- 5-year transferable warranty

Control Panels
Ultrix offers highly flexible, yet intuitive control panels, that can be configured to operate as an X-Y, cut-bus or multi-cutbus panel. Every control panel in the system can be independently configured to meet the needs of the particular operator position at which it is deployed.
An Epic Force That Will Impress

Every so often a system emerges that has been designed to redefine what is possible and changes how things are done. Ultrix was conceived to fill the gap of what has been available between smaller and larger routing systems. Sophisticated features and extensive function integration that improves performance and simplifies system deployment should not be limited only to large and costly routers. The Ultrix architecture is a true game changer. Every detail has been painstakingly thought out and reviewed. High speed design parameters have been pushed to the maximum, providing a system that offers a leading edge feature set at an incredibly value. The Ultrix platform sets the bar for what should be expected in small to mid-size routers. Catch the new wave. Ultrix.

What’s inside will inspire.
Ultrix has been singularly designed to optimize signal integrity and performance to set a new standard in reliability. It is also designed to lessen the stress of choosing advanced I/O capabilities when making such a significant capital expenditure. Software licensing provides users an easy path forward to add features as they need them, without having to scrap hardware that cannot be used anymore. With Ultrix, users move to advanced workflow requirements at their own pace and growth rate.

### Ultrix Hardware Specifications

<table>
<thead>
<tr>
<th>1RU</th>
<th>2RU</th>
<th>5RU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYSICAL DIMENSIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>17.5&quot;</td>
<td>17.5&quot;</td>
</tr>
<tr>
<td>Depth</td>
<td>7.9&quot;</td>
<td>7.9&quot;</td>
</tr>
<tr>
<td>Height</td>
<td>1.74&quot;</td>
<td>3.48&quot;</td>
</tr>
<tr>
<td>Frame Weight (approx)</td>
<td>4.08 kg (9 lbs)</td>
<td>5.44 kg (12 lbs)</td>
</tr>
<tr>
<td>I/O Card Weight (approx per board)</td>
<td>1.36 kg (3 lbs)</td>
<td>1.36 kg (3 lbs)</td>
</tr>
</tbody>
</table>

#### INPUT SPECIFICATIONS

- **Standard Input**
  - HD BNC

- **Signal Type**
  - SDI Formats: 270 MB/s, 1.5 GB/s, 3 GB/s, 6 GB/s, 12 GB/s

- **Impedance** | 75 Ohm |
- **Max Input Level** | 880 mV |
- **Return Loss** | Per SMPTE 2082-1 |
- **Equalization**
  - UHD: 60m
  - HD & 3G: 200m
  - SD: 400m

- **SFP Aux Connector** | optional |

#### OUTPUT SPECIFICATIONS

- **Standard Output**
  - HD-BNC

- **Signal Type**
  - SDI Formats: 270 MB/s, 1.5 GB/s, 3 GB/s, 6 GB/s, 12 GB/s

- **Impedance** | 75 Ohm |
- **Amplitude** | 800mV +/- 10% |
- **Rise & Fall Time**
  - 270 MB/s: 400-800ps
  - 1.5 & 3GB/s: < 135ps
  - 6 & 12GB/s: <45ps
- **DC Offset** | 0.0V +/- 0.5V |
- **Overshoot** | < 10% |
- **Jitter**
  - 270 MB/s: <0.2UI Alignment (up to 3G)
  - 1.5 & 3GB/s: <0.3 UI Alignment (12G)
  - 6 & 12GB/s: <.2UI Timing (up to 270M)
  - <1UI Timing (1.5G)
  - <2UI Timing (3G & 12G)

- **Return Loss** | Per SMPTE 2082-1 |
- **SFP Aux Connector** | optional |

#### OTHER

- **PSU (default)**
  - 1 External Brick

- **Optional Redundant PSU (additional)**
  - 1 External Brick

- **Fan Module** | 1 |

#### Ultra Hardware Specifications

<table>
<thead>
<tr>
<th>1RU</th>
<th>2RU</th>
<th>5RU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INVENTORY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Matrix Size (max)</td>
<td>36x36</td>
<td>72x72</td>
</tr>
<tr>
<td>Default I/O Slots</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Optional I/O Slots</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Audio Matrix Size (with Optional MADI SFPs)</td>
<td>768x768</td>
<td>1536x1536</td>
</tr>
<tr>
<td>MV Head Licenses per Slot</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Maximum MV Heads per System</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>UHD Licenses per Frame</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum UHD Gearboxes per System</td>
<td>6 in / 6 out</td>
<td>12 in / 12 out</td>
</tr>
<tr>
<td>Maximum # of 3G input frame syncs per system</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td>Maximum # of 12G clean/quiet outputs per system</td>
<td>36</td>
<td>72</td>
</tr>
</tbody>
</table>

- **Ultrix Hardware Specifications**
  - 1RU
  - 2RU
  - 5RU

- **16x16 HD-BNC I/O**

- **Aux I/O**
  - For Video BNC, Fiber, HDMI, IP
  - For audio I/O MADI over Fiber or Coax

- **Dual or looping reference inputs**

- **Redundant external power**

- **Multi-use USB**
  - USB to Serial for third party interface
Ross Video has a complete range of technical services available to ensure that your Ultrix installation is a success.

**Operational Training** can be provided at Ross Video, on-site or on the web. Experienced Ross operators will teach your staff to get the most out of your new system, and enhance your productions.

**Commissioning** is a service to help get your routing system properly configured, connected and installed. This service is performed by factory trained Ross technical staff.

**Technical Training** can be provided at Ross Video, on-site or over the web. Technical training will teach your engineering staff the technical details of the system you have purchased. System configuration, interfaces, databases, and routine maintenance procedures are some of the topics covered.

Ultrix comes standard with a 1 year comprehensive warranty. **Extended Warranties** on hardware and software maintenance are available for an annual fee.

Technical advice is available on-line, by telephone, or email to Ross Video – **Included for the life of your system.**