Ultrix

Solution brief

Ultrix & NDI –
Scalability, flexibility & efficiency

Network Device Interface (NDI®) enables flexible video delivery over standard IP networks. It is supported by a large ecosystem of capable and affordable endpoint devices such as cameras and displays, along with the ability to easily bring NDI in and out of computers and workstations to incorporate conferencing platforms, access processing tools, and more. The benefits of NDI make it a compelling choice for enhancing hybrid infrastructures or building out NDI-centric workflows.

Ultrix is the only system that integrates NDI with a broadcast-grade production, processing and infrastructure platform, offering dedicated I/O modules for NDI streams and a unified control system that merges NDI natively into professional workflows.

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Ultrix supports anywhere from a handful to hundreds of NDI streams without the need for external converters or fragmented control systems. Streams are transparently managed, whether routed through Ultrix or logically connected between NDI devices. To operators, NDI functions like any other source or destination, with full access to Ultrix's integrated switching and processing. Even in hybrid environments with multiple transport formats, the operator experience remains consistent and intuitive. Transport diversity never adds complexity or changes the way they work.

By combining the benefits of NDI with broadcast-grade reliability, processing, and unified control, Ultrix delivers NDI flexibility with the performance required for top-tier live production and core infrastructures. The result is a unified approach that reduces infrastructure complexity, streamlines operations, and enables teams to focus on content creation instead of technical overhead. No other platform matches Ultrix in its combination of signal processing power, format-agnostic transport flexibility, and integrated control.

Scalable NDI I/O for Ultrix: MOD-NDI

The ULTRIX-MOD-NDI is a sub-module for the ULTRIX-MODX-IO modular I/O card. Each sub-module supports up to four NDI senders and receivers, with up to four simultaneous 1080p encodes/decodes and flexible audio support of 2 or 8 channels per stream. (see Ultrix-MOD-NDI Technical Info section for details).

Direct NDI support within Ultrix eliminates external conversion equipment, reducing cabling, lowering costs, and increasing reliability by removing points of failure. Up to four modules can be installed in a single MODX-IO card, enabling 16 NDI streams in and out per card. A fully populated 12RU Ultrix frame can scale to 256 NDI streams in and out, offering both granular provisioning and large-scale support. This makes MOD-NDI equally suitable for small systems with a handful of NDI devices or infrastructures built primarily around NDI.

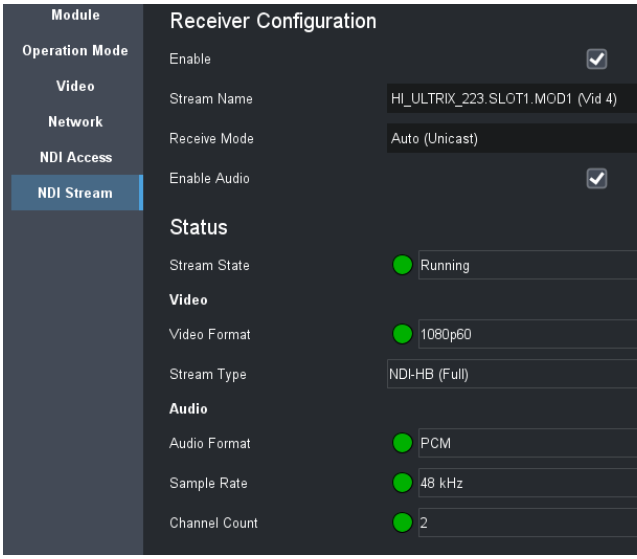
Bridging Media Formats

The ULTRIX-MOD-NDI extends Ultrix's ability to support multiple transports that already include SDI, ST 2110, JPEG-XS, and more. Ultrix provides a truly transport-agnostic solution that aligns with industry trends toward hybrid and IP-based workflows. This flexibility lets users leverage endpoint devices and infrastructures across different transport formats and physical layers, choosing the best technology to fit their technical needs, infrastructure, and budget. With Ultrix, formats can be mixed and matched to combine their strengths into highly functional, scalable workflows. Modular I/O cards and sub-modules make it easy to add or change supported transport formats as needs evolve, protecting your investment over the long term.

Reliable NDI for Professional Productions

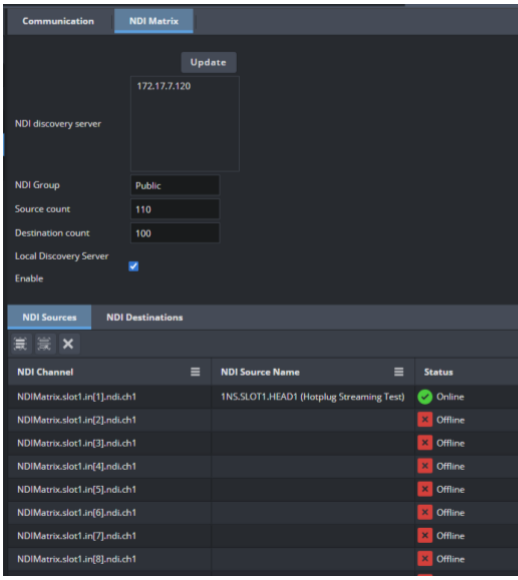
MOD-NDI delivers NDI I/O directly to the Ultrix fabric, giving operators access to the system's full suite of processing tools. Setup is straightforward: configure network parameters and common NDI options such as Discovery Servers and Access Groups, and the senders and receivers appear on the network, ready for use.

This elevates NDI to a broadcast-grade option, integrating directly with Ultrix Carbonite, Carbonite HyperMax, and Acuity switchers for live production. It also gains the advantages of Ultrix Hyperconverged features, including integrated multiviewers, synchronization, format conversion, color correction and more. The result is robust NDI support with the flexibility to support both hybrid and NDI-centric environments.



Unified NDI Control: Ultricore-IP

With ULTRIX-MOD-NDI installed, its NDI senders and receivers appear in Ultrix like any other I/O, accessible through all supported control surfaces. For larger systems, the Ultricore-IP license extends Ultricore BCS control capability to include both ST 2110 and NDI streams. Ultricore BCS is the Ultrix system controller that manages distributed systems, integrates third-party devices, and provides northbound interfaces to third-party control and automation systems. Scalable to thousands of multi-format audio and video streams, Ultricore BCS serves as a configurable backbone for operations of any size or complexity.



Ultricore-IP adds NDI Router functionality that automatically registers endpoints from specified Discovery Servers, populating them into the matrix database. Logical routes can then be created to directly connect NDI receivers and senders, bypassing Ultrix when no Ultrix processing is required.

Seamless Integration, Familiar Operation

Within Ultricore-IP, NDI endpoints are managed alongside SDI, ST 2110, and other transports. Operators interact with them through Ultritouch touchpanels, push-button panels, or DashBoard exactly as they would with any other source or destination. With the Ultricore-TLX tie-line manager license, multi-hop operations such as format bridging (for example, SDI to NDI) are automatically resolved into the shortest path and presented as a single routing action. For operators, this means every connection, NDI included, is handled with the same simple, familiar workflow. Ultricore-IP stands out in its ability to deliver seamless control across multiple transport formats, including NDI.

When third-party systems are involved, NDI sources and destinations are accessible through standard protocols including OGP, GVG 7000, and Probel SW-P-08. External systems integrate once with Ultricore BCS rather than requiring duplicate paths to a separate NDI controller, simplifying control in complex environments.

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Rock-Solid NDI Control, 24/7/365

Ultricore-IP brings NDI control up to the reliability standards expected in live productions and professional media infrastructures. Running on broadcast-grade Ultricore BCS hardware, it is designed for continuous 24/7/365 operation. Redundant configurations eliminate single points of failure to ensure uninterrupted performance in mission-critical environments. With Ultricore BCS and Ultricore-IP, NDI control is no longer a weak link; it operates with the same confidence and resilience as the rest of your core infrastructure.

Ultrix-MOD-NDI Technical Info

Supported Hardware

- Ultrix Frames: FR1-NS, FR2-NS, FR5, FR5-NS and FR12
- Ultrix I/O Cards: ULTRIX-MODX-IO

Interface

- 1x GigE RJ45

Video Support

- 720p, 1080i, 1080p at all field/frame rates supported by Ultrix, less Level B and pSF variants
- YUV 4:2:2, 8-bit

Video/Audio/Network Modes

The ULTRIX-MOD-NDI supports two operating modes:

Streams	Audio	Network
1. 4 in / 4 out mode - up to four simultaneous NDI streams in/out	2 audio channels per stream	TCP - Single or Multi
2. 2 in / 2 out mode - up to two simultaneous NDI streams in/out	8 audio channels per stream	UDP, rUDP, TCP - Single or Multi

When sources routed to MOD-NDI include more audio channels than the mode allows, only the first 2 or 8 channels will be forwarded, depending on the selected mode.

NDI

- Version 5.6
- Full bandwidth I-Frame compression (SpeedHQ2)

Network

- Unicast
- Static IP and DHCP
- Discovery: mDNS, NDI Discovery Server
- NDI Access Groups configurable on both send and receive paths

Per Frame Capacities, Fully Equipped

MOD-NDI Modules
- FR1-NS: 4
- FR2-NS: 12
- FR5, FR5-NS: 36
- FR12: 64

NDI Encodes/Decodes
- FR1-NS: 16
- FR2-NS: 48
- FR5, FR5-NS: 144
- FR12: 256