
CASE STUDY

# Extron Switching, AV over IP, and Control Provide Flexibility for New Library at University of Udine

Extron


The Aula Magna is a flexible and multifunctional central hall that can be used as a reading room as well as a conference and convention space. Photo by Alfredo Scarpetti.

The University of Udine in Italy recently celebrated the completion of its new Scientific and Technological Library. The building stands out for its architectural innovation and support for sustainability, earning the prestigious 2022 "CasaClima" award. This recognition is given to top certified sustainable building projects by the South Tyrolean Energy Agency, highlighting the library for its energy-efficient design.

Extron switching, streaming, AV over IP, and control technologies provide the foundation for the new building's AV systems. These systems have been thoughtfully designed to meet the university's needs for flexibility and reliability. The project enhances the university's infrastructure and sets a new standard for future developments.

**"What I appreciate most about Extron's solutions is their scalability, both in terms of expansion and over time."**

**Stefano Bonomi**
Head of Multimedia Systems and Distance Learning
Udine University

## CHALLENGES

To meet the technological demands of the project, sophisticated AV solutions were essential. The requirements included the necessity to combine rooms, facilitate bidirectional audio and video connections, and route USB for keyboard, video, and mouse functionality across different rooms.

The ambitious three-year project was met with significant budget constraints. Funds were reallocated towards IT and architectural expenses, tightening the available budget for AV


A TouchLink Pro touchpanel at the front of the Aula Magna classroom makes it easy for presenters to control the AV system.

systems. These financial pressures challenged the AV system design team to find innovative solutions that could meet performance requirements without compromising on quality or functionality.

“The real challenge over the years was adapting to the project's continuous evolution and changing room uses,” says Stefano Bonomi, Head of Multimedia Systems and Distance Learning for Udine. “We opted for Extron’s highly flexible and current technology, implementing the Extron NAV Pro AV over IP System for all major audio, video, and USB routing in combination with our standard Extron solutions."

## DESIGN SOLUTION

For the first time in 15 years, the University of Udine embarked on a new construction project for the new library, diverging from its usual practice of renovating historical buildings.

“For nearly 20 years, we have been striving to standardize our IT and AV technologies as effectively as possible,” says Alessandro Magris, Operations Services Management Office Manager at Udine. “Our primary challenge is to ensure the best possible user experience in both historical buildings and new projects that we develop from the ground up.”

Extron FF 220T ceiling speakers provide a very wide room coverage pattern throughout the library.

**“Over the years, Extron has provided us with extensive support in training, pre-sales, and after-sales service. Their reliable and state-of-the-art solutions have consistently met all our challenges and requests.”**

**Stefano Bonomi**
Head of Multimedia Systems and Distance Learning
Udine University

Spanning two stories and a basement, the building offers a variety of educational spaces. These include four classrooms with a total capacity of 150 students and a large multipurpose room, or Aula Magna, that can accommodate approximately 280. Additionally, there are two study rooms with a total seating capacity of 170, and a scientific-technological library with seating for 36. The new building hosts a wide range of events, from intimate gatherings to large-scale conferences.

## Aula Magna

An Extron IN1808 IPCP SA handles all of the AV switching and signal processing for the Aula Magna multipurpose room. Its built-in Extron IPCP Pro xi control processor and integrated 100-watt class D power amplifier make it an all-in-one design solution.

An Extron SMP 351 recording and streaming processor captures and distributes AV content from meetings, events, and presentations. In addition, an Extron MediaPort 200 HDMI to USB bridge enables the university to share enhanced audio and video when hosting events and classes on Zoom and Microsoft Teams. Together, they allow the university to record presentations and seamlessly integrate them into a video conference. The result is a powerful combination.

Two 7" Extron TouchLink Pro touchpanels, one in the front of the large room and one in the back, simplify system control and input selection for both technicians and presenters.

An Extron DMP 128 Plus audio DSP processor mixes and optimizes all of the audio sources for superior sound quality. It connects the rooms to the building’s Dante network which also supports AES67.

## Classrooms

At the heart of the AV system for each of the four smaller classrooms is an Extron IN1608 xi presentation switcher. The switcher routes signals from the classroom's computer via a DTP HDMI DA to both the ceiling-mounted projector and two flat-panel displays, ensuring high-quality video scaling and seamless switching between sources for clear visual presentations.

Extron audio amplifiers drive the Extron FF 220T ceiling speakers. Each classroom features an Extron MediaLink Plus controller for easy push-button system control.

The new Scientific and Technological Library makes maximum use of natural lighting for energy conservation.

## Extron NAV Pro AV over IP Pulls it All Together

This project marked Udine's first use of AV-over-IP technology. The Extron NAV Series was selected for its flexibility and reliability in event-critical situations. NAV encoders and scaling decoders connect each room's AV system to the AV over IP network.

NAV blends the adaptability of IP-based technology with the efficiency of virtual switching for video, audio, and USB signals. Exceptionally low latency and optimized bit rates ensure superior image quality. The NAV System enables technicians to quickly and easily combine all four classrooms and the Aula Magna meeting room into one large event space.

This capability is essential for hosting a diverse array of university events and conferences, ensuring that each space can be tailored to meet specific requirements. The NAV System's advanced AV over IP technology enables flawless distribution of audio, video, USB, and control signals throughout these varied spaces, maintaining high-quality outputs with ultra-low latency and unmatched reliability.

The Extron NAV System is designed to enhance user engagement through the inclusion of its cutting-edge PURE3 compression technology. This feature guarantees the preservation of audiovisual content quality across the library's complex multi-room configuration, ensuring all participants, whether situated in the Aula Magna or within any of the smaller classrooms, experience clear and uninterrupted presentations.

"What I appreciate most about Extron's solutions is their scalability, both in terms of expansion and over time," says Bonomi. "I would like to thank the Italian Extron team for their constant support and the excellent suggestions they have always given me."

The system's user-friendly interfaces, including the Extron TouchLink Pro touchpanels, simplify the management of AV functions, allowing both technicians and presenters to easily adjust settings as needed. This integration not only meets the functional demands of the university but also promotes its sustainability objectives by minimizing the necessity for multiple systems and maximizing efficient use of space.


For large events and conferences, an Extron Touchlink Pro touchpanel at the back of the room serves as a central point of control. Photo by Francesco Barreca.

The comprehensive integration of USB routing via the NAV System has also been a big plus. Initially, this feature was not considered a priority, but it has since become an essential component of the system's infrastructure. This integration has facilitated a more seamless and flexible use of technology within the library. The inclusion of USB routing has expanded the capabilities of the AV system in all of the rooms and supports the university's aim to create a modern and technologically advanced learning space.

### Training and On-Going Support

The university worked directly with Extron throughout the project for system design, product demonstrations, and training. Technicians completed the Extron Control Professional online certification program. They've reported that the skills they learned enabled them to solve problems rapidly.

Leveraging nearly two decades of experience with Extron technologies, Udine approached this project with confidence in Extron's support.

According to Bonomi, "Over the years, Extron has provided us with extensive support in training, pre-sales, and after-sales service. Their reliable and state-of-the-art solutions have consistently met all our challenges and requests."


Featuring student seating, a projector, and two flat-panel displays, the smaller classrooms use the Extron IN608xi for seamless AV switching and scaling. Photo by Caterina Giacomini

Udine has been using Extron's GlobalViewer Enterprise (GVE) software for centralized AV system control and management across its campus since 2007. In addition to providing critical data on system usage, GVE enhances the efficiency and problem-solving capabilities of its small AV support team.

## RESULTS

The project's success is highlighted by the flexibility of the AV systems, which have proven adaptable to the evolving needs of the university. Users are finding that the AV infrastructure can easily accommodate changes and new requirements. The reliability of the library's AV systems has also been crucial to the project's success. To date, they have provided uninterrupted service across various events, ensuring each one proceeded smoothly without technical interruptions.

The systems have also proven to be easy to manage, particularly when it comes to addressing HDCP and other technical challenges. These capabilities have made it easier for staff to maintain and operate the system efficiently, reducing downtime and enhancing the overall user experience.

The success of the new library serves as a testament to the effectiveness of Extron's AV solutions, setting a high benchmark for future projects at the University of Udine.

**"Our primary challenge is to ensure the best possible user experience in both historical buildings and new projects that we develop from the ground up."**

**Alessandro Magris**
Operations Services Management Office Manager
Udine University

## EXTRON EQUIPMENT

| Model | Description |
|---|---|
| NAVigator | Pro AV over IP System Manager |
| NAV SD 101 | 1G Pro AV over IP Scaling Decoder - HDMI |
| NAV SD 501 | 1G Pro AV over IP Scaling Decoder - HDMI, Ethernet, and USB |
| NAV E 101 | 1G Pro AV over IP Encoder - HDMI |
| NAV E 501 | 1G Pro AV over IP Encoder - HDMI, Ethernet, and USB |
| NAV E 401 D | 1G Pro AV over IP Encoder - HDMI and Ethernet – Decorator-Style Wallplate |
| IN1808 IPCP SA | Eight Input 4K/60 Seamless Presentation Switcher |
| IN1608 xi | Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension |
| TLP Pro 725T | 7" Tabletop TouchLink Pro Touchpanel |
| MLC Plus 200 AAP | MediaLink Plus Controller with AAP Opening |
| DTP HDMI 4K 230 Rx | DTP Receiver for HDMI |
| SW8 HD 4K PLUS | 4K/60 HDMI Switcher with Ethernet Monitoring and Control |
| DA4 HD 4K PLUS | 4K/60 HDMI Distribution Amplifier - Four Outputs |
| DA6 HD 4K PLUS | 4K/60 HDMI Distribution Amplifier - Six Outputs |
| SMP 351 | H.264 Streaming Media Processor |
| MediaPort 200 | HDMI and Audio to USB Scaling Bridge |
| SW2 USB Pro | Two Input USB 10G Switcher |
| XPA 2001-100V | Mono 100 V Amplifier - 200 Watts |
| DMP 64 Plus C AT | 6x4 ProDSP Digital Matrix Processor with AEC and Dante |
| FF 220T | Full-Range Flat Field Speakers with Low Profile Enclosure and 70/100 V Transformer |

Extron

www.extron.com/education

Follow us on: