GVS9000 2XU 444 VTR Rugged Digital Film Recorder

The GVS9000 2XU 444 VTR Rugged Digital Film Recorder delivers high quality film record and playback for field and studio settings in a convenient and cost-effective package. GVS 2XU 444 combines dual video channels, Fibre Channel, and Gigabit Ethernet connectivity with hardware level secure RAID storage in a compact 2U rack space.

Uncompressed RAW Recorder and Playback

2K, 4:4:4, 4:2:2 HD

By leveraging the GVS9000 architecture, the 2XU 444 VTR is immediately deployable with GVS Video Tools productivity software for ingest, slow-mo 1%-10K% playback frame, and the ability to offer RAW Uncompressed Playback during Recording. Built for film, like the 9000 line of media servers, 2XU 444 VTR is optimized to satisfy the demanding reliability and performance requirements of film operations.

GVS 2XU 444 system is engineered to satisfy the highly focused needs of the film industry. Unlike regular tape decks, the 2XU 444 captures the RAW data from dual HD SDI interface to provide users with utmost image quality. The 2XU 444 can also playback these images. And because raw data images are quite large, the 2XU offers a Live duplication option for off-site storage. Removable Solid State Disk (SSD) for media and configuration.

GVS9000 2XU 444 VTR includes:
- Simultaneous ingest and video-out
- formats (525i/p, 625i, 720p, 1080i/p 2048x1556,4:2:2, 4:4:4 and 2K)
- HD and SD SDI (ingest and playback)
- Analog SD and HD out, YPbPr, RGB
- HD 720p, 1080i, 1080p and 2K HSDL Audio/Video
- SD to HD or HD to SD Up and Down conversion
- 9 Pin machine control (RS-422)
- Audio LTC capture - Genlock In/Out
- 8 AES/EBU audio Input/Output
- VDCP automation control (opt)
- Supports full bandwidth RAW uncompressed 4:4:4
- Advanced Scheduling
- Integrated video media browser (VMB)
- DPX, QuickTime, MXF, and DNxHD (ingest and playback)
- Captures and plays back uncompressed 10-bit digital video, 96-bit digital audio in standard and high definition (SMPTE 259/292/296/383M/384M/386M, and 2019)
- RS422, TCP/IP, VDCP, Remote Network Control
- Hardware RAID Real-Time Backup Media
- Fibre Channel Storage GVSAN

2XU VTR–rugged, yet extremely quiet solution for recording studios

The GVS9000 2XU 444 includes 4 internal hot-swappable enterprise-class SAS disk drives for content storage, local internal ingest and playout. It supports dual channels of 10-bit Uncompressed RAW HD for the high-definition video I/O at up to 2,800 Mbps, or standard-definition video I/O at up to 100 Mbps, while at the same time handling IP-based file transfer traffic in and out of the system. Video I/O modules and redundant power supplies are also hot-swappable providing uninterrupted operation in the field or studio.

Video Format Flexibility: GVS 2XU 444 VTR provides mounting space and power for up to twelve independent I/O modules, which provide video encoding and decoding. GVS 2XU 444 I/O modules currently include a dual channel HD/SD SDI input and output channels. There are mixed format, mixing HD and SD modules, and selection or change at any given time during recording for master or copy.

The use of Fibre Channel RAID storage ensures that the system continues to operate at the speed of 3Gbit/sec., even in the event of the simultaneous failure of any number of the disk drives. In addition, the 2XU 444 VTR offers Dual Fibre Channel connectivity allowing media transfer of 4Gbit or 8Gbit/sec Fibre speed as well as connectivity to a standard SAN storage. The Nomadic1U 12xPro offers an optional 12 external SSD drives.

Having the Dual Fibre Channel provides flexibility for broadcast and video production studios, allowing ingested content to be stored in a centralized location without having to move data in between media servers. This allows for greater productivity and reliability.

Another key feature of the 2XU 444 VTR is the ability to edit during ingest, allowing editors to be extremely productive. For example during live events, or D5 tape the content can be edited in real time without the need to stop camera or tape deck.

Compatibility: GVS 90002XU 444 VTR is designed with the latest technology of the 9000 family product line but uses the same time-proven, robust code base as GVS9000 VTR Product and works out of the box with a large number of 3rd party applications supported by other 9000 systems, including automation, editors, archiving systems, and GVS Application Tools.

Dual Gigabit Ethernet connectivity for asynchronous playback in 2K in digital cinema with direct attaching to 2K projector, or file transfer and support of FTP, SMB and the Apple® File Sharing Protocol, provide simple, standardized file movement techniques for your production.

By delivering this high level of performance in a fully integrated VTR, GVS 2XU 444 establishes a new line of compact, highest quality, versatile, professional grade, multi-channel Digital Recorder.

Shoot 4K with RED Camera, record the monitor output directly to 2XU 444 HD SDI port and output to HD display in uncompressed 720p/1080p. You can then copy the same shot from RED Camera .r3d files to 2XU 444 RAID drive. Import REDCODE "h" resolution QuickTime proxy file, remotely from Mac or PC laptop and you can execute FinalCut Pro, Edit REDCODE media at 2K resolution 2048x1024 or HD 1080PsF display or projector with crop mark selection.

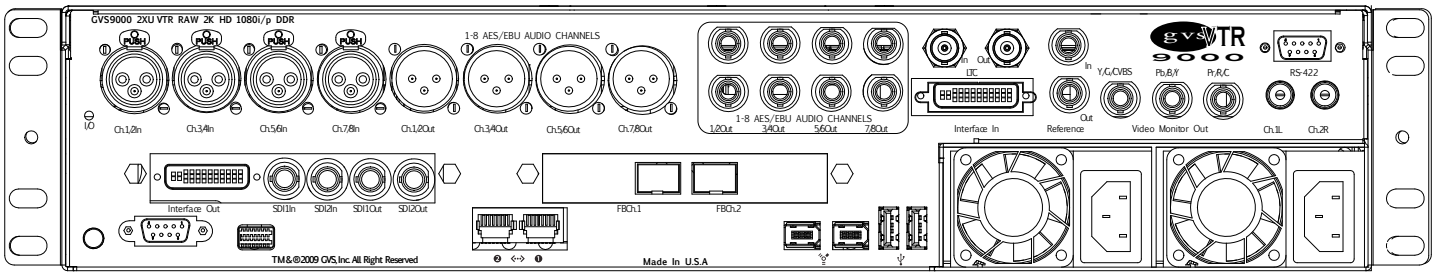
Other Features:

GPIB Trigger • Crash record and Deck control • Scheduled Record • Playlist Scheduling • Advanced Disk Search • Master Slave Link • Simple expansion or removal of internal storage • rugged Field approved unit • Video Media Server • 100% 9000 compatibility • Robust, well-proven architecture • Compact physical size • Playback During Record • Proxy File During Record • Slow-Mo Playback

Find More Online www.GVS.com/

Part Number	Model Number	HDMI Option	HD SDI In/Out Port	42:2 4:4:4 i/p Support	2K Support	SDI Audio I/O	Hot-Swap Drive	Max Storage	SAN Support
GM2X444X1209	2XUVTR-444S	No	2/2	Yes	Yes	16	SAS	6.0TB	Yes
GM2X444X1121	2XUVTR-444H	Yes	2/2	Yes	Yes	16	SAS	6.0TB	Yes

GVS9000 2XU 444 VTR technical specifications



Absolute Max Shuttle Speed
Real time speed

HD Out Sync
Special settings are designed for each of your output sources, from HD to DV with sync options.

9-Pin
9000 2XU can be controlled via 9-Pin and can control tape desk with 100% compatibility .

Force Lock To Sound Time base (LTC)
This function ensures that timebase is selected from the specific source during capture.

Full Screen On
Ability to have full video source on LCD.

MTC Stop Overshoot Correct Frames
Automatically plays when the time code starts and stops.

MTC overrides Video Hardware timestamp
Allows for manual entry of the time code track during recording via MTC through LTC (BNC) .

9-pin ID
GVS9000 2XU 444 VTR identify itself as a VTR.

9-Pin Preferences
Maintaining perfectly drift-free playback at all times even at 2K 2048x1556 23.98 or 24PsF

Operational Performance
Rec/Play time per 4,000 GB uncompressed HD 1080P 23.98 10-bit (~5.5 hours)

PreRoll Movie
Automatically pre-cache data and ready to start playback instantly.

Preview During Capture
From SDI input SD or HD as well as video output can be preview on Flypack SDI LCD or external SDI

Downstream Keyer
Output graphics with alpha channel over video, matte or frame buffer, or content over frame buffer on incoming video or matt.

Reference Input

Color Black or Tri-level sync with custom design calibration for custom pattern playback

Standard Sync

Programmed to chase an external time code source.

Superimpose Graphics On Picture
Foley/ADR recording is for superimposing graphics.

Sync Tolerance Frames
Video Head Disengage Threshold allows playback of picture at slower, and faster than real time.

Video Modes Input SMPTE-259M/292/296:
- Rec/Play time Play visually lossless with
- 2K, HD SDI, SD SDI
- 2048x1556PsF 23.98 and 24 PB
- 2048x1080PsF 23.98 and 24
- 2048x1080P 23.98 and 24
- HD 1920x1080 1080i/p
- SD D1 720x486 720p
- SD D1 720x576 625i 525i

Video Modes Output:
- Two HD and SD SDI output
- Link 4:2:2 (YUV) I/O 2x SDI/HD-SDI outputs one for HD and 2nd SDI for 4:4:4 and 2K

Analog: SD and HD Output, 12-bits, BNC:
- HD: YPbPr, RGB
- SD: YPbPr, RGB (component mode)
- Composite with Y/C simultaneous output

Uncompressed Pixel Formats:
- 12/10/8 bit YUV/RGB
- DPX, QuickTime, MXF, and Cineon support- HD to 2K resolution

525i 23.98, 29.97 625i 25

720p 50 720p 59.94 720p 60

1080i 25 1080i 29.97 1080i 30 1080PsF 23.98 1080PsF 24

1080P 23.98 1080P 24 1080P 25 1080P29.97 1080P 30 1080P 50 1080P 59.94 1080P 60

2048x1080P 23.98 2048x1080P 24 2048x1080PsF 23.98 2048x1080PsF 24 2048x1556PsF 14.98 & 15 (High Speed Data Link) 2048x1556PsF 23.98 PB 2048x1556PsF 24 (playback rate)

Hardware Up-Conversion During Recording
Hardware 10-bit full-screen Pillar box 4:3 w/ black sidebars

Zoom 14:9 result in 4:3 image fill 14:9 image w/black line

Zoom Letterbox result image to fill full screen
Zoom Wide result in stretch fill 16:9 screen

Hardware Down-Conversion During Recording
Hardware 10-bit Anamorphic full-screen

Letterbox image is reduced w/black top/bottom
Crop image is cropped to fit screen size

Cross-Conversion During Recording
Hardware 10-bit 1080i to 720P, 720p to 1080i and 720P 1080PsF

Audio:
- Quantization: 16-bit, 20-bit, 24-bit selectable
- 16 channels SDI BNC audio
- 8 channels of AES/EBU XLR and BNC audio 96kHz or 48Kh 16-bit capable
- Real-time SD to SD, SD 4:3 to HD 16:9

Genlock:
- Analog: SD: Black Burst, Bi-Level; HD: Tri-Level
- Digital: SD SDI; HD : HD-SDI, QuLink BNC I/O

Storage:
- 4.0TB (N3-Option) Onboard storage raw Usable Space of 6 hrs of Uncompressed 1080PSF 10-bit or
- 4x Removable RAID Media Sets 3.0TB usable Max internal store with Fibre Channel Interface 4.5TB with 1.5TB Cold Spare.
- 2TB (N5-Option) Solid State Disk Drive (SSD)

Play Control:
- Dual 10/100/1000BT Network for small file
- RS-422: D-sub 9-pin machine control
- RS-232: 3-sub 9-pin
- Dual FireWire 800

One Option can be selected from following I/O:
- Option-A Dual 4GB Fibre Channel I/O
- Option-A1 Dual 8GB Fibre Channel I/O
- Option-B Quad Gigabit Channel I/O
- Option-B2 10Gigabit Channel I/O

Air Filter For Out-Door Environment:
- Ext Low EMI, Low Noise, High Dust, Sand Storm

Electrical and environmental requirements:
- Meets ENERGY STAR requirements
- Line voltage: 750W 100-120V AC or 200-240V AC
- Frequency: 50Hz to 60Hz, single phase
- Maximum current: 8.0A (low-voltage range) or 4.0A (high-voltage range)
- Operating temperature: 50° to 95°F (10° to 35°C)
- Storage temperature: -40° to 116°F (-40° to 47°C)
- Relative humidity: 5% to 95% noncondensing
- Maximum altitude: 10,000 feet

Size and weight:
- Height: 3.4 inches (83 mm)
- Width: 17.0 inches (416mm)
- Rack Depth: 21.00 inches/(512mm)
- Weight: 37.2 pounds (16.90 kg), fully configured

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GRANDE VITESSE

GVS Authorized Partner:

GVS9000 2XU 422 VTR Integrated Media Server

The GVS9000 2XU 422 VTR integrated media server delivers the highest broadcast quality video with mission-critical reliability in a convenient and cost-effective package. GVS 2XU 422 combines single video channels, Fibre Channel, and Gigabit Ethernet connectivity with hardware level secure RAID storage in a compact 2U rack space.

Uncompressed Capacity:

12 hrs. 4:2:2 HD

By leveraging the GVS9000 architecture, the 2XU 422 VTR is immediately deployable with GVS Video Tools productivity software for ingest, playout, and delay serving, 1%-10K% playback frame, and over a hundred third-party automation and production applications. Built for Broadcast like the 9000 line of media servers, 2XU 422 VTR is optimized to satisfy the demanding reliability and performance requirements of broadcast operations.

Unlike media servers that rely on PC computing platforms and operating systems such as Windows, the GVS 2XU 422 system is engineered to satisfy the highly focused needs of the broadcast industry, rather than general-purpose computing. For example, the operating system resides in removable Solid State Disk (SSD) memory ensuring rapid boot up and eliminating the risks associated with system drive failures, and provides security to RAW content.

GVS9000 2XU 422 VTR includes:
- Simultaneous ingest and video-out
- Video formats (525i/p, 720p, and 1080i/p)
- HD and SD SDI (ingest and playback)
- Analog SD and HD out, YPbPr, RGB
- HD (720p, 1080i, 1080p 1080Psf) Audio/Video
- HD to SD Done conversion
- 9 Pin machine control (RS-422)
- Audio LTC capture - Genlock In/Out
- 2 AES/EBU audio Input/Output
- VDCP automation control (opt)
- Supports full bandwidth RAW uncompressed 4:2:2P
- Advanced Scheduling
- Integrated video media browser (VMB)
- QuickTime, IMX, and DPX (ingest and play-back)
- Captures and plays back uncompressed 10-bit digital video, 96-bit digital audio in standard and high definition (SMPTE 259/292/296/)
- Remote Network Control
- Hardware RAID
- Fibre Channel Storage GVSAN

2XU VTR–rugged, yet extremely quiet solution for recording studios

The GVS9000 2XU 422 includes 4 internal hot-swappable enterprise-class SATAII disk drives for content storage, local internal ingest and playback. It supports single channels of 10-bit Uncompressed RAW HD for the high-definition video I/O at up to 1,400 Mbps, or standard-definition video I/O at up to 100 Mbps, while at the same time handling IP-based file transfer traffic in and out of the system. Video I/O modules and redundant power supplies are also hot-swappable providing uninterrupted operation.

Video Format Flexibility: GVS 2XU 422 VTR provides mounting space and power for up to twelve independent I/O modules, which provide video encoding and decoding. GVS 2XU 422 I/O modules currently include a one channel HD/SD SDI unit and two HD/SD SDI output channel. There are a variety of combinations of I/O modules allowing any of the server types of HD/SD ingest and playback, mixed format, mixing HD and SD modules, and selection or change at any given time during the operation without down time.

The use of Fibre Channel RAID6 storage ensures that the system continues to operate at the speed of 3Gbit/sec., even in the event of the simultaneous failure of any number of the disk drives. In addition, the 2XU422 VTR offers Dual Fibre Channel connectivity allowing media transfer of 4Gbit/sec Fibre speed as well as connectivity to a standard SAN storage. The 1XU 12xPro offers an optional 12 external drives.

Having the Dual Fibre Channel provides flexibility for broadcast and video production studios, allowing ingested content to be stored in a centralized location without having to move data in between media servers. This allows for greater productivity and reliability, while also offering extreme cost savings.

Another key feature of the 2XU 422 VTR is the ability to edit during ingest, allowing editors to be extremely productive. For example during live events, since the content is being edited in real time, you always have access to the latest material.

Other Features:

GPIB Trigger • Crash record and Deck control • Scheduled Record • Playlist Scheduling • Advanced Disk Search • Master Slave Link • Simple expansion or removal of internal storage • rugged Field approved unit • Video Media Server • 100% 9000 compatibility • Robust, well-proven architecture • Compact physical size

Compatibility: GVS 90002XU 422 VTR is designed with the latest technology of the 9000 family product line but uses the same time-proven, robust code base as GVS9000 VTR Product and works out of the box with a large number of 3rd party applications supported by other 9000 systems, including automation, editors, archiving systems, and GVS Application Tools.

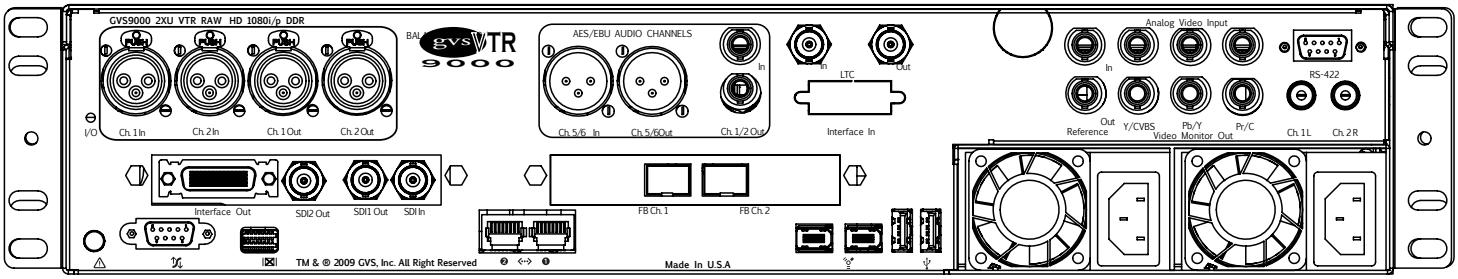
Dual Gigabit Ethernet connectivity for asynchronous playback or file transfer and support of FTP, SMB and the Apple® File Sharing Protocol, provide simple, standardized file movement techniques for all your MPEG and web streaming projects or areas in production that don't have Fibre access. Even the smallest broadcast and programming operations can implement the server-based ingest and playout operations or sophisticated file-based workflows in RAW Uncompressed or a broad range of compressed video formats.

By delivering this high level of performance in a fully integrated system, GVS 2XU 422 establishes a new line of compact, highest quality, versatile, professional grade, multi-channel media servers.

Find More Online www.GVS.com/2XU422VTR.html

Part Number	Model Number	HDMI Option	HD SDI In/Out Port	HD 4:2:2i/p Support	RAW HD Support	SDI Audio I/O	Hot-Swap Drive	Max Storage	SAN Support
GM2X422X1209	2XUVTR-422S	No	1/2	Yes	Yes	8	SATAII	6.0TB	Yes
GM2X422X1121	2XUVTR-422H	Yes	1/1	Yes	Yes	8	SATAII	6.0TB	Yes

GVS9000 2XU 422 VTR technical specifications



Absolute Max Shuttle Speed
Real time speed

HD Out Sync
Special settings are designed for each of your output sources, from HD to DV with sync options.

9-Pin
9-pin video deck compatibility to ensure 100% compatibility.

Force Lock To Sound Time base (LTC)
This function ensures that timebase is selected from the specific source during capture.

Full Screen On
Ability to have full video source on LCD.

MTC Stop Overshoot Correct Frames
Automatically plays when the time code starts and stops.

MTC overrides Video Hardware timestamp
Allows for manual entry of the time code track during recording via MTC through LTC (BNC) .

9-pin ID
GVS9000 2XU 422 VTR identify itself as a VTR.

9-Pin Preferences
Maintaining perfectly drift-free playback at all times.

Operational Performance
- Rec/Play time per 6,000 GB uncompressed HD 1080Psf 23.98 10-bit (~12 hours)
- SD 10-bit (~60 hours)

(Storage estimates based on real-world recording tests. Exact storage results vary depending on content, source quality, frame rate, and image settings.)

PreRoll Movie
Automatically pre-cache data and ready to start playback instantly.

Preview During Capture
From SDI input SD or HD as well as video output can be preview on Flypack SDI LCD or external SDI

Standard Sync
Programmed to chase an external time code source.

Superimpose Graphics On Picture
Foley and ADR recording is for superimposing graphics.

Sync Tolerance Frames
Video Head Disengage Threshold allows playback of picture at slower, and faster than real time.

GVS9000 2XU 422 VTR Specifications:

Video Modes Input SMPTE-259/292/296:
- Rec/Play time Play visually lossless with
- HD SDI, SD SDI
- HD 1920x1080 1080i/p
- SD D1 720x486 720p
- SD D1 720x576 625i 525i

Video Modes Output:
- Two HD and SD SDI output
- Two Link 4:2:2 (YUV) I/O 2x SDI/HD-SDI outputs one for HD and 2nd SDI for SD down-converter

Analog: SD and HD Output, 12-bits, BNC:
- HD: YPbPr, RGB
- SD: YPbPr, RGB (component mode)
- Composite or S-Video input/output)

Uncompressed Pixel Formats:
- 12/10/8 bit YUV/RGB
- QuickTime, MXF, Cineon and DPX support- HD resolution ProRes 422

525i 29.97 625i 25

720p 50 720p 59.94 720p 60

1080i 25 1080i 29.97 1080i 30 1080PsF 23.98 1080PsF 24 1080P 24 1080P 25 1080P 30

- Down-Convertion Real-time HD to SD

Audio:
- Quantization: 16-bit, 20-bit, 24-bit selectable
- 8 channels SDI BNC audio
- 2 channels of AES/EBU XLR audio 48Khzsynchronous
- Real-time SD to SD, SD 4:3 to HD 16:9

Genlock:
- Analog: SD: Black Burst, Bi-Level; HD: Tri-Level
- Digital: SD SDI; HD : HD-SDI, QuLink BNC I/O

Storage:
- 4.0TB (N3-Option) Onboard storage raw Usable Space of 6 hrs of Uncompressed 1080PSF 10-bit or
- 4x Removable RAID Media Sets 3.0TB usable Max internal store with Fibre Channel Interface 4.5TB with 1.5TB Cold Spare.
- 6.5TB (N4-Option) Option with row usable space

Play Control:
- Dual 10/100/1000BT Network for small file
- RS-422: D-sub 9-pin machine control
- RS-232: 3-sub 9-pin
- Dual FireWire 800

One Option can be selected from following I/O:
- Option-A Dual 4GB Fibre Channel I/O
- Option-B Quad Gigabit Channel I/O

Electrical and environmental requirements:
- Meets ENERGY STAR requirements
- Line voltage: 650W 100-120V AC or 200-240V AC
- Frequency: 50Hz to 60Hz, single phase
- Maximum current: 8.0A (low-voltage range) or 4.0A (high-voltage range)
- Operating temperature: 50° to 95°F (10° to 35°C)
- Storage temperature: -40° to 116°F (-40° to 47°C)
- Relative humidity: 5% to 95% noncondensing
- Maximum altitude: 10,000 feet

Size and weight:
- Height: 3.4 inches (83 mm)
- Width: 17.0 inches (416mm)
- Rack Depth: 21.00 inches/(512mm)
- Weight: 37.2 pounds (16.90 kg), fully configured

Product specifications are subject to change without notice.

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GRANDE VITESSE

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