ClipStore™ MXc

VIDEO+KEY+AUDIO
STORAGE & PLAYBACK

JPEG 2000
COMPRESSED HD
VIDEO+KEY

UNCOMPRESSED SD
VIDEO+KEY

10-BIT DIGITAL VIDEO
24-BIT DIGITAL AUDIO

Abekas

ClipStoreMXc Multi-Definition Digital Disk Recorder for

Abekas proudly presents the

ClipStore™MXc

Multi-Definition Digital Disk Recorder

The ClipStoreMXc represents the newest generation of digital disk recorders from Abekas, utilizing state-of-the-art video/audio processing hardware combined with the very latest disk drive technology. ClipStoreMXc provides maximum flexibility for combined HD/SD environments, by providing immaculate mastering-quality JPEG-2000 compressed high-definition (HD) video+key with uncompressed standard-definition (SD) video+key, all with astounding 10-bit resolution. Regardless of whether HD or SD is being recorded, the associated 8-track digital audio is always recorded without compression.

ClipStoreMXc also features user-removable disk storage and provides the most wide-ranging feature set of any professional digital disk recorder on the market today – including an extremely attractive price, thanks to the newest technology from Abekas. Video, key and audio recording capability is a standard feature, providing capture and storage of pristine digital video+key+audio content in either HD or SD. The digital audio features up to eight audio tracks and supports both discrete AES/EBU audio input/output, as well as audio embedded with the video.

ClipStoreMXc provides real-time playback of captured and rendered material, and is operationally plug-and-play – so there's no steep learning curve, and there's no need to configure boards, load software or partition a drive. Featuring "clip-based" storage and a unique graphical user interface that runs on almost any network web browser, a simple click of the mouse allows users to immediately organize, load and play any stored media. It's that easy and that flexible! Whether you're working in HD, SD or both – the ClipStoreMXc is the perfect real-time video+key+audio storage solution, especially if you work in any of the following environments where the highest quality and lowest cost is of the greatest importance:

- **Mobile Video Trucks**
- **Live-to-Air Broadcast**
- **Editing and Post Production**
- **Large Venue Presentation**

MULTI FORMAT / MULTIPLE APPLICATIONS

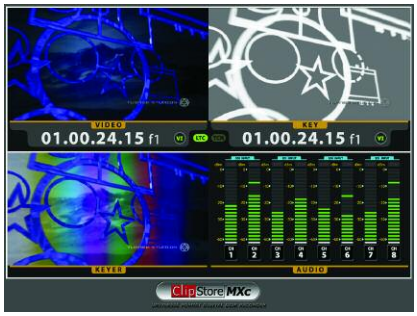
For standard-definition video, ClipStoreMXc captures video+key in both 525 and 625 line standards with 10-bit uncompressed quality. For high-definition, video+key can be captured in 1080 or 720 resolution, with all popular frame rates supported including interlaced and progressive. Whether creating or presenting graphics and special effects for live broadcast, editing for television or post-production, ClipStoreMXc sets the standard for reliable, high-quality performance. By a wide margin, the ClipStoreMXc disk recorder provides the perfect recording solution for HD and SD VTR replacement in a variety of applications.

JPEG 2000 HIGH-DEFINITION COMPRESSION

In order to maintain the highest image quality possible while recording high-definition (HD) digital video+key, ClipStoreMXc employs state-of-the-art JPEG-2000 compression technology. JPEG-2000 is the latest image coding system using wavelet compression techniques. This form of compression provides absolutely stunning HD image quality with virtually no visible artifacts, and affords very efficient high-definition storage.

VIEWER ON YOUR DESKTOP

The ClipStoreMXc user interface features a "quad-split" Viewer window, providing real-time output monitoring of video, key, audio and timecode. The fourth pane of this window displays the video and key composited over a background still image for confidence monitoring. This Viewer window appears on the desktop of the ClipStoreMXc user interface, and can be positioned onto a second VGA or video picture monitor as part of an extended WindowsXP™ desktop. Placing the Viewer window on this second desktop surface provides a convenient and compact method of monitoring all outputs from ClipStoreMXc. When positioned on the primary VGA monitor along with the NetPanel user interface, the Viewer window eliminates the need for an extra video picture monitor in many installations – saving space, weight and greatly improving operations workflow.



Viewer – Video, Key, Audio and Timecode output monitoring with video and key composited over background still image for confidence monitoring

VTR ↔ DDR TRANSFERS

The ClipStoreMXc disk recorder features two RS422 serial control ports supporting Sony BVW-75 protocol. One RS422 port is a "master" port for frame-accurate control over an external VTR. The other port is a "slave" port to allow control over ClipStoreMXc from external controllers. The "master" port can also be re-configured by the user as a secondary slave port to allow separate control over just the key channel. The convenient built-in Auto Edit feature allows you to capture media from videotape into the disk recorder for editing tasks, graphics creation, effects work and media encoding – or Auto Edit can be used to transfer finished projects from ClipStoreMXc to videotape for archiving or client distribution.

state-of-the-art HD and SD digital video recording

NetPanel User Interface

NETPANEL CONTROL

The ClipStoreMXc disk recorder has been designed specifically for today's highly networked production environment, providing access to all users with control through the unique, browser-based NetPanel™ user interface. NetPanel is an OS-independent HTML/Java2 applet that runs from Microsoft® Internet Explorer™, Netscape® or Safari® web browsers on any Windows, Macintosh, Irix or Linux networked computer (current Java-2 plug-in is required). You can mix Windows, Irix, Macintosh and Linux workstations on the same network as the ClipStoreMXc disk recorder, with control over the disk recorder from any of these remote workstations. NetPanel provides simple and easy machine control, clip filing and management, along with system setup and configuration. NetPanel can also run on the ClipStoreMXc platform itself for stand-alone operation (user-supplied VGA monitor with at least 1280x1024 resolution is required).

ShuttlePRO Controller

Also supplied with every ClipStoreMXc is the ShuttlePRO™ control panel from Contour Design®. This controller connects via USB to the main chassis, and provides complete control over all DDR transport functions, such as play, record, stop, jog, etc.

IMPORT / EXPORT

Don't let the attractive low cost of ClipStoreMXc fool you – this machine has a feature set that will satisfy even the most demanding applications. Since ClipStoreMXc is built upon the Microsoft® Windows® XP operating system, the included Import/Export utility easily interfaces ClipStoreMXc with a network of graphics rendering computers without concern for proprietary file formats. The Import utility can monitor up to five user-defined "watch folders" for the arrival of single-frame image files; as soon as the first image file arrives, the Import utility goes to work by automatically creating a clip having the same name as the image file, and inserts the frame into that clip. The remaining frames arriving in the import folder are then automatically inserted into the same clip. This import process typically runs faster than the rendering operation that's creating the image files, therefore providing a real-time clip that's ready to play shortly after rendering is finished. On the export side of the equation, the Export utility can transfer individual frames from any stored clip to any computer or disk drive mounted on the local computer network. All popular image file formats are supported, such as DPX, SGI, RGB, TGA, TIF and PSD – just to name a few. Both the Import and Export utilities support audio WAV files.

THIRD-PARTY CONTROL

The ClipStoreMXc disk recorder has been tested and confirmed to operate with external third-party controllers via RS422 – including controllers from Lance Design® and DNF Controls®. These external devices provide precise and accurate control over the ClipStoreMXc, with the ability to control video+audio independently of the key channel in ClipStoreMXc by using two RS422 ports on these external controllers. This feature allows you to "slip in time" the key channel with respect to the video+audio channels.

LARGE STORAGE CAPACITIES

The ClipStoreMXc system comes in two rather large storage capacities: 2 Hours and 4 Hours – whether recording uncompressed SD or JPEG-2000 compressed HD video+key+audio. The ClipStoreMXc also allows "striping" of the video and key media disk drives into a single "video-only" volume. This operation doubles the existing video recording capacity by temporarily disabling the key channel and adding the key channel disk to the video channel – all with just a few simple clicks of a mouse. For example, a ClipStoreMXc that normally has four hours of VK storage can be quickly and easily re-configured by the user to provide eight hours of video recording capacity. And of course, at any time, the user can quickly and easily re-configure the system back into a video+key machine within a matter of minutes. This feature gives the user a great deal of flexibility to tailor the machine to a given need.

ClipStoreMXc Chassis Rear Panel

REMOVEABLE MEDIA DISK DRIVES

ClipStoreMXc features removable media disk drives with easy access, allowing simple and fast media disk exchange between multiple ClipStoreMXc recorders. With true plug-and-play operation, this feature makes ClipStoreMXc an ideal solution for remote television operations that require quick and worry-free loading of high-quality media clips into disk recorders that are located any distance from the studio. This feature can also be used to "place a job on the shelf" when working with multiple clients in the studio, ensuring the media materials for any number of jobs remain separate and secure.

Fast and Easy Media Disk Exchange

SPECIFICATIONS

STANDARD FEATURES

- JPEG-2000 Compressed High-Definition (HD) and Uncompressed Standard-Definition (SD) Digital Disk Recorder Platform
- SDTV 10-Bit YUVA 4:2:2:4 SDI Video & Key I/O (525/625)
- HDTV 10-Bit YUVA 4:2:2:4 SDI Video & Key I/O (formats below)
- JBOD Video & Key Storage (2 Hours or 4 Hours SD and HD Storage time)
- Digital Audio Storage
  - 8 Individual audio tracks (4 stereo pairs)
  - AES/EBU, 24-Bit resolution with 48kHz sampling
  - Accommodates AC-3 and Dolby-E Bit Streams
  - Embedded and discrete AES/EBU digital audio I/O
  - Analog Monitoring: unbalanced, line-level on 3.5mm audio connector
- LTC Timecode In/Out
- VANC LTC Timecode In/Out in HD Video Formats
- Internal "Native" timecode (TCN) and external LTC support
- Internal timecode generator with preset
- Windows XP operating system with NT File System (NTFS)
- QuickTime™ compliant clip-based storage
- NetPanel HTML/Java-2 graphical user interface with integrated viewer
- (2) Sony and PBUS protocols RS422 ports for VTR control and edit
- (2) 10-T/100-T/1000-T Gigabit Ethernet Ports
- Viewer: monitor video, key and timecode plus audio meter and "keyer" display
- Import / Export Utility for automatic import of image files and export to popular image files including RGB, TIF, TGA, SGI, YUV, PNG, JPG, PSD, DPX, etc.
- Windows Media Series 9 Encoding with user-defined profiles
- Normal, looping and ping-pong play repeat modes
- Auto Edit for frame-accurate VTR loading and archiving
- Vertical interpolator for smooth slow motion playback
- Variable play mode with field/frame access
- Poster image stored with each clip
- Segment list play
- Analog HD Tri-Level or Composite Analog SD reference (terminating)
- Built-in video test patterns and audio tones
- Windows keyboard and mouse on PS/2
- ShuttlePRO™ hardware controller from Contour Design®

SUPPORTED VIDEO FORMATS

High Definition 4:2:2:4 YUVA
JPEG-2000 Compression at ~200Mb/s with 10-Bit Resolution

- 1920x1080: /60i /59.94i /50i
- 1920x1080: /30psF /29.97psF /25psF /24psF /23.98psF
- 1280x720: /60p /59.94p

Standard Definition 4:2:2:4 YUVA
Uncompressed with 10-Bit Resolution

- 720x486 (525): /59.94i (ITU-R/BT.601-4)
- 720x576 (625): /50i (ITU-R/BT.601-4)

ANALOG REFERENCE INPUT	(1)	F	BNC
• Tri-level HD or Composite Analog SD, Terminating			

SAFETY & EMISSIONS

- CE / TUV
- FCC Class A / EN55103

CHASSIS PHYSICAL & ELECTRICAL

- Rack-Mount Configuration Dimensions:
  W = 19.0 in / H = 5.25 in / D = 16.0 in
  W = 48.3 cm / H = 13.3 cm / D = 40.6 cm
- Maximum Weight: 35 lbs. (15.9 kg.)
- Power: <300 Watts / 100-240 VAC / 50-60Hz (Auto-sensing power input)

DIGITAL VIDEO INPUT	(1)	F	BNC
High-Definition: • SDI SMPTE 292M (10-bit at 1.5 Gb/s) Standard-Definition: • SDI SMPTE 259M (10-bit at 270 Mb/s)			

DIGITAL VIDEO OUTPUT	(1)	F	BNC
High-Definition: • SDI SMPTE 292M (10-bit at 1.5 Gb/s) Standard-Definition: • SDI SMPTE 259M (10-bit at 270 Mb/s)			

DIGITAL KEY INPUT	(1)	F	BNC
High-Definition: • SDI SMPTE 292M (10-bit at 1.5 Gb/s) Standard-Definition: • SDI SMPTE 259M (10-bit at 270 Mb/s)			

DIGITAL KEY OUTPUT	(1)	F	BNC
High-Definition: • SDI SMPTE 292M (10-bit at 1.5 Gb/s) Standard-Definition: • SDI SMPTE 259M (10-bit at 270 Mb/s)			

DIGITAL AUDIO INPUT	(4)	F	BNC
High-Definition: • AES/EBU: 8-tracks (4 stereo pairs) / 48kHz at 24-bit resolution • Embedded in HD SDI video: 8-tracks (4 stereo pair) / 48kHz at 24-bits Standard-Definition: • AES/EBU: 8-tracks (4 stereo pairs) / 48kHz at 24-bit resolution • Embedded in SD SDI video: 4-tracks (2 stereo pair) / 48kHz at 20-bits			

DIGITAL AUDIO OUTPUT	(4)	F	BNC
High-Definition: • AES/EBU: 8-tracks (4 stereo pairs) / 48kHz at 24-bit resolution • Embedded in HD SDI video: 8-tracks (4 stereo pair) / 48kHz at 24-bits Standard-Definition: • AES/EBU: 8-tracks (4 stereo pairs) / 48kHz at 24-bit resolution • Embedded in SD SDI video: 4-tracks (2 stereo pair) / 48kHz at 20-bits			

ANALOG AUDIO MONITORING OUTPUT	(1)	F	3.5mm
• Unbalanced, line-level at: –10 dBV • 2-Tracks (1 stereo pair) / Selectable to monitor any output pair			

LTC I/O			
• LTC Input, unbalanced	(1)	F	BNC
• LTC Output, unbalanced	(1)	F	BNC

DATA / CONTROL			
• RS422 Serial Control, Sony BVW-75 and PBUS Protocols			
- Master Port (User reconfigurable as 2nd Slave for Key Channel control)	(1)	F	9D
- Slave Port	(1)	F	9D
• VGA Output (minimum 1024x768 resolution required for NetPanel, up to 1920x1200 resolution supported)	(1)	F	15D
• Secondary Desktop outputs, consisting of the following:			
- DVI Output	(1)	F	DVI
- S-Video Output	(1)	F	S-Video
- Composite Analog Video Output	(1)	F	RCA
• 10-T/100-T/1000-T (Gigabit) Ethernet	(2)	F	RJ-45
• USB 2.0 Hi-Speed "Series A" Receptacle	(4)	F	USB-A
• QWERTY Keyboard	(1)	F	PS/2
• Mouse	(1)	F	PS/2

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