D-Mitri

digital audio platform

Meyer Sound®

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D-Mitri | A Giant Step Forward

Since 2005, Meyer Sound has broken new ground in digital audio with breakthrough products like the Galileo loudspeaker management system, Matrix3 audio show control system, and Constellation electroacoustic architecture. These systems have taken professional digital audio a step closer to fully realizing its amazing potential. Now we're taking the next step, adding much more power and flexibility to create a state-of-the-art system: D-Mitri.

D-Mitri is a Gigabit network-based digital audio processing and distribution platform that will be the future foundation of Meyer Sound's new digital products, starting with the LCS audio show control system and second-generation Constellation system. D-Mitri provides an entire multichannel audio processing and distribution platform of tremendous power in a completely integrated system.

D-Mitri consists of network technology, a family of processing and input/output devices, a suite of high-quality signal processing firmware, and control software. D-Mitri is designed for flexibility and growth. This means that its hardware and software can both be optimized to meet application-specific needs.

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 electroacoustic architecture.

Breaking Ground in All Directions

True innovation raises the bar on multiple fronts. D-Mitri's excellence in every area clearly shows it to be a genuinely groundbreaking advance. Its 96 kHz sample rate meets the current standard for high performance, but D-Mitri goes beyond other systems with up to 64-bit floating-point processing resolution.

D-Mitri's networking architecture enables it to be configured and scaled to meet the demands of a multitude of applications, but its flexibility becomes exceptional with the capability to set up a D-Mitri system in a centralized processing scheme, a distributed design, or a hybrid of the two. Then D-Mitri moves even further into the future by connecting all of its devices together with AVB, the emerging standard for audio/video networking.

D-Mitri can operate in multichannel surround using virtually any number of channels called for by your application, from formats like 5.1 to the hundreds of channels required for extensive immersive audio environments.

Best of all, since its technology has been developed through four rounds of evolution over more than 10 years in the field, D-Mitri is both cost-effective and reliable, which ensures that your investment will pay for itself many times over.

Features and Benefits

- **High resolution audio**
  96 kHz sample rate
  Up to 64-bit floating-point processing
  24-bit A/D/A conversion
- **True networked environment**
- **Employs established open systems**
  AVB, OSC, and Python scripting
- **Surround playback in any number of channels**
- **Simultaneous multichannel recording and playback**
- **Systems can be scaled and configured** to meet the specifics of each application
- **Constellation systems employ second-generation VRAS algorithms with greater precision**
- **Extensive programmability and automation** accomplishes even the most complex tasks
- **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**

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A Comprehensive Approach

D-Mitri encompasses the entire audio signal chain from microphone input to loudspeaker output, including high-quality input and output (analog and digital), all signal processing, and matrix routing. Meyer Sound's Matrix3 system is renowned for the unrivalled and creative show control capabilities it can achieve by having the whole audio system "under one roof." D-Mitri takes these unique features the next step with deeper control and better performance.

D-Mitri's extensive control and networking capabilities enable input and output devices to be remotely controlled, and nearly every parameter in the system to be elaborately automated.

Robust Technology

When it comes to processing, D-Mitri is serious business. Built on quad-core technology and some of the most powerful FPGA (Field Programmable Gate Array) processors available, each D-Mitri core processor provides complete signal processing for 72 inputs, 72 outputs, and 72 internal busses, and up to 288 channels can be mixed by a single Core Matrix processor. Each Gigabit AVB port can carry up to 100 channels of 96 kHz audio.

Gone are the days of juggling the DSP load to get the facilities you need. D-Mitri provides a complete feature set for each and every channel. You won't run out of power, either. As a networked system, more components can always be added to increase the channel or I/O count.

D-Mitri

"Real-time" Means "Right Now"

Real-time applications require systems that are prompt and responsive. "In a moment" won't work. D-Mitri is designed from the ground up as a true real-time system, reacting immediately when a control is moved or a command sent. What's more, execution across the network is synchronous: all devices responding to that control or command do so at the same time.

Second Generation VRAS

Meyer Sound's patented VRAS technology is at the heart of the company's Constellation electroacoustic architecture. The hefty processing horsepower designed into D-Mitri allows for a second generation of VRAS processing with higher density and greater precision.

D-Mitri's 96 kHz operation gives VRAS double the reverberation density, but density is increased another fourfold by improvements in matrix processing. VRAS makes the best use of that increased density too, with nanosecond delay resolution that ensures reverberation tails are as uncolored as they are smooth.

About AVB

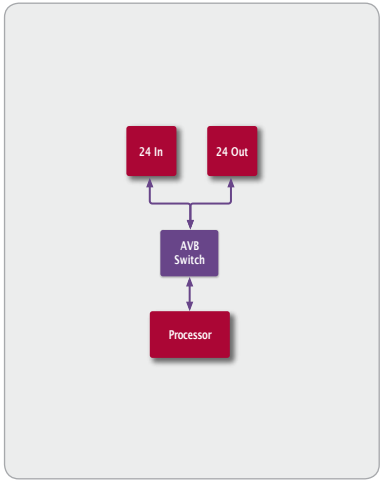
Audio Video Bridging (AVB, also called "Ethernet AV") is an emerging network standard built on IEEE 802 Ethernet, but designed to overcome Ethernet's traditional drawbacks for real-time streaming media: the absence of clocking and synchronization capabilities, and, most of all, lack of guaranteed quality-of-service (QoS)—the ability to always deliver audio samples and video frames in sync and on time.

AVB remedies these flaws by providing bandwidth reservations (to ensure on-time delivery), a low-jitter master clock, guaranteed low latency (0.25 ms or less per hop with a maximum of 2 ms or less through 7 switches) and a timing mechanism for synchronization. AVB designates enough raw bandwidth to carry up to 200 audio channels through a single Gigabit Ethernet port, though, in practical use, a portion of this may be traded off to achieve advanced features.

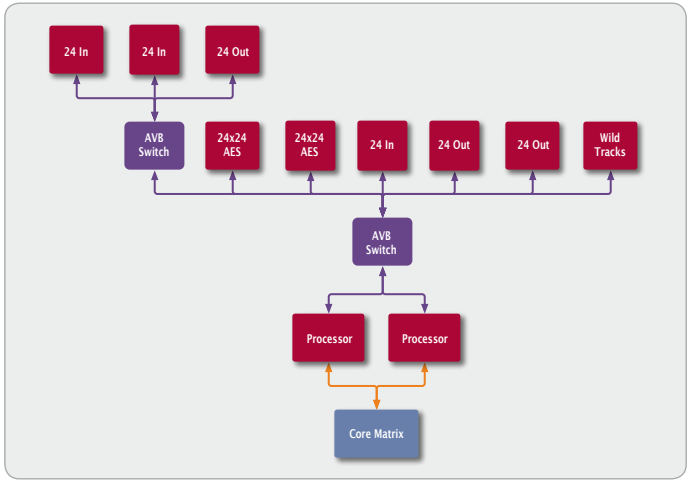
To achieve all of this, an AVB network segregates AVB traffic from standard Ethernet traffic and manages streams accordingly. That means that an AVB network can be interfaced with and carry data to and from a standard Ethernet network, but performance for streaming media can only be guaranteed amongst a group of devices all implementing AVB.

Interest in AVB goes far beyond professional audio. With technology companies from Apple to Cisco to Alcatel-Lucent to Broadcom participating in the standard's definition, you can expect to see AVB receive wide acceptance, turning up at home in consumer devices, as well as in the professional media world.

D-Mitri is a broad platform on which Meyer Sound can build audio show control, electroacoustic architecture, or any number of other networked audio applications.



A Small D-Mitri Configuration



A Medium-Sized D-Mitri Configuration

Many Things to Many People

As a system purpose-built for high-quality digital audio, D-Mitri is highly adaptable, malleable, controllable, and extensible. It is a broad platform on which Meyer Sound can build audio show control, electroacoustic architecture, or any number of other networked audio applications.

D-Mitri's flexibility owes much to its ability to communicate fluently with the outside world. All of D-Mitri's devices feature Audio Video Bridging (AVB), a new networking standard built on Ethernet, but designed to reliably deliver high definition information in real time.

But AVB is not all there is to playing well with others, so, in addition to analog I/O, D-Mitri offers communication via CobraNet and AES/EBU. And to round out the communication capabilities, D-Mitri has ports for SMPTE, MIDI, RS-232, RS-422, and GPIO.

A D-Mitri LCS audio show control system builds upon the legendary automation capabilities of the Matrix3 and its CueStation software by improving its ability to run multiple cue lists simultaneously. Now consider the possibilities presented by Python scripting in combination with automation of any control point in the system using Open Sound Control (OSC) messages. Taken together, it is clear that the potential for purpose-specific programming of D-Mitri to perform extremely complex tasks is nearly limitless.

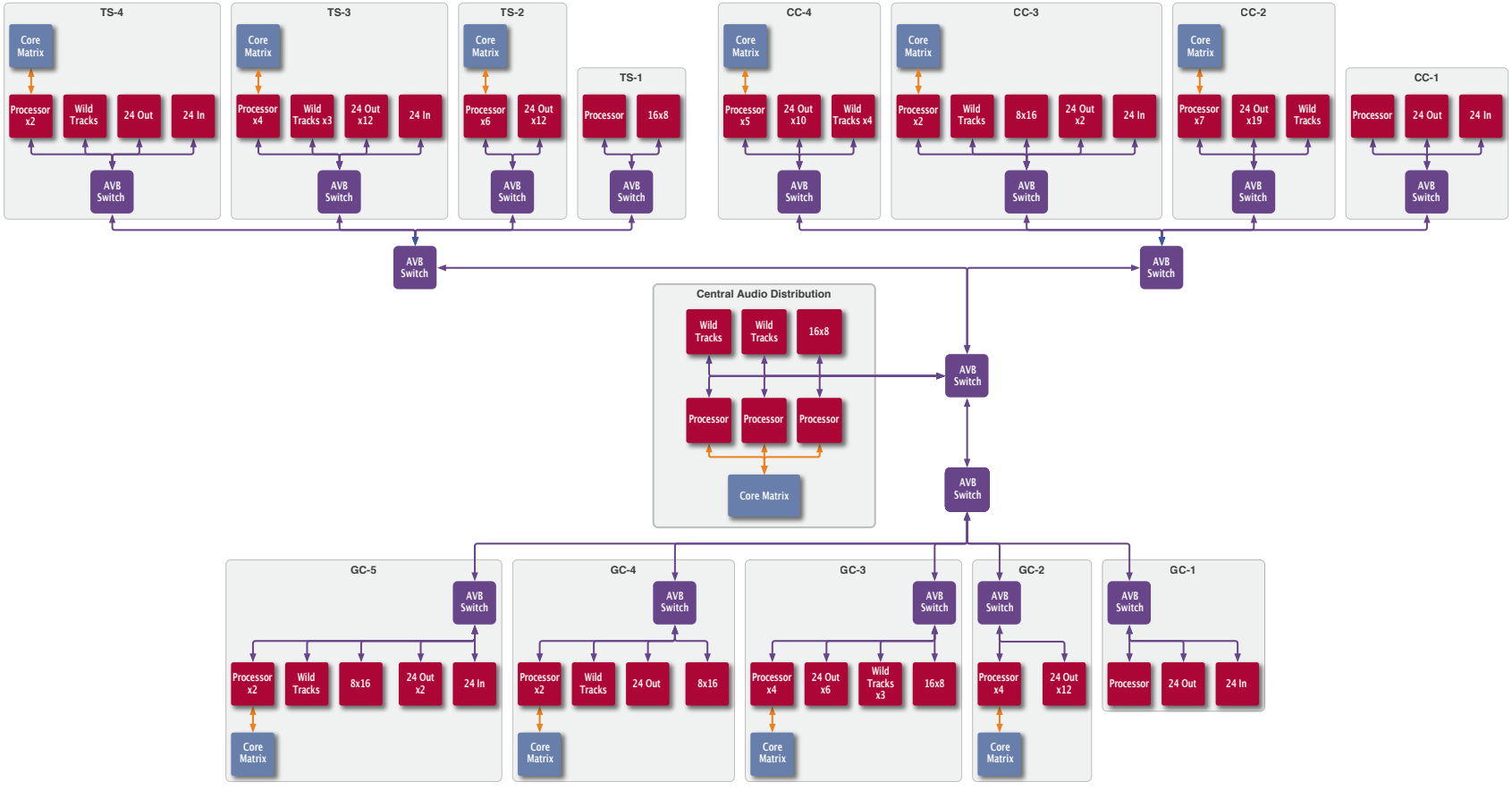
D-Mitri's client/server architecture makes it possible to have multiple client controllers commanding the system simultaneously, yet another example of how easily D-Mitri can be fit to the particular needs of nearly any application. An extensive D-Mitri system for a theatrical production might be operated from a large-format CueConsole control surface at the FOH position, while backstage a second operator can make adjustments at the same time using the much smaller Lemur multitouch controller.

Designed for Growth

A platform is not something created for one product, but for a journey down a technological path. Proprietary protocols in a platform impose restrictions on developers trying to go down that path, which can impede future growth. That's why D-Mitri leverages open systems for audio and control like AVB, OSC, and Python.

D-Mitri's processing devices have been endowed with extensive processing headroom to accommodate tomorrow's hungrier algorithms. Those algorithms won't be hard to get or install, either, since D-Mitri uses quad-core and FPGA technologies, which make upgrading any device's firmware a snap.

At the bottom of it all is D-Mitri's network-centric foundation, which enables a D-Mitri system to grow to practically any size and configuration.



A Large, Multi-System D-Mitri Configuration

AVB Network

MatrixLink

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