

ExtronNews www.extron.com TM

Issue 17.1

Spring 2006



In This Issue:

MGP 464 1

Andrew Online
Satisfaction Guarantee 5

Featured Products
Crosspoint 450 Plus and
MAV Plus Series 6

Unique Techniques
Providence St. Vincent Medical Center.. 9

Technically Speaking
Large Venue Display Gallery 11

The IP Link
Useful Features That Save
You Real Money 15

Also in this issue:
New Products 19
Tweaker Use 24
Extron Institute Dates 24
Tradeshaw Information 24



Winner

2006 Innovations in
Technology Award

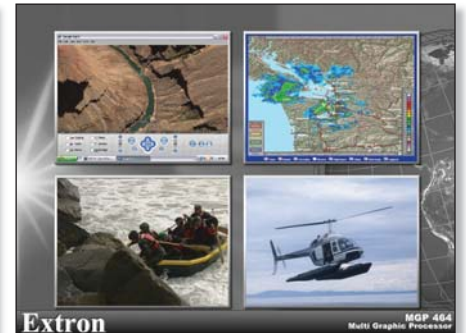
Presented by NSCA and
Sound & Video Contractor
Magazine

MGP 464

Four Window Multi-Graphic Processor



MGP 464 DI



The MGP 464 is our new, four window multi-graphics processor that lets you create an almost infinite number of picture-in-picture arrays. Each window can display just about any video source you desire, from composite video to HDTV and computer-video, whether analog or DVI. We have included the same flexibility and customization features of the popular MGP 462 dual window version, so that you can create multi-window presentations just the way you want. But the MGP 464 is much more than that! We've added some truly special features that enhance the unique capabilities of this powerful graphics processor for integration and advanced communications.

continued on page 2



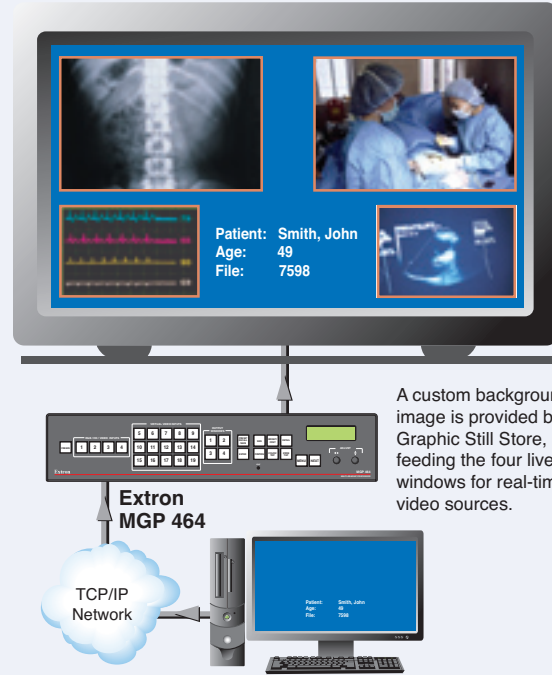
Graphic Still Store

Graphic Still Store is a powerful feature which captures any currently displayed output, and then stores the image in memory for use as a background. Additionally, BMP - bitmap graphics can be uploaded to the MGP 464 via the IP Link® Ethernet port, and recalled as a background.

Graphic Still Store can benefit a wide range of applications such as video-conferencing, distance learning, and courtrooms. For corporate environments, the background image may be used to incorporate a professional style or theme to presentations by displaying the company logo.

In the example shown, the MGP 464 is employed in a teaching hospital, and the Graphic Still Store image is used to provide details about the patient and the case. This background frees the four windows for display of the dynamic, real-time video and computer-video information vital to the hospital's training mission, such as a live camera feed of the surgery, X-rays, vital signs measurements, ultrasound, and more.

Graphic Still Store also offers the capability to download stored images through IP Link. This feature is particularly useful for applications such as medical facilities and courtrooms in documenting case studies and archiving important visual records for future reference.



A custom background image is provided by Graphic Still Store, feeding the four live windows for real-time video sources.

Create Picture-in-Picture Layouts the Way You Want

At its core, the MGP 464 is a picture-in-picture processor for displaying both high resolution graphics and various video sources on the same screen. To help ensure that you and your clients can create presentations the way they are envisioned, we have included a range of features that give you full flexibility and control over how the windows appear on-screen. At your disposal are fine rotary controls so that you can precisely determine how each window is to be sized and positioned within the screen. With these same controls, you also have the capability to zoom and crop the image as necessary to meet a specific aspect ratio. Furthermore, you can prioritize the windows to define how they are overlaid on-screen.

In addition, we've provided adjustments to customize the look of the picture-in-picture layout. Add a border to any window and select among any of eight available colors. Caption a window with text, and specify

where you want the text to appear within the window. You can also add a border around the text and incorporate a background, each with the color of your choosing. For the background to the picture-in-picture array, select your preferred color, or better yet, take advantage of the MGP 464's special features that let you significantly enhance your presentations.

Once you have designed your own picture-in-picture layout, you can then quickly and easily save it into memory for later recall. In fact, we've included a total of 128 available memory presets, 30 of which have been factory-preloaded with configurations you can adapt to fit your application.

Gather Your Sources

A good picture-in-picture processor accepts a variety of the most common video and computer-video signal sources. A great picture-in-picture processor accepts virtually any signal you're likely to encounter, from composite video to HDTV 1080p, and RGB computer-video up to 1600x1200 resolution.

Our MGP 462 dual window processor set a new standard for input flexibility, with four fully configurable analog video inputs. The new MGP 464 builds on this, by adding 15 virtual inputs and the option of four DVI - Digital Visual Interface inputs. Whether you use the MGP 464 stand alone, or in conjunction with a matrix switcher, rest assured that you have the input flexibility for any system design and application.

Virtual Video Inputs

The hallmark of a solid AV system design is to provide capacity for future expansion from the outset. To address the potential for new or additional signal sources, the MGP 464 is equipped with a unique Virtual Video Input panel, designed to accommodate the full range of standard definition video signal types.

Comprised of 15 BNC connectors, the Virtual Video Inputs can be configured to accept up to 15 composite video sources, five S-video or component video sources, or a combination of the three. Using the supplied Windows® control software, you can easily define the



Live Video Background

In addition to Graphic Still Store, live, high resolution computer-video or HDTV from a DVI source can be used as a background to any presentation. This dedicated DVI input connection for full-motion background images is also useful in cascading two or three MGP 464 units to create large-scale displays with up to 8 or 12 windows.

Fast-paced environments, such as those found in emergency operations and command-and-control centers, require the ability to quickly and accurately display multiple video and graphic images simultaneously. In this example, the display of eight windows is created by cascading two MGP 464s by connecting the primary DVI output of one unit to the DVI Background Input of the other.

For this example, up to 38 video sources, 19 from each MGP 464, are available to the system operator. Depending on the need and application, an additional MGP 464 unit may be cascaded to create a 12-window display.



Each MGP 464 supports up to 19 different video sources, any one of which can be displayed in one of the available on-screen windows. The all-digital DVI link between the MGP 464s ensures the best-possible image quality when cascading two or three MGP 464s together.

input configuration that works best for your application. Should system needs change, you can easily reconfigure the Virtual Video Input panel, while maintaining the four, fully configurable inputs for your high resolution signal sources.

True 19x4 Input Matrix Switcher

Built into the MGP 464 is an internal 19x4 matrix switcher, which allows you to direct any of up to 19 available input signal sources to any, or all four, on-screen windows. This powerful feature gives you complete flexibility in controlling sources in multi-window presentations. Using the front panel controls or real-time remote control, you can easily switch the input signal to any window on the fly.

High Performance, High Resolution Video Output

The MGP 464 outputs RGB or component video at 48 selectable output rates, including computer-video up to 1600x1200 and HDTV at 1080p. Rates common to flat panel LCD and plasma displays are also supported. The

MGP 464 provides simultaneous analog video and digital DVI outputs, giving you the flexibility you need for both analog and digital system designs.

Enhance Your Presentations

In addition to the wide range of options provided for creating fully customized presentations, the MGP 464 offers additional capabilities to help you or your client deliver high impact, professional quality AV presentations. For example, the MGP 464 features a variety of professional transition effects including dissolves, wipes, or a simple cut. If you need to change input sources within any window, the MGP 464 includes high performance source switching so that standard definition video, HDTV, and computer-video sources can be smoothly interchanged without glitches or signal interruption.

Graphic Still Store, first introduced on the MGP 462, enables the incorporation of a background image behind the picture-in-picture windows, providing new opportunities for

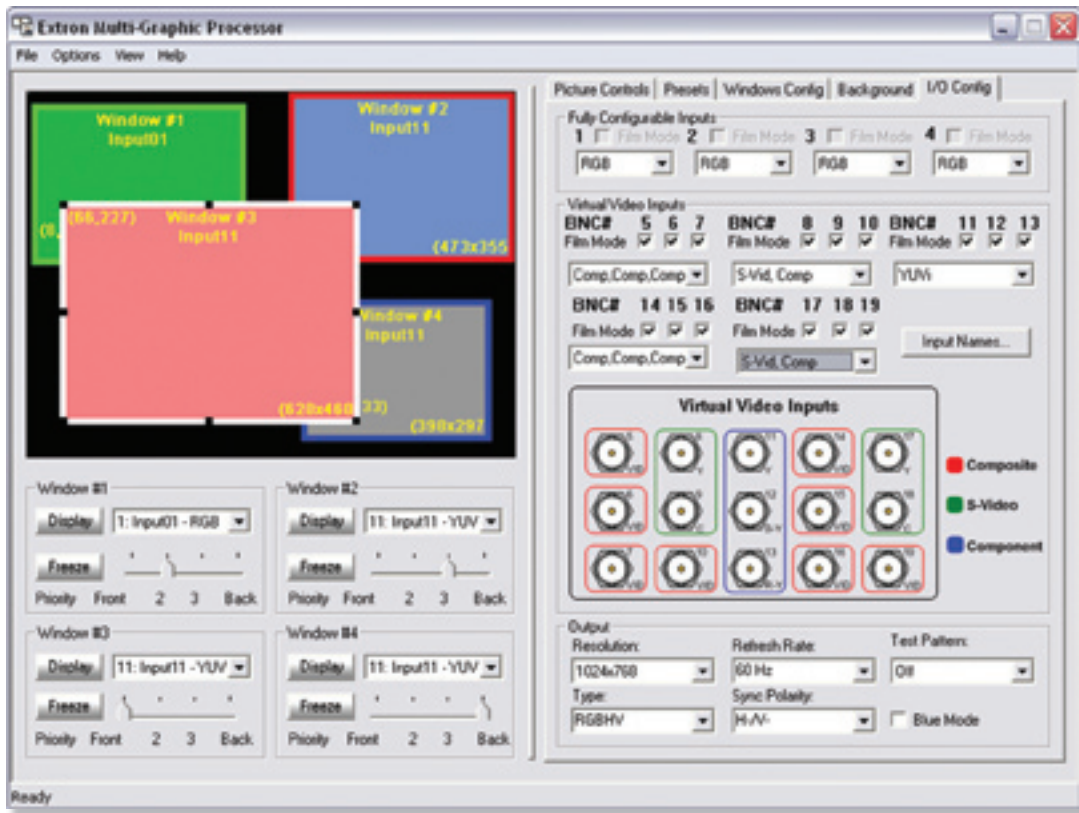
enhanced or themed presentations. Create and store BMP - bitmap images on the MGP 464, or capture the video output and store it for use as a background image. Backgrounds can also be uploaded from a PC via Ethernet through the IP Link port. For more information about Graphic Still Store, see the sidebar article on the previous page.

A Moving Experience

The background image does not need to be static. With the MGP 464's dedicated DVI input, you can incorporate live background video into your presentations from any source that outputs DVI digital video. This special DVI input also gives you the opportunity to cascade two or three MGP 464 units for displaying up to 8 or 12 windows. See the sidebar article above for more information about this exciting feature.

Integration and Integrator Friendly

As with all Extron products, the MGP 464 is designed with the features, connectivity, and control you need for fast, efficient integration and operation. We've included full front panel



MGP 464 control software for full setup and operation

control capability, essential for initial setup and configuration. Input selection, picture and window customization, and memory preset and recall are facilitated through dedicated backlit buttons and an intuitive, alphanumeric LCD display. Two rotary knobs allow you to fine tune picture and window adjustments to create the perfect PIP display.

The MGP 464 can also be remotely controlled and configured through the RS-232 serial port. Serial control provides access to all front panel functions, as well as advanced controls for system monitoring and configuration, and uploading text for window captions. The supplied Windows® control software provides a graphic user interface to ease set-up and operation of the MGP 464, as well as a visual layout of the picture-in-picture windows as they appear on-screen. This software is also used to configure the Virtual Video Inputs.

For IP network integration, the MGP 464 is equipped with IP Link Ethernet control, enabling remote management and support from any authorized Web client. Through IP Link, all functions are available by accessing the MGP 464's internal Web pages. IP Link is also used to upload BMP graphic files from a computer for Graphic Still Store. Additional features through IP Link include access to status parameters such as internal temperature, monitoring the horizontal and vertical sync frequencies for any input, and setting up the Virtual Video Inputs.

Powerful, Flexible, Sophisticated

Designed to enhance your best system designs, the MGP 464 has the power, flexibility, and sophistication demanded in cutting-edge presentation environments. From the fully configurable inputs, to the built-in 19x4 signal

matrix and live DVI background input, to the dual, simultaneous analog and DVI digital outputs, the MGP 464 is the ideal choice for multiple-window display needs in such diverse applications as command and control centers, boardrooms and conference rooms, medical facilities, and courtrooms, to name just a few. For more information, call your Extron Customer Support Representative today. [↗](#)





Your Satisfaction is Guaranteed

From my early beginnings in the A/V industry, I've embraced the importance of quality service. There were many times when service and support were the deciding factors between two closely competitive business choices. These early experiences inspired a philosophy that became an essential part of my business plan. As Extron grew, I took steps to ensure that we never outgrew our ability to provide an uncompromising level of service and support to our expanding customer base. I am proud to say that, from the beginning, this philosophy has remained a high priority at every level within Extron; and has provided the foundation for the Extron Satisfaction Guarantee.



Extron®

Satisfaction Guarantee

As a leading manufacturer in the A/V industry, we are committed to engineering and manufacturing our products to the highest standards of quality, performance, and value. From our advanced product design, manufacturing and quality control procedures to our friendly and knowledgeable support teams, our commitment to satisfy you is paramount. In every interaction with Extron, you can be confident you will receive our S3 commitment to Service, Support, and Solutions. For more than 20 years, our objective has been to ensure that every customer is completely satisfied with every purchase.

To underscore this commitment, we offer our Satisfaction Guarantee. This means we will work diligently to resolve any issue you have with your purchase until you are completely satisfied. Extron employees are prepared to do whatever it takes to make certain that the entire process of doing business with us is a positive and professionally rewarding experience for you.

I'm so confident in our ability to deliver on this pledge that I back it personally. If you are not satisfied with any part of your transaction with Extron, I want to know. Please contact me at president@extron.com. I will personally address any unresolved customer issue. We greatly appreciate your business. It is our intent to keep you as a customer for life.

Andrew C. Edwards
President



CrossPoint 450 Plus and MAV Plus Series: Larger Sizes, Greater Flexibility, and More Choices

Adhering to the same design and engineering principles established with last year's introduction of the CrossPoint 450 Plus and MAV Plus lines, we are now introducing new, larger-sized matrix switchers that offer the same high performance and cost-effectiveness you've come to know and rely on. The new models are available in fixed I/O configurations ranging from 32x48 up to 64x64, and are suitable for most common video, ultra-wideband, and audio switching applications.

The CrossPoint 450 Plus Series, with 450 MHz (-3 dB) RGB bandwidth, fully loaded, and the MAV Plus Series, with 150 MHz (-3 dB) video bandwidth, fully loaded, offer exceptional performance for high resolution and standard video signals. Extensive sweep tests conducted by Extron engineers confirm an extremely flat response through the critical portion of the bandwidth curve. With minimal signal loss and gain, these matrix switchers meet and exceed the expectations of just about any A/V system design or application.

With the simplicity of single part number ordering, CrossPoint 450 Plus and MAV Plus matrix switchers are ideal for even the largest and most demanding signal routing applications, including auditoriums and arenas, command and control centers, college and university campuses, and retail environments.

Fixed or Modular: The Choice Is Yours

The new, larger CrossPoint 450 Plus and MAV Plus lines complement our popular Extron Matrix 6400 Series of modular RGB and video matrix switchers. Where the lines primarily differ, however, is in the granularity of input



Crosspoint 450 Plus 6464 HV

CrossPoint 450 Plus Series at a Glance

- 16 new models in eight I/O sizes - 32x48 to 64x64
- Available with or without stereo audio
- Ultra-wideband 450 MHz (-3 dB) RGB bandwidth, fully loaded, maintains signal integrity even at the highest resolutions
- Extremely flat response
- ADSP™ - Advanced Digital Sync Processing ensures stable images and improved signal compatibility with any LCD, DLP, plasma, or other digital display device
- DSVP™ - Digital Sync Validation Processing verifies active sources by polling all inputs for valid sync signals
- Audio input gain and attenuation allows users to set the level of gain or attenuation for each audio input channel
- Audio output volume control can be set for each channel, eliminating the need for audio preamplifiers
- All models can be programmed to group selected outputs into specific "rooms," each with its own presets
- I/O grouping divides matrix switcher into smaller sub-switchers
- Enhanced QS-FPC™ - QuickSwitch Front Panel Controller with tri-color, easy-to-label, backlit buttons
- IP Link® Ethernet monitoring and control
- Redundant power assures no loss of functionality in case primary power failure



and output configurations, as well as in how the different design philosophies – fixed I/O versus modular – affect the current and future growth plans for the installation and, of course, cost. With large modular and fixed I/O matrix switchers now available in the Extron line, integrators have the flexibility of selecting the best type of matrix switcher for a given application.

For projects where the initial switching needs are modest, but regular growth and expansion are planned over the life of the AV system, the modular design of the Matrix 6400 may be the most appropriate choice. I/O cards are available in increments of eight inputs and eight outputs, and are easily installed in the field. In addition, the Matrix 6400 provides for the “virtual mapping” of I/O connectors – each input and output connector can be individually mapped to a particular signal. For example, the connectors on a single 64x64 wideband enclosure can be mapped to create a 21x21 RGB matrix for the initial routing needs of a system that is planned for growth over time. Modular switchers, by nature, tend to be more expensive in the long run, but the overall cost of purchase can be spread over several budget cycles.

On the other hand, for projects where budget is a priority and limited access to the switcher may not facilitate future system expansion, the fixed I/O configuration of the CrossPoint 450 Plus and MAV Plus Series switchers may be the better choice. Fixed I/O matrix switchers offer more inputs and outputs for the dollar, and may save as much as 25% or more, relative to a modular matrix switcher of the same I/O

size. If the project calls for a 32x48 matrix switcher, for example, it is very cost-effective to specify and install a 48x64 switcher instead, and have expansion capability at the ready.

One Audio Channel or Two?

In addition to larger composite video and stereo audio matrix switchers, the MAV Plus line adds eight new mono audio switcher models, also ranging in sizes from 32x48 to 64x64. These are the first large, fixed I/O mono audio matrix switchers from Extron. They include the same feature set as the MAV Plus stereo audio matrix switchers, including audio input gain and attenuation and audio output volume adjustment and muting.

Mono audio is often preferred over stereo audio in large presentation environments. Mono is desirable for speech reinforcement and background music applications, particularly where 70v/100v distributed audio system designs are being utilized.

Stereo audio, of course, is optimized for high fidelity music. Stereo is not always effective in larger venues, such as auditoriums and large retail environments, because the sweet spot where both signals are audible might only include one-third the



MAV Plus 6464 AV

audience, leaving the remaining two-thirds hearing only half the program.

For standard video and high resolution RGBHV and audio routing applications, the larger MAV Plus AV and CrossPoint 450 Plus HVA models include a MAV Plus stereo audio matrix switcher of the same I/O size. If the project calls for mono audio routing, designers can simply select the appropriate video-only or RGBHV-only model, along with a MAV Plus AM series mono audio switcher. With these new audio matrix switchers, you can now choose the audio matrix, mono or stereo, that best fits your AV system design and application.

Control

A full complement of control methods are provided as standard equipment with the CrossPoint 450 Plus and MAV Plus matrix switchers. Extron's popular Enhanced QS-FPC – QuickSwitch Front Panel Controller allows for simple and straightforward touch-of-a-button input and output selection, with tri-color, backlit buttons that can be custom labeled

MAV Plus Series at a Glance

- 32 new models in eight I/O sizes - 32x48 to 64x64
- Video models can be stacked to create Y/C and YUV/ RGB capable switchers
- Available with or without audio
- 150 MHz (-3 dB) RGB bandwidth, fully loaded
- Compatible with NTSC, PAL, and SECAM video

- Audio input gain and attenuation allows users to set the level of gain or attenuation for each audio input channel
- Audio output volume control can be set for each channel, eliminating the need for audio preamplifiers
- All models can be programmed to group selected outputs into specific “rooms,” each with its own presets

- I/O grouping divides matrix switcher into smaller sub-switchers
- Enhanced QS-FPC - QuickSwitch Front Panel Controller with tri-color, easy-to-label, backlit buttons
- IP Link Ethernet monitoring and control
- Redundant power assures no loss of functionality in case primary power failure




Featured Product — continued

for easy identification. Because the buttons illuminate, they are simple to detect and operate in low-light environments. Note that the QS-FPC control panel is not included with the larger MAV Plus Series stereo and mono audio matrix models.

Also included is RS-232 serial control that utilizes Windows-based and Extron's SIS™ - Simple

Instruction Set command protocol for quick and easy programming. IP Link Ethernet control enables a CrossPoint 450 Plus or MAV Plus matrix switcher to be proactively monitored and managed over a LAN, WAN, or the Internet using standard TCP/IP protocols. For convenient remote control from just about anywhere, the optional Extron MKP 2000 and MKP 3000 X-Y remote control panels offer control flexibility via

RS-232 or IP Link from any remote location. See sidebar for additional information.

Input flexibility, versatile control, stereo or mono audio, and loss-free signal distribution make these new and bigger CrossPoint 450 Plus and MAV Plus Series of matrix switchers robust and powerful additions in a variety of high-level, mission-critical applications. 

MKP 2000 & 3000 Remote Control Panels: X-Y Control from Anywhere

The Extron **MKP 2000** and **MKP 3000** matrix switcher remote control panels provide simple access to I/O switching, global presets, and audio control. With the ability to control any Extron matrix switcher, both control panels offer flexible communications via IP Link Ethernet or RS-232 serial control. An RS-232 pass-through is also provided to support applications whenever the control panel is used in conjunction with third-party control systems. The MKP 2000 and MKP 3000 are ideal for a variety of applications, including museums, themed entertainment, hotel ballrooms, and other environments where convenient remote control points are needed. The MKP 3000 can be mounted wherever control is needed. A simple IP network can be created with multiple MKP 3000s. With virtual I/O grouping, each MKP 3000 can be configured to switch its own unique set of inputs and outputs.



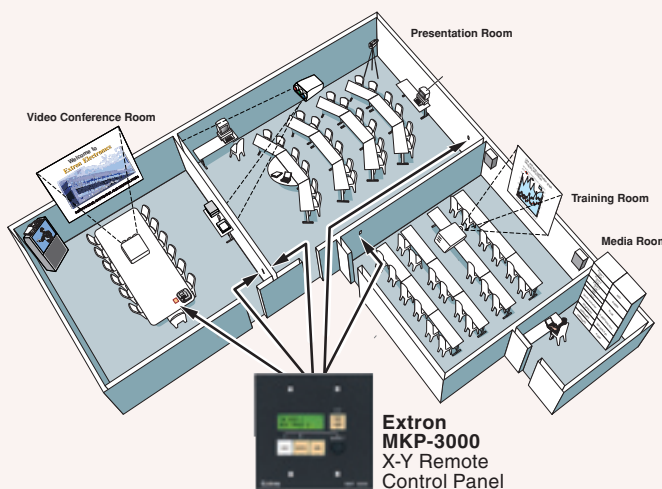
MKP 2000



MKP 3000

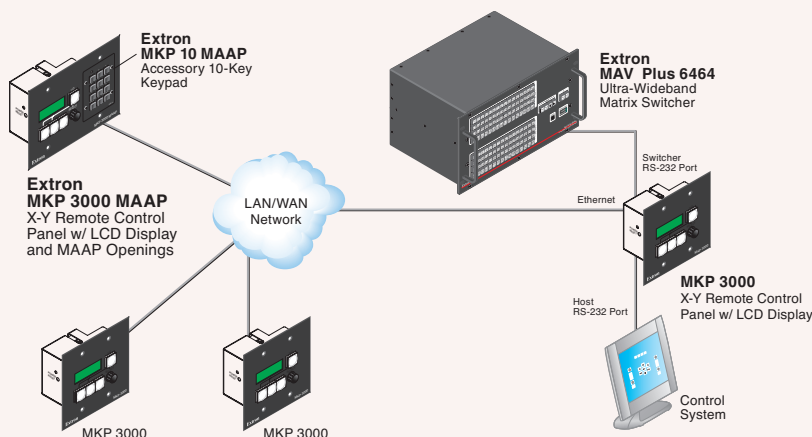


MKP 3000 MAAP



Virtual I/O Grouping

A key feature of the **MKP 3000** is virtual I/O grouping, which allows specific inputs and outputs to be assigned or blocked for each controller utilized in a system design. For example, each room in a multi-room application can have its own set of inputs and outputs programmed into a local MKP 3000. Any number of MKP 3000s can be integrated into the system, and each can be restricted to a certain set of I/Os with relatively little effort.





Providence St. Vincent Medical Center: High-Tech Hospital Upgrades OR Suite

Providence St. Vincent Medical Center is a leading Oregon healthcare provider and one of the top 100 hospitals in the United States. In 2004, this leading-edge facility opened its high-tech digital operating suite for minimally invasive surgery, also known as MIS. A key component of this dynamic new surgical environment was the \$1.3 million daVinci surgical robot, which makes difficult MIS procedures routine and new MIS procedures possible. Within months, Providence recognized a need for a second digital operating suite to support the robotic surgical device and the increasing demand for minimally invasive robotic surgeries.



With the daVinci surgical robot in the foreground and two 18-inch LCD flat panel monitors overhead, the OR3 A/V equipment rack houses a variety of Extron products, including the YCS Transcoder, DVS 204, MGP 462, Matrix 50 88 SVA, and CrossPoint 88 HVA

Design Goal

Providence decided to upgrade OR3, the operating room adjacent to OR5, the existing digital operating suite. Built approximately 11 years ago, OR3 had limited floor space and was not configured to accommodate the surgical robot, the robotic console, three endoscopic cameras, two Pan/Tilt/Zoom or PTZ cameras, a videoconferencing system, and supporting A/V equipment needed for a digital operating suite. Providence envisioned the new digital OR to include advanced digital and communication capabilities, such as digital video capture, digital print, and videoconferencing. Yet, it had to be simple enough for the surgical staff to easily set up and control. Providence decided to turn to CompView, a full-service A/V consultancy and integration firm based in Beaverton, Oregon, to upgrade and retrofit OR3.

Video Routing and Processing

A significant aspect of the upgrade was the role and placement of video displays. To effectively address this issue, CompView mounted four 18-inch LCD monitors and one 40-inch LCD monitor at key points in OR3. Two additional 17-inch LCD monitors reside in the control room. Distributing video to each monitor was a challenge in itself. Two Extron 8x8 matrix switchers – the CrossPoint 88 HVA, now the CrossPoint 300 88 HVA, for RGBHV and stereo audio; and a Matrix 50 88 SVA, now the MAV Plus 88 SVA, for S-video and stereo audio – were installed for routing signals from the endoscopic and daVinci robot cameras to the monitors. All video signals are standardized using an Extron YCS Transcoder for decoding composite video to S-video, as well as five Extron DVS 204 Four Input Video Scalers.



OR3 has many monitors to visually assist surgeons and supporting medical personnel.

“The DVS 204 allows us to scale the camera signals up to XGA. By doing this, we only have to run one cable, which is a large issue in an operating room like this because you have very limited cable paths,” Michael Chriss, system integration manager for CompView explained. “It also improves the quality of the signal, especially when scaling composite video and S-video camera signals up to XGA. The staff has been very impressed with the images on the displays.”

Picture-in-Picture

Providence also requested picture-in-picture or PIP capability on the monitors. According to Chriss, the surgeons need to be able to look at the output from an endoscopic camera and the patient’s vitals on the same



The 18-inch LCD monitor on the left displays vital statistics while the 40-inch LCD on the right is used for a number of functions including displaying dual images via the Extron MGP 462.

monitor simultaneously. The daVinci camera is equipped with stereoscopic vision, allowing a physician to see images on both the left and the right with a better depth of field. Dual images, from either the endoscopic or daVinci cameras, can be displayed side by side on the monitor using the Extron MGP 462 Dual Window Multi-Graphic Processor, which features PIP graphics processing.

For the Providence project, CompView took advantage of several key features on the MGP 462, the most important of which is the combination of different signal sources on a single display. The MGP 462’s PIP processor individually scales the source for each window, allowing the wide variety of input data rates found in the OR – data from the vital signs and other monitoring equipment, video from the cameras, and so forth, to be converted to a single output rate that matches the native rate of the display. Once the input signals are scaled and placed in the PIP windows, each window can be independently sized and positioned anywhere on the screen. This allows the surgical staff to quickly recall one of 25 window presets to enlarge one of the two windows to be the dominant on-screen image, or to display them in a traditional picture-or-picture or equal picture-by-picture

orientation. The MGP 462 also provides for window bordering and text labeling, which helps in identifying the signals that are active on-screen.

Additionally, the MGP 462 provides Providence with some unique image manipulation capabilities, including the ability to freeze one or both of the windows for extended analysis, and the ability to put the same image source on screen in both windows, one in color and the other showing just the gray scale, or luminance portion of the signal, for comparison. Any window layout can be captured in the MGP 462’s built-in Graphics Still Store, and then exported via Ethernet to be printed or stored for archival purposes.




The Extron MGP 462 Dual Window Multi-Graphic Processor.

Supercharged OR

As if having all this breakthrough technology for in-house use wasn’t enough, the OR3 suite’s A/V system is also set up to route any image – video, a digital capture, or stored digital images – to the far-end of a video conference. Fully equipped audio and video conferencing systems have been implemented for distance learning and surgical consultations with other, off-site physicians.

With so much equipment on hand, Chriss was quick to cite the appeal of Extron products and service. “We have a long-standing relationship with Extron and are really comfortable with the quality and capability of their products,” he said. “We also count on Extron’s customer service, which is extremely important to us.”

For additional information, see:
CompView - <http://www.compview.com/>

Providence St. Vincent Medical Center - http://www.providence.org/Oregon/facilities/hospitals/providence_st_vincent 



By Steve Somers, Vice President of Engineering



Distributing High Definition, High Performance Imagery for InfoComm's Large Venue Display Gallery – How We Do It

If you attended the 2005 InfoComm, I hope you had an opportunity to visit the third annual Large Venue Display Gallery event that Extron supported and managed, and will continue to do so for InfoComm 2006. This ubiquitous display of some of the industry's pre-eminent high definition large venue projectors resided within the north hall, next to the registration area. The larger-than-life high resolution image delivered by each projector enticed viewers into each of the dedicated cinema-like theaters. Now for the third year since the demise of the Shoot-Out, the Large Venue Display Gallery fills a void. Or more accurately, it appeases our hunger for huge, high definition imaging technology prowess. This issue of Technically Speaking recaps how we ensured the "high" in high performance video distribution for the 2005 LVDG event.



- To distribute both static and moving image sources at the highest HD resolution in common use – 1920x1080
- Display only progressive scan, not interlaced, materials

History Lesson

The 2003 and 2004 LVDG events utilized four video (with audio) sources. Each of the sources along with its audio track could be selected by viewers from a dedicated touch screen control panel in each theater. For one moving video source, we employed the high definition video material, 1080/24p, used to master the Shoot-Out Software DVD release. A 10-bit disk server delivered this HD-SDI - high definition serial digital - feed from our control room via Extron's HDS-ACR 100, HD-SDI to Analog Component and RGB Converter - and RG6 Super High Resolution cable. The HD-SDI feed was not converted to RGB by the HDS-ACR100. We used its active HD-SDI loop-through to buffer and drive the long RG6 cable runs. We calculated that runs to about 300 feet would be attainable. After installation, we did not exceed 200 feet; so, there was a comfortable safety margin. See the sidebar on calculating HD-SDI signal loss for cable runs. Balanced-line stereo audio feeds were managed through a portion of a 16x16 Crosspoint Matrix router.

No, it was not a "shoot-out." I discouraged the use of the "S-word" on several occasions. Admittedly, its roots are from the Shoot-Out days. I've been to more than 20 InfoComms when you include its international reach of more recent years. What I love most about this trade show is big, big electronic images. Isn't that what all of us expect to see at InfoComm? Producing large-scale presentation images is a hallmark of our industry; besides, it's really cool. Since the demise of the Shoot-Out, an essential show display element such as the LVDG has been wanting.

Setting up and operating the LVDG is much more simplistic than a projection shoot-out. There are considerably fewer rules. Software display and operation within the event is more freeform. The focus is on big, beautiful, high quality, high definition imagery. The goals of the LVDG are:

- To produce a high quality InfoComm event for attendees centered on its core business: large-scale presentation, high definition imaging and imaging technology
- To simulate a cinema theater environment for attendees



Technically Speaking — continued

Due to variation in native resolution employed by the various projectors in the event, distribution from the control room of multiple resolution RGB sources would be unduly complicated. To simplify the distribution system, individual computer systems were co-located at each projector position to support high definition static image material as well as Windows Media HD movie trailers running in 1080p. Therefore, each theater required one to three local computers for still imagery and WMV-HD.

In each theater, we used an Extron MLS 506 switcher to manage the RGB imagery and audio delivery from the graphics sources. The HD-SDI feed from the control room disk server connected directly to the projector; however, its separate balanced-line audio feed routed through the MLS 506 for management with the other audio sources before hand-off to the theater's audio power amplifier. This topology worked well, but required a considerable number of computer systems to support the variety of image resolutions needed.

If It Ain't Broke...

Signal distribution planning for the 2005 LVDG certainly began with the same approach in

my mind. Need I say: "If it ain't broke, don't fix it." But, Sony's Gary Mandle asked me a provoking question: "Could you supply ALL the source feeds in HD-SDI format?" Hmmm. Sony had interest in using our graphics imagery, but needed all feeds in HD-SDI format for compatibility with their planned video delivery system. Additionally, Gary expressed strong interest in utilizing the HD video material in progressive scan format. Further discussion with other LVDG participants yielded an overwhelming interest in 1080/24p HD delivery of all material. For the HD video, this would certainly make for cleaner transfer to the video server along with potentially higher quality.

The request for progressive scan doesn't sound particularly significant on the surface; but, in previous years the HD video format supplied from the digital server was 1080i. Ironically, the master tape is recorded in 1080/24p, or 24 frame progressive. For the first two LVDG events, we had to scan convert it from 1080/24p to 1080/60i. Things have since progressed. Most projectors having HD-SDI inputs today are operational at all rates covered within the serial digital specification,

SMPTE 274M. Therefore, supporting the 24p request is straightforward.

A New Distribution Paradigm

But, delivering ALL sources in HD-SDI format creates a real kink in our distribution pipe, so to speak. How would that be accomplished? In the course of a talk with my good friend Rod Sterling at JVC, I found that JVC has been utilizing a particular model NVIDIA graphics card to deliver all their demo material to their flagship projector in HD-SDI as well as dual-link DVI format. As it turns out, the broadcast and production communities already utilize graphics cards equipped with serial digital support for direct transfer of high definition graphics to online HD television production in real time. This is particularly attractive for local news graphics and editing where the production cycle is only hours or minutes. In that environment, whatever may be displayed on your computer desktop is auto-magically outputted in HD-SDI format; assuming, of course that your native desktop is 1920x1080, or higher, resolution. Thank you, Rod, for your suggestions and connecting me with NVIDIA. NVIDIA supplied us with a Quadro FX-4000SDI graphics card test sample that supports both DVI and SDI/HD-SDI output.

Calculating SDI/HD-SDI Cable Loss

Cable loss specifications for standard SDI, SDTI, and uncompressed SDTV are addressed in SMPTE 259M and ITU-R BT.601. In these standards, the maximum recommended cable length equals 30 dB loss at one-half the clock frequency. Note that this high loss value does not correlate with normally acceptable loss for analog video and graphics signals. SDI signals are nominally 800 millivolts... not much different in level from analog video signals. However, the 30 dB loss level is acceptable due to the serial digital receiver having a signal amplifier and an equalization recovery system.

For HD-SDI running at 1.485 Gbps, SMPTE 292M governs cable loss calculations. In that standard, maximum cable length equals 20 dB loss at one-half the clock frequency (743 MHz). Due to the data coding scheme, the bit rate is effectively the same as the clock frequency in MHz. Similarly, high definition serial digital receivers have equalization and gain recovery. See Table 1 for some examples of cable length calculations. The "one-half clock frequency" calculation point accounts for those odd frequencies listed in many cable attenuation specification tables.

This provides leeway for cable variations, connector loss, patching equipment, etc. Table 1 includes this 10% allowance. In all cases, your system must operate solidly before the "cliff region" where sudden signal dropout occurs. Final performance rests with the cable and the type receiver used. The bottom line in these systems is maintaining low BER - bit error rate. Bit errors may manifest as random horizontal line noise bursts within the image. When these random noise events are seen, the system is at the edge of transmission failure.

Application	SMPTE 259								SMPTE 292	
	Level A		Level B		Level C		Level D		HDTV	
Data Rate in Mbps (clock)	143		177		270		360		1485	
1/2 Clock Rate in MHz	72		89		135		180		743	
Extron Cable Product	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
MHR 26 AWG (22-020-xx)	583	178	531	162	428	130	365	111	94	29
M59, 24 AWG (22-127-xx)	813	248	736	224	600	183	519	158	150	46
RG59, 20 AWG (22-124-xx)	1034	315	944	288	801	244	687	209	188	57
RG6 18 AWG (22-098-xx)	1406	429	1274	388	1067	325	915	279	285	87

Table 1



That graphics card solves a significant problem. With one of those cards in each of three PCs, both high definition graphics sources and the WMV-HD video source could be located in the LVDG control room and operate at the same 24p rate; but, we needed a way to manage selection between four sources for the single HD-SDI input on each projector with the idea that only one RG6 coax cable need be distributed to each projector. With this scheme no local computers would be necessary; thus, greatly simplifying the distribution design and installation. The MLS 506 switcher does not support HD-SDI sources, which operate at 1.5 Gbps. While the HD-SDI graphics card is a revolutionary breakthrough for high definition graphics generation and delivery, there was another essential ingredient missing for this project: an HD-SDI matrix router.

The Skunk Works

Here's a little-known fact: many new Extron products, and some unreleased products, were designed and field-tested in the InfoComm Projection Shoot-Out® event to gain experience and/or provide a needed solution to an anticipated technical problem. This is not unusual. Many companies have some projects developed outside the regular product development plan because of a rogue engineer with a unique vision. Some companies designate special secret project groups. They coined Skunk Works at Lockheed Martin for the motivated, free-thinking group that developed secret aircraft projects during World War II. There

are several theories as to the origin of this moniker. In any case, rogue products and the Shoot-Out venue became a kind of "skunk works" for us at Extron.

For example, my anxiety level peaked in early 1992 with our first experience supporting the Shoot-Out. Prior to that time, I was an attendee of the first three Shoot-Outs and, while they were cutting-edge then, I recall seeing instances of faint AC hum bars on some of the screens. In large venue signal distributions, we all fear the inevitable ground loop experience.

As we planned for the 1992 show, discussions with Shoot-Out participants inevitably led to questions pointed at our stance on addressing and solving ground loop issues. You know as well as I that it's not a matter of 'if', it's a matter of 'when' and 'where'. I was determined to beat the odds. Within only two weeks time before our departure for the show, one of our engineers designed and built the first prototype of the GLI - active ground loop isolator. We hurriedly built twelve units in unpainted aluminum boxes, packed up, and left for the show. We used three of them. The show was flawless where ground loops were concerned. Good insurance. The GLI became a hit product.

Fast-forward to the spring prior to InfoComm 2005. Development of an HD-SDI matrix router was on the near-term backburner. One of our engineers was actively pursuing it partly as an undefined project and partly

because he thought we should have one. He had investigated available components, technology, pitfalls, and performance requirements. Only a prototype board existed upon which he had been running his own tests. He had some questions about features and implementation which he brought to me.

In a few minutes it became obvious that we could really use his design for the LVDG but it wouldn't be ready as a released product in time. Enter the skunk works. While product management had some festering notions and concerns about the final configuration and scheduling of this product, all I needed was a basic working prototype that delivered a pristine 1.5 Gbps signal up to 300 feet on RG6 cable. The design was a 16 input by 16 output implementation, which seemed like overkill since we had only six customers. But more is better; and, the prototype had two dead outputs for some yet to be determined reason. What if more outputs failed? What if the whole unit failed? Since our whole distribution would be built on HD-SDI delivery, failure of this prototype router would bring down the entire event. We never operated any Shoot-Out event with that level of risk. Back then, source materials were duplicated and every installation had a backup plan. Sometimes our backups had backups. We had only one HD-SDI router prototype.

Most products fail because of power supply issues. So, we took two backup power supplies and planned to duplicate our traditional system design in case this non-sanctioned matrix router didn't work out. No one at Extron besides me and the LVDG engineering team knew about the router's role at InfoComm. The design engineer packaged the prototype router in a, you guessed it, plain aluminum cabinet. There was a possibility of obtaining a reasonably good approximation of an enclosure later, maybe during show setup. Less probable was the availability of a second router main board assembly. We'd see.



HDXP 3216



The Show Always Goes On

By the time setup day arrived at InfoComm, we focused on making the HD-SDI distribution work. We had six of the seven theater customers requesting our signal feed and the necessity for only one video cable along with the balanced stereo audio cable for this installation became a really attractive goal. We set up all four sources in the control room along with the prototype Extron HD-SDI matrix router. The HD video server main output feed is HD-SDI. Each of the HD-SDI graphics cards were installed into a dual-processor PC. Each graphics card output was connected to a separate router input. Never had an installation been so simple.

The prototype router worked perfectly. By the time all equipment was placed and operational, we noted that the main equipment rack in the control room was noticeably warm due to the high equipment density. We employed two small muffin fans that we found among our crates of miscellaneous hardware and equipment items. Both were suspended and wired just inside the rear rack opening and trained onto the router. Minutes later, we noted a reasonable temperature drop within the rack. But, this left us a bit nervous.

We knew that we could repair the power supply in the new matrix router in about 15 minutes should it fail. But, if the router circuits failed, we would be in dire straits. It would take too long to reinstall the older system approach. With that realization, we called back the Extron engineering department. As it turned out, there existed one additional blank prototype circuit board. If enough components could be found to populate it, we could possibly have a backup router board assembly.

Thanks to some dedicated people in our engineering department, the task of building another router board began and we were going to have a backup board. The only catch: it would not arrive until the morning of the first day of the show. This, we could live with.

See the Large Venue Display Gallery at INFOCOMM 2006

Once again, Extron will be providing high definition signal distribution cabling and equipment for the LVDDG. Steve Somers will produce image content and manage all technical operations of the LVDDG. Don't miss this unique opportunity to see Extron's HD-SDI products in action and view the latest projection technology for D-Cinema and large venue applications.

Sony entered the event with their new SRXR110 SXR4K 4K cinema-grade projector. At 4096x2160 resolution, it is capable of displaying all four of our 1920x1080 HD sources simultaneously. Sony masked the output to 3840x2160, which exactly matches a 4:1 tiling of four HD images. As details of their equipment install unfolded, we found that it would be interesting to provide them with not one, but four HD feed lines so that they could show all four of our sources on their screen simultaneously. By the time we installed all feeds which now numbered ten, then added one output feed to our local monitor, we used 11 of the 14 good feeds. That 16x16 router suddenly seemed not so large after all.

Installation was straightforward. With all HD sources located in the control room, short lengths of RG6 coax interconnected the server and each HD card-equipped computer to the Extron prototype HD-SDI matrix router. Router outputs were fed via Extron's RG6 coax to the projector platform in each theater. These cable runs were 100 to 200 feet.

A Really Really Good Show...

For those of you who may also be in "show business," here's another bit of good insurance: once the video distribution system is operational, keep it operating

continuously until the final close of the show. We do not shut down our video/audio sources each evening. In this way, the mechanical stress of temperature variation is avoided. Continuous operation has always been my approach for sourcing signals at large-scale events such as this one.

The performance of the HD-SDI router and all components of the show were flawless. Via a local touch screen, attendees selected at their option any of the four sources while viewing them in the theater of their choice. Switching and presentation performed perfectly. Distributing in HD-SDI format was simple and reliable. By the way, the format is not limited to supporting only high definition video. HD-SDI can be used as a high speed transport for a variety of data. Today's digital data delivery tools are unconcerned with the content being transmitted.

Since InfoComm 2005, the new HD-SDI matrix router has taken form as a real product. The new HDXP Plus Series routers support both SDI and HD-SDI in 32x16 and 32x32 configurations, and offer some really interesting features yet to be seen on this type of router technology - see the new product announcement on page 19. I expect to be routing much more HD-SDI supported data into the future. How about you?



HDXP 3232



Useful Features That Save You Real Money

I've found that many software applications have several useful features which, if more people knew about them, could save hours of development, implementation, and maintenance time. We all know that time is money. And saving time on a per-project basis will make your company more profitable and competitive in the market. Extron has released many new software applications over the past year, including Global Configurator 2.1, IP Link® Device Manager, and DataViewer, just to name a few. Each of these applications has been designed to increase your productivity with our IP Link-based products. This column will focus on some of the more powerful capabilities of Global Configurator and how you can use them to streamline your configuration, installation, troubleshooting, and upgrading process.



Late Breaking News: Extron is now offering MediaLink and IP Link training and certification classes. Learn how to use the Configurator tools to master MediaLink and IP Link products and systems. Visit www.extron.com and click on the training and certification icon to learn more.

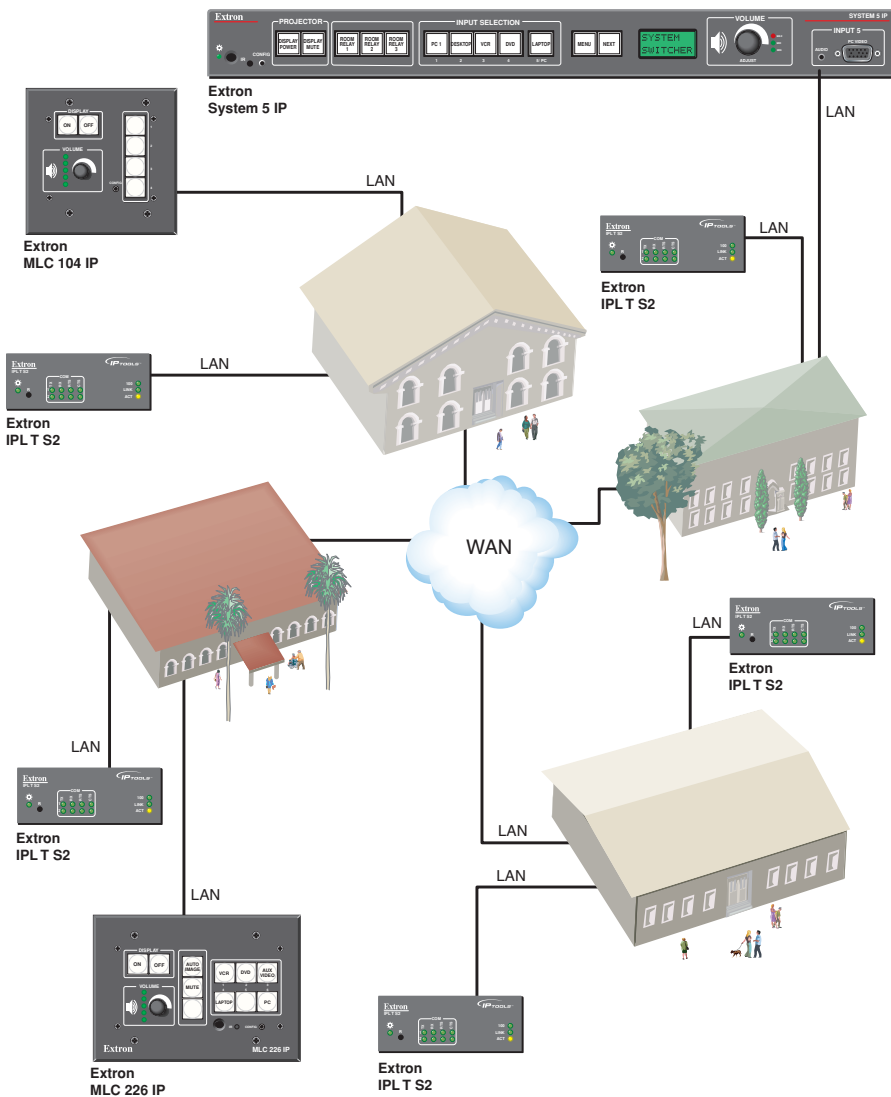


Diagram 1 - Typical physical device topology

Global View Tree Designer

There are a number of options and features in Global Configurator that, when set up properly through the configuration interface, will simplify the use of GlobalViewer™ for your customer. One of the most important features, and most often overlooked when configuring a system from scratch, is the ability to define the hierarchical layout of the IP Link products based on the physical topology of the environment. Global Configurator provides a GlobalView designer that allows you to easily represent the location of each product through the use of a familiar Windows®-style tree view.

In many installations, the customer has a facility outfitted with an assortment of IP Link products, such as the MLC 226 IP, and MLC 104 IP MediaLink™ controllers, and various IP Link Ethernet control interface models. These IP Link products are often spread out over several buildings, floors and rooms. Larger scale systems may extend this to include department, city, state, country, etc.

In order to help you avoid creating a “flat” GlobalViewer system, Global Configurator provides an easy and intuitive GlobalView designer for creating a location tree that represents the physical layout from the top down. As you are starting to configure your system, you typically select a product that will

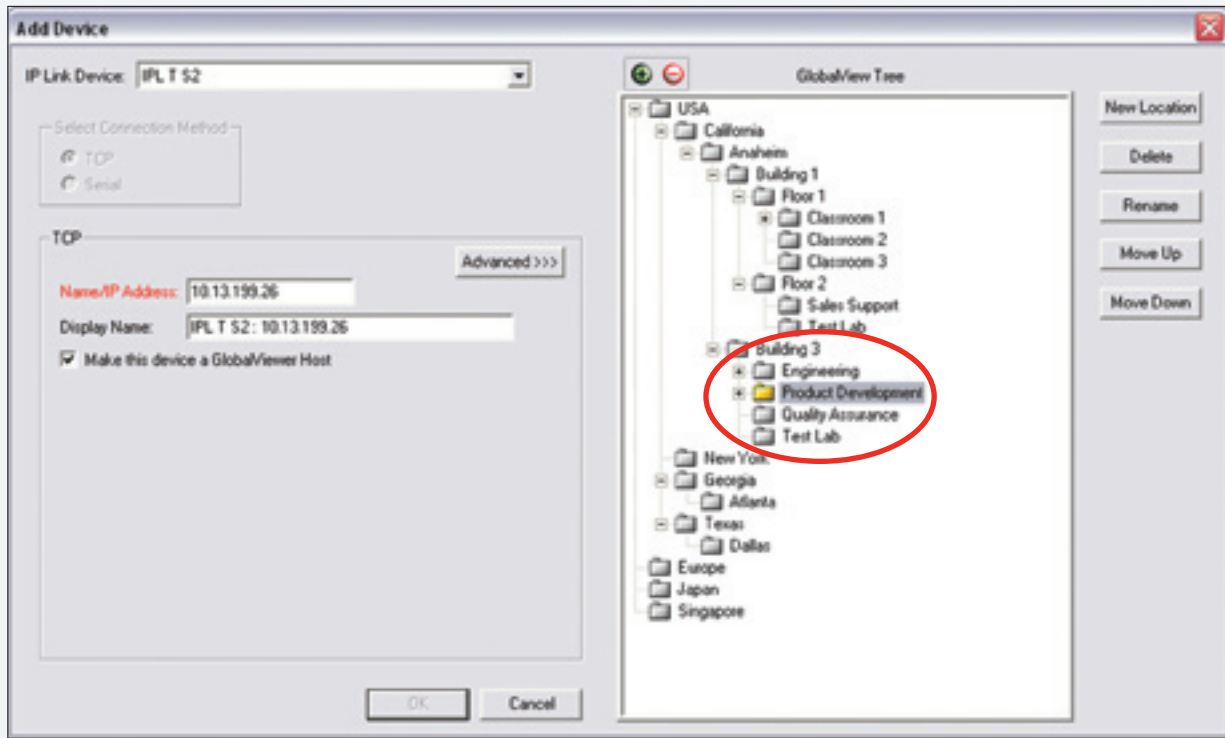


Figure 1 - Add Device screen showing the GlobalView tree for designating up to eight levels of organization

control devices and possibly act as the primary user interface in the room. On the ADD DEVICE screen depicted in Figure 1, you will notice that, along with all of the setting options that are available, the right hand side presents a GlobalView tree that can be built specific to each installation.

The GlobalView tree gives you the ability to easily add new locations up to eight levels deep. Once the location tree is defined, each IP Link product, and subsequently the attached controlled devices, will reside within the selected folder in the location view. This makes it easy for a help desk operator to quickly locate and resolve problems that are identified in their system or deploy the necessary resources to fix the problem.

The organization of the layout can also be edited at any time by selecting the GlobalView tab on the main application screen. See Figure 2. Once you have added and configured all of your devices and uploaded the configuration, your Global Viewer Web

application will contain the exact hierarchy that you defined. It's really that simple!

In more sophisticated systems the AV/IT support team would have many more rooms to manage. By following the same setup procedure, the users of GlobalViewer can easily find a room location within their defined infrastructure.

The GlobalViewer Host Option

Now you may have noticed a check box in Figure 1 labeled "Make this device a GlobalViewer host". You are also able to modify your Global Viewer host option for any product by simply right clicking on the product and changing the setting to your preference. Starting in version 2.03 of the Global Configurator we added this new feature. So what does it do, you ask? To answer that properly, take a look at Diagram 1 that depicts a typical installation configured in the traditional manner. This system consists of several buildings spread across a campus, each with a variety of IP Link products attached

to the LAN. If you want to design a fully distributed system you need to give it the ability to support full redundancy of the Global Viewer Web application by loading it in each product that you configured. The benefit is if the product that you are serving GlobalViewer Web pages from goes off line for any reason, you can just point your browser to any other product configured in the system and have access to control all of the remaining products. Remember, the control is distributed out to the IP Link-enabled end points and GlobalViewer ties all of them together into a common Web interface. So in a sense, all of the products are "Global Viewer hosts" of the Web application.

In reality, the product failure rate is very low and as a user of GlobalViewer, you typically point your browser to the same product to serve the application every time you use it. So, what is the benefit in loading the Web application to every product in the system? Why not just load the device-specific portion into each product and pick one or two products to host the Web application?

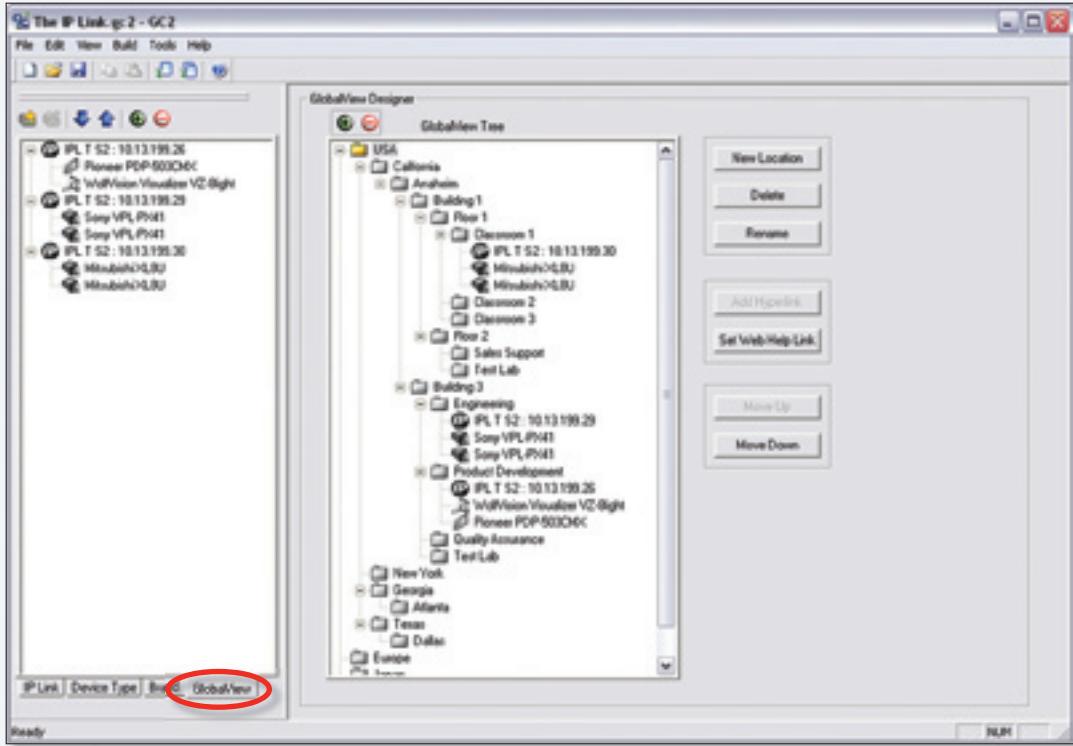


Figure 2 - Main Application screen with an example GlobalView organization of IP Link devices in Extron facilities worldwide

Let's say your installation has 50 IP Link enabled products configured using Global Configurator. The burden of loading the files that make up the GlobalViewer Web application is about 13 seconds per product or roughly a total of 11 minutes. You can save 10 minutes on the initial load by just selecting 1-4 boxes to be the Global Viewer host for your system. See Figure 3. Now, let's say you add a few new products to the system. If all of the products were selected as GlobalViewer hosts when you try to upload the configuration changes to add these new products, each and every product would need to be online to get updated so they reflect the changes in the hierarchical layout of the system. In order to maintain system integrity the software will not allow the system to be updated if any of the products are not online at the time of upload. This can happen due to a number of reasons for example, the LAN connections between one or more buildings are not working properly, someone removed power from the product, or LAN connectivity to an individual product is non-functional. All of these can and do happen in the environments

that these products are installed. If you use the GlobalViewer host on a limited number of products in the system, let's say 2, and you try to add and upload 4 new room controllers, rather than needing to have all 54 products online, only 6 need be online in order for the upload to proceed and be successful. This greatly improves the chance that when you are trying to update the system you are able to do so without having to hunt down products that are not responding on the network, which could take hours or even delay installation upgrades to a later date.

Some customers have started to take full advantage of this feature by placing a dedicated IP Link box in a secure location, such as the AV/IT manager's office or server room. This ensures that the GlobalViewer host product will be secure and accessible if something goes wrong. Some managers of larger installations that come to mind with 200-500 IP Link enabled products are strategically placing IP Link boxes at several locations throughout their enterprise in order to enable



Figure 3 - Designating a device as a GlobalViewer host

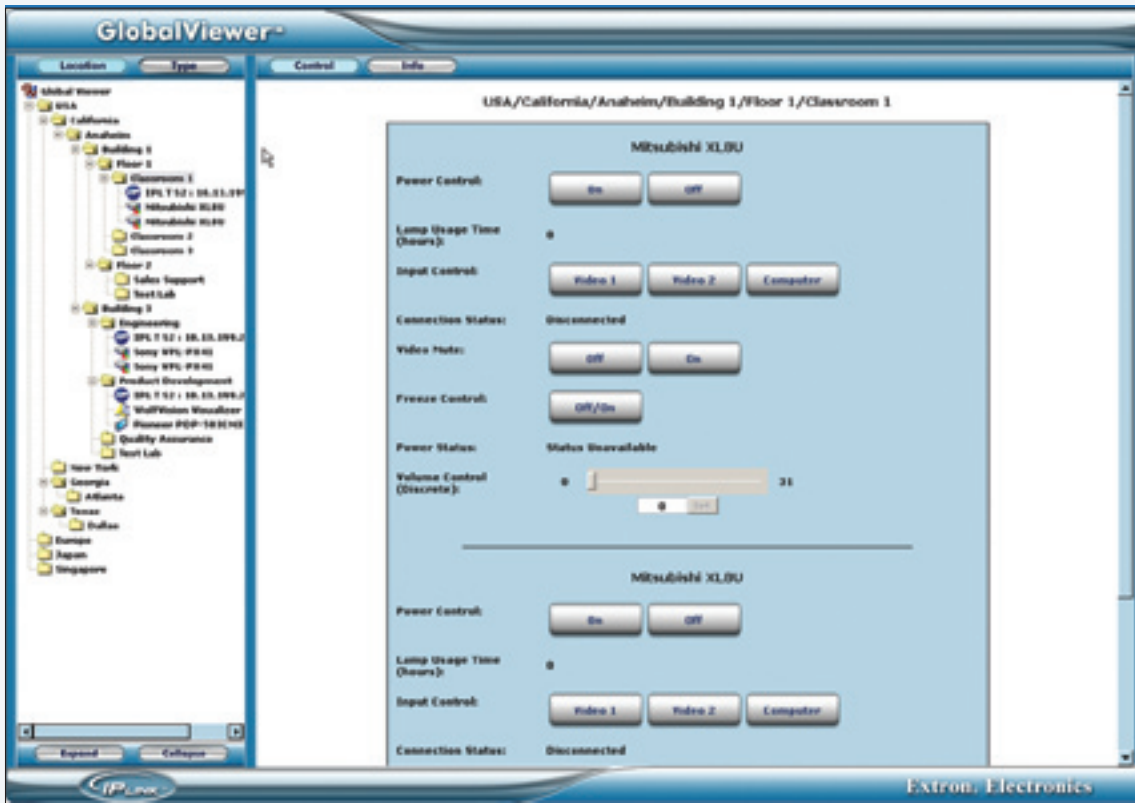


Figure 4 - Administrator Access in GlobalViewer

a level of redundancy and fault tolerance that they deem acceptable. However you choose to use this feature is your choice, but in the long run it will save you time installing, updating and expanding your installation.

The User Password

One final note, did you know that once configured using Global Configurator, the Global Viewer Web application can identify the difference between an administrator and a user logging into the system? In GlobalViewer, an

administrator is given full capability to monitor and control any of the devices configured in the enterprise - See Figure 4 - but for a typical in-room user that may be too overwhelming or possibly even dangerous. Instead, when a user logs in they are given just the controls for the devices in the room to which they have access. This gives basic control and status to the user in the room from a PC. Typically, a shortcut to the IP link product is placed on the desktop of the user's PC making it easy for them to access the control capabilities of the room, while

preventing them from accidentally affecting another system that might be in use.

The IP Link technology and Global Configurator were designed to create simple yet flexible solutions to your audio visual management and control problems. Proper training and use of any tool typically benefits you on multiple levels. Understanding and using the highlighted features here will increase your installation productivity and save you time in the process. 

Here are just a few of the many new features in the latest version of our free Global Configurator software:

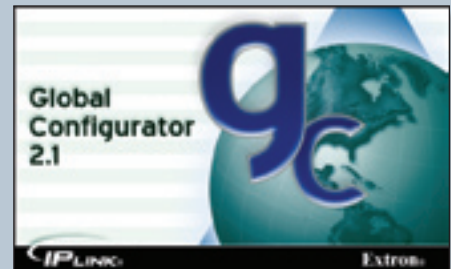
Supports System 5 IP configuration – In addition to IP Link Ethernet Control interfaces and MediaLink controllers with IP Link, Global Configurator can also be used to configure the System 5 IP System Switcher.

GlobalViewer Host Capability – Recommended for use with systems incorporating the 8 megabyte memory feature such as MLC 104, MLC 226, System 5 IP, IPL T S2, IPL T S4, and IPL T S6.

Device driver subscription service – Ensures that the latest driver available is included when the configuration file is uploaded.

Serial driver replacement – Maintains configuration settings when a serial driver is replaced, eliminating the need to re-enter device configuration settings.

For more information and to download your own copy of Global Configurator 2.1, visit <http://www.extron.com/globalconfigurator>



MGP 464

Four Window Multi-Graphic Processor

The **MGP 464** is a Four Window Multi-Graphic Processor for picture-in-picture display of high resolution computer-video graphics and HDTV or NTSC/PAL video sources. The MGP 464 accepts up to 19 input sources and features a true 19x4 input matrix switcher that allows any source to be displayed in any or all of the four available on-screen windows. Presentations can be fully customized, and also enhanced by incorporating an image or live video as a background.

Model	Part Number	MSRP
MGP 464 Standard Version	60-771-01	\$13,190
MGP 464 DI Four DVI inputs	60-771-02	\$14,990



MGP 464 DI

MVX Plus 128 VGA A

12x8 VGA and Stereo Audio Matrix Switcher with ADSP™ and IP Link®

The **MVX Plus 128 VGA A** 12x8 VGA and Stereo Audio Matrix Switcher with ADSP™ and IP Link® is designed to route high resolution computer-video and stereo audio signals. It combines the performance of a wideband switcher with the convenience of 15-pin HD connectors for all computer-video input and output connections. Balanced or unbalanced stereo audio is input and output on captive screw connectors.

Model	Part Number	MSRP
MVX Plus 128 VGA A	60-788-01	\$6,990



HDXP Plus Series

Multi-Rate Serial Digital Matrix Switchers

The Extron **HDXP Plus Series** of multi-rate, serial digital matrix switchers are capable of routing dual-link SDI/HD-SDI digital video signals and high resolution signals from computer-video graphics cards equipped with HD-SDI outputs. They comply with SMPTE and ITU standards for serial digital video signals from 143 Mbps to 2.97 Gbps, and are ideal for routing HDTV and other high resolution digital video sources for digital cinema projection, bio-medical imaging, satellite mapping and visualization, rental and staging environments, and other applications.

Model	Part Number	MSRP
HDXP Plus 3216 - 32x16	60-790-01	\$21,390
HDXP Plus 3232 - 32x32	60-797-01	\$27,390



HDXP Plus 3232

IPL T S1

One Serial Port IP Link® Ethernet Control Interface

The **IPL T S1** is a compact Ethernet control interface with a high performance integral Web server, designed to integrate IP Internet Protocol connectivity into AV systems. The IPL T S1 features one 9-pin D-sub serial port that can control one RS-232 serial device directly. IP Link interfaces give users the ability to remotely and proactively monitor and troubleshoot projectors, plasma displays, switchers, and other RS-232 serially controlled products.

Model	Part Number	MSRP
IPL T S1	60-801-01	\$390



GlobalViewer™ for Pocket PC™

Free Web-Based Asset Management and Remote Control Application for Windows® Mobile-based Pocket PC

Now you can manage your IP Link®-enabled AV systems from the palm of your hand.

GlobalViewer for Pocket PC allows remote control, diagnostic assessment, and troubleshooting of any IP Link-enabled system configured using Global Configurator 2.1 or later. GlobalViewer for Pocket PC enhances the benefits of GlobalViewer by allowing AV/IT support personnel to quickly respond to AV issues even when away from their desktop.

Model	Part Number	MSRP
GlobalViewer for Pocket PC	79-513-01	No charge

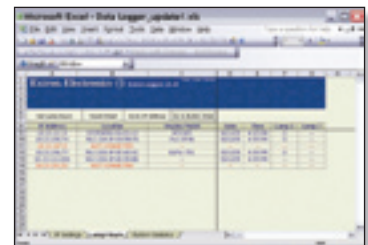


Data Logger

Free Spreadsheet Application for Collecting and Displaying Room System Data

Data Logger works in conjunction with the MLC 104 IP and MLC 226 IP MediaLink™ controllers, and the System 5 IP switcher to collect critical system information such as frequency of usage for each front panel button and current lamp hours of connected projectors. Administrators can use Data Logger to determine exactly how often each AV resource has been used in a given range of time. This information can be invaluable for scheduling classroom usage and for planning future equipment purchases.

Model	Part Number	MSRP
Data Logger	79-514-01	No charge



MTP T 15HD A WM

MTP - Mini Twisted Pair Transmitter for RGBHV and Audio for One-Gang Wall Box

The Extron **MTP T 15HD A WM** is a wall-mountable transmitter designed for use with an MTP R 15HD A or MTP RL 15HD A receiver for sending high resolution computer-video and summed mono audio signals long distances to presentation displays over a single unshielded twisted pair cable. It is designed to be mounted in a standard one-gang electrical box and is available in either black or white.

Model	Part Number	MSRP
MTP T 15 HD A WM black	60-691-02	\$480
MTP T 15 HD A WM white	60-691-03	\$480



MTP T 15HD A D

MTP - Mini Twisted Pair Transmitter for RGBHV and Audio - Decora® Version

The Extron **MTP T 15HD A D** is a Decora-style, wall-mountable transmitter designed for use with an MTP R 15HD A or MTP RL 15HD A receiver for sending high resolution computer-video and summed mono audio signals long distances to presentation displays over a single unshielded twisted pair cable. It is designed to be mounted in any Decora-style wall plate and is available in white.

Model	Part Number	MSRP
MTP T 15HD A D white	60-798-03	\$450



MTP 15HD A AAP

MTP - Mini Twisted Pair Transmitter for RGBHV and Audio - AAP Version

The Extron **MTP 15HD A AAP** is an Architectural Adapter Plate transmitter designed for use with an MTP R 15HD A or MTP RL 15HD A receiver for sending high resolution computer-video and summed mono audio signals long distances to presentation displays over a single unshielded twisted pair cable. It is designed to be mounted in any Extron product that accepts a double space AAP - Architectural Adapter Plate, and is available in black, white or RAL9010 white.

Model	Part Number	MSRP
MTP T 15HD A AAP black	70-558-02	\$520
MTP T 15HD A AAP white	70-558-03	\$520
MTP T 15HD A AAP RAL9010 white	70-558-05	\$520



IN1502

Two Input Video Scaler

The **IN1502** is a new video scaler specifically for integrating composite video and S-video sources, and offers a high quality, scaled RGB output at 14 selectable rates from 640x480 to 1366x768, as well as frame rate conversion. It is equipped with many integrator-friendly features such as input autoswitching, rack-mount capability, and multiple control options — front panel, optional IR handheld remote, and RS-232. The IN1502 provides simple, convenient video scaling for smaller-scale AV environments such as classrooms and boardrooms.

Model	Part Number	MSRP
IN1502	60-726-01	\$1,390



IN1508

Eight Input Scaling Presentation Switcher with PIP

The Extron **IN1508** is our new AV presentation switcher that provides a single box solution for integrating up to eight AV sources, including composite video, S-video, standard or high definition component video, DVI-D, and RGB computer-video. It also features high performance video and RGB scaling for converting these sources to a common, high resolution output rate. Additionally, the IN1508 includes a host of convenient and useful features including stereo audio switching, seamless switching, PIP - picture-

in-picture, on-screen display, and multiple control options including front panel, IR remote control, and RS-232.

Model	Part Number	MSRP
IN1508	60-569-01	\$1,790



SI 3CT LP

Full-Range Ceiling Speaker with 4" Low Profile Back Can and Transformer

The Extron **SI 3CT LP** is a full-range ceiling speaker and the latest in our System Integrator™ Series. It features a 4" LP - Low Profile metal back can for use in plenum ceilings. The LP - Low Profile speaker is an excellent choice for ceiling installations with unknown above-the-ceiling tile issues such as air handling units installed close to the ceiling. The 3" full-range driver features an incredibly wide frequency response of 75 Hz to 17 kHz, 16 watts continuous pink noise or 32 watts continuous program capacity, and an exclusive conical baffle that provides a wider room coverage pattern, which is important for rooms with low ceilings.

Model	Part Number	MSRP
SI 3CT LP	42-103-03	\$280/pair



FBI 100

Feedback Loop Isolator for Audio and Video

Our **FBI 100** is designed to overcome feedback loops that may occur when a VCR is used for both recording and playback in an AV system. As the VCR records signals through its AV input, such as from a video camera and microphone, it outputs the same signals back into the system which can result in audio and video feedback. The FBI 100 is easily installed between the recording and playback paths of the VCR, and is controlled via contact closure, so that while the VCR is recording, AV signals are impeded from being fed back into the system.

Model	Part Number	MSRP
FBI 100	60-743-01	\$240



CLK 100

12/24 Hour LCD Clock with Thermometer

Our **CLK 100** is a versatile, battery-operated LCD clock that includes an integrated thermometer for monitoring the ambient temperature within an equipment rack or room. The CLK 100 displays the date and time of day in either 12 hour or 24 hour format, and temperature in degrees Fahrenheit or Centigrade. It is housed in a 1U, quarter rack width metal enclosure, and also includes rubber feet for convenient placement on a desktop or shelftop. The CLK 100 runs on a single AAA battery, included.

Model	Part Number	MSRP
CLK 100	60-791-01	\$50



Tweaker

Extron's Most Popular 'Multi-Tool'

We listened to your comments, went back to the drawing board, and redesigned our Extron **Tweaker** to make it better than ever. We changed the double-ended bit design to a reversible bit which is fitted with a true Philips #1 tip on one end, and a slotted tip on the other. This new slotted tip is just the right size for most potentiometers and captive screw connectors. We created a robust, hexagonal shaft that won't twist or flex under normal use. Finally, to make the new Tweaker even more pocket-friendly, we reduced the overall length by two centimeters without sacrificing the performance you've come to know and trust.

Model	Part Number	MSRP
Tweaker	100-014-01	Priceless

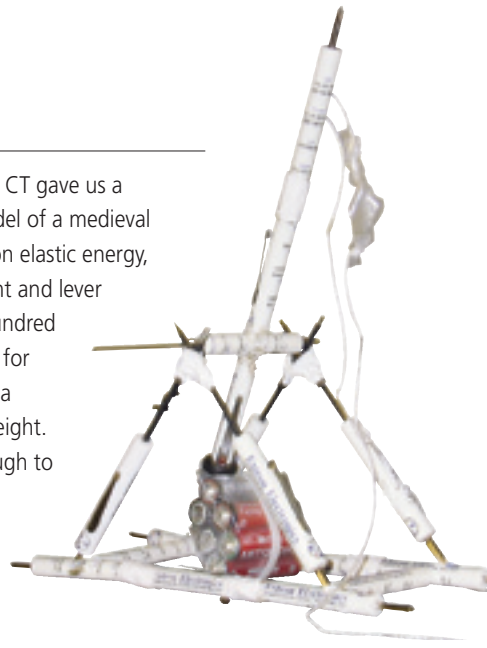


Tweezer Use #73



Trebuchet

Jason Marturano of CCSU Media in Berlin, CT gave us a real blast from the past in his working model of a medieval trebuchet. Unlike a catapult which relies on elastic energy, traditional trebuchets used a counterweight and lever action to propel large stones for several hundred yards. Jason used several Extron Tweezers for the eight-inch-tall trebuchet structure and a bundle of AAA batteries for the counterweight. Heads up! Jason claims it works well enough to sling small items several feet!



Send us a photograph and brief explanation of how you use the "new" Tweezer. If we publish it in a future issue of ExtronNews, we'll give you a free **VTG 300**.

Please send entries along with contact information to:

**Extron Tweezer Contest,
1230 South Lewis St.,
Anaheim, CA 92805.**

Or e-mail a high-resolution photo and explanation to tweezer@extron.com



ExtronNews

ExtronNews is published by Extron Electronics/RGB Systems Inc. No portion of this newsletter may be reproduced in any form without written permission from Extron Electronics. Every effort has been made to ensure accuracy in content; however, Extron assumes no responsibility for errors and omissions in the information provided herein. ExtronNews is sent free of charge to A/V industry professionals and end-users. Printed in the United States of America.

We welcome your comments and contributions! Please submit ideas to ExtronNews editor. E-mail: extronews@extron.com



Extron Institute

Apr 6-7	Anaheim, CA	May 8-9	Toronto, Canada
Apr 10-11	Shanghai, China	May 10-11	Mumbai, India
Apr 10-11	The Netherlands	May 11-12	Toronto, Canada
Apr 24-25	The Netherlands - conducted in German	May 22-23	The Netherlands
Apr 24-25	Boston, MA	May 24-25	Singapore
Apr 27-28	Singapore	Jun 4-5	Orlando, FL - International/Spanish
May 4-5	Anaheim, CA	Jun 12-13	The Netherlands
May 8-9	The Netherlands	Jun 19-20	The Netherlands

Tradeshows

Jun 7-9	InfoComm	Orlando, FL
---------	----------	-------------



Are you ready for InfoComm?

InfoComm is the largest, most comprehensive information communication systems technology marketplace in the world. This year will mark the twenty-first year in a row that Extron has exhibited at InfoComm. The InfoComm Exhibition will be held June 7th – June 9th at the Orange County Convention Center in Orlando, Florida.

We are working hard preparing for this annual event. Please look for us at **booth 2537** where we will be showcasing our newest and most popular products. Also, please stop by the EduComm

Conference within InfoComm where we will be highlighting our simplified, centralized control solutions for classrooms.

Be sure to visit our Web site - www.extron.com for important conference and exhibition news and updates.

Extron Electronics, USA

1230 South Lewis Street
Anaheim, CA 92805
Phone: 714.491.1500 or 800.633.9876
Fax: 714.491.1517

Extron Electronics, Europe

Beeldschermweg, 6C
3821 AH Amersfoort
The Netherlands
Phone: +31.33.453.4040 or +800.3987.6673
Fax: +31.33.453.4050

Extron Electronics, Asia

135 Joo Seng Road #04-01
PM Industrial Building
Singapore 368363
Phone: +800.7339.8766 or +65.6383.4400
Fax: +65.6383.4664

Extron Electronics, Japan

Kyodo Building 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan
Phone: +81.3.3511.7655
Fax: +81.3.3511.7656