



Case Study: Education

North Carolina State University James B. Hunt, Jr. Library

James Hunt Library Installs First-of-Its-Kind Audio System with Dynamic Audia®/Nexia® Duo

Opening its doors in January 2013, the James B. Hunt, Jr. Library is North Carolina State University's (NCSU) second main library, and is the intellectual and social hub of Centennial Campus. It is the primary library for faculty and students in engineering, textiles, and other science programs. Its inspiring learning spaces and state-of-the-art technologies make it a destination for students, faculty, and academic and professional partners from all disciplines.

The library houses a 400-seat auditorium, visualization labs used by both students and the U.S. Navy, 100 project/study rooms for students, gaming labs, a video production stage, reception and event spaces, a balcony overlooking a nearby lake, and a corporate wing that supports the corporations of the NCSU Centennial Campus. The automated book delivery system accommodates a two million-volume collection and significantly reduces the space needed for stacks.



It was important to me that we never compromised on the audio systems; that we always maintained the highest level of quality.

That's why we immediately went to Biamp for the audio processing.

-Maurice York
Head of IT for the NCSU Library

THE CHALLENGE

When asked what they wanted in the new library, the faculty and students were clear on their desire for a 24/7, high tech facility to match the high tech campus. They wanted to be able to push the limits of what was technologically possible all day, everyday. These big ideas required big technology.

The primary challenge of this installation was accommodating the variety of audio spaces (from silence to surround sound) NCSU was trying to create, in addition to the single activity experiences that took place throughout the daily lifecycle of the building.

Though Maurice York, Head of IT for the NCSU Library, searched the globe for examples of libraries that had previously created this type of highly flexible, cutting edge technological facility, he came up short. There was no precedent for this type of facility—it had never been done before. NCSU and their audio design team would have to break the mold and create something totally new and untried. “We were creating something that didn’t have a model anywhere in the world: a library that was redefined to focus on providing a technologically advanced facility for computer-based research, engineering disciplines, textiles, and for the high tech companies that are here on Centennial Campus.”

In addition to needing a DSP combination that allowed for maximum flexibility and ease of use for all library patrons, the audio solution had to stand the test of time. From start to finish, it took four years to build the Hunt Library, and the right audio technology would remain relevant throughout that period, and into the foreseeable future. With no model to follow, NCSU had to partner with the right companies to bring their vision to life.



THE SOLUTION

Designed by the Sextant Group and implemented by AVI-SPL, the audio system for the Hunt Library included comprehensive audio/visual, acoustic, and IT design components. Brought into the project at the perfect time, the Sextant Group was able to design an audio system that met all the needs of the NCSU campus with two DSP platforms: Biamp's Audia and Nexia.

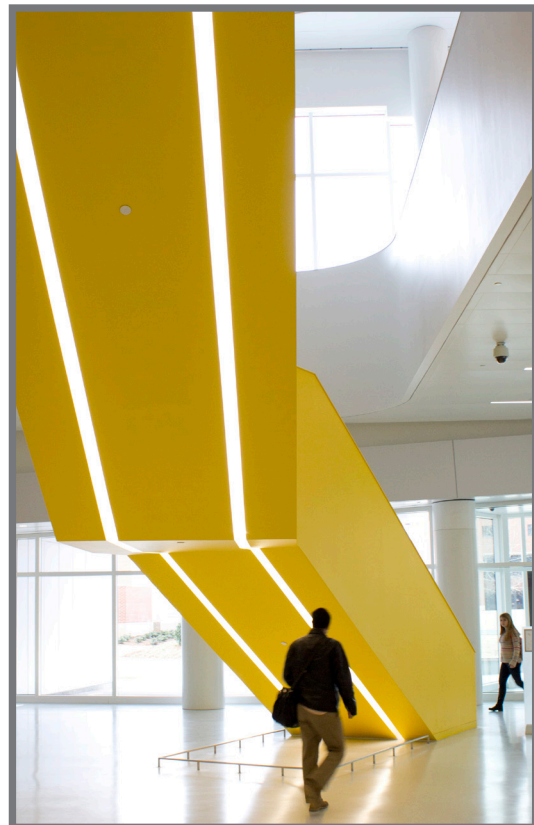
The immensity of the project required a phased approach, as the design team went from space to space installing customized audio for each room and desired experience that might occur throughout the day. Because areas would need to go from quiet study spaces at 9:00am to the scene of a live event at 10:00pm, the Hunt Library IT team needed an incredible amount of control and flexibility over the system.

Mark Valenti, President of the Sextant Group and Principal-in-Charge of the installation, decided the Audia and Nexia platforms were the right choice for the level of flexibility and control required of the DSP, and that Biamp was the right choice in a manufacturing partner.

If we could boil it down to one key thing that made us go with Biamp it was a price-performance ratio. We knew the product line was exactly where it needed to be and that the price would

allow us to accomplish something really, really cool.

*-Mark Valenti, President
Sextant Group and Principal-in-
Charge of Hunt Library installation*



SYSTEM SPECIFICS

Components:

AUDIA

- (13) AudiaFLEX CM (with CobraNet)
- (7) AudiaFLEX NC (non-CobraNet)
 - (35) AEC-2D
 - (1) TI-2 card
 - (7) VoIP-2 cards
 - (85) IP-2 cards
 - (56) OP-2e cards
 - (24) PA-2 cards

NEXIA

- (2) Nexia CS (conferencing system)
- (2) Nexia PM (presentation mixer)
- (1) Nexia VC (videoconferencing system)
- (3) autoTWO

Using almost the full suite of Audia components, the audio system is primarily composed of AudiaFLEX with CobraNet® cards that allows for distributed audio among multiple units throughout the facility. Each AudiaFLEX box provides up to 24 channels of I/O. Because the TI-2 Telephone Interface and AEC-2D Acoustic Echo Cancellation cards were employed, the Audia connects directly to the standard analog telephone lines. This direct connection creates a powerful telephone conferencing platform for both academic and professional needs. The VoIP-2 cards also enable conferencing over VoIP directly from the Audia, with two channels of VoIP interface per card. With 20 Audias total, that's up to 40 available channels for distance conferencing within the building.

Each of the 35 AEC-2D cards provides two channels of acoustic echo cancellation and background noise reduction, for a total of 70 available channels for students, faculty, and business partners. Designed using Biamp's Sona™ AEC technology, the cards provide increased frequency response, improved audio quality, and more natural sound during the transmission of speech.

Designed exclusively for use with AudiaFLEX systems, the NPS-1 Networked Paging Station is a microphone console engineered to carry audio, control, and power through a single cable. The NPS-1 allows the Hunt Library IT team to quickly and easily switch between pre-programmed paging groups and zones as needed. In addition to having remote control through the NPS-1 station, the IT workroom has rack-mounted product that allows them to distribute audio from anywhere in the building to anywhere else in the building. For example, if a concert is taking place in the auditorium, the audio from the concert can be routed from the auditorium to as many or as few zones of the building as they need.

In the smaller conference rooms, dedicated Nexia systems have been installed for localized control over the conferencing systems.



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INNOVATIVE AUDIO FOR A ROBUST BUILDING

The multimedia integration of this five-story library was made possible by cutting edge design and build expertise, a visionary audio/video design team, and the generous support of the North Carolina legislature. It was clear from the beginning that the Hunt Library needed an audio system that was just as innovative and robust as the building itself. Scott Frey, Lead AV Designer for the Sextant Group, chose Biamp's Audia and Nexia DSP platforms as the best solution to solve the complex challenges of the Library.

Creating a true learning environment of the future, the Library has made a commitment to digital information by loading the facility with world-class technologies that will enable students to do anything they want to do, and push as hard as they can; where they are only limited by the boundaries of their imagination.

The James B. Hunt, Jr. Library brings faculty out of their offices, and students out of their classrooms, all to create a communal 24-hour facility where these individuals, disciplines, and companies can truly come together and work dynamically in a high tech environment.



We needed to have it sound fantastic

and look fantastic, so it would inspire imagination and an impulse to create.

-Maurice York,
Head of IT for the NCSU Library

ABOUT BIAMP SYSTEMS

Biamp Systems is a leading provider of innovative, networked media systems that power the world's most sophisticated audio/video installations. The company is recognized worldwide for delivering high-quality products and backing each product with a commitment to exceptional customer service.

The award-winning Biamp product suite includes the Tesira® media system for digital audio networking, Audia® Digital Audio Platform, Nexia® digital signal processors, Sona™ AEC technology and Vocia® Networked Public Address and Voice Evacuation System. Each has its own specific feature set that can be customized and integrated in a wide range of applications, including corporate boardrooms, conference centers, performing arts venues, courtrooms, hospitals, transportation hubs, campuses and multi-building facilities.

Founded in 1976, Biamp is headquartered in Beaverton, Oregon, USA, with additional engineering operations in Brisbane, Australia. For more information on Biamp, please visit www.biamp.com.