Meyer Sound has broken new ground in digital audio since the 1984 release of the original SIM source independent measurement system, and throughout the following decade with sophisticated multichannel digital audio mixing and processing products such as the LD-88 and Matrix3 audio show control systems, Galileo loudspeaker management system and Constellation acoustic system. Now Meyer Sound takes professional digital audio a step further towards its full potential with D-Mitri.

D-Mitri is a Gigabit network-based digital audio processing and distribution platform that is the foundation for Meyer Sound’s latest generation of digital technology. Meyer Sound’s LCS audio show control and pioneering Constellation acoustic system both utilize the D-Mitri platform.

D-Mitri provides an entire multichannel audio environment incorporating all I/O, signal processing, matrix mixing, routing, and loudspeaker management in a fully networked infrastructure with the flexibility to meet countless application-specific needs, while seamlessly accommodating growth.
D-Mitri is the digital audio platform that will take Meyer Sound’s digital products into the future, beginning with the LCS audio show control system and Constellation acoustic system.

Breaking Ground in All Directions

In order to ensure the highest quality sound, D-Mitri features 96 kHz sample rate and 64-bit floating-point processing resolution.

Networking is at the core of D-Mitri’s architecture, which incorporates AVB capability—the emerging IEEE 802.1 open standard for real-time media networking. This makes it easy to create a distributed D-Mitri system, with mic preamps and other components remotely located and controlled. It also eliminates the need for proprietary audio networks and extraneous cabling.

D-Mitri can operate in multichannel surround applications using virtually any number of channels, from popular formats like 5.1 to the hundreds of channels used in immersive environments such as theme parks and spectacle shows. Forged out of knowledge and experience gained over more than 18 years of mission-critical field installations, D-Mitri is both cost-effective and reliable, ensuring that your investment will pay for itself many times over.

Features and Benefits

- High-resolution audio
  - 96 kHz internal sample rate
  - Up to 64-bit floating-point processing
  - 24-bit A/D/A conversion
- True real-time networking environment
- Fully dynamic matrix mixing and routing for hundreds of channels
- Employs established open standards: IEEE 802.1 AVB, OSC, and Python scripting
- Surround playback in any number of channels
- Simultaneous multichannel recording and playback
- Scalable to meet the needs of each application
- Extensive programmability and automation
- Designed for growth: ample processing headroom, easily upgradeable firmware

Applications

- Performing Arts Centers and Performance Venues
- Theatrical and Spectacle Productions
- Corporate Events
- Houses of Worship
- Theme Parks
- Stadiums and Arenas
- Educational Facilities
- Museums and Planetariums
- Cruise Ships
- Themed Retail
D-Mitri provides an entire multichannel audio processing and distribution platform of tremendous power in a completely integrated system.

A Comprehensive Approach

D-Mitri encompasses the entire audio signal chain from microphone input to loudspeaker output: high-quality analog and digital input and output facilities, plus all signal processing, mixing, multichannel panning, matrix routing, even sound effects playback and loudspeaker management. Its CueStation software enables automation of virtually any parameter, letting you automate a single parameter or reconfigure the entire system at the push of a button.

With all of these capabilities in one system, tied together with sophisticated real-time networking and coordinated by potent control software, you can do a lot: control system modules wherever they are located, easily scale the system from small and lean to huge and complex, create sophisticated automation or custom scripts to accomplish specialized tasks.

Robust Technology

Built on quad-core technology and some of the most powerful FPGA (Field Programmable Gate Array) processors available, each D-Mitri DCP core processor provides complete signal processing for 72 inputs, 72 outputs, and 72 internal busses. When multiple core processors are required for larger systems, a DCM Core Matrix processor is added to dynamically mix and route up to 288 channels.

D-Mitri provides a complete feature set for each and every channel and bus. Systems built on a single DCP Core Processor can perform all matrix routing using only onboard capabilities. As a networked system, more components can always be added to increase the channel or I/O count.

Real-Time Performance to Meet Real-World Demands

Real-time applications require systems that are prompt and responsive. D-Mitri is designed from
Why AVB?

- Built on industry-standard IEEE 802.1 Ethernet
- Designed explicitly to satisfy the demands of real-time streaming media with guaranteed quality-of-service (QoS)
- Guaranteed low-latency
- Carries low-jitter master clock for reliable clocking and synchronization
- Sufficient raw bandwidth to support high channel counts through each AVB port
- Supported by AVnu Alliance™, an organization of major technology manufacturers from the professional AV, automotive, and consumer electronics industries, including Meyer Sound

Out of Many, One

Ethernet AVB networking capability enables D-Mitri systems to be easily scaled up and down in size, without any additional network system—proprietary or otherwise—lowering hardware and cable costs. AVB is a set of IEEE standards, which find widespread adoption, creating economies of scale and a large peripheral support ecosystem.

Flexibility

Components of a system can be in different physical locations, and multiple D-Mitri systems in an installation can share resources, including inputs and outputs. Routing inputs from a stage box in one venue or room to an audience or studio in another becomes simple.

Truly large-scale matrix routing is easily achieved for high I/O channel counts; in fact, D-Mitri offers the largest dynamic matrix available. Other systems require daisy-chain patching or use static preset driven matrices. D-Mitri is much more flexible, allowing sophisticated operations like fading an input channel from one output to another, rendered with pristine audio quality.

Reliability

D-Mitri incorporates redundant networked AVB audio paths as well as redundant control paths via a backup network or controller. I/O can be switched, a backup processor brought online, or a controller switched out with virtually no interruption in performance.
Many Things to Many People

D-Mitri is highly adaptable, malleable, controllable, and extensible, a broad platform on which countless end-to-end solutions can be built. Whether in a nightclub, a performing arts center, a large-scale live event, or a sophisticated theatrical production, D-Mitri can be configured to meet any requirements.

D-Mitri’s versatility owes much to its ability to communicate fluently with the outside world. In addition to Ethernet AVB capability and analog I/O, D-Mitri offers communication via CobraNet and AES/EBU. Plus, D-Mitri has ports for SMPTE, MIDI, RS-232, RS-422, Word Clock, and GPIO relays and contact closures.

Control

Serving the needs of many different applications also requires strong control options. D-Mitri’s client/server architecture makes it possible for multiple client controllers to command the system simultaneously. An extensive D-Mitri system for a theatrical production might be operated from a large-format CueConsole control surface at the FOH position, while backstage a second operator can make adjustments at the same time using a much smaller multitouch controller, such as an iPad or iPhone, running OSC control software.

D-Mitri is primarily controlled by the CueStation software. Previously used with Matrix3 audio show control system (D-Mitri’s predecessor), the newest generation of CueStation can easily run multiple show cue lists simultaneously.

When you need even more customized control, you can combine Python scripting with Open Sound Control (OSC) messages to automate any control point in the system. (OSC is an open-source specification for real-time control and messaging between media devices.)

Designed for Growth

A technology platform is a road into the future. Proprietary protocols in a platform impose restrictions, which is why D-Mitri leverages open systems for audio and control like AVB, OSC, and Python. D-Mitri’s processing devices have extensive processing headroom to accommodate tomorrow’s more complex algorithms, and its quad-core and FPGA technologies make upgrading easy. At the base of it all is D-Mitri’s network-centric foundation, which enables a D-Mitri system to grow to practically any size and configuration.
digital audio processing and distribution

**SMALL SYSTEM**
**D-MITRI CONFIGURATION**

```
I/O                         SWITCH                      DCP
```

**MEDIUM SYSTEM**
**D-MITRI CONFIGURATION**

```
I/O                         SWITCH                      DCPs                      DCM-2s
```

redundant DCP and DCM-2

**LARGE, DISTRIBUTED SYSTEM**
**D-MITRI CONFIGURATION**

```
I/O                         SWITCH                      DCPs                      DCM-4s
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redundant DCP and DCM-4

**Colors**
- AVB Network: Blue
- Matrix Link: Orange
Components

D-Mitri is a modular system easily configurable to serve projects of every type and scale.

All D-Mitri components except the DCM-2 and DCM-4 matrix mixing modules are equipped with Ethernet AVB capability. The matrix mixing modules have standard Ethernet ports for control, but move multichannel audio between themselves and DCP processors over Matrix Link, a dedicated, bufferless, ultra-low latency Ethernet connection carrying audio streams at a 96 kHz sample rate and 32-bit resolution.

All D-Mitri modules feature redundant networking connectors to offer the most flexibility and ensure the highest system reliability.

DCP D-Mitri Core Processor
- Dynamic matrix mixing and routing for 72 inputs, 72 internal buses, and 72 outputs
- Full EQ, delay, and dynamics processing for every input, output and bus
- Connects to a DCM-2 or DCM-4 via MatrixLink for larger matrices
- Optionally connects to a live backup DCM-2 or DCM-4 for redundancy
- Sends and receives channels over D-Mitri’s AVB-capable Ethernet network

DCM-2 D-Mitri Core Matrix
- Dynamic matrix mixing and routing for 144 inputs, 144 internal buses, and 144 outputs
- Combines processed channels from up to 2 DCPs, plus an additional live backup DCP for redundancy

DCM-4 D-Mitri Core Matrix
- Dynamic matrix mixing and routing for 288 inputs, 288 internal buses, and 288 outputs
- Combines processed channels from up to 4 DCPs, plus an additional live backup DCP for redundancy

DAI-24 D-Mitri Analog In
- 24 balanced mic-level or line-level XLR analog inputs
- High-quality preamplifier and precision A/D conversion for each channel, plus gain, phantom power, and -18 dB pad controls
- Transports input signals over D-Mitri’s AVB-capable Ethernet network
- Dynamic range of 115 dB
**How To Build It**

Getting a handle on the right D-Mitri configuration for your needs is easy.

The information below is enough to give you a solid idea of your system needs, but Meyer Sound's customer support will ensure your D-Mitri system is properly configured to completely meet all of your requirements.

**LCS Audio Show Control:**

For a system of up to 72 inputs, outputs, and buses, you need only a single DCP core processor and the input and output modules suitable for your connections. The DCP handles all audio tasks, including matrix mixing and routing, so no DCM module is needed.

For larger systems, first determine your I/O requirements: quantity and type. Then choose the complement of D-Mitri modules that meets those requirements. Add processors as needed to meet the channel count; each DCP processor handles up to 72 channels. Next, consider how many DCM matrix modules are needed to handle mixing and routing needs.

Finally, consider the options you may want. Need integrated audio playback and/or recording capabilities? Add the DWTRX Wild Tracks module. Have to connect to a MIDI-controlled lighting system or a SMPTE-driven theatrical production? Put a DGPIO module in the configuration.

**Constellation**

For information on configuring D-Mitri for a Constellation system, please contact Meyer Sound at constellation@meyersound.com

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**DA0-24 D-Mitri Analog Out**
- 24 balanced line-level XLR analog outputs
- Full-scale output conversion to +16dBu or +26dBu
- Receives output signals over D-Mitri’s AVB–capable Ethernet network
- Dynamic range of 115 dB

**DAIO-168 D-Mitri Analog I/O**
- 16 balanced mic-level or line-level XLR analog inputs
- 8 balanced line-level XLR analog outputs
- High-quality preamplifier and precision A/D conversion for each channel, plus gain, phantom power, and −18 dB pad controls
- Full-scale output conversion to +16dBu or +26dBu
- Dynamic range of 115 dB

**DAIO-816 D-Mitri Analog I/O**
- 8 balanced mic-level or line-level XLR analog inputs
- 16 balanced line-level XLR analog outputs
- High-quality preamplifier and precision A/D conversion for each channel, plus gain, phantom power, and −18 dB pad controls
- Full-scale output conversion to +16dBu or +26dBu
- Dynamic range of 115 dB

**DDIO-24 D-Mitri Digital I/O**
- 24 AES/EBU digital audio inputs and 24 AES/EBU digital audio outputs, presented as 12 XLR input connectors and 12 XLR output connectors
- BNC word clock input for sample rate conversion locking
- Sends and receives channels over D-Mitri’s AVB–capable Ethernet network
With more than 25 years of experience developing the best professional digital audio systems, Meyer Sound’s release of D-Mitri brings together the best quality digital sound with advanced networking capabilities.

**DCIO-24 D-Mitri CobraNet I/O**
- 24 channels of digital audio input and output conversion between CobraNet and D-Mitri’s AVB–capable Ethernet network
- Each of the three CobraNet interfaces provide 8 inputs and 8 outputs, through two redundant RJ45 connectors

**DGPIO D-Mitri General Purpose I/O**
- Input and output connections for external devices with various industry-standard interface types
- MIDI and MSC input and output, RS232 and RS422, SMPTE time code (LTC) XLR input and output, BNC word clock input and output, and a terminal strip for wiring relays and switch closures
- Sends and receives commands and clock data over D-Mitri’s AVB–capable Ethernet network

**DWTRX D-Mitri Wild Tracks**
- High-resolution (96 kHz sample rate, 32–bit word length) playback of 72 tracks and recording of 72 tracks, simultaneously
- Two 160 GB removable solid–state drives (SSD), capable of storing up to 120 track–hours of audio
- SafetyNet™ redundancy system buffers audio and switches to the second drive automatically if the first one is removed or has a problem
- Sends and receives audio over D-Mitri’s AVB–capable Ethernet network

**DVRAS D-Mitri VRAS**
- For use in Constellation acoustic systems built on the D-Mitri digital audio platform
- Provides input channel and VRAS (Variable Room Acoustic System) processing for up to 32 microphones and 32 return channels
- Includes internal SSD storage for system measurement and verification data
- Sends and receives audio over D-Mitri’s AVB–capable Ethernet network
A Distributed System

CEILING GRID

BASEMENT EQUIPMENT ROOM

FRONT OF HOUSE

AVB Network
Matrix Link
Control Network

I/O
SWITCH
SWITCH
SWITCH

I/O
SWITCH
SWITCH
SWITCH

I/O
SWITCH
SWITCH
SWITCH

I/O
SWITCH
SWITCH
SWITCH

Digital audio processing and distribution