55 ENGINEERING THE FUTURE.

LAWO

Lawo compact 2025 FALL

PORTFOLIO

MANAGEMENT & CONTROL

NEW FEATURES PAGE 04

HOME
IP Infrastructure Management Platform

NEW FEATURES PAGE 06
VSM
IP Broadcast & Workflow Control System

PHYSICAL I/O

VIDEO

NEW FEATURES PAGE 08

.edge
Hyper-Density SDI/IP Conversion/Routing Platform


A__line
WAN-capable Audio-to-IP Interfaces

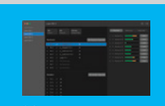
AUDIO

NEW FEATURES PAGE 10

Power Core GATEWAY
Modular IP Audio I/O Node for mc² Consoles

NEW FEATURES PAGE 11

Power Core RP
IP Audio I/O & DSP Node for Remote Production


Lawo VSC
Virtual Audio Device and App for macOS

PROCESSING

VIDEO

NEW FEATURES PAGE 12

HOME Apps
Server-based Processing Platform

NEW FEATURES PAGE 14
HOME Multiviewer
Server-based Flexible Multiviewer

NEW FEATURES PAGE 16
HOME UDX
UDX Converter with HDR Processing

PAGE 25
HOME Color Corrector
Color Corrector with HDR Processing

PAGE 26
HOME Timecode Generator
Up to 8x Timecode as ST2110-40

PAGE 28
HOME Delay
Delays Incoming/Outgoing Essences

AUDIO

NEW FEATURES PAGE 27
HOME Test Pattern Generator
Server-based Test Pattern Generator

NEW FEATURES PAGE 28
HOME Stream Transcoder
ST2110/NDI/SRT/JPEGxs Transcoding

NEW FEATURES PAGE 29
HOME Graphic Inserter
2D/3D HTML5 Graphic Inserter

PAGE 18
HOME mc² DSP
Server-based DSP Engine

NEW PAGE 20
HOME Power Core
Virtual DSP Mixing Engine for Broadcast

NEW PAGE 22
HOME Audio Shuffler
App-Based Matrix for Organizing Audio Channels

NEW FEATURES PAGE 30

A__UHD Core
Ultra-high Density Network DSP Engine


Power Core
Software-Defined Mix Engine & I/O Device

HUMAN INTERFACES

AUDIO CONSOLES

NEW FEATURES PAGE 36

mc² 36/36xp
Compact Production Console


mc² 56
Audio Production Console


mc² 96
Grand Production Console

NEW FEATURES PAGE 38

crystal
Versatile Broadcast Console

NEW FEATURES PAGE 40

diamond
Modular Broadcast Console

CONTROL PANELS


vsmLPBSeries/vsmPANEL
Hardware Control Panels

SOFTWARE UIs

PAGE 04

HOME
Unified Infrastructure Management


vsmPANEL
Customizable Software Control Panel

PAGE 42

crystal Clear
Virtual On-Air Control Interface


mxGUI / VisTool
Audio GUI Software

NEW PAGE 33
HOME Commentary
Stand-alone commentary solution for laptops and mobile devices

NEW PAGE 34
HOME Video Monitor
Delivers low-latency video and audio to any location, on any device

NEW PAGE 35
HOME mc² crystal Controller
Display and virtual control companion for a crystal console in Controller mode

PROFESSIONAL SERVICES

CONSULTING DEPLOYMENT TRAINING SUPPORT
Consulting
Experienced Consulting for IP Media Infrastructure Workflows & Systems

CONSULTING DEPLOYMENT TRAINING SUPPORT
Deployment
Professional Deployment Services for IP Media Infrastructure Solutions

CONSULTING DEPLOYMENT TRAINING SUPPORT
Training
Remote & On-site Training and Launch Support Services

CONSULTING DEPLOYMENT TRAINING SUPPORT
Support
Qualified 24/7 support services to maximize uptime

Lawo Academy
Enhance your skills with free and paid courses. Scan here:

SEE LAWO'S YOUTUBE CHANNEL FOR SUCCESSFUL CUSTOMER SOLUTIONS.

PROUDLY SUPPORTING:

RAVENNA · SMPTE ST 2110 · JPEG · NDI · SRT · NMOS · AES67 · Dante · lives@HOME

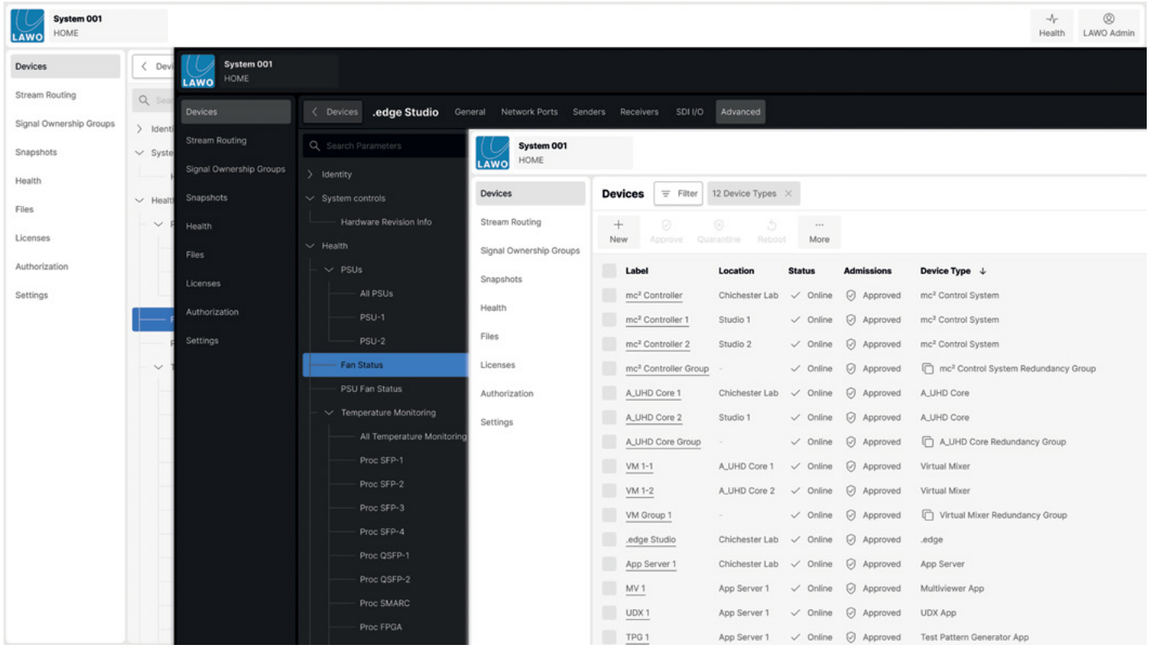
ABOUT LAWO

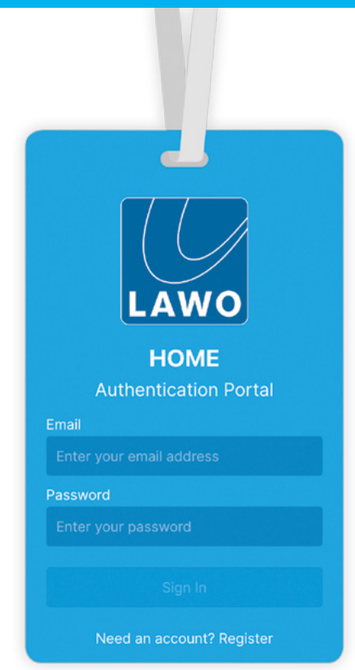
Lawo is a global technology partner with a long history of delivering innovative solutions for live media production workflows. With a unified approach that combines workflow management and control, physical I/O, processing, and human interfaces, Lawo creates optimized solutions for productions including television broadcast and on-air radio, performing arts, houses of worship, and professional AV. Customer value is driven through simplicity, agility, technical and commercial flexibility, and through its team of experts who are passionate about enabling the creation of world-class content. Lawo products are manufactured to highest quality standards in Rastatt, Germany.
For additional information, visit **www.lawo.com**

HOME

MANAGEMENT & CONTROL

IP Infrastructure Management Platform





What is it?

As a highly accessible management platform for IP-based media infrastructures, HOME is the heart of a Lawo broadcast installation. It is designed to connect, manage and secure all aspects and instances of live production environments.

What does it do?

HOME is a versatile, centrally-managed platform that automatically discovers hardware and software processing tools on the IP network and registers them to a central inventory. HOME-native (lives@HOME) solutions are registered with their name, location, status and type, all of which can be adjusted. HOME's uniform user interface for all Lawo and HOME-native devices streamlines operations with comprehensive parameter access from a central location.

HOME is furthermore used to orchestrate HOME Apps, i.e. Lawo's broadcast-grade processing microservices that run on generic compute technology. With HOME, users are able to instantiate, adjust, start, and stop HOME Apps, allocate HOME Apps instances to the available server pool, and assign the licenses required to use these apps. By means of an API, HOME's functionality and the information it registers can be made available to broadcast control and resource management systems, for seamless integration.

Larger infrastructures benefit from HOME's built-in User Management functionality that allows team leads to regulate access to system functionality based on production roles, specific tasks, etc. HOME ensures smooth communication with a broadcast control system by continuously sharing system information from its registry to speed up the configuration and amendment of workflows.

NATS · docker · etcd · Prometheus · protobuf · Grafana loki · Grafana · kubernetes

The extensive array of aspects that can be edited within HOME include: device configuration, audio parameter control, connection of virtual mixers to physical surfaces, managing redundant device pairs, HOME Apps orchestration, channel mapping and stream setup, labeling, and license management.

Additionally, HOME's architecture can be used to manage services such as transport-layer security for user interfaces, control data and media essences. The entire HOME platform relies on containerized microservice blocks, providing functionality to operators or other services. Established and broadly accepted cloud-native technologies are employed to make HOME's architecture ready to scale—both in size and geographically.

Lawo FLEX

Scan here for details.

KEY FEATURES

- Connects, secures and manages IP production networks
- Device discovery and registration, NMOS compatible (JT-NM)
- User authentication, authorization with SSO and AD option
- App and device orchestration via Web UI and API
- Central Monitoring Hub for logs and metrics
- Dynamic system adaptation
- Cloud-native by design, scalability in its DNA
- Granular, dynamic licensing based on HOME Passes (V4.0 and beyond)
- Open to vendors for interfacing purposes

SPECS

- Built-in user authentication/authorization with options for SSO and AD
- Built-in DHCP and DNS servers
- Definable address ranges for device IP and multicast addresses and automatic assignment
- Supports OpenConfig and proprietary switch control APIs
- Retrieval of network information
- Designed to run in clustered setups (concurrent active instances, no master/slave redundancy); single-server license available
- Supports: SMPTE ST2110, RAVENNA, AES67, NMOS IS-04 and IS-05

VSM

MANAGEMENT & CONTROL

IP Broadcast Control System and Workflow Solution

What is it?

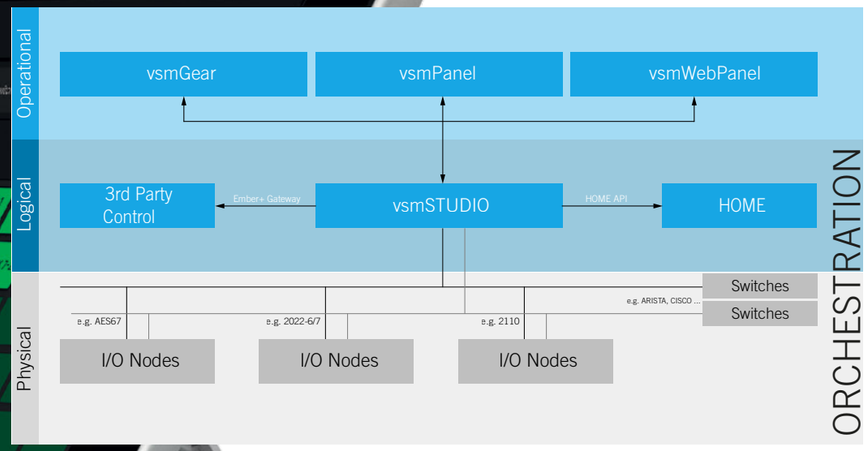
A VSM broadcast control system brings together all the requirements for an intuitive and flexible broadcast operation. Hardware and software user panels can be freely configured to meet the requirements of specific workflows and applications, to ensure the entire system is under redundant control.

What does it do?

VSM, Lawo's broadcast control system, easily integrates with the majority of broadcast equipment on the market and allows for custom workflows that meet the most complex project demands. IP edge devices and network infrastructures, traditional video routers, video switchers, audio routers, audio consoles, multiviewers, intercoms, modular equipment and other third-party devices can all be controlled from a single, highly automated and intuitive user interface.

Entirely vendor-agnostic, VSM provides seamless control with unmatched logic and recall possibilities on top of a scalable TCP/IP backbone, in combination with a rock-solid redundancy strategy. Operators can intuitively control their production facility through highly customizable touchscreen-optimized software panels and a wide range of hardware LCD button panels, giving them the freedom to tailor the control system to their specific workflows. Advanced features, such as dynamic resource management with Pooling and Boxing, a comprehensive Tally management and logic engine, dynamic tieline management, virtual signals, logical pseudo devices, and lots more, set the benchmark for reliable IP broadcast control.

Get the complete VSM brochure here.



KEY FEATURES

- One control system for all broadcast applications, perfectly at home in cutting-edge facilities
- Integrates with the majority of widely-used broadcast equipment (baseband and IP)
- Based on an IP backbone and standard IT servers
- Robust redundancy architecture designed for 365/24/7 operation
- Large toolbox with comprehensive third-party device control capabilities
- Comprehensive Tally management and logic engine
- Dynamic resource and tieline management
- Room Tally to map any system tally to room- or production-related tally levels and make the configuration of multiple control rooms within one system a breeze
- Global, system-wide snapshots for recalling and scheduling recurring setups
- vsmShare Tally enables exchanging tally states with highly flexible mapping options
- Simple and flexible control panel design to optimize production workflows with freely configurable LCD button panels or custom-designed soft-panel GUIs
- Users can easily deploy their individual workflows and production setups
- Constant evolution based on customer feedback

KEY IP BENEFITS

- Vendor neutrality for network nodes and IT switches
- Designed for multi-vendor deployments
- NMOS-compatible, HOME API interface
- Full SDN solution with Arista MCX/CVX including a Flow State View
- Crosspoint-centric routing behavior allows routing of offline resources
- Unified northbound matrix representation of the network through vsmStudio
- Supports Hitless Merge (seamless switching)
- Easy transition from baseband to IP with consistent operational workflows

SMPTE ST 2110 NMOS

Lawo FLEX

+++ NEW FEATURES +++ NEW FEATURES ++

NEW Simultaneous multi-user configuration.
NEW Support for HOME-internal audio channel matrices including quick resource access and configuration.
NEW Support for tie-line routing between separate network layers, including SDN.

General Product Enhancements

The latest product enhancements add usability features to improve and speed up the general configuration process, as well as support for more third-party protocol drivers.

.edge

Hyper-Density SDI/IP Conversion and Routing Platform

What is it?

Hyper-density SDI/IP conversion, processing and routing platform.

What does it do?

.edge is designed with simplicity, flexibility, agility and economic efficiency in mind. Software-defined by nature, it can be used as a drop-in replacement for traditional SDI routers, and expanded with flexible software licenses to provide the perfect mix of advanced features. With .edge, OpEx meets CapEx in the leanest of ways.

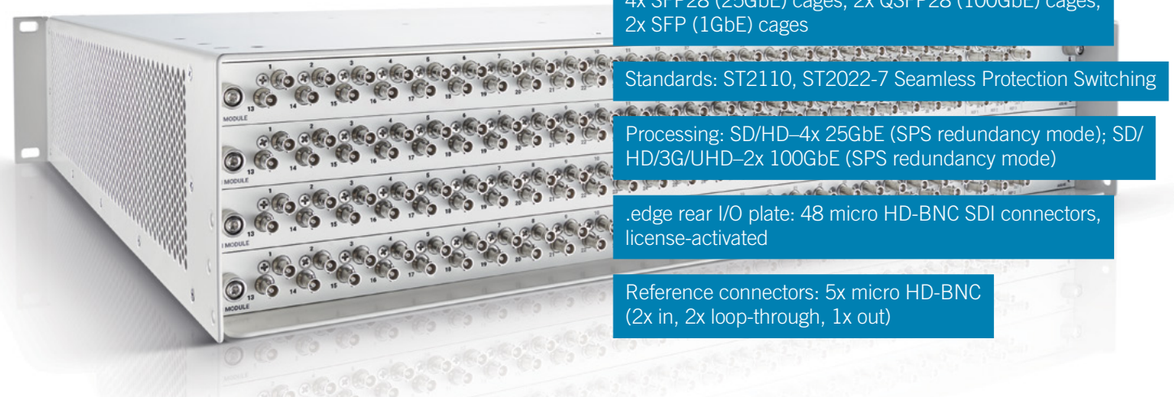
.edge's compact 2RU housing accommodates up to 192 HD-BNC connectors for SDI interfacing and can be clustered to provide matrices well beyond 1152 x 1152 crosspoints. Your next large SDI router can be IP-native, 24RU small, consume only 24x 100Gbps network ports—a third of what other offerings require—and still be more powerful, scalable and future-proof.

New system software releases keep adding new and refining existing functions, while optional licenses expand .edge's functionality right inside the unit—at the IP network's edge—free from internal competition for compute resources.

SMPTE ST 2110 · JPEG XS · NMOS · lives@HOME

KEY FEATURES

- IP-native virtualized, highly modular SDI routing system, based on high-capacity generic compute processing blades.
- SD, HD and UHD SDR & HDR on all inputs and outputs.
- Compact footprint, lightweight, low power requirements.
- Software-defined, flexibly licensable features for budget-effective performance.
- Hardware/software bundles for easy, out-of-the box SDI router replacement.
- HOME-native, with operator- and expert-level parameter control and more for time-critical, intuitive operation. Ember+ and REST API control support.
- High-density IP conversion for SDI equipment (up to 192 SDI connectors on 2RU).
- Designed for (de)centralized, distributed, remote and cloud operation.
- Fully based on open industry standards: ST2110, ST2022-7, RAVENNA, AES67, and more
- Options licensable through the Lawo Flex mechanism



SPECS

- Control: HOME, Ember+ and REST API
- 4x SFP28 (25GbE) cages, 2x QSFP28 (100GbE) cages, 2x SFP (1GbE) cages
- Standards: ST2110, ST2022-7 Seamless Protection Switching
- Processing: SD/HD–4x 25GbE (SPS redundancy mode); SD/HD/3G/UHD–2x 100GbE (SPS redundancy mode)
- .edge rear I/O plate: 48 micro HD-BNC SDI connectors, license-activated
- Reference connectors: 5x micro HD-BNC (2x in, 2x loop-through, 1x out)

OPTIONALLY LICENSABLE FEATURES

.colcor

This RGB/YUV color correction option provides up to 32 correctors per .edge blade for input and output signals. Color corrections are performed upstream of any proxy generation. Only "legal" colors/values are passed (auto-clipping to legal levels).

.amshuff

The Audio Matrix Shuffler license expands the audio shuffling capability of a .edge blade with 128 dedicated receivers and 64 dedicated senders (in addition to the current gateway), for a 8,192 x 4,096 routing matrix. Channel patching can be performed in a VSM X/Y matrix window.

.jpegxs

The software-licensable .jpegxs option provides broadcast-grade JPEG XS compression encoding and decoding (up to 20:1). A decoding downscale function is built in.

.proxy

The optional .proxy license generates video proxies that can be streamed to multiviewers and other destinations. Downscaled resolutions range from 1/4 through 1/64 and can be transported alongside the original 1:1 stream via the combined use of the 25Gbps and 100Gbps ports.

Lawo FLEX

Basic video and audio processing functions come as standard, whilst power-user features can be added as and when you need them—even for a limited time.

For up to 32 SDI inputs (@1080p), each carrying up to 32 audio signals, a total of 1024 mono channels now boast an Audio Gain control (–30dB~+18dB). The same principle applies to SDI outputs. The newly-added Phase Inverter can be used to compensate for unwanted artefacts caused by suboptimal microphone placements.

.edge is one of the only gateway solutions to boast high-capacity symmetrical IP ingress and egress, providing the sender and receiver count you expect from an IP pro. Hyper density is now available as a service.

Scan here for details

PowerCore Gateway & RP

PHYSICAL I/O

Modular I/O Node for mc²

IP Audio I/O & DSP Node for Remote Production

PowerCore Gateway

What is it?

PowerCore Gateway is a license that turns a Power Core edge device into a modular, networked I/O node for live-sound and broadcast applications.

What does it do?

An ideal solution for direct connections to a network (LAN or WAN), and interfacing with Dante islands in your setup, PowerCore Gateway accommodates all the diverse audio formats found in modern production environments, with 256 channels of I/O and functions remotely controllable from an mc² console or Lawo's mxGUI software for Mac and PC.

PowerCore Gateway supports 4x 64 audio channels via its front-panel MADI ports. Its physical I/O count can be expanded via the eight rear-panel slots that accommodate extension cards and optional Audio I/O Extenders for analog, digital, MADI, and Dante signals.

The new Gateway license features are pre-installed on PowerCore Rev.3 models and offer support for the 96kHz/2 Fs sample rate.

Designed for mission-critical applications, PowerCore Gateway offers Class C jitter/network latency robustness. Its IP interface complies with the ST2110-30/-31, RAVENNA/AES67 incl. ST2022-7 networking standards to deliver maximum interoperability.

PowerCore RP v2

What is it?

PowerCore RP version 2 is a new license that turns a Power Core edge device into a comprehensive remote production solution for mc² audio consoles, complete with integrated modular I/O, IP streaming capabilities, and advanced DSP processing for 64 fully-featured processing channels, low-latency on-site monitoring, and IFB mixing.

What does it do?

PowerCore RP supports Lawo's HOME management platform and can be controlled from mc² consoles, with access to all relevant channel parameters. VisTool RP, a touch-screen optimized software GUI with Lawo's unified LUX design, provides additional control for both local and remote operation.

Remote channels can be mapped to the host console's surface and offer parameter control for Fader, Mute, EQ + Filters, Dynamics, and Delay. Remote inputs and AUX busses of PowerCore RP can be linked to local DSP channels of the host console to ensure continuous linking of parameter values. PowerCore RP v2 offers a virtual human interface optimized for touch-screen operation, powered by Lawo VisTool. It is designed for on-site as well as remote access to all PowerCore RP parameters.

FEATURES of PowerCore RP

- Low-latency on-location monitoring
- NEW: Lawo LUX UI design
- Consistent workflows, flexible routing
- 64 DSP inputs, 16 Stereo AUX busses

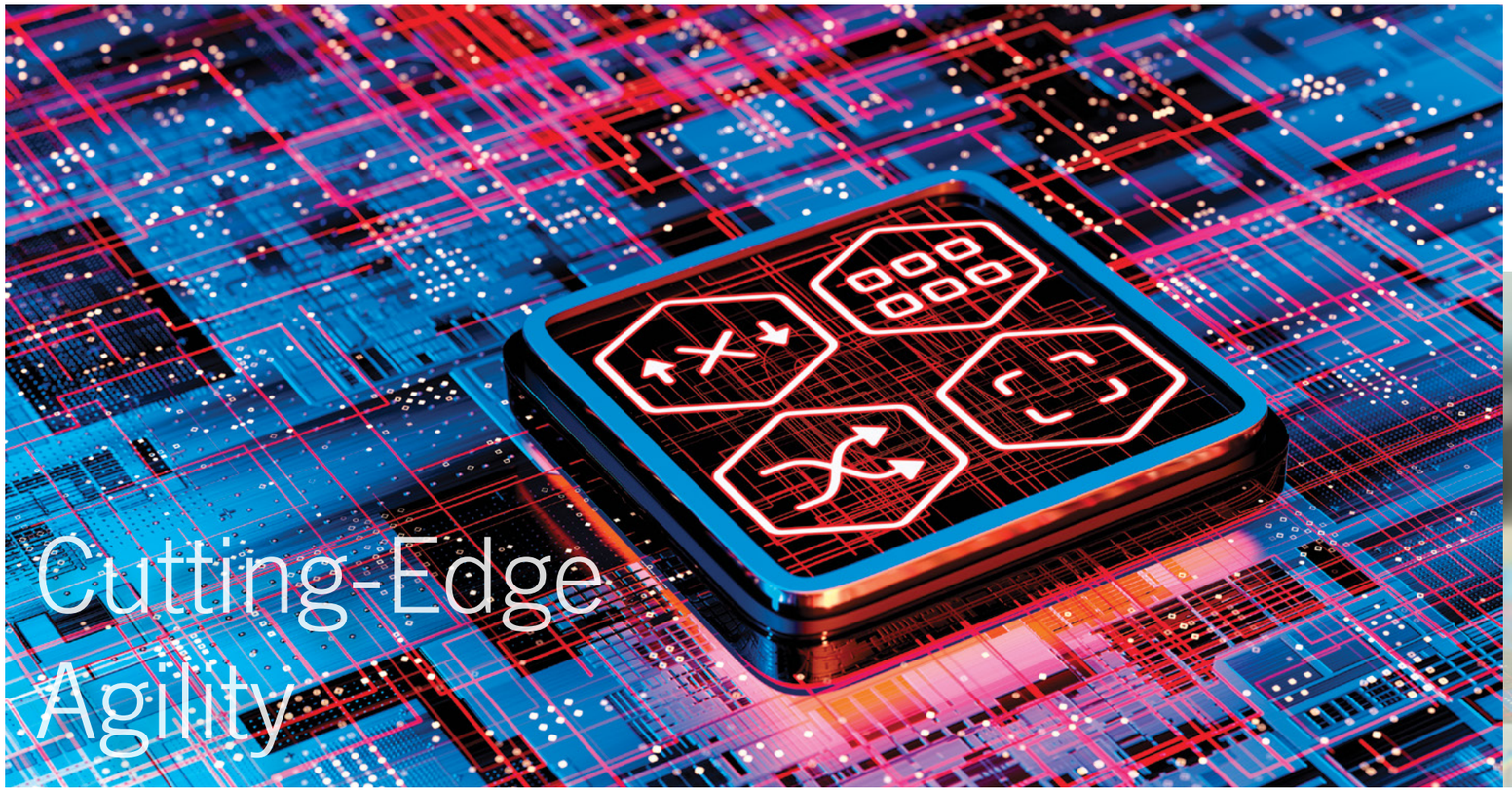
NEW for PowerCore Gateway

- 48kHz/96kHz/2 Fs sample rate
- Optional support for 256 additional RAVENNA channels (128 at 96kHz)

lives@HOME

HOME Apps

Audio and Video Processing On Demand



What is it?

The abstraction of broadcast and media functionality from the hardware that does the compute heavy lifting. For video as well as audio, on the same compute platform. The rapidly growing number of apps keeps adding value to your infrastructure.

What does it do?

Designed with Lawo-grade processing quality in a nifty, containerized software guise, HOME Apps can be spun up and down instantly via HOME's intuitive user interface, which will conveniently preserve your settings for future use. App usage can be based on perpetual licenses for constant, long-term availability, if so desired.

The Lawo FLEX Subscription model, on the other hand, offers peak-time relief and frees operators from the pressure (and budget constraints) of getting the project planning right for the life of the CapEx period, with little or no wiggle room once the budget has been approved.

Based on a series of deliberate choices, HOME Apps processing is provided by means of microservices running in containers to ensure maximum agility. Containers are cloud-native, standalone executable software packages comprising the applications and their dependencies.

Thanks to the native integration of HOME Apps with HOME and VSM, operators enjoy a straightforward, fast and streamlined user experience. They are free to run HOME Apps only when and where they need them, without any long-winded configuration sessions or expert knowledge.

Three usage models can be leveraged with Lawo's HOME Apps:

- Permanent availability—Staple processing capability can be acquired with perpetual licenses, which is similar to purchasing dedicated hardware.
- Lawo FLEX Subscriptions—Time-limited, function-agnostic licenses (1 month to several years) for processing resources with a high degree of flexibility regarding App usage. This subscription scheme based on credits covers add-ons for hardware devices and HOME as well as all current and future HOME Apps.
- Hybrid Perpetual and FLEX Subscriptions—Perpetual licenses for cruise-speed usage, and Lawo FLEX subscriptions for temporary capacity top-ups at peak times.

Lawo FLEX

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Dante

Scan here for details.

KEY FEATURES

- Run broadcast-grade apps on standard servers where it makes most sense: on premise, in private data centers or in the cloud
- Caters to all formats and requirements at the click of a button, with instant spin-up/spin-down
- Mix and match the SMPTE ST2110, NDI®, JPEG XS and SRT protocols on the same platform
- Decide for yourself whether and how much to invest upfront
- Complement your existing hardware pool with software apps
- One overarching solution caters to the building blocks of your processing infrastructure

HOME Multiviewer

Agile and Intelligent Multiviewer

What is it?

High-quality HOME Apps-based, intelligent multiviewer functionality for monitoring UHD, 3G, HD and SD video as well as audio sources, with pixel-perfect mosaics and ultra-low latency for global events and any other agile broadcast and AV operation.

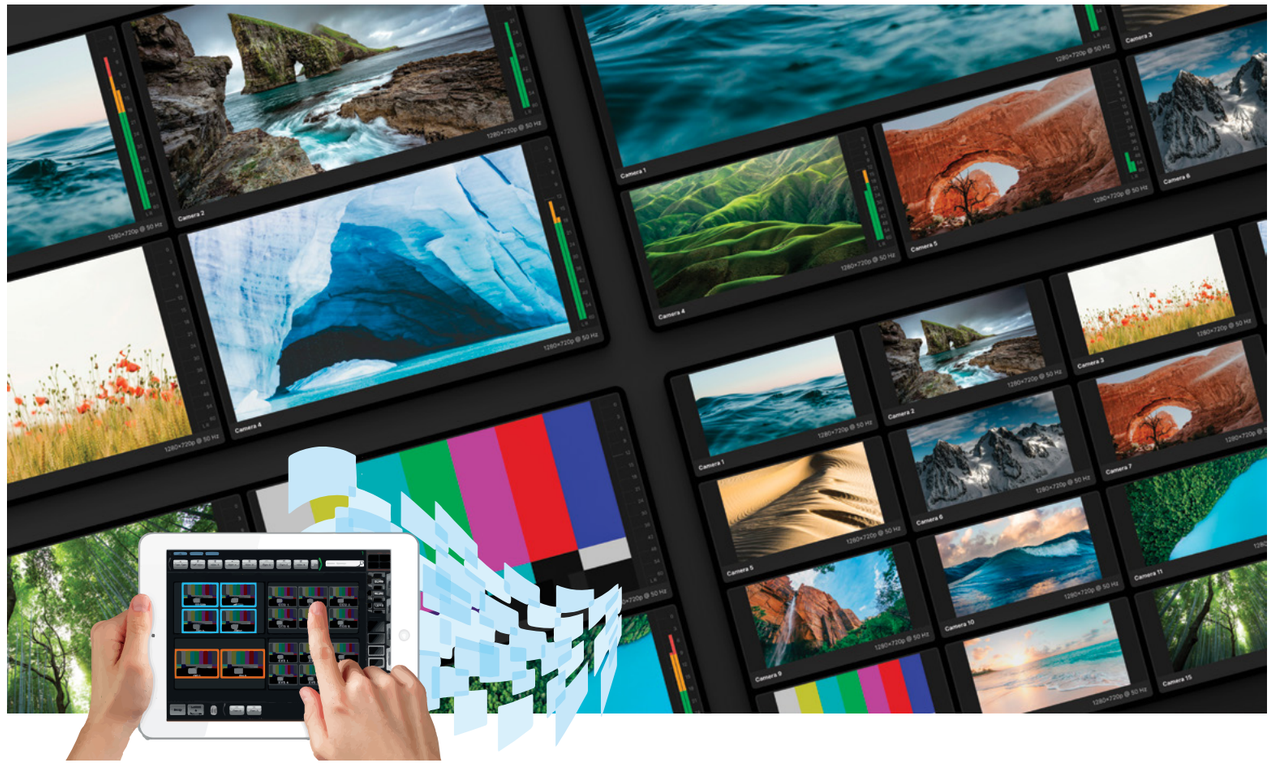
What does it do?

The low-latency HOME Multiviewer no longer requires dedicated hardware, relying instead on cloud-native technology such as Kubernetes and Docker to provide the highest UHD head density in the industry.

Lawo's HOME Multiviewer is perfectly suited for high-bandwidth/low-latency ST2110 broadcast environments, SRT stream workflows in the cloud, NDI devices, compressed formats, and so on.

The number of PiPs can easily be adapted to the job at hand. Going from one to up to 32 splits in a real-world scenario (up 64 are possible) is a simple matter of setting the relevant parameter in HOME which, among many other things, acts as the GUI for all HOME Apps.

Multiviewer layouts—complete with customizable tallies, alarms, clocks, level meters, OSDs, UMDs, and metadata—are created with Lawo's intuitive theWALL app, which sits inside the HOME cluster. All settings can be stored as user presets and applied to other HOME Multiviewer instances for a unified look. Most importantly, users don't need to be engineers—nor have a scripting background—to spin up and configure a HOME Multiviewer. The HOME management platform makes this plain, simple, and intuitive.



theWALL – Smart Drag & Drop Multiviewer Control

HOME Multiviewer was designed to be controlled by Lawo's groundbreaking, touch-operated configuration system "theWALL". This unique HTML5-based GUI makes mosaic configuration with borders, colors, UMDs, tally, etc., a simple case of drag and drop.

In combination with .edge and the proxies it generates HOME Multiviewer automatically generates PiPs that use the smallest possible video stream size to save bandwidth and reduce processing-core requirements.

The HOME Multiviewer currently natively supports SMPTE ST2110, NDI© and SRT—with or without JPEG XS, H.265 or H.264 compression. Future format requirements, such as Dante AV will be accommodated soon.

Input and output formats can be specified independently (SMPTE ST2110, SRT, JPEG XS or NDI® to any one of these).

KEY FEATURES

- High-quality multiviewer functionality for UHD, 3G, HD and SD video as well as audio sources
- Generates the required number of PiPs for one multiviewer mosaic head, with a selectable number of inputs and outputs; multiple instances are possible
- Pixel-perfect mosaics and ultra-low latency
- Offers a "Dynamic" Input Video Resolution setting for automatic bandwidth- and CPU-saving Intelligent Multiviewer behavior—for each PiP
- Runs on standard servers where it makes most sense: on premise, in private data centers or in the cloud
- Caters to all formats and workflows at the click of a button, with instant spin-up/start/stop/spin-down
- Mix and match the SMPTE ST2110, NDI®, JPEG XS, SRT and Dante AV protocols on a single network

SPECS

- Includes a frame synchronizer
- SD/HD/.edge proxies: up to 64 PiPs per head, 1080p applications: up to 32 PiPs per head; UHD: up to 8 PiPs per head
- PiPs can be interlaced or progressive
- Head Layout: layout/background color (loaded/saved via theWALL)
- Widgets for a host of informative and decorative elements, UTF-8 support for non-roman languages
- Separate timer service with count-up and count-down
- Data Sources: HOME Tally, TSL Tally (V3.1/5.0), Alarm, Audio Levels, Video Standard
- Controlled from HOME, theWALL and VSM

HOME UDX Converter (with HDR processing)

Up/Down/Cross Converter With HDR Processing

What is it?

In addition to up, down, cross and aspect ratio conversion, the HOME UDX Converter with HDR processing features frame synchronization and non-linear edge enhancement. Each instance supports up to four audio send and receive streams.

What does it do?

HOME UDX Converter with HDR processing provides video format and aspect ratio conversions. It offers a deinterlacer, HDR/color processor, a scaler and two outputs. Each output can use a different format with a different overlay, and—where applicable—can be set to “i” or “p”. It delivers conversions between SD, HD, 3G and UHD as well as ST2110, SRT and NDI in the HOME Apps ecosystem. One example would be: UHD to both 3G and HD, either with or without graphics, e.g. for simultaneous “clean” feed and “dirty” feed output during global events.

Operators can also perform conversions from one protocol (e.g. ST2110) to another (e.g. SRT) as well as from HDR to SDR and vice versa in HLG and PQ using 3D LUT (.cube) tetrahedral interpolation.

The HOME UDX Converter natively supports both ST2110-20 and ST2110-22 (compressed) video as well as ST2110-30 and AES67 IP audio streams.

Additionally, the HOME UDX Converter features frame synchronization, non-linear edge enhancement, fully flexible audio shuffling, de-interlace/interlace, and HTML5-based graphics overlay.

The HTML5-based feature enables users to create rich 2D/3D HTML5 graphics (with transparent background) with their favorite tools. Simply add the URL to HOME UDX before spinning up the app to overlay these graphics on the UDX output. Color space conversion, finally, supports BT.601/BT.709/BT.2020 with proc-amp color correction control.

* Dante support for HOME Apps is a future product development.

SPECS

- 3D LUT (.cube) tetrahedral interpolation (HDR <> SDR processing)
- Resolutions: SD, HD, 3G, UHD
- Optional color correction add-on
- Color space conversion: BT.601/BT.709/ BT.2020 with Proc-amp and color correction control
- Non-linear edge enhancement
- Audio processing: 16 bits, 24 bits at 48kHz
- Up to 4x audio streams (send and receive), up to 64 channels per stream, fully flexible audio channel shuffling
- HTML5 rendering (transparent background), any HTML source

KEY FEATURES

- Resolutions: SD, HD, 3G, UHD
- 3D LUT (.cube) tetrahedral interpolation (HDR <> SDR Processing)
- Runs on standard servers where it makes most sense: on premise, in private data centers or in the cloud
- Caters to all formats and workflows at the click of a button, with instant spin-up/start/stop/spin-down
- Frame synchronizer and color space conversion included
- Non-linear edge enhancement
- Fully flexible audio channel shuffling; up to four audio send and receive streams

HOME mc² DSP

PROCESSING

Server-Based, Agile Audio Engine

What is it?

Lawo's HOME mc² DSP is a microservice-based audio processing core app with the equivalent feature set of the A__UHD Core hosted on CPU-based standard servers.

What does it do?

With instantly familiar A__UHD Core features, it is part of Lawo's HOME Apps offering, providing processing on demand with superior connectivity, elasticity and scalability for today's and tomorrow's production requirements.

HOME mc² DSP is designed for use in tandem with Lawo's mc² mixing and crystal broadcast consoles and is able to instantiate a (virtual) mixing system at the press of a button wherever audio processing capability is required fast—and perhaps unexpectedly.

With all features known from the A__UHD Core FPGA hardware in a completely redesigned CPU-based package, HOME mc² DSP allows operators to spin up mc²-grade DSP processing on demand with hitherto unavailable granularity.

HOME mc² DSP fully leverages the agility afforded by the abstraction of processing functionality from the hardware with all the benefits of Lawo's FLEX licensing and subscription model: users can freely allocate subscription credits, either locally or system-wide, to any available HOME App—whether audio or video.

HOME mc² DSP's primary purpose is to provide audio processing in situations where no A__UHD Core is available or where remaining within the HOME Apps realm is more practical. It allows users to spin up a processing core with vastly different channel counts to perfectly match each specific use case.

The HOME mc² DSP app boasts the same ultra-low latency as its hardware companion. All capabilities and features are so similar that operators are unable to tell whether their console surface controls a hardware-based A__UHD Core, or the HOME mc² DSP app.

Scaling automatically with future CPU developments, HOME mc² DSP can provide up to several thousand DSP channels where needed, with support for mono, stereo, 5.1, and a host of NGA immersive mixing formats, plus automatic downmixes.

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Dante · Lawo FLEX

* Dante support for HOME Apps is a future product development.

SPECS

- 32 infinite Automix Groups
- Downmixes for stereo, 5.1 and immersive processing channel formats
- AFL 1: stereo & surround, PFL 1: stereo; AFL 2: stereo, PFL 2: stereo
- Supported audio formats: 2110-30 (incl. RAVENNA, AES67), NDI, SRT, and Dante
- Tone generator: Sine, White Noise, Pink Noise, EBU Stereo, BLITS 5.1

KEY FEATURES

- Runs on CPU with the same latency as A__UHD Core
- mc²-style processing channels (identical to A__UHD Core)
- Up to 2048 Inputs
- Up to 256 AUX busses, 96 Groups, 96 Sums (simultaneously where desired)
- Sampling rate: 48kHz
- Virtual Loopbacks (vLoopbacks)
- Support for: mono, stereo, 5.1, immersive audio
- Downmixes for stereo, 5.1 and immersive processing channels
- Co-mixer (for monitoring etc.)
- Compatible control surfaces: mc² consoles, crystal Controller console, headless mixing systems

HOME Power Core

Virtual DSP Mixing Engine for Broadcast

NEW

What is it?

Lawo's HOME Power Core is a microservice-based audio processing app with the equivalent feature set of the Lawo Power Core hosted on CPU-based standard servers.

What does it do?

The HOME Power Core app leverages the agility of Lawo's HOME Apps platform to provide instant processing, mixing, routing and monitoring for radio and TV workflows where physical Power Core units are not available, already in use, or impractical. For each application, users can choose among a compact, a large, and an XL instance of the app to make sensible use of the available CPU cores.

In addition to supporting the SMPTE ST2110, RAVENNA, AES67, Dante, NDI, and SRT transport formats, HOME Power Core provides DSP algorithms derived from Lawo's mc² mixing platform for pristine audio quality. Its native NDI and Dante AV routing, encoding, and transcoding capabilities will streamline visual-radio workflows.

While the HOME Power Core app includes a range of out-of-the box configurations for many common on-air applications, operators also enjoy the liberty of creating highly customized configurations using the powerful built-in workflow and logic engine.

HOME Power Core interacts with all I/O sources and destinations connected to the IP network, such as physical Power Core devices, A__line stageboxes, .edge audio streams, Lawo Virtual Soundcards and other RAVENNA, ST2110, AES67 or Dante compliant audio devices. It can be controlled from the modular diamond console, the more compact and versatile crystal console, Lawo's crystal Clear virtual on-air interface, and the configurable software GUI VisTool that complements or replaces a physical human interface.

Like all HOME Apps, HOME Power Core supports both Lawo FLEX Subscription credits, for maximum ad-hoc processing agility, and perpetual licenses for those who prefer to own the app.

SMPTE ST 2110 · RAVENNA · NDI · SRT · lives@HOME · NMOS · Dante · Lawo FLEX

SPECS

- HOME App with the equivalent feature set of the physical Power Core hosted on CPU-based standard servers
- Possibility to host multiple Power Core instances on the same server
- Seamless integration with Lawo HOME video apps for TV and visual radio applications without external conversion boxes etc.
- Perfect for space- and energy-saving COTS server usage in centralized datacenters.
- Support for SMPTE ST2110, AES67, Dante, NDI, and SRT
- Small, medium or large for optimized resource utilization
- Enhanced DSP algorithms
- Supports all bandwidths

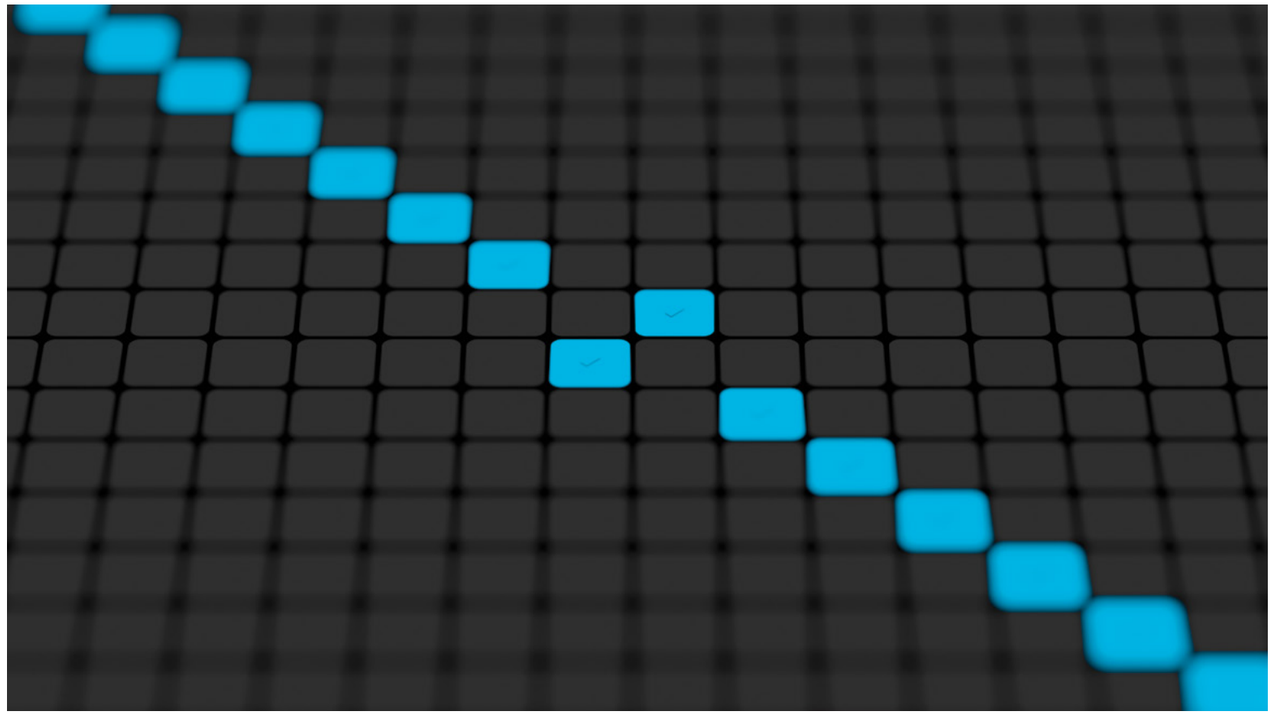
KEY FEATURES

- Brings all the benefits of the Lawo HOME platform to radio and TV workflows, including enhanced security features and robust failover mechanisms
- Runs on CPU with the same logic and mixing engine performance as Power Core
- Perfect for headless applications or in combination with compatible control surfaces: Lawo diamond and crystal consoles, crystal Clear and VisTool

HOME Audio Shuffler

App-Based Matrix for Mapping Audio Channels

NEW



What is it?

HOME Audio Shuffler replaces a traditional baseband audio matrix within an IP-based Dynamic Media Facility.

What does it do?

HOME Audio Shuffler is a flexibly controllable HOME App that replaces a traditional baseband audio matrix on a purely software level. Available in six preconfigured matrix sizes, it allows users to remap incoming audio signals for different applications, to freely compile streams based on audio signals from a variety of sources, and otherwise customize an audio stream's payload. This is especially handy for downstream applications and devices without built-in audio matrix functionality.

Supporting SMPTE ST2110-30 (24 bits) and -31 (32 bits, RAVENNA AM824 payload format with bit transparency), HOME Audio Shuffler conforms to AES67 and ST2110-30 (Levels A, B and C) with minimal latency, while also providing redundancy options via ST2022-7 hitless merge and the HOME App auto restart mechanism, for reliable 24/7 operation.

Incoming audio streams can be reshuffled and routed to the desired transmitters (IP outputs) using the HOME Terminal Routing Matrix. Stream routing, shuffling, and many other operations can be controlled via any hardware or software panel of a workflow control system such as Lawo VSM that communicates with the required HOME Audio Shuffler instance via the HOME API.

HOME Audio Shuffler is the perfect tool for any audio deployment at scale, such as in master control rooms and any other application requiring a mix of shared (e.g. clean feed) and individually contributed and controllable audio sources.

Offering symmetrical flow sizes between 64 and 2048 RX and TX streams that accommodate up to 64 audio channels each, HOME Audio Shuffler's matrix size can be conveniently selected from six packages. All signal inputs come with essential DSP functionality: Gain, Mute and Polarity for each channel, with minimal latency and full bit transparency..

SMPTE ST 2110 RAVENNA NDI SRT lives@HOME

SPECS

- Up to 16,384 input and 16,384 output signals
- Up to 2048 receivers (RX) and 2048 senders (TX) with up to 64 audio channels each
- DSP functionality: Gain, Mute, Polarity for each channel
- Ultra-low audio latency
- Sample Rate: 48kHz
- Six different matrix sizes:
  64 RX & TX flows (1,024 channels),
  128 RX & TX flows (2,048 channels),
  256 RX & TX flows (4,096 channels),
  512 RX & TX flows (8,192 channels),
  1024 RX & TX flows (12,288 channels),
  2048 RX & TX flows (16,384 channels)
- Supports SMPTE ST2110-30/31 with bit transparency, conforms to AES67, ST2110-30 (Levels A, B and C)

KEY FEATURES

- Brings all the benefits of the Lawo HOME platform to audio matrix applications
- Flexible control via VSM and other protocols
- Also supports the development of new workflows for intuitive multi-user setups, such as multilingual commentary instances, etc.

More HOME Apps

HOME Delay

What is it?

A stand-alone HOME App that can be used to delay incoming and outgoing IP essences (streams).

What does it do?

The HOME Delay app allows operators to delay incoming and outgoing essences (video, audio, ancillary) either simultaneously or separately. This is often essential to get all production assets aligned, for perfect lip-sync, etc.

KEY FEATURES

- Delays the following incoming and outgoing IP essences: 1x ST2110-20 (video), 4x ST2110-30 (audio), and 1x ST2110-40 (metadata)
- Maximum delay time: 360 frames

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Dante · Lawo FLEX

Dante support for HOME Apps is a future product development.

HOME Color Corrector
(with HDR Processing)

What is it?

A stand-alone HOME App with YUV (YCrCb) and RGB color correction functions and an optional HDR<–>SDR converter.

What does it do?

HOME Color Corrector provides YUV (YCrCb) and RGB color correction functions with an HDR<–>SDR conversion option. A typical workflow that involves HDR conversion provides proc amp corrections in the YCrCb space, after which the information is processed by a matrix that moves it to the RGB color space.

Once there, users can activate the HDR option and assign the required standard or custom 3D LUT. Where necessary, the result can be tweaked with the RGB parameters (see right), and processed by an RGB–>YCrCb matrix to move it back to the YCrCb color space, where YCrCb tweaking can be performed.
Color corrections are also possible on only the YCrCb or the RGB level. Illegal colors are avoided by the application of automatic clipping before the output.

KEY FEATURES

- Resolution: SD*, HD, 3G, UHD
- Video input and output formats: SMPTE ST2110-20/22, NDI®, SRT, JPEG XS, Dante AV
- YCrCb: (Y) Luma Gain, Brightness, Chroma Gain & Hue, (Y) Luma Lift, Luma Lift/Gain & Contrast, Saturation, Hue, U-Gain and Offset, V-Gain and Offset
- RGB: Lift/Gain, Gamma, Gain/Contrast, S-Curve, S–Curve Pivot points, Red – Gamma, Red – Gain Contrast, Red – Lift/Brightness, Red – S-Curve & Curve Pivot points,
  Same controls for Green & Blue

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Lawo FLEX

(*) JPEG-XS only supports the HD, 3G and UHD formats.

More HOME Apps

HOME Timecode Generator

What is it?

A stand-alone application that generates timecode signals for infrastructure timing needs.

What does it do?

HOME Timecode Generator is a standalone application that generates timecode signals for infrastructure timing needs. The signals are output as ST2110-40 streams for use anywhere on the network. This allows customers to sync all required endpoints, such as cameras used to record ISOs, based on a timecode that can be different from the house clock.

All timecodes generated by the app are based on the PTP signal that is used to sync the app.

KEY FEATURES

- Generated timecodes: UTC Time, PTP Time, Freerun, Input LTC, Input VITC
- Up to 8 different ST2110-40 timecode feeds are possible per Timecode Generator Instance
- Detailed offset parameter settings

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Lawo FLEX · Dante

Dante support for HOME Apps is a future product development.

HOME TPG

What is it?

A free test pattern generator for video, and a free test tone generator for audio.

What does it do?

All users of the HOME Apps platform are entitled to a free test pattern generator for video, and a free test tone generator for audio.

HOME Test Pattern/Test Tone Generator assigns 10 fixed outputs to these generators.

KEY FEATURES

- Test Pattern Generator (static and moving)
- Wide range of test patterns, including flat-field versions for all supported resolutions
- Audio Test Tone Generator: 48kHz/24-bit test tone, incremental frequencies; Channel 1= 200Hz, channel 2= 400Hz~4 kHz; up to 64 channels
- Test Pattern/Tone Generator Output Allocator: 10 outputs dedicated to TPG/TTG; any output and any test pattern

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Lawo FLEX · Dante

Dante support for HOME Apps is a future product development.

More HOME Apps

HOME Stream Transcoder

What is it?

The HOME Stream Transcoder allows operators to convert incoming video streams of a given format to one of the supported output formats. It is the perfect tool for a variety of applications.

What does it do?

The HOME Stream Transcoder is a precious tool for a variety of applications: transcoding content to the required delivery or transport format; stream preparation for dedicated hardware processors that do not support the source's video format; and—more importantly—signal compression (or decompression) before (or after) long-haul WAN stream transport.

The following input and output formats are supported: SMPTE ST2110, NDI®, SRT, JPEG XS, and Dante AV.

KEY FEATURES

- Video input and output formats: SMPTE ST2110-20/22, NDI, SRT, JPEG XS, Dante AV
- Resolution: SD*, HD, 3G, UHD
- Up to 4 x audio streams (send and receive), up to 64 channels per stream
- Audio processing: 16 bits, 24 bits at 44.1kHz or 48kHz
- Flexible audio channel router
- Runs on standard servers where it makes most sense: on premise, in private data centers or in the cloud
- Caters to all formats and workflows at the click of a button, with instant spin-up/start/stop/spin-down

(*) JPEG-XS only supports the HD, 3G and UHD formats.

Dante support for HOME Apps is a future product development.

HOME Graphic Inserter

What is it?

The HOME Graphic Inserter allows users to turn 2D or 3D animated graphics into video streams.

What does it do?

Simply add the URL of your HTML5 graphic, pick your output resolution and specify the required output format.

The following input and output formats are supported: SMPTE ST2110, NDI®, SRT, JPEG XS, and Dante AV.

KEY FEATURES

- Graphics Insertion: HTML5 (transparent background)
- Video output formats: SMPTE 2110-20, NDI®, SRT, JPEG XS, Dante AV
- Resolution: SD, HD, 3G, UHD
- Runs on standard servers where it makes most sense: on premise, in private data centers or in the cloud
- Caters to all formats and workflows at the click of a button, with instant spin-up/start/stop/spin-down

Dante support for HOME Apps is a future product development.

A__UHD Core

PROCESSING

Ultra-high Density
Next-Gen IP Audio Engine

What is it?

The A__UHD Core is a network-based, software-defined audio DSP engine with unparalleled processing density and flexible, environment-conscious console core functionality.

What does it do?

The A__UHD Core is the next-generation audio engine for Lawo's mc² audio production consoles, designed as a network-based, software-defined IP DSP engine for mc²36xp, mc²56 and mc²96 production consoles.

Its ultra-high processing density translates into 1,024 mc²-grade DSP channels, which can either be utilized by a single mc² console – to cope with even the most challenging productions – or be shared among multiple consoles for effective and space-efficient resource pooling.

A flexible licensing model makes the A__UHD Core ideal for both mobile applications and facility use. Its scalable DSP performance with temporary licenses is a clever way to turn CAPEX into OPEX. Resource pooling and flexible allocation of DSP resources to multiple physical and GUI-based mixing surfaces maximizes ROI for your audio infrastructure.

The A__UHD Core features low-noise cooling and is set to meet and exceed exacting demands regarding production quality and reliability. Eight independent 1GbE network interfaces enable the use of redundant networks via ST2022-7 Class C seamless protection switching (SPS) in both LAN and WAN environments. Full hardware redundancy can be achieved using a second hot-spare unit.

NEW

mxGUI, the fully-fledged mixing software for mc²/ A__UHD Core platforms, now also runs on Apple Silicon. What you see above can be a mixer in its own right!

In addition to its pristine DSP processing, the A__UHD Core features Lawo's HOME functionality, which makes IP setups for Lawo mc² consoles as simple as analog. Best of all: the A__UHD Core is a future-proof investment with a feature-set that keeps expanding.

Scan here for details:

KEY FEATURES

- Up to 1,024 Lawo-grade DSP channels on 1RU (48Hz and 96 kHz modes)
- Console core and DSP powerhouse for mc²36xp, mc²56, mc²96 and headless consoles
- Remarkably space, weight and power efficient
- IP network processor based on open standards (ST2110-30/-31, AES67, RAVENNA)
- Full redundancy: SPS stream redundancy (ST2022-7) with 8x 1GbE-capable independent SFP network interfaces plus hardware redundancy via a hot-spare redundancy unit
- Sub-millisecond network latency via special high-performance RAVENNA profile
- Show control integration via the Open Sound Control (OSC) protocol, also supports ADM-OSC
- Futureproof, software-defined hardware: Every system release adds important new features
- HOME native: Analog-style, intutive IP setup

SMPTE ST 2110 · AES67 · RAVENNA · lives@HOME

POOLING 4/8/16/32 LICENSES

The optional Pooling licenses allow operators to use a single A__UHD Core to power 4, 8, 16 or 32 mixing consoles, each utilizing DSP resources in multiples of 32 channels. Each slice comes with its own routing matrix and mixing console peripherals, and is operationally completely independent.

SPECS

Dimensions (H x W x D): 44mm (1 RU) x 483 mm (19“) x 353 mm (13.9“)
Weight: 7.4 kg (16.3 lb)

Connectivity: 8x 1GbE ports via SFP (switchable, RJ45 or fiber options)
2x 1GbE ports via RJ45 (management)

See page 18 for a HOME Apps-based DSP engine for mc² and crystal consoles

HOME Apps with a built-in WORKSPACE

HUMAN INTERFACES

Lawo Workspaces

My HOME App is My Workspace

NEW

What is it?

User interfaces for anytime–anywhere control of compatible HOME Apps.

What does it do?

Lawo Workspaces are a novel, mobile approach to working with Lawo's platform-agnostic HOME Apps. They are remotely accessible user interfaces wrapped around modular, microservice-based HOME Apps that provide mission-specific production functionality on the go. With their HTML5-native UI layer, Lawo Workspace-ready HOME Apps can be controlled from any desktop, laptop, tablet, or phone—providing low-latency audio, video, and control via a browser-based user interface.

Lawo Workspaces are responsive: they run on any device, on any OS—anywhere—and automatically adapt to different screen sizes, aspect ratios and orientations. Taking advantage of modern browser media capabilities, they can be used full-screen or picture-in-picture right out of the box.

Lawo Workspace user interfaces are also accessible, supporting resizable text, responsive reflow, and selectable high-contrast variants for both light and dark themes. They are even AR-ready for next-generation headset-based workflows.

Users are free to combine one workspace-savvy HOME App with the information supplied by another, e.g., for audio applications that also require video. A virtual VSM web panel can be embedded directly into the Workspace UI whenever more customization is needed.

HOME Apps with a Lawo Workspace UI leverage the modular, platform-agnostic architecture of the HOME Apps ecosystem. They combine microservices running on remote generic servers into broadcast-quality applications for workflows on the go. Like all HOME Apps, Lawo Workspace apps are protected by HOME's Authentication and Authorization systems that secure and encrypt all control and media flows.

KEY FEATURES

- HMTL5-based, virtual user interface for desktop and laptop computers, tablets and phones, OS-agnostic
- Adapt to any device, screen size and orientation
- AR-ready for a goggle-based user experience
- Possibility to integrate VSM workflow control
- Secured via HOME Authentication and Authorization, encrypted stream transport

NEW

HOME Commentary

What is it?

Stand-alone commentary solution for laptops and mobile devices.

What does it do?

Even a compact traditional commentary setup is still rather bulky and requires a solid technical background to get users up and running. The HOME Commentary app provides a fresh approach to any commentary scenario, whether off-tube or on-location.

Commentators or contributors can monitor up to 2 videos, send their audio and video to production for contribution or monitoring, and interact with production coordination via a built-in talkback route. In its most compact form, the Lawo Workspace UI built into the HOME Commentary App can be accessed on any laptop, tablet or phone and only requires a microphone and a pair of headphones to get started.

In the event of an issue, an engineer can access the same browser-based workspace to provide tech support from anywhere in the world without first setting up a second line or using dedicated remote control software.

The commentator's coordination mix and talkback are processed in the HOME Apps backend, but can also be controlled directly from the Workspace UI. A built-in audio engine provides local mixing and low-latency monitoring directly in the HOME Commentary app.

SMPTE ST 2110 · JPEG XS · NDI · SRT · NMOS · lives@HOME · Dante · Lawo FLEX

While commentators a free to use a high-end audio gateway for top-tier events, remote commentary jobs can also be handled with a USB-C microphone to which a pair of headphones is connected, and the host device's built-in camera. The HOME Commentary app delivers all-in-one commentary in its most intuitive form with a proven track record at global events.

KEY FEATURES

- HMTL5-based user interface, OS-agnostic
- Reliable video and audio monitoring, contribution, and platform-managed tech support
- Adapts to any device, screen size and orientation
- Requires only a microphone and a pair of headphones for small assignments, supports audio interfaces and high-quality video cameras
- Secured via HOME Authentication and Authorization, encrypted stream transport
- Commercial flexibility through Lawo FLEX

HOME Apps with a built-in WORKSPACE

HUMAN INTERFACES

NEW

HOME Video Monitor

What does it do?

The HOME Video Monitor app delivers low-latency video and audio to any location, on any device. Designed for broadcast and AV professionals with a million things to do, this HTML5-based app for laptops, mobile devices, and AR goggles is a light-weight solution for heavy-duty video monitoring tasks.

Capable of showing between one and nine concurrent video streams, with and without audio metering, this HOME App boasts a highly responsive design. Just tap and choose a source—all routing in the background is handled transparently by HOME. For tweaks to the workflow, a VSM web panel can be integrated directly in the Workspace UI to leverage the power and flexibility of the most comprehensive broadcast control system.

The modularity of the HOME Apps platform has allowed Lawo to equip the HOME Video Monitor app with a transcoding function: just route the required sources to the app and watch them appear in the selected PiP frames. If a source is already in the expected format (WebRTC), users can skip the transcoding stage and leverage that unused processing power for other tasks.

HOME Video Monitor natively supports both full-screen and picture-in-picture display, allowing users to keep an eye on their content while working in another app or Lawo Workspace.

What is it?

Video monitoring tool on the go.

KEY FEATURES

- HMTL5-based user interface, OS-agnostic
- Reliable video monitoring for broadcast, AV and other applications
- Adapts to any device, screen size and orientation
- Bundled with a stream transcoder to support multi-format video sources
- AR-ready for a goggle-based user experience
- Possibility to integrate VSM control
- Commercial flexibility through Lawo FLEX
- Secured via HOME Authentication and Authorization, encrypted stream transport

Dante support for HOME Apps is a future product development.

NEW

HOME mc² crystal Controller

What is it?

Display and virtual control companion for a crystal console in Controller mode.

What does it do?

The HOME mc² crystal Controller app is the missing link for mixing scenarios where compact crystal consoles complement a large mc² audio control surface operated by the A1.

So far, audio teams were able to choose between an eight-fader crystal and a six-fader model with a host of assignable buttons and controls to assist the main audio supervisor working on an mc² console. Although this was a major breakthrough when it was first announced, such a workflow relies on the fact that all sound engineers are in the same location: an audio control room, adjacent galleries or in the hall where the audio can be monitored via the sound reinforcement system.

Truly distributed mixing scenarios from different locations, however, used to require a fair amount of audio and video infrastructure in addition to a compact crystal console. With HOME mc² crystal Controller, a virtual extension, or a tablet or laptop placed behind it can display high-resolution audio meters and a video feed for the project operators are working on. The audio received by the app can also be monitored using compact active monitor speakers or headphones connected to the host device.

HOME mc² crystal Controller and its Workspace UI are a momentous step for the convenience of IP-networked workflows that involve distributed secondary or unobtrusive primary mixing positions: this app allows talented sound engineers to work from an assigned location or their hotel room before or after an on-location assignment.

KEY FEATURES

- HMTL5-based user interface, OS-agnostic
- High-resolution audio metering, video monitor function, access to more mixing functions, and convenient audio monitoring
- Perfect for broadcast, AV and live events
- Adapts to any device, screen size and orientation
- Only requires a pair of headphones for compact workflows
- AR-ready for a goggle-based user experience
- Secured via HOME Authentication and Authorization, encrypted stream transport
- Commercial flexibility through Lawo FLEX

Dante support for HOME Apps is a future product development.

mc²36 xp

Small Footprint, Well Connected

HUMAN INTERFACES

What is it?

The most compact of Lawo's top-of-the-line audio production console range, with Lawo's acclaimed audio quality, IP network and processing redundancy.

What does it do?

Physically identical to the mc²36, but without on-board processing, the mc²36 xp supports up to 384 DSP channels and offers Lawo's acclaimed audio quality, IP network and processing redundancy. Eligibile for a multi-slice console array based around a single A__UHD Core DSP processing unit, it can also control a HOME mc² DSP app instance on a generic server.

The mc²36 xp caters to the expectations of sound supervisors who wish to benefit from a consistent user experience in all of their production hub's audio control rooms, OB trucks and venues where space is at a premium.

True to its "xp" moniker, the console requires external processing. In combination with an optional Pooling license, it can share the DSP heft of one A__UHD Core with up to 31 other virtual or physical console surfaces for cost-effective premium audio processing (Pooling 4, 8, 16 or 32 option), while also being the perfect companion for Lawo's HOME mc² DSP app.

Available with 16, 32 and 48 faders in a sleek, ergonomic footprint, the mc²36 xp comes with the same pro-grade controls and touchscreens as the mc²56 and mc²96. Its on-board I/O capability is identical to the inputs and outputs offered by its all-in-one mc²36 console sibling: 16 Lawo-grade Mic/Line inputs, 16 Line outputs, eight AES inputs and outputs, eight GPI/Os, plus a local MADI port (SFP).

The mc²36 xp supports 48kHz and 96kHz operation, state-of-the-art immersive audio mixing and all relevant IP standards (SMPTE ST2110, AES67/RAVENNA, ST2022-7). It is a HOME native and offers seamless production file compatibility with its mc² siblings.

KEY FEATURES

- Compact addition to Lawo's unrivaled audio production console series
- Automated mixing assistants incl. Automix, Audio-follows-Video, Downmix, and KICK 2.0
- Up to 384 DSP channels, supports A__UHD Core Pooling licenses and HOME mc² DSP app
- Open Sound Control and ADM-OSC support
- Integration with Waves SuperRack systems via ProLink
- Immersive audio support up to 9.1.6
- Integrated EBU R128 and ATSC A/85 loudness metering
- 3D multichannel downmixing for all supported immersive channel counts
- Convenient data portability among mc²-series consoles
- Parallel "New York" Compression
- Mirror Console mode for theater, opera, and musical applications as well as remote production scenarios
- Flexibility: Oversnaps, Snapshot preview, and VCA maps
- Communication with an external, HOME-managed, control system (XCS) possible
- Comprehensive Local I/O: MADI, AES3

SMPTE ST 2110 · AES67 · RAVENNA AES67 & ST 2110 built-in · lives@HOME

SPECS

- Frames with 16, 32, 48 faders (dual fader arrangement)
- 48kHz & 96kHz operation
- 7-band-EQ (fully parametric) with up to 3 dynamic bands per channel strip, 20Hz~20kHz, Q 0.2~80
- Up to 240 inputs with A/B/C input, up to 128 AUX busses, up to 96 groups, up to 96 main Sums, up to 32 Automix groups per virtual mixer, up to 128 VCA groups with metering, 256 GP channels
- ST2110-30/-31/AES67/RAVENNA, GPIO, MIDI, NDI, SRT, WebRTC, DANTE® (via PowerCore Gateway/RP)

Scan here for details.

crystal

Versatile Broadcast Console Shines Like a Diamond

HUMAN INTERFACES

What is it?

With two distinct modes of operation—Power Core and Controller—and available in light and dark finishes, the new crystal is the perfect companion for a variety of broadcast applications.

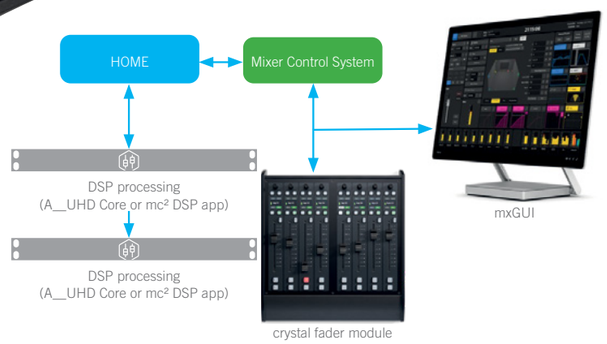
What does it do?

Based on Lawo's acclaimed diamond philosophy, crystal's design feels instantly familiar and straightforward, giving broadcast professionals a highly intuitive mixing console. While crystal is a true production workhorse for small to mid-sized on-air studios, its applications go way beyond radio. Its IP-native, high-density 6- or 14-fader control surface is amazingly configurable.

Every control on crystal's surface has been exactingly placed. Directly derived from diamond, for which our talented designers studied the way that producers, hosts and talent work, it makes moving from a large to a smaller studio or MCR seamless, because the design philosophy and superior quality of crystal and diamond are identical.

The result is masterful. There's the optional Virtual Extension, a full-HD, 10-point multi-touch screen display filled with context-sensitive information that augments advanced workflows. Illuminated controls group functions by color, a full-color display on each fader strip shows source names, input metering, source functions and user labels, and Lawo's AutoMix functionality allows for hands-free mixing by automating the task of keeping levels optimized.

All of this, plus a host of other assistive mixing technologies, enable crystal operators to produce technically superior radio programs, while simultaneously delivering compelling, engaging content.



In Controller mode, the Main and Fader modules of a crystal console operate independently over IP. This turns the new crystal into a convenient OSC-compliant hardware controller for Lawo mc² systems and digital audio workstations (DAW).

KEY FEATURES

- Single or multi-frame, tabletop or counter-sunk mounting
- High-density control surface with a minimal footprint
- Light and dark surface options for perfect optical integration into any application scenario
- Two modes: 1) Power Core mode for high-quality broadcast; 2) Controller mode for Lawo mc² systems and OSC applications
- Optional Virtual Extension touchscreens (also flush-mountable to harmonize with counter-sunk console installations)
- crystal App provides intuitive and guided workflows on any display monitor
- Premium components selected for long life and precise operation
- Full-color context-sensitive fader strip displays provide extended source information
- User mangement and snapshots can be shared across studios and between crystal, diamond and virtual interfaces

SPECS

- Available with 6, 8 or 14 physical faders
- Up to 96 input channels with full DSP capabilities
- Up to 80 summing busses
- Stereo, mono and 5.1 mix outputs
- Works with a Power Core Software-Defined DSP Mixing Engine & Modular I/O Device, and mc² systems
- Standards-based RAVENNA/AES67 networking with ST2110-30/-31 and ST2022-7 compliance

Get the complete crystal brochure here:

SMPTE ST 2110 · RAVENNA AES67 & ST 2110 built-in · AES67 · Dante · NMOS · lives@HOME

diamond

HUMAN INTERFACES

Modular Broadcast Console
A Cut Above

What is it?

Multipurpose modular broadcast console with advanced workflows for fast-paced production.

What does it do?

diamond blends form, function and sophisticated workflow capabilities into a brilliant new broadcast mixer. Completely modular, it sizes from 2 fader “personal” consoles up to 60-fader master-control and production configurations; dual-layer operation effectively doubles fader count. Nine different module types allow diamond to be perfectly tailored to main studios, production facilities, news booths, and remote studio operation.

Productivity is diamond’s forte. Each control can be programmed to fit individual user preferences. Function keys and rotary selectors with LED backlights are color-coded by function for fast operation. Tight integration with popular playout systems, coupled with context-sensitive color displays and premium motorized faders, provide an information-rich mixing environment.

Optional Virtual Extension modules seamlessly integrate touchscreen control into the mixing surface. Their big 13.3” adjustable-angle HD color touchscreens complement physical controls with context-sensitive PPM and loudness metering, access to DSP and routing functions, user and snapshot management, and custom control screens (powered by Lawo VisTool) for playout systems, third-party studio gear and custom logic functions.

diamond’s mixing/routing core, the award-winning Power Core, is a native RAVENNA/AES67 device. In addition to providing expandable I/O for AES67, MADI, analog, AES3 and Dante® audio sources and destinations, each Power Core supports up to 4 mixing consoles/studios with the MAX license package, making diamond + Power Core a compelling choice for studios of any size.

KEY FEATURES

- Single or multi-frame, tabletop or counter-sunk mounting
- Completely modular: choose from 9 different fader, central, rotary & key control panels
- Optional Virtual Extension touchscreens (also flush-mountable to harmonize with counter-sunk console installations)
- diamond App provides intuitive and guided workflows on any display monitor
- Premium components selected for long life and precise operation
- Full-color context-sensitive fader strip displays give extended source information
- Standards-based RAVENNA/AES67 networking with ST2110-30/-31 and ST2022-7 compliance
- User mangement and snapshots can be shared across studios and between, crystal, diamond and virtual interfaces

SPECS

- Scalable from 2 to 60 physical faders
- Up to 96 input channels with full Lawo DSP capabilities
- Up to 80 summing busses
- Stereo, mono and 5.1 mix outputs
- Works with Power Core DSP Mixing Engine & Modular I/O Device

SMPTE ST 2110 · RAVENNA AES67 & ST 2110 built-in · AES67 · NMOS · lives@HOME

Scan here for details:

crystal Clear

HUMAN INTERFACES

Virtual On-Air Control Interface

What is it?

A PC-based virtual radio control interface with an intuitive Self-Op view designed for gifted radio hosts with little or no technical background, a separate Broadcast Engineer view for more advanced operations, and countless handy features.

What does it do?

crystal Clear is an intuitive, software-based control surface for tightly integrated, all-virtual radio workflows. It caters to the needs of a new generation of talented radio hosts in search of a tool for spontaneous and entertaining storytelling.

Controlling audio and web sources as well as playout solutions from a touchscreen is especially appreciated by guests and hosts who might feel overwhelmed by all those buttons, knobs and faders that need to be operated in tandem with at least one screen. As today's radio shows are produced from just about anywhere, both public and private radio stations have adopted remote production scenarios to elevate their storytelling and breaking news reports.

With crystal Clear, Lawo's extensive experience with the creation of virtualized control interfaces culminates in a virtual radio command center that integrates seamlessly with both traditional studio equipment and third-party software solutions, based on open, standard APIs (HTML and Ember+). Controls for commonly-used devices—codecs, phone systems, playout and automation software, editing platforms, etc.—are presented alongside the on-screen faders, start/stop functions, mic and monitor controls, video and social media tools, for a clutter-free, easy-to-use tool for the modern radio studio.

The crystal Clear package delivers an unparalleled performance-to-cost ratio. It features both an intuitive Self-Op view designed for radio hosts with little or no technical background, and a separate Broadcast Engineer view for more advanced operations. It offers assistive technologies for audio enhancements only a few physical consoles can provide, including automated mic input gain, automatic fade in/out, AutoMix groups for hands-free automated mixing of different source types, and more.

SMPTE ST 2110 · RAVENNA AES67 & ST 2110 built-in · AES67 · lives@HOME

SPECS

- Control a Power Core Modular I/O and DSP device using one of the following licenses:
- "Console Compact" (2~14 faders, for small self-op studios, talk studios, remote production and OB vans); or
- "Console MAX" (up to 4 typically-sized, independent radio consoles, for as many operators).
- Add more local I/O (microphones and headphones) with the Lawo Audio I/O Extender (AIOX)

Most radio studios tend to stack display screen upon screen: playout systems, web browsers, social media and messaging apps, and routing interfaces all require screen real estate. Three or more monitors per studio seem to be the rule rather than the exception.

crystal Clear consolidates disparate displays and controls for an ergonomic and uncluttered working environment where hosts and guests can see each other and interact freely, naturally, and spontaneously.

In addition to Self-Op mode (a self-contained, standalone virtual mixing interface), crystal Clear offers an Automation Assistant mode that takes care of mixing tasks likely to distract operators from creating compelling content.

KEY FEATURES

- Perfect for (home) studio and remote applications
- Supports fixed installations and ad-hoc live broadcasts as well as mobile and wireless configurations
- Unparalleled performance-to-cost ratio
- Self-Op view for radio hosts and separate Broadcast Engineer view for advanced operations
- Assistive technologies: automatic mic input gain, automatic fade in/out, AutoMix groups, and more
- Ergonomic and uncluttered working environment where hosts and guests can see each other
- Works right out of "the box": no time-consuming setup and configuration

HOME of IP Media Infrastructure.

HEADQUARTERS

LAWO AG
Rastatt
GERMANY
+ 49 7222 1002 0
sales@lawo.com
www.lawo.com

INTERNATIONAL OFFICES

CANADA	+ 1 416 292 0078
CHINA	+ 86 10 6439 2518
NORWAY	+ 47 22 106110
SINGAPORE	+ 65 9818 3328
SWITZERLAND	+ 49 7222 1002 0
UK	+ 44 333 444 5296
USA	+ 1 888 810 4468

RENTAL SERVICE

+ 49 7222 1002 0
rental@lawo.com

690-0001-000

Carbon neutral
Print product
ClimatePartner.com/12518-1907-1001

This document is printed on FSC®-certified paper.