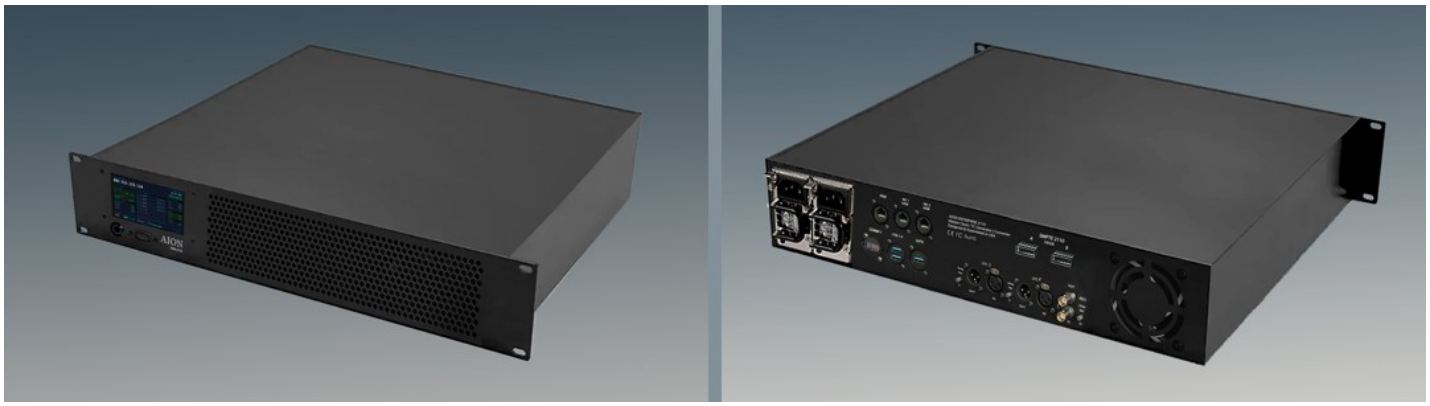
IEW Solutions · Pre-Release 2026

# AION ENTERPRISE

## GPS-Disciplined ST 2110 Grandmaster · 8-Channel UHD Overlay · Complete Facility Timecode Distribution Hub

If you're building ST 2110 infrastructure, the grandmaster clock is the foundation everything else depends on. Aion Enterprise starts there — and adds every timecode format your facility needs, all from one GPS reference, all in a single 2U rack appliance.



| 8 | 100G | <1µs | 6 | 2U |
|---|---|---|---|---|
| UHD Channels | Dual Media Ports | PTP Accuracy | Time Sources | Rack Format |

TIMECODE DISTRIBUTION

## Six distribution mechanisms. One GPS reference.

Every timecode format your facility needs — PTP, embedded LTC, hardware LTC, IRIG A/B, Art-Net, TSL-UMD, UDP — all derived from the same GPS-disciplined UTC reference, all mutually coherent, zero inter-source drift.

**PTP Grandmaster** Dual 10GbE, IEEE 1588-2008, ST 2059-2 profile, sub-microsecond accuracy

**ST 2110-30 Embedded LTC** 8 independent channels, independent frame rate, value and offset per channel

**Hardware LTC / IRIG A/B** 4 dedicated 600 MHz subprocessors — LTC generator, LTC reader, LTC/IRIG gen, LTC/IRIG reader

**Art-Net · TSL-UMD v5.0 · Extended UDP** Network timecode for lighting, multiviewers, and custom integrations. All GPS-coherent.

CORE CAPABILITIES

## Every role the ST 2110 fabric demands. In a single 2U box.

PTP / IEEE 1588

### GPS-Disciplined Grandmaster Clock

linuxptp grandmaster, dual hardware-timestamping 10GbE, sub-microsecond accuracy, SMPTE ST 2059-2 profile. Forward-capable to IEEE 1588-2019 via software update.

ST 2110-20/30/40

### 8-Channel Ultra HD Overlay Engine

Eight simultaneous UHD channels — ingest, CPU-based overlay rendering, independent LTC embedding per channel in ST 2110-30 audio, and egress. All GPS-locked.

4 Subprocessors

### Hardware LTC & IRIG Distribution

Four dedicated 600 MHz subprocessors: LTC generator, LTC reader, LTC/IRIG A/B generator, LTC/IRIG A/B reader. Two independent LTC outputs and inputs when IRIG is not in use.

SMPTE 2022-7

### Dual 100G Redundant Media Paths

Two QSFP28 100G Ethernet ports with SMPTE 2022-7 seamless protection switching. One path fails — the system does not notice.

Art-Net / TSL / UDP

### Network Protocol Distribution

Art-Net timecode for lighting and show control. TSL-UMD v5.0 for multiviewers. Extended UDP for custom integrations. All GPS-coherent, all simultaneous.

N+1 Redundancy

### Hot-Swap Redundant Power

Industrial redundant PSU — two independent 500W modules, N+1 architecture, fully hot-swappable. 90-264 VAC full-range input.

HARDWARE PLATFORM

## Built for broadcast reliability. Not consumer price points.

| | |
|---|---|
| **Processor** | Intel Core i9-14900K — 24 cores, up to 6.0 GHz boost, DDR5 ECC UDIMM on W680 chipset |
| **Motherboard** | Server-class Micro-ATX, Intel W680, ASPEED AST2600 BMC, IPMI 2.0 remote management |
| **Memory** | DDR5 ECC UDIMM — error-correcting memory without Xeon hardware costs |
| **Media Interfaces** | 2x 100G QSFP28 — SMPTE 2022-7 seamless redundancy |
| **ST 2110 Standards** | 2110-20 (video) · 2110-21 (traffic shaping) · 2110-30 (audio/LTC) · 2110-40 (ANC) |
| **Overlay Processing** | CPU-based Cairo overlay engine — 8 high-priority threads with explicit CPU affinity |
| **CPU Cooling** | Dynatron L35 AIO liquid cooler — 305W Intel TDP rating, 2U rack compatible |
| **Power Supply** | Industrial redundant ATX — 2x 500W N+1 hot-swappable modules, 90-264 VAC |
| **Front Panel** | 3.5" 640x480 IPS DSI display — independent processor, USB serial to main system |
| **OS Platform** | Debian Linux — headless, hardened, no forced updates |
| **Form Factor** | 2U rackmount, custom enclosure, 19" EIA standard, designed & assembled in USA |

VALUE PROPOSITION

## What this used to require. What it requires now.

| Traditional Infrastructure | Aion Enterprise |
| --- | --- |
| - Standalone grandmaster clock: $8,000-$15,000 - 8-channel overlay system: $15,000-$30,000 - LTC distribution hardware: separate - Art-Net timecode: separate system or none - Multiple vendors, multiple support contracts - Integration engineering required - $30,000-$50,000+ total | + GPS-disciplined grandmaster clock + 8-channel Ultra HD overlay engine + Four hardware timecode subprocessors + Art-Net · TSL-UMD · Extended UDP + N+1 hot-swap redundant power + Single box. Single support relationship. + Priced significantly below comparable infrastructure |

## Aion Enterprise — Pre-Release Inquiries Open

Priced significantly below comparable infrastructure assembled from individual components. Contact us to discuss deployment requirements, request formal pricing, or download the full technical white paper.

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