

# Sledgehammer™ NAS

Shared storage for digital content creation

As an enterprise-level, high-performance file server, Sledgehammer NAS delivers maximum throughput at the lowest cost-per-megabyte-per-second.

Sledgehammer NAS increases flexibility and efficiency of the storage and network infrastructure of any facility:

- Satisfies the media I/O demands of the hungriest rendering clusters
- Supports editing and effects workgroups for any type of network client
- Provides simplified system administration with MAXmin™
- Includes the MAXmedia™ Offline application for media management, conversion and editing

The combination of MAXmedia Offline and MAXmin with Sledgehammer's enterprise class hardware provides you with a true "digital media appliance"—a perfect storage and infrastructure solution for any broadcast and post-production facility.



## High-Performance

- Access gigabyte to terabyte-sized files in seconds. Using Gigabit and 10 Gigabit Ethernet technology, Sledgehammer NAS provides an aggregate network throughput exceeding 500–700+ MB/s
- Allocate guaranteed network bandwidth for dedicated clients

## Connectivity

- Access media files on the Sledgehammer from any type of network client. Using industry standard protocols (NFS, CIFS, Apple Talk®, FTP, and others), Sledgehammer provides concurrent access from heterogeneous network clients (UNIX, Windows, Mac OS, Linux)

## Reliability

- Sledgehammer systems minimize downtime and include: hardware RAID 5 data protection; redundant power supplies; hot swap removable controllers, disks, power supplies, cooling fans, and cache batteries.

## High-Availability

- MAXmirror option provides a pair of fully redundant servers configured to provide uninterrupted access to data in mission-critical environments, such as live on-air broadcasts
- SOS option (Second-Online-Server) provides automatic NAS head failover for uninterrupted access to data

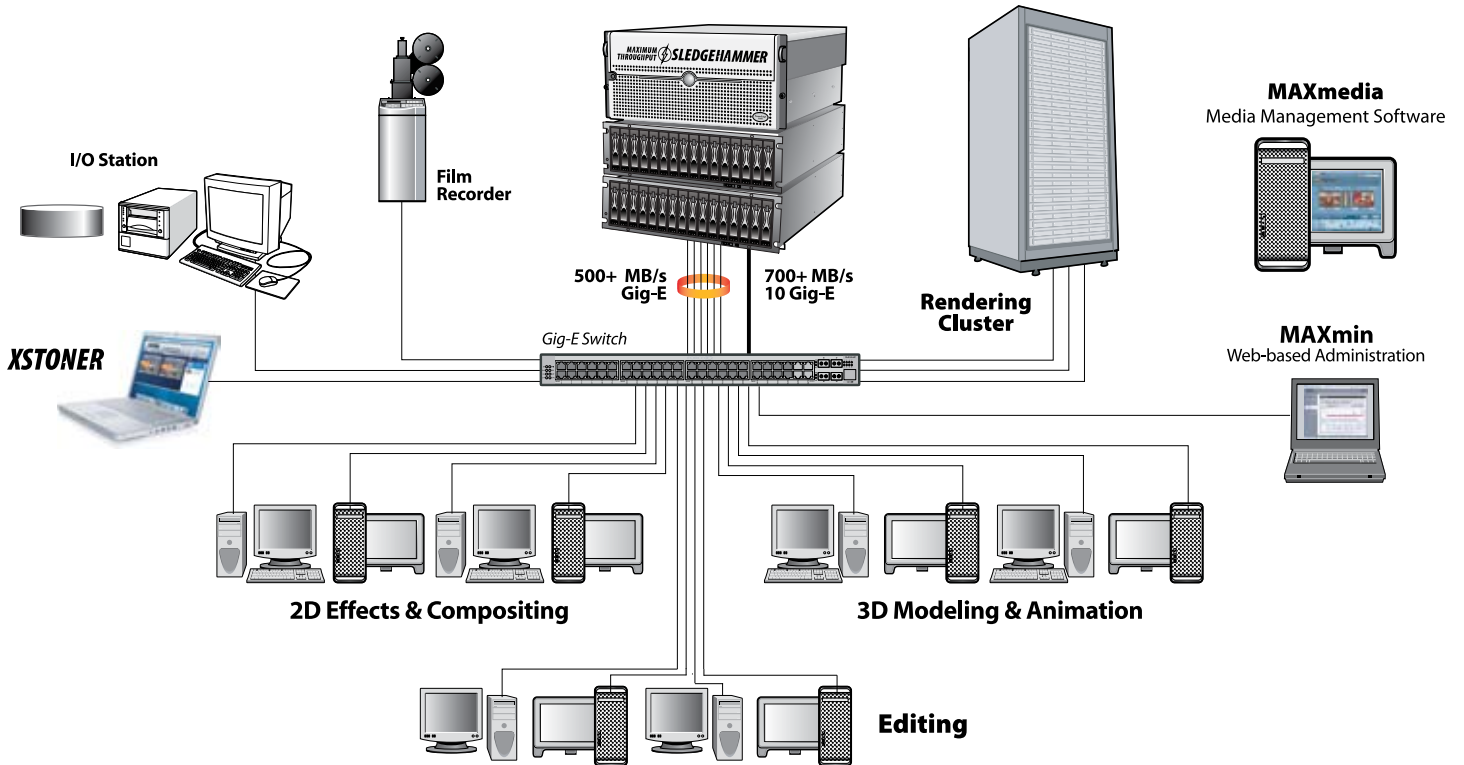
## System Administration with MAXmin

- Configure, operate, monitor, and updated your Sledgehammer via MAXmin—Sledgehammer's browser-based system administration tool. Easily configure and update user accounts, authentication parameters, network mapping, storage, and high-availability configurations
- Graphical view of system and network performance allow you to quickly locate and identify bottlenecks and component failures with your system

## Digital Media Management with MAXmedia Offline

- Browse, search, copy, move, rename large image sequence clips
- Timeline assembly and real-time playback of mixed resolution (SD, HD, 2K, 4K) multi-format uncompressed sequences (DPX, TGA, SGI, CIN, TIFF, etc.) and compressed movie formats (MXF-based and MPEG)
- Convert clips and timelines to uncompressed image formats and compressed movie formats (MPEG and MXF-based)
- Enhanced segment editor with support for LUT editing and processing, including pan, scan, cropping, letterbox, pillarbox
- Organize media renaming and conversion jobs using the Task Manager

## Digital Content Creation Workflow with Sledgehammer NAS



### Easy Upgrade Path to Sledgehammer HD!O

Sledgehammer NAS systems can easily be upgraded to Sledgehammer HD!O (SD, HD, and 2K film resolutions) for the real-time capture of uncompressed SD or HD video at either 8-bit, 10-bit, 12-bit color depth. Using the MAXmedia Online browser-based interface, all operations are timeline based and are EDL-compatible. Once saved, timelines simply appear as any other clip on the system.

With MAXmedia Online, an external device such as a VTR can be controlled for real-time input or output of media. A timeline of clip segments can be created and controlled via external RS-422 interface. In output mode, multiple clips up to 4K 10-bit log can be played out in real-time. When acting as a digital disk recorder (DDR), Sledgehammer can be controlled by any SONY Protocol compliant device, and can also supply play/record for real-time color grading systems.

### MAXmedia for Digital Media Management

MAXmedia is Maximum Throughput's Java browser-based digital media management application. It is designed to simplify the data handling tasks of colorists, editors, visual-effects artists, and data operators.

MAXmedia includes *Offline* and *Online* modes.

- **MAXmedia Offline**, available on all Sledgehammer systems, provides timeline and quick editing functionality, format conversions, clip browsing, naming, and moving. Estimated processing times are adjusted dynamically based on overall system loads.
- **MAXmedia Online**, included with Sledgehammer HD!O, provides the ability to capture directly to or output from an EDL-compatible timeline, which can be shared among users—a workflow enhancement pioneered by Maximum Throughput.

### Specifications

#### GENERAL

Throughput	500–700+MB/s sustained over TCP/IP
Storage Capacity	2 TB expandable to 64TB
Protocols Supported	NFS 2/3/4 (UDP and TCP/IP), CIFS, AppleTalk, FTP, Telnet, HTTP, SNMP, NTP
IT Connectivity	Gigabit Ethernet (six bonded interfaces), 10 Gigabit Ethernet, Infiniband, IEEE 1394/1394b, USB 2.0

#### STORAGE PROCESSOR

Form Factor	5U rack mount
Processors	Dual Intel Dual Core Xeon 3.0 GHz processor(s)
Memory	4 GB DDR-2 667 SDRAM
Network Interface	Six-port Gigabit Ethernet Adapter, 10 GigE, Infiniband
Storage Interface	Internal or quad-port 4 Gb FC Host Bus Adapter
Systems Management	MAXmin utility or SSH
Power Supply	930 W redundant power

#### STORAGE CONTROLLER

Disk Technologies	FC, SAS, and SATA based configurations
Form Factor	2U or 3U rack mount
Capacity	Different configurations based on disk technology
RAID Controllers	Dual controllers
Cache	512 MB per controller
Power Supply	Redundant 450W AC power supply/cooling module

# MAXmedia Offline

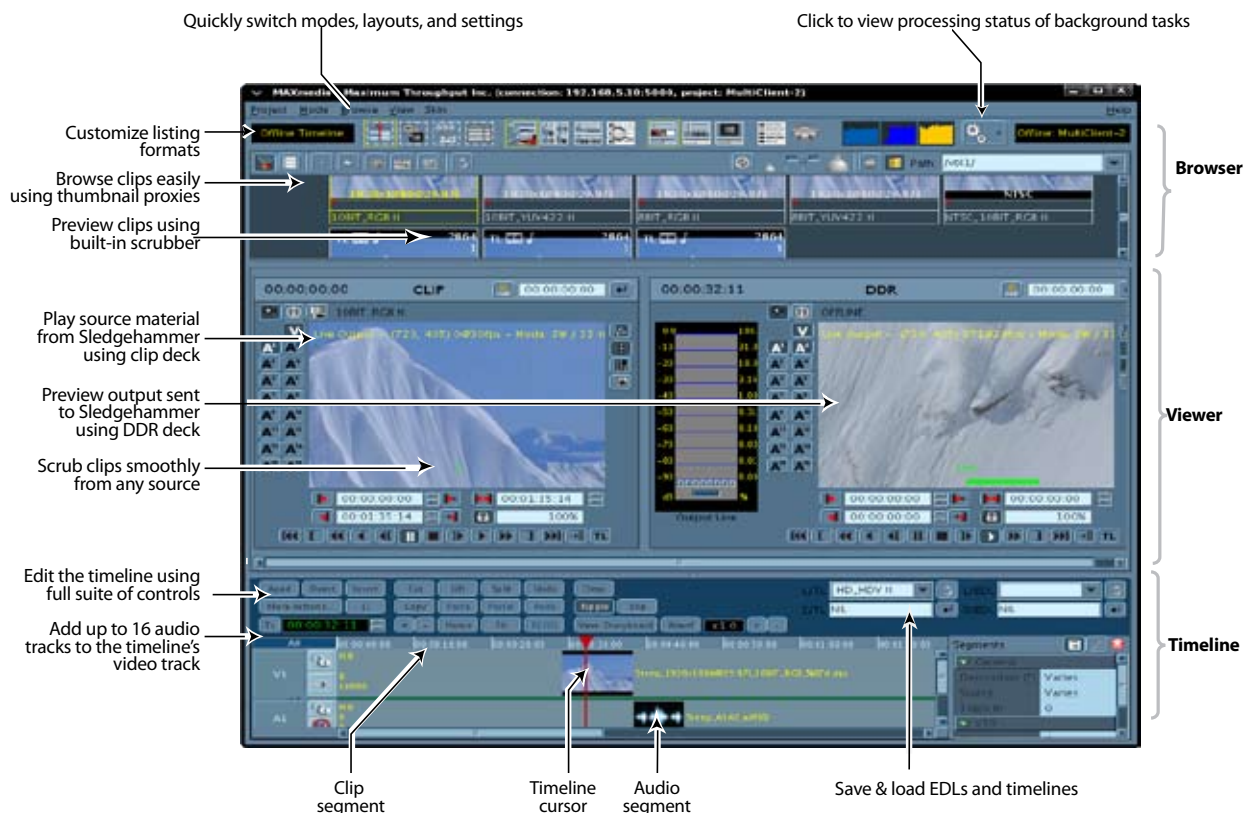
Media management software extends the capabilities for Sledgehammer™

MAXmedia Offline is a digital media management application designed for colorists, editors, and visual effects artists who need fast, shared access to video and audio material for shot assembly, media file management, and image conversion. MAXmedia takes advantage of Sledgehammer's high-end file storage and processing abilities to let you:

- Browse scrubbable, thumbnail-based images of clips on your sledgehammer
- Play back clips at any resolution up to 4K
- Lay out material on a timeline track, and store it in Sledgehammer for later output
- Convert clips to different resolutions, perform pan and scan reformatting, crop image areas, perform 2:3 pulldown removal or insertion, and apply LUTs

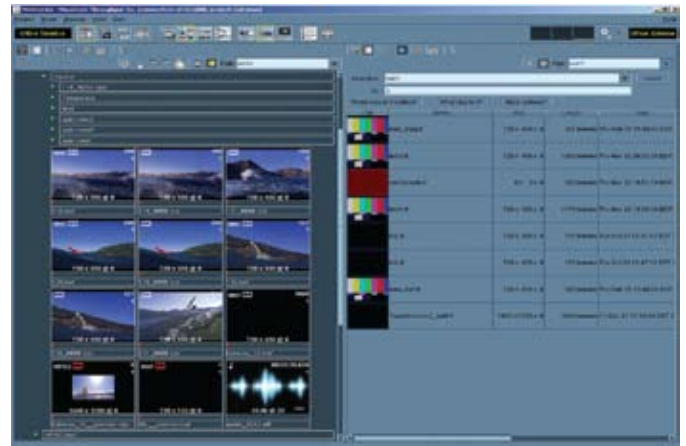
With MAXmedia Offline, you and others on your network can work on source material without interfering with one another. Because all material is stored as image files directly on the Sledgehammer, there is no need to load tape or connect to an external source.

- Assemble shots and organize clips using a multi-resolution, multi-format timeline by dragging material from the browser, or by selecting material defined in an EDL
- Organize the clip conversion and renaming tasks into batch jobs using the Task Manager
- Timeline information is saved as a timeline file and can be retrieved at any time for later use
- Timelines can be converted to EDL for conforming in 3rd party applications
- Search media files stored in Sledgehammer with advanced criteria
- Generate proxies for 3rd party editing, compositing, color grading systems directly on Sledgehammer, while continuing billable work on your advanced systems
- Generate low-resolution versions of progressive or interlaced source material to quickly access media on the digital grading system and reduce the amount of network traffic
- Convert source clips and timelines into uncompressed sequences (DPX, TGA, SGI, CIN, TIFF, etc.), compressed movie formats (MPEG and MXF-based), and audio files



## Media Management and Processing

- Multiple users from multiple client workstations can perform offline operations at the same time
- Project-based workflow and content organization tools includes a clip/file browser with fast media access and sorting
- Save and load renaming and conversion jobs in the Task Manager for background processing
- Streaming video playback through the MAXmedia browser interface
- All clip assembly operations and metadata information are saved in a virtual timeline file that can be reloaded for further manipulation, played back, or rendered to storage
- Advanced search criteria helps locate clips in large clip libraries
- Trash can provides a safety net when deleting media from your project folders



## Timeline Media Assembly

- Timeline assembly and real-time playback of mixed resolution (SD, HD, 2K, 4K) multi-format uncompressed sequences (DPX, TGA, SGI, CIN, TIFF, etc.) and compressed movie formats (MPEG and MXF-based)
- Frame-accurate, multi-user timeline editing and preview support in offline mode for image sequence editing
- Timeline assembly operations include, drag and drop clips, single or multiple track selection, zooming control, cut-to-cut frame seeking for fast navigation
- Match frame to display the current timeline frame in the clip browser
- Multiple undo/redo of all timeline operations
- Trim using optional ripple and slip segment adjustments with real-time preview
- Display audio track waveforms
- Timelines are compatible with Maximum Throughput Xstorer™ software, enabling multi-clip transfer to Autodesk™ Media and Entertainment systems, and publishing into multi-platform formats (AVI, QuickTime™, etc.)
- EDL import, conform of standard formats such as CMX 3600, and support for vendor-specific formats such as Autodesk Media & Entertainment DLEDL; import EDL and LUT files to your project from local workstations
- Standard EDL export for online assembly of multiple shots



## Media Conversion

- Server-based image processing (background operation): spatial (resolution) up/down conversion with free or locked aspect ratios for conversion between different video standards
- Server-based image format conversion (background operation). Supported file formats include: TIFF, SGI, TGA, DPX, CIN, PNG, BMP, JPEG, IFF, PSD, GIF, MXF, and MPEG
- Input formats can also be compressed formats: RLE, JPEG, ZIP, LZW
- Conversion tools for resizing and reformatting including pan, scan, cropping, letterbox, pillarbox, as well as LUT editing and processing
- Full LUT editor with support for user-defined LUT and independent editing of R, G, B channels. LUT can be applied on the fly or as a batch operation
- Format and raster conversion (2K @ 24fps to 1080i, 720p to 480p), and 2:3 insert/remove with support for automatic phase detection

