USP 507
A Universal Signal Processor for Integrating Digital and Analog Video

The USP 507 is our newest “all in one” signal processor that combines switching, scaling, video transcoding, and conversion between digital and analog video formats. It is the successor to the USP 405, our longstanding and popular Universal Signal Processor that provided various conversion and compatibility solutions for analog video and SDI. The USP 507 shares the same, compact 1U enclosure of the USP 405, but is a completely new signal processor that incorporates several new features and enhancements.

Perhaps most notably, it offers digital and analog inputs and outputs including DVI and HD-SDI, providing the flexibility and versatility you now need to integrate digital alongside analog video. The USP 507 adds updated, high performance video processing, an MTP Twisted Pair output, and digital-to-analog video conversion. Models are available for analog-to-digital video conversion and for providing a scan-converted output. All of this, together with an integrated seven-input switcher, make the USP 507 ideal as a single, central component for switching and signal conversion in many A/V systems.

Incorporate Digital and Analog Video Devices
In small to medium-sized installations, the USP 507 can address the challenge many integrators are now facing: integrating digital and analog video devices within a single A/V system. The USP 507 offers the essential “bridge” for successfully integrating digital and analog video signals by converting and scaling these different input formats to one high quality output signal. This eliminates the need to provide separate signal paths to the display, minimizing the cost of cabling and installation, while maximizing picture quality and switching performance.

The USP 507 comes standard with analog standard definition, RGB, and HDTV inputs, along with DVI. There is also the option to add an SDI/HD-SDI input. For the outputs, the USP 507 offers two high resolution analog connections and a third on Extron MTP Twisted Pair. A fourth output is also available and can be configured for DVI, HD-SDI, or scan-converted video output. With digital and analog video compatibility for both the inputs and outputs, the USP 507 provides substantial flexibility in converting between various digital and analog formats.

This flexibility makes the USP 507 particularly useful in applications where newer, digital video devices need to be brought into legacy analog-based systems. For example, newer laptops with DVI, HDMI, or dual mode DisplayPort outputs can now be used with displays and projectors equipped only with RGBHV or VGA inputs. The USP 507 also allows devices with analog RGB or HDTV outputs to be integrated into a DVI-based system. Furthermore, this versatile processor can be used to provide conversion between SDI/HD-SDI and RGB, YUV, or DVI signals so that integrators for rental and staging and other applications can bring professional HD cameras and other SDI-based equipment into systems that otherwise do not support SDI, or connect to displays and other equipment without SDI inputs.

A One-Box Solution for System Integration
The integrated seven-input switcher can sufficiently meet source switching needs for small to medium-sized installations, providing three high resolution RGB or HDTV and two standard definition inputs for analog video, plus DVI, and optionally, SDI/HD-SDI. We’ve also added a feature...
called Auto Input Format Detection so that you won’t have to set up each of the high resolution analog inputs separately. Simply connect your sources to these inputs, and the USP 507 will automatically detect the incoming video format and provide the appropriate video processing.

If you’re going to be using the USP 507 in a larger system to provide signal processing on the back end of a matrix switcher, Auto Input Format Detection will allow you to route RGB and HDTV to a single matrix switcher output that the USP 507 can then automatically detect. The high resolution 5-BNC, RGBHV input also accepts 480i component video, S-video, and composite video, so if you’re combining standard definition and high resolution video on the same matrix switcher, Auto Input Format Detection can save up to four matrix switcher outputs, potentially allowing you to select a smaller matrix switcher for the installation to save money and reduce rack space.

The USP 507 includes high performance, 30-bit video processing that performs all necessary scaling and signal conversion, yielding a single, high quality output for the display. It offers 81 selectable output rates up to 1920x1200, including HDTV 1080p/60, 2048x1080, and other common and uncommon resolutions to ensure compatibility with the latest as well as legacy displays. The scaling engine also delivers high performance upscaling and downscaling of high resolution RGB signals, optimizing them for displays whose native resolution does not match that of the signal. For HDTV 1080i video, the USP 507 includes advanced, motion adaptive 1080i deinterlacing to deliver optimized, HD video when you need a high quality progressive-scan output.

The four simultaneous outputs avoid the need for additional signal distribution in systems with multiple displays. In addition to the two high resolution analog outputs, an Extron MTP Twisted Pair output can be used to drive a display in a remote location. Twisted pair can also be an appealing option if the USP 507 is being used in a large environment such as an auditorium. Twisted pair can also be an appealing option if the USP 507 is being used in a large environment such as an auditorium.

Extron. www.extron.com

continued on page 12
as an auditorium or ballroom, and for rental & staging integrators due to the low cost and convenience of running twisted pair. In addition to DVI or HD-SDI, the fourth output can be configured for scan-converted video. This option can be applied to provide standard definition video for recording, while the other outputs continue to provide high resolution video for the primary display.

Enhance System Operation and Presentations

The USP 507 is equipped with several features that can streamline system operations and enhancement presentations. In applications where laptops and other A/V sources are frequently switched out, Auto Input Memory provides the convenience of automatically storing picture and image settings to a preset, based on the incoming signal format. Whenever a new source is connected to the USP 507 and a video signal corresponding to a stored preset is recognized, the picture and image settings are automatically recalled. Having several presets stored under various video rates will likely avoid the need for manually adjusting picture settings when connecting new input sources. This yields a convenient and friendly experience for the end user.

Whenever a new VGA or DVI source is introduced into an A/V system, successful exchange of EDID - Extended Display Identification Data between the source and destination ensures proper image display. However, problems may arise with EDID communication due to various incompatibility issues between devices. Additionally, in RGBHV-based systems, EDID simply cannot be transmitted from a VGA source. The USP 507 includes EDID emulation on all VGA 15HD and DVI inputs and provides EDID exchange with the connected video source, generating EDID data based on a selected resolution and refresh rate that match the requirements of the display. EDID emulation allows proper communication with the video source so that it reliably generates the best usable format.

For enhancing presentations, the USP 507 offers glitch-free switching between sources, with a choice of cut or fade-to-black transitions. Glitch-free switching gives a professional look and feel to presentations without visual jumps, glitches, and distortion when switching between computer and video sources.

A PIP - picture-in-picture feature allows for displaying a video source within an RGB image, and vice versa. PIP controls are accessible via a button on the front panel. Several preprogrammed window configurations are available with fully adjustable PIP window position and size. The USP 507 can easily be integrated with an Extron audio switcher to tie audio and video switching for the system. An RS-232 serial loop-through port allows RS-232 commands to be passed on to the switcher.

A Universal Video Processor That's Flexible and Adaptable

The USP 507 is a high performance, versatile Universal Signal Processor for bringing together digital and analog video sources, and providing signal conversion capabilities between various digital and analog video formats. The integrated seven-input, multi-format video switcher makes the USP 507 ideal for many small to medium applications, as well as rental and staging. In addition to multiple format compatibility and conversion, the USP 507 also offers several features that add to its versatility, including four simultaneous outputs, Extron MTP Twisted Pair output, Auto Input Memory, EDID emulation, and glitch-free switching.