

PRESS RELEASE



OPTOCORE

July 2019

For Immediate Release

Optocore at the hub of Canada's major National Arts Centre development \$110m overhaul incorporates new AutoRouters

Based in Ottawa, and designed in the brutalist architectural style, Canada's National Arts Centre (NAC) has been serving the performing arts since 1969.

A bilingual, multi-disciplinary home for Canada's most creative artists, the NAC strives to be artistically adventurous in each of its programming streams — the NAC Orchestra, Dance, English Theatre, French Theatre, Indigenous Theatre and NAC Presents. Offering a variety of free programming and events, The Centre collaborates with artists and arts organizations across the country, invests in ambitious new works and nurtures the next generation of audiences and artists from across Canada.

As part of a recent \$110 million overhaul, globally-renowned integrators, Engineering Harmonics, were hired to design a comprehensive Audio/Visual system that would service their needs for the next 15 years and beyond. The project required upgrades to three of the performance spaces, replacing outdated equipment and infrastructure including some items from the original fit-out. These included Southam Hall, the Babs Asper Theatre and the Azrieli Studio and the upgrade included mixing consoles, speakers, amplifiers, DSP, intercom and a state-of-the-art digital fiber optic network provided by Optocore.

The NAC purchased a total of 54 Optocore units deployed across the three networks. Each venue was designed to have its own dedicated network, with a mix of permanently installed Optocore devices and mobile racks that could be moved freely between connection points in a venue or from one venue to another to accommodate larger shows where additional I/O was required. The Optocore networks are set to run at a 2Gb speed, with 96 kHz sampling rate for optimum audio quality and channel count. In the Studio/Back of House network there are nine network IDs of a maximum 24, utilising 176 of 384 audio inputs with an unlimited number of outputs. The Theatre system uses 10 network IDs and 208 inputs and Southam Hall has 13 IDs and 376 audio inputs.

At the heart of each network is one of Optocore's new AutoRouters. This can operate regardless of the network speed and sample rate and can be configured with a mix of Multimode or Singlemode transceivers to support any infrastructure with fiber ports for up to

20 different network access points. The AutoRouter functions like a smart, fiber patch bay; when the equipment at remote connection points is turned on and starts streaming data into the fiber, the device detects this data and automatically repatches its fiber ports to accommodate this new location. When remote racks are powered down or disconnected the AutoRouter adjusts its patching to maintain a redundant network and bypasses the now unused fibers. The AutoRouter saves operators having to manually repatch the network with jumpers or loopback connectors whenever a location is not in use, ensuring a redundant network, 100% of the time.

The AutoRouter is format agnostic so it not only creates Redundant Star topologies for Optocore or Digico SD equipment (using Optocore as its onboard network transport protocol) but can also be used with Yamaha TwinLANe and AVID AVB networks in standalone applications. This is due to the AutoRouter's ability to detect any incoming format of data and output it accordingly.

The Optocore system in each venue is a mix of DD32R-FX, X6R-FX and X6R-TP interfaces, configured for AES and analog audio, with additional DD4MR-FX units for MADI distribution. All three venues have fairly similar systems with the largest being in Southam Hall. Network connections at two FOH positions and a Monitor position allow for either the House or Guest consoles to tie into the Optocore network via analog or AES and distribute audio to any other network device.

With a number of pre-programmed macros in the Optocore control software users can quickly change the network's routing to feed AES or analog from any location to the main PA, monitor amplifiers for wedges on stage, or to installed monitor speakers. This set up allows the main PA and monitor speakers to be quickly set up, no matter whether there is a monitor console or not, with any analog or digital console and with whichever format they might want to use.

The X6R-FX-16AEs that populate the console interface racks can offer 16 AES I/O (8 pairs) per device. They are also equipped with sample rate conversion cards so that an incoming AES signal is reclocked automatically to the Optocore network's sampling rate. Even though there is a master Nanosync wordclock generator in each venue that distributes clock to all the new equipment via Optocore, this allows for users operating their consoles at 48k not to have to change their sample rate, limiting their channels to tie into the PA network. It also ensures that there are no wordclock errors that could occur from different pieces of digital gear operating on different clock sources. X6R-TP-8LI/8LOs give each location eight analog inputs that can serve as patches to other locations or as feeds for the processors and amplifiers. The eight analog outputs in each TP device allow for splits for the local inputs or for cross-patching any channel on the network from other locations.

DD32R-FXs act as the master interface for each network, both distributing wordclock from the Nanosyncs to all devices and as a 64 channel AES I/O interface connecting outputs from the FOH and monitor consoles to Meyer Sound Galileos for processing. The post Galileo signal is then fed back into Optocore and sent to DD32Rs in the central equipment rooms where they output the desired signals to amplifiers for the main PA, surround speakers, stage fill speakers and monitor systems.

The high AES channel count of the DD32R-FX (32 AES pairs per device) gives each venue lots of additional ports for future needs and distribution. The X6R-TP-8LI/8LOs that are attached via SANE, Optocore's synchronous Cat5 protocol, to the DD32Rs give additional

16/16 analog I/O for local inputs and outputs which tie into other systems, like QSC's Q-SYS.

MADI distribution is also available within each system through multiple DD4MR-FXs located in control rooms, at FOH locations and in the mobile monitor rack. DD4MRs have two MADI BNC input ports and two MADI BNC output ports, each capable of 64 channels at 48 kHz for a total count of 128 I/O. Optocore's 2GB network, with up to 768 audio inputs at 48 kHz, is well suited to transport multiple MADI streams as the high channel count can quickly fill up space on other lower bandwidth networks. DD4MRs give the operators at the NAC numerous options and flexibility including the ability to feed the PA system via MADI, output the shows for multitrack recording, transport MADI between the stage and FOH for guest consoles that would otherwise need a separate MADI snake, or tie into any production mobiles that might be hired for the performance.

The Optocore systems were assembled in such a way that the system is capable of interfacing with any console that may come into the facility, giving ultimate usage and flexibility over time as different manufacturers and formats change. Furthermore, as the Optocore platform was built on open standards, they will continue to provide new products and solutions that will keep the NAC as a premiere facility with the latest technological developments moving forward.

Said Optocore North America's Brandon Coons, "The NAC's venues receive so many different acts of varying sizes and technical requirements. The new Optocore systems will give them the ability to support current acts and shows moving forward with the world class features you'd expect from a new, state of the art performance venue.

"It's now no longer a question of what the building's systems are capable of, but of what they are asked for and how to deploy it."

For further information about Optocore visit www.optocore.com.

For other information, contact:

Tine Helmle
Optocore GmbH
Tel: +49 (0) 89 - 899 964 – 0
E: t.helmle@optocore.com

Jerry Gilbert
JGP Public Relations
Tel: +44 (0)1707258525
E: jerry@jgp-pr.com

Pics attached. Product pic: Optocore drive rack
External photo credit: doublespace