

APR • ClipStore™ MXc



VIDEO+KEY+AUDIO
STORAGE & PLAYBACK



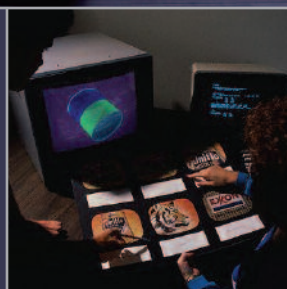
JPEG 2000
COMPRESSED HD
VIDEO+KEY



UNCOMPRESSED SD
VIDEO+KEY



10-BIT DIGITAL VIDEO
24-BIT DIGITAL AUDIO



Accom

APR/ClipStoreMXc Multi-Definition Digital Disk Recorder

With over two decades of expertise in digital video disk recording technology, Accom proudly presents the APR™/ClipStore™MXc Multi-Definition Digital Disk Recorder

APR/ClipStoreMXc represents the newest generation of digital disk recorders from Accom, utilizing state-of-the-art video/audio processing hardware combined with the very latest disk drive technology. APR/ClipStoreMXc provides maximum flexibility for combined HD/SD environments, by providing both JPEG 2000 compressed high-definition (HD) video+key and immaculate, 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 and with 48kHz sampling at 24-bit resolution.

APR/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 Accom. 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 AES/EBU digital audio features eight audio tracks and supports both discrete AES/EBU audio input/output, as well as embedded digital audio. APR/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 "movie-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 APR/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 the lowest cost is of the greatest importance:

- **Live-to-Air Broadcast Playout**
- **Editing / Post Production**
- **Animation Creation and Playout**
- **Graphics / Special Effects Playout**
- **Large Venue Presentation**
- **Media Encoding**
- **Digital Cinema**
- **Studio and Remote Broadcast**
- **Video Games Production**

MULTI FORMAT / MULTIPLE APPLICATIONS

For standard-definition video, APR/ClipStoreMXc captures video+key in both 525 and 625 line standards with flawless 10-bit uncompressed quality. For high-definition, video+key can be captured in 1920x1080 or 1280x720 resolution, with all popular frame rates supported including both interlaced and progressive frames. Whether creating or presenting animations and special effects for live broadcast, editing for television, or recording and playing clips in post production, APR/ClipStoreMXc sets the standard for reliable, high-quality performance. By a wide margin, the APR/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, APR/ClipStoreMXc employs state-of-the-art JPEG 2000 compression technology. JPEG 2000 is a new image coding system that uses compression techniques based on wavelet technology. This new form of compression provides stunning HD image quality with virtually no visible artifacts, and affords very efficient high-definition storage.

VIEWER ON YOUR DESKTOP

The NetPanel™ user interface for APR/ClipStoreMXc features a video viewer window that is integrated right into the user interface, providing a real-time video and key output right on the operator's desktop. This viewer displays the main digital video and key outputs from APR/ClipStoreMXc, which is handy when the main serial digital interface (SDI) video and key outputs are not conveniently available. This feature eliminates the need for an extra video picture monitor in many facility installations. The viewer can be switched to display either the video or key channel output from APR/ClipStoreMXc.



APR/ClipStoreMXc System

VTR DDR TRANSFERS

The APR/ClipStoreMXc disk recorder features two RS422 serial control ports that support both Sony and Louth VDCP protocols. 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 APR/ClipStoreMXc from an external edit controller. 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 APR/ClipStoreMXc to videotape for archiving or client distribution.

IMPORT / EXPORT

Don't let the attractive low cost of APR/ClipStoreMXc fool you — this machine has a feature set that will satisfy even the most demanding applications. Since APR/ClipStoreMXc is built upon the Microsoft® Windows® XP operating system, the included Import/Export utility easily interfaces APR/ClipStoreMXc with a network of graphics rendering computers and film printers without concern for proprietary file formats. This feature eliminates the need for complex transfer scripting or specialized programming skills. 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



NetPanel™ web browser based User Interface

automatically creating a movie having the same name as the image file, and inserts the frame into that movie. The remaining frames arriving in the import directory are then automatically inserted into the same movie. This import process typically runs faster than the rendering operation that's creating the image files, therefore providing a ready-to-play real-time movie immediately after rendering is finished.

On the export side of the equation, while APR/ClipStoreMXc is busy recording real-time input video into a stored movie, the Export utility can transfer individual frames from that movie (or from any other stored movie) to any computer, disk drive or film printer on the local computer network. For both import and export, 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.

ENCODE TO YOUR HEART'S CONTENT

The APR/ClipStoreMXc disk recorder also features Windows® Media 9 Series™ Encoding capability. This feature allows recorded footage to be conveniently encoded for remote delivery for a variety of needs. HD and SD digital dailies can be created, DVD content can be authored, or web video streams can be produced directly from APR/ClipStoreMXc. Customizable encoding profiles allow movies to be delivered in a range of file sizes — from ultra efficient VHS quality, up to completely uncompressed — for production review, web trailers or DVD content.

ETHERNET API

APR/ClipStoreMXc features an application programming interface (API) available through the standard Gigabit Ethernet port. This API provides the ability to control all attributes of APR/ClipStoreMXc via remote shell (rsh) and remote login (rlogin) commands, and provides image transfer capabilities via remote copy (rcp) commands. Users of the APR/ClipStoreMXc disk recorder and third-party vendors with programming skills can create user-defined applications and scripts to control all aspects of the disk recorder, including image transfer with external computer graphics equipment. This Ethernet API is built upon the same API used in an earlier Accom DDR product, WSD/2Xtreme. Applications designed for the WSD/2Xtreme will seamlessly operate on the APR/ClipStoreMXc disk recorder.

NETPANEL CONTROL

Graphics creation and effects work for live television broadcast, production and post-production require complex interactions with a collaborative, multi-user workflow. The APR/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 APR/ClipStoreMXc disk recorder, with control over the disk recorder from any of these remote workstations. NetPanel provides simple and easy machine control, movie filing and management, along with system setup and configuration. NetPanel can also run on the APR/ClipStoreMXc platform itself for stand-alone operation (user-supplied VGA monitor with at least 1280x1024 resolution is required).

REMOVABLE MEDIA DISK DRIVES

APR/ClipStoreMXc features removable media disk drives with easy access, allowing simple and fast media disk exchange between multiple APR/ClipStoreMXc recorders. With true plug-and-play operation, this feature makes APR/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.

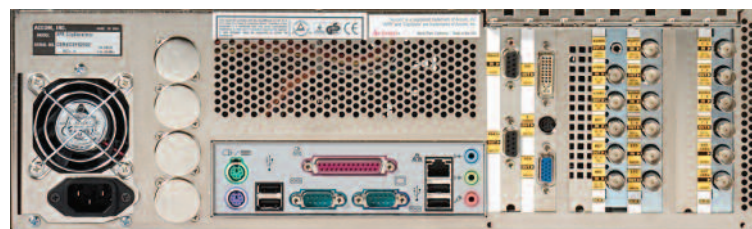


Easy and Fast Media Disk Exchange

LARGE STORAGE CAPACITIES

The APR/ClipStoreMXc system comes in two rather large storage capacities: Two Hours and Four Hours. These capacities are valid whether recording uncompressed SD or JPEG 2000 compressed HD video+key+audio.

The APR/ClipStoreMXc also provides the user with the ability to "stripe" the video and key media disk drives together into a single "video-only" volume. This operation doubles the existing video recording capacity by temporarily disabling the key channel and electronically adding the key channel disk to the video channel — all with just a few simple clicks of a mouse. For example, an APR/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: if the key channel isn't needed for a given project, then the unused key channel disk can be assigned to the video channel — providing even greater storage capacity.



APR/ClipStoreMXc Rear Panel

SPECIFICATIONS

STANDARD FEATURES

JPEG 2000 Compressed High-Definition (HD) and Uncompressed Standard-Definition (SD) Digital Disk Recorder Platform
 SDTV 10-Bit YUV 4:2:2:4 SDI Video & Key I/O (525/625)
 HDTV 10-Bit YUV 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
 Independent record/edit of each audio track
 Driver support for ASIO applications
 LTC Timecode In/Out
 VITC Timecode In/Out
 Windows XP operating system with NT File System (NTFS)
 QuickTime™ compliant movie-based storage
 NetPanel HTML/Java-2 graphical user interface with integrated viewer
 (2) RS422 ports for VTR control and edit
 (1) "10-T/100-T" and (1) "10-T/100-T/1000-T Gigabit" Ethernet Ports
 Application Programming Interface (API) including rcp, rsh and rlogin
 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
 CineAdd 3:2 pulldown playback
 Timecode Offset stored with each movie
 Poster image stored with each movie
 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 YUV
 JPEG 2000 Compression at ~200Mb/s with 10-Bit Resolution

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

Standard Definition 4:2:2 YUV
 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

COMPLIANCE

TUV (United States and Canada), BSMI, VCCI, GS Mark and CE Mark certifications
 EN-55103-01 and EN-55103-02

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

AES/EBU 48kHz at 24-bit resolution
 8-tracks (4 stereo pairs)
 Embedded in HD and SD SDI input video streams

DIGITAL AUDIO OUTPUT (4) F BNC

AES/EBU 48kHz at 24-bit resolution
 4-Tracks (4 stereo pairs)
 Embedded in HD and SD SDI output video streams

ANALOG AUDIO MONITORING OUTPUT (1) F 3.5mm

Unbalanced, line-level at 0 dBm
 2-Tracks (1 stereo pair)
 User selectable to monitor any stereo output pair

LTC I/O

LTC Input, balanced (1) F BNC
 LTC Output, balanced (1) F BNC

DATA / CONTROL

RS422 Serial Control, Sony & Louth VDCP protocols
 Master Port (1) F 9D
 Slave Port (1) F 9D
 VGA Output (minimum 1280x1024 resolution required for NetPanel, up to 1920x1200 resolution supported) (1) F 15D
 10-T/100-T Ethernet (1) F RJ-45
 10-T/100-T/1000-T (Gigabit) Ethernet (1) F RJ-45
 USB 2.0 Hi-Speed "Series A" Receptacle (3) F USB-A
 QWERTY Keyboard (1) F PS/2
 Mouse (1) F PS/2

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)



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