

# SL NEO 7000 Servers

## Instant Replay and Slow Motion

▶ The best Instant Replay Solution for Live Sports Production !

▶ Up to 16x HD Recorder Ports & Up to 2x Workplaces

▶ SDI/HDMI/IP I/O Ports, build-in MultiScreen Output with Preview

▶ Affordable, Reliable, Fast and Easy to use



Multi-Channel Recording and Instant Replays with smooth speed adjustment, fast editing and playback of highlights, events, promos and commercials as part of the main process.

Designed especially for Live Sports Productions! The use of professional JL Cooper Controllers guarantees fast and comfortable work of operators.

## Main Features

### Capture & Ingest

Up to 16x HD and 4x UHD Recorders in one SL NEO 7000 Server Platform.

Scale-up to 12x UHD or HFR UHD Recorders stacking the server nodes.

Program and MultiScreen Output with Preview for every Workplace. Up to 2x Workplaces for one SL NEO 7000 Server. Uninterrupted Synchronous Recording in the Growing File Mode.

The Materials is available for Replay & Editing a second after the recording starts.

### All operations from a Professional Controller

Start/Stop Recording, Switching from Live to Replay mode Instantly. Customizable Multiviewer puts all inputs, outputs and information on one screen.

Editing I/O Points and replay of the highlights with smooth speed adjustment.

The SloMo Elite Professional Controller from JL Cooper Electronics is included. Up to 2x Workplaces and up to 2x Conrollers for one SL NEO 7000 Server.



### Features

Non-stop recording during the whole event, Immediate switching to Slow Motion playback Mode.

Easily control of Server functionality with one or two Jog/Shuttle Replay Controllers: select replay input, replay programming, smooth speed adjustment from -200% to +200%, up to frame-accurate playback.

Markup and real-time clip base creation, fast editing, preview and playback of highlights.

Operations are provided from the controller, with the possibility of using a workstation with client software.

SL NEO 7000 Servers can also be a convenient tool for the analysis of controversial moments by referee.

The Basic Software Package includes the Transfer Manager Lite for automatic File Transfer to/from NLE stations, broadcast zone and archives.

### Basic Operating Modes

**Live Mode** allows the operator to work with the Record Tray to playback replays in real time and set markers for future use of materials.

**Preview Mode** allows to prepare new segments for repeats at the same time as the current replay.

**Playlist Mode** allows to create, edit and execute playlists. The mode is useful for creating a clip with highlights.

### Program, Preview and MultiScreen Outputs

**Program Output** is the main output of the system, which enables playback of prepared replays.

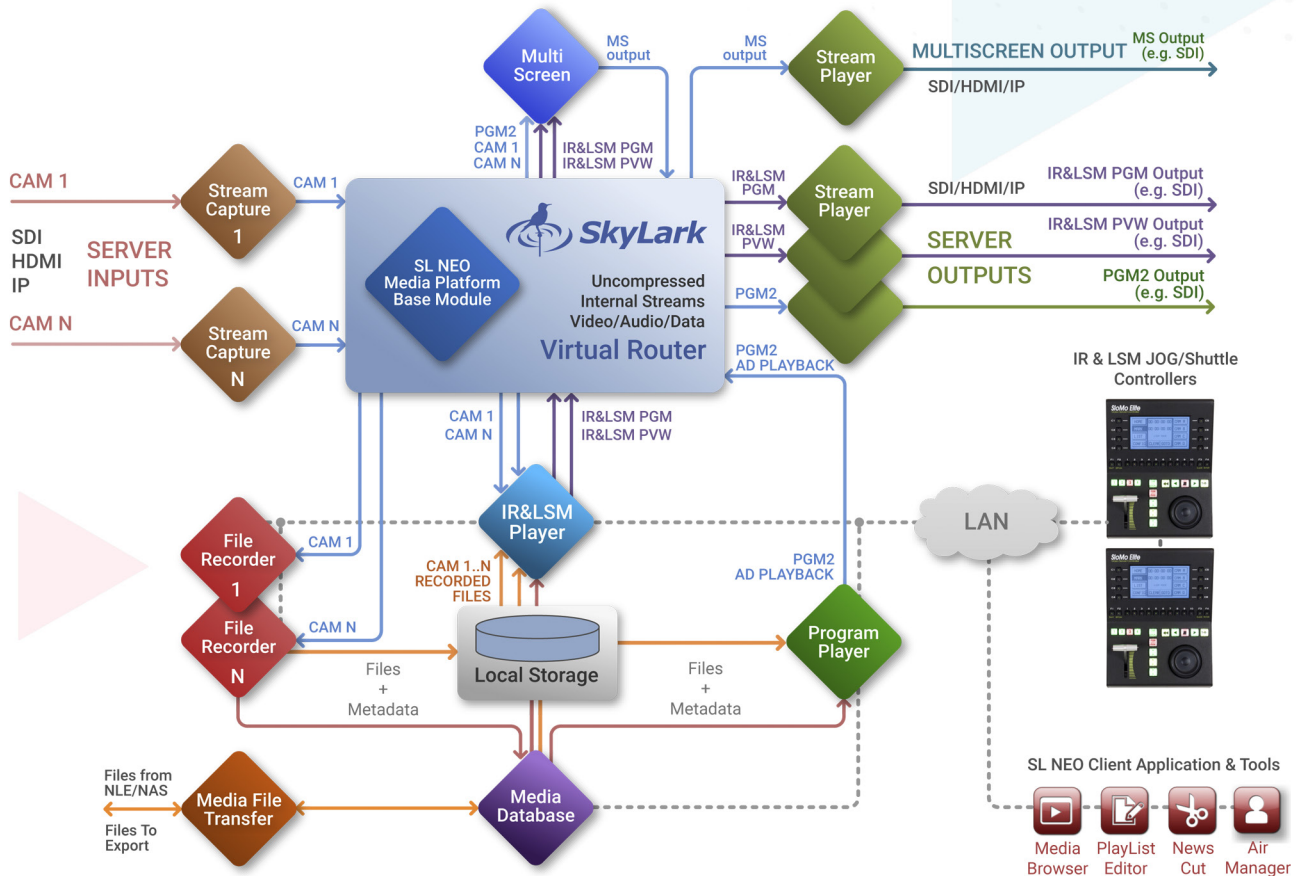
**Preview Output** is used for live preview and replay preparation with display of additional information for the operator: the time code of the current preview position, the time difference between the current position and the actual time, the current playback speed in percent, the time remaining to the end of the clip or playlist, the camera number.

**Multiscreen Output** shows all the input signals and the program signal in multiscreen mode.

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### Software Modules Connection Diagram for SL NEO 7000 Servers Series



The Name of the Base Model of the SL NEO Server is made up of the values of the 5 variables located after the name of the product line:

**SL NEO S F.C.P H A**

S	F	C	P	H	A
First Digit of the SL NEO Series Number	Maximum Video Operating Mode	Number of Capture Ports (REC CH)	Number of PGM/PVW/MS CH (Output Ports)	Type of Hardware I/O Board (Brand)	Useful capacity of the Array in Tb
SERIES	FORMAT	CAPTURE	PLAYOUT	HARDWARE	ARRAY
S = 7 - 7000 Series, IR & LSM Servers	F = 2 - HD 1080i 50/60	for F = 2, C = 4...16	for F = 2, P = 3...6	H = D - Dektec DTA	SDI + Audio Embedded
	F = 3 - 3G 1080p 50/60	for F = 3, C = 4...16	for F = 3, P = 3...6	H = A - Dektec DTA	DVB/ATSC ASI (SPTS)
	F = 4 - UHD 2160p 50/60	for F = 4, C = 2...4	for F = 4, P = 3	H = M - Matrox DSX LE3/4	SDI + Audio Embedded
Standard Output Package:					
1). Program output is the main output of the system, which enables playback of prepared replays.					
2). Preview output is used for live preview and replay preparation with display of additional information for the operator.					
3). Multiscreen output shows all the input signals and the program signal in Multiscreen mode.					
				H = N - Nvidia NIC	IP: SMPTE ST 2110/2022-7
				H = B - BlackMagic SDI I/O	SDI + Audio Embedded
				H = H - BlackMagic HDMI	HDMI + Audio Embedded

#### Example:

**SL NEO 72.12.3 N16**

Max mode:	HD 1080i 50/60
Number of Capture Ports and REC Channels	12
Number of PGM/PVW/MS Channels and Output Ports	3
Hardware: Nvidia NIC	I/O: SMPTE ST 2110 over IP
Internal Array:	Useful capacity 16 Tb

## Technical Specifications for SL NEO 7000 Servers

Hardware configuration, including CPU/HDD models, number and types of I/O Boards depends on the selected SL NEO Server Model and set of Options.

### Server Hardware

Supermicro 2...4U chassis, two power supply modules in hot backup.  
One or two Intel Xeon Gold CPU, 48/256GB DDR5 RAM, SSD for OS, two onboard 1GbE ports.  
Built-in hardware RAID-10, 8x or 16x SE SAS 3.5" RE 8 or 16Tb array useful capacity.  
OS Windows Server 2022 x64

### I/O Ports, REC/PGM/PVW/Multiscreen Channels

For One Operator Workplace (base configuration, one JL Cooper Slomo Elite Controller Included):

#### HD/SD

Capture Ports HD/SD: 4...16, REC Channels HD/SD: 4...16  
LSM PGM Channels HD/SD: 1, LSM PVW Channels HD/SD: 1  
LSM Multiscreen Channels HD/SD: 1  
Output Ports HD/SD: 2 (LSM PGM Output, LSM Multiscreen Output)

#### Ultra HD

Capture Ports UHD: 2...4, REC Channels UHD: 2...4  
LSM PGM Channels UHD: 1, LSM PVW Channels UHD: 1  
Output Ports UHD: 2 (LSM PGM Output, LSM PVW Output)

#### Video Formats and Color Spaces

625i/525i, 720p, 1080i/1080p, 2K cinema 2048x1080p, 2160p  
25/29.97/50/59.94/60/200 fps  
Color Spacing: BT.601/709/2020, SMPTE ST2084, ARIB STD-B67

#### I/O Streams: Interfaces, Protocols, Codecs

SDI: SD/HD/3...12G SDI, 4x 3G SDI/Embedded Audio  
IP: SMPTE ST 2110, SMPTE ST 2022-7  
IP: NDI, HLS, RTMP, UDP, RTP, SRT, Zixi, RIST, MPEG-DASH  
DVB/ATSC IP UDP/RTP Unicast/Multicast SPTS/MPTS  
DVB/ATSC ASI: SPTS/MPTS  
Video Codecs: MPEG2/H.264/HEVC  
Audio: 48kHz/16/24 bit PCM, ADPCM, MPEG-1 L-II/III, AAC, AC3

#### I/O Ancillary/MPEG2 TS Data

SCTE-104/SCTE-35 markers with metadata  
VBI/VANC Data: VITC, AFD, WSS

#### Video Codecs (IR & LSM Rec & Playback)

##### SD/HD

MPEG2 I-Frames, 422, 100Mbps  
XAVC Class 100

##### Ultra HD

H264/AVC I-Frames, 420, 300Mbps  
XAVC Class 300

#### Environment for IR & LSM Rec & Playback

SL NEO Media DataBase: work with virtual clips (files+metadata), growing file recording mode

#### Video Codecs (for General Purposes, File Rec & Playback)

##### SD/HD

DV25, DVCPRO25, DVCPRO50, DVCPROHD100, HDV  
IMX 30/40/50  
XDCAM EX SP/HQ, XDCAM HD LP/SP/HQ.422  
DNxHD 120/145/180/220  
AVCHD  
XAVC 50/100/200, XAVC Long GOP  
AVC-Ultra 50/100/200  
AVC-Ultra Long G (12/25/50)  
PRORES HQ/SD/LT  
MPEG-2 I-Frames/Long GOP  
H.264 L I-Frames/Long GOP

##### Ultra HD

H.264 8/10 bit  
XAVC 300/480, XAVC Long GOP  
AVC-Ultra 300/480, AVC-Ultra Long G  
PRORES SQ/HQ  
DNxHR SQ/HQ  
HEVC 8/10 bit

#### Audio Codecs (Files Playback)

RAW 16/24 Bit PCM, ADPCM, MPEG-1 L-II/III, AAC, AC3

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### File Containers (for General Purposes, File Rec & Playback)

MXF-OP1A, MXF-D10  
Avid MXF (OP-Atom)  
Sony XDCAM HD/422 (MXF-OP1A)  
Sony XAVC 50/100/200/300/480/LongGOP (MXF-OP1A)  
P2 AVC-Ultra 50/100/200/300/480/LongG (MXF-OP1B)  
Microsoft AVI, MPEG PS/TS  
QuickTime MOV, DV DIFF  
MP4, MPG, GXF

### Environments for Recording

The number of file streams per recorder is two (Full Res + Proxy)

**OS File System:** work with files only, normal or fragment file recording mode (array of files with configured fixed duration)

**SL NEO Media DataBase:** work with virtual clips (files+metadata), growing file recording mode

### Avid Unity/Interplay

## Hardware & Software Options

### Hardware Options

JL Cooper Slomo Elite Controller (for the second operator's workplace)  
**LTC Input** (Including one of supported LTC Readers and Software License: Adrienne AEC-41, Plura PLC, Miranda Little Red, Horita TCI-50)  
**GPIO** (Including one of supported USB GPIO and Software License, up to 8 IO Ports: Ontrak ADU200, ADU2X8)  
GPU Board  
Increase Internal RAID Array Capacity  
2x SSD in RAID-1 for System

### Additional Hardware Ports

SD/HD/3/6/12G, 4x3G SDI, HDMI, ASI I/O Ports  
NVIDIA ConnectX 10/25/40/50/100/200G Ports for SMPTE ST2110/2022-7  
1G Ethernet Ports for UDP/RTP IP with SMPTE 2022-1 FEC  
Standard 1/10G Ethernet Ports for IP Streams, Control, File Transfer  
RS-232/422/485, i-Link/IEEE1394 Hardware Ports  
AES I/O for Matrox DSX Boards

### Software Options

[Transfer Manager PRO](#)  
[Web Application Server](#)

### Client Applications

[Air Manager, Rec Manager, News Cut](#)

### Additional I/O Ports & Channels (SD/HD or UHD Software Licenses)

[LSM PGM/PVW/Multiscreen Channel + 2x Output Ports HD/SD](#)

(for the second operator's workplace)

[Capture Port](#) (SDI/HDMI, ASI/IP with DeMux and Stream Decoding, all supported Protocols)

[Output Port](#) (SDI/HDMI, ASI/IP with Stream Encoding, all supported Protocols)

[REC Channel](#) (Full Res + Proxy)

[PGM Channel with Full Graphics](#) (8 GR Layers + Logo Layer)

[PGM Channel with Lite Graphics](#) (1 GR Layers + Logo Layer)

[Graphics for PGM Channel](#) (additional GR Layers)

## Ordering Information

To order the SL NEO 7000 Series Server, send us the following information:

- Base Model Name,
- Capture/Output Ports formats (HD/3G/UHD, fps), types (SDI/HDMI/ASI/Ethernet) and number,
- Types and protocols for I/O IP Streams,
- REC Channels formats (HD/3G/UHD, fps) and number,
- Number of operator workplaces (1 or 2),
- LSM PGM Channels formats (HD/3G/UHD, fps),
- Type (internal, external) and useful capacity of RAID-array,
- Required Hardware and Software Options,
- Required Client Licenses.

The Client Applications are pre-installed on the server platform, and one set of Client Software for installation on a workstation is included with each SL NEO Server.