



CASE STUDY

# Extron AV Powers Learning & Collaboration at Central Piedmont Community College Parr Center

**Extron**

Digital signage displays are mounted at staggered heights along the wall adjoining the collaborative stairs in the student commons.

All Photos Courtesy of Central Piedmont Community College



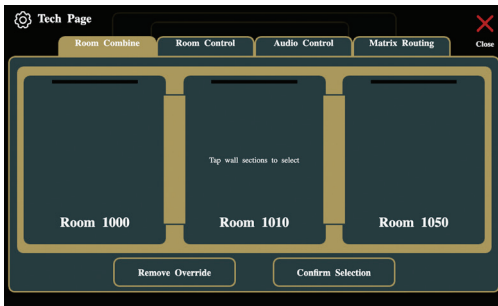
**“Extron has been the standard for AV spaces at Central Piedmont since 2012. Through standardization, we keep equipment complements consistent. That streamlines installation, AV control programming, and troubleshooting. This translates to savings in time and money. For those reasons, Extron was our choice for the Parr Center.”**

**Kristofer Motto**  
Director, ITS Project Management Office  
Central Piedmont Community College

Central Piedmont Community College in Charlotte, North Carolina, was founded in 1963, with a dozen academic programs and 1,600 students on a single campus. Today, the college serves approximately 43,000 students enrolled annually in college-credit programs, 12,500 enrolled in continuing education programs, and 900 middle college high school students. In 2022, the \$113.4M, 172,679 square foot Parr Center opened as the new front door to the 31-acre Uptown Charlotte Central Campus. Boasting many high-tech amenities, including the latest in AV multimedia, the building is anchored by the 21st century Hagemeyer Library. Sharing space with the library on the four floors of the Parr Center are a Welcome Center, Student Union, an Admissions and Student Services office, a 430-seat theater with streaming and videoconferencing capabilities, the Dove art gallery, an Academic Learning Center, Maker Space, a Student Commons, food services, an outdoor quad, and roof terraces with stunning views of the Charlotte skyline.

## **CHALLENGES**

With all-new construction, the Parr Center is designed from the ground up with audiovisual technology that supports collaboration on every floor. Central Piedmont’s ITS Project Management Office Director Kris Motto, ITIL Process & Implementation Supervisor Jeff Jarvis, and the IT staff performed AV system engineering, conceptual design, and oversaw installation and commissioning. Due to the large scale of the project, detailed AV system design and integration was handled by multiple firms, including Inter Technologies Corp., AVI-SPL, Recursav, LLC, and Cenero - a Ricoh company. AV design and consultation for the theater and multipurpose



The multipurpose rooms are divisible by motorized partitions to accommodate groups of varying sizes. Intuitive touchpanel GUIs guide users through room control and AV system control operations.

rooms was provided by Ferris and Associates Consulting, LLC. Theater audio was designed by Thorburn Associates. Relying on their long experience with Extron, the college's ITS Project Management Office specified Extron AV switching, distribution, control, and audio products and asked Extron system design engineers to review the detailed designs.

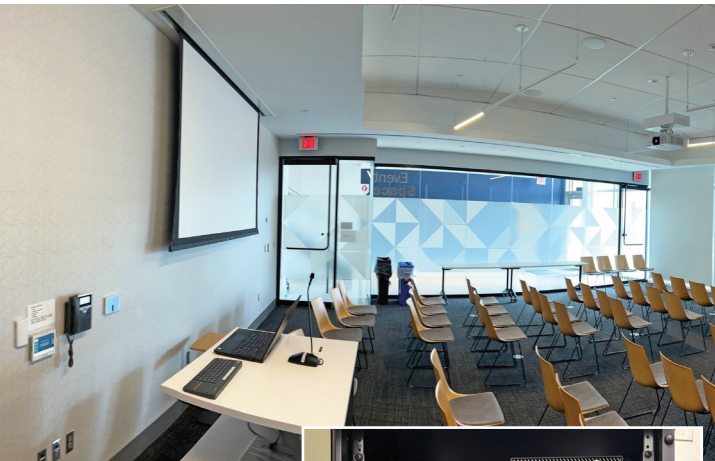
**“Ease of use and flexibility were key design considerations for the AV throughout the building. The Multipurpose and Event Spaces can be used with or without the lectern, enabling a variety of use cases.”**

**Kristofer Motto**  
Central Piedmont Community College

## DESIGN SOLUTION

Parr Center's AV-equipped spaces accommodate a range of uses. There's a 430-seat theater for the largest gatherings, and intimate huddle rooms for the smallest gatherings. There are also multipurpose rooms, an event space, and a green screen studio. Offices and conference rooms are equipped with AV systems that allow collaboration among people in the room, extending to remote participants across campus or across the world. Digital signage in public areas keeps people informed as they walk through the building.

The event space accommodates large gatherings. Moveable furniture is configured for lectures, presentations, and round table discussions. AV content selectable from multiple wired or wireless sources supports the sessions held in this room.



## Divisible Multipurpose Rooms

The ground level and the first level each have a multipurpose room with moveable partition walls. Between them, the two rooms can be divided into five sections, each equipped with an optional AV lectern, projector, PC, and USB PTZ camera. AV connectivity is through an IP network via NAV® Pro AV over IP with AES67, allowing AV sources and displays to be switched and linked in any desired combination. The lecterns accept inputs from two wired HDMI sources. The PTZ cameras connect to PCs via USB Extender Plus and NAV Pro encoders and decoders. Wired or wireless mics amplify presenters' voices. SoundField® ceiling speakers driven by NetPA® amplifiers deliver clear sound in the rooms. A DMP 128 Plus audio DSP processor selects, mixes, and optimizes audio and connects the rooms to the Dante/AES67 network. TouchLink® Pro touchpanels are mounted on the lecterns and the walls. They work in concert with IPCP Pro xi control processors to provide flexible, intuitive control for all in-room AV system functions. The control processors are fully integrated with the NAVigator System Manager to route content on the AV over IP network.

## Event Space

With seating for audiences of up to 60 people, the event space is equipped with AV amenities that support a broad range of meeting formats. At the lectern, HDMI program material from up to two sources can be connected. The lectern's DTP2 T 203 switcher selects which source to send to an IN1608 xi scaling presentation switcher. This switcher can select the AV program content from the lectern, as well as content from additional program sources, including HDMI from a PC or HDMI from a

Study kiosks open to large study areas allow students to gather around a semicircular table and share AV content to a 50" interactive display from BYOD sources either through Show Me cables at a Cable Cubby or through Wi-Fi. A videoconferencing bar mounted below the display allows collaboration to extend to remote participants.



wireless presentation system. XTP DTP shielded twisted pair cable delivers the IN1608 xi video output to a ceiling mounted projector. Activity within the room is captured by a PTZ camera for broader distribution over the AV over IP network.

A DMP 64 Plus audio DSP processor selects audio sources to send to the line audio input of the IN1608 xi. Available audio sources include two wireless mic receivers, the lectern PC, and feeds from the Dante/AES67 network. A gooseneck mic on the lectern is connected to the Dante/AES67 network through an AXI 22 AT Dante audio interface unit. The IN1608 xi provides the selected audio content to an MPA 601 amplifier which drives six SoundField ceiling speakers.

In this room, the lectern mounted and wall mounted TouchLink Pro touchpanels work in conjunction with the control processor that is integrated into the IN1608xi. The IN1608 xi controls all AV system functions in the room, and also communicates with the NAVigator System Manager to control content routing through the AV over IP network.

### **Rooms for Group Collaboration**

Whether it's open study kiosks, secluded huddle rooms, or conference rooms, there are AV equipped spaces on every floor where individuals and small groups use AV tools to study or share ideas. Some of these rooms are built around the HC 404 Meeting Space Collaboration System, consisting of a transmitter and receiver linked through XTP DTP shielded twisted pair cable. Larger conference rooms rely on an auto-switching four-input IN1604 scaler.

Private huddle rooms have AV tools similar to the open study kiosks but offer quiet surroundings and privacy. Users connect BYOD sources in the same manner as in the study kiosks, either wired or wirelessly, to share content on a 43" display. As with the study kiosks, a videoconferencing bar links the room to remote participants.



**Study Kiosks and Huddle Rooms.** Users in these rooms share their AV program material from wired or wireless BYOD sources. Wired sources connect through Show Me® cables at table-mounted Cable Cubby® enclosures. HC 404 systems in these rooms automatically switch to new source devices as they are connected. Users who have their BYOD sources connected through the Show Me cables can press the Share button to immediately switch the AV system to display their content. A CCR 30 control panel with LED-illuminated buttons is mounted in the tabletop next to the Cable Cubby for quick selection of the wireless presentation mode. AV program audio plays through Flat Field® ceiling speakers that are driven by MPA 152 Plus amplifiers. Below the displays are videoconferencing bars that allow collaboration to extend to remote participants. In the open study kiosks, the AV systems power on when a presenter connects a source device and power off when all sources are disconnected. In the private huddle rooms, OCS 100 occupancy sensors activate and deactivate the AV systems as visitors enter or vacate.

**Conference Rooms.** Smaller conference rooms are equipped with HC 404 Meeting Space Collaboration Systems and operate in the same way as the huddle rooms.

Larger conference rooms contain AV systems centered around IN1604 scalers. In these larger rooms, a credenza contains a house PC and a wireless presentation system. A Cable Cubby contains two wired HDMI ports, USB ports, and AC power outlets. Meeting attendees therefore have options to input their AV presentation materials to the AV system

Conference rooms of various configurations and capacities are available on all three interior levels of the Parr Center. The conference rooms rely on HC 404 collaboration systems and IN1604 scalers for AV connectivity. Some of the conference rooms include CCR 30 control panels for selecting wireless sharing with the push of a button.



This self service recording studio with green screen allows students, faculty, and staff to create videos for classes. An SMP 352 streaming media processor and an IN1608 xi switcher with integrated audio amplifier plus AV control processor help users at all skill levels produce professional results.



from the house PC or from wired or wireless BYOD sources. The IN1604 routes the AV content from any of these sources to a flat panel display according to user selections made at a TouchLink Pro touchpanel on the credenza. A quad-core IPCP Pro 360Q xi control processor conveys user commands to the AV system.

The selected AV program material is sent from the switcher to the display via XTP DTP shielded twisted pair cable. At the display, a DTP HDMI 4K 330 Rx receiver converts the DTP signal to HDMI video for the display, and to analog audio that drives Flat Field ceiling speakers via an MPA 152 Plus amplifier. A videoconferencing bar below the display extends conference room reach to remote attendees.

### Green Screen Studio

With an IN1608 xi for switching, amplification, and control, the green screen studio is a self-service venue for recording videos. It includes a video production switcher that allows real-time keying with pre-programmed background images. Users start a session with a single tap on a TouchLink Pro touchpanel, which turns-on the lights, camera, mics, and confidence monitor. Presenters load their AV source content onto the lectern PC or plug-in a laptop at the lectern Cable Cubby HDMI port. They choose the desired background and select between a sitting or standing presentation, which aims the camera accordingly. They tap Record, and the video is captured by an SMP 352 Streaming Media Processor. When done recording, the video can be played back for review. The video is then transferred from the SMP 352 to the user's Panopto folder. Upon exiting, a quick tap at the touchpanel shuts down the room.



An XTP II CrossPoint 1600 Digital Matrix Switcher connects AV content sources to the main stage projector, to multiple flat panel displays in the lobby, and to the lobby's 6x31 foot LED videowall marquee. An MGP 641 Multi-Window Processor populates the videowall with up to four source windows on a single canvas, with a live or static background.



## Performing Arts Theater

The 450-seat theater boasts a full acoustical shell and a dance floor. It's audio and video systems are geared to staging dance, music, cinema, and drama performances with professional caliber production values. The theater design incorporates sophisticated, state-of-the-art technology to provide event producers with all the tools they need to create exciting, immersive performances that wow audiences.

To ensure that backstage staff stay well-coordinated, an extensive intercom system links all members of the production crew with the stage manager through wired wall stations and wired or wireless belt packs with two-way headsets.

**“For new construction projects, we design our AV systems in-house, utilizing Extron to check and certify our drawings. Extron has always been good at reviewing our designs, verifying things will work per expectations, and providing valuable feedback.”**

Kristofer Motto  
Central Piedmont Community College

The audio system is comparable to Broadway venues, with Dante switching and distribution and DSP equipped production mixers that handle dozens of audio sources. Powerful amplifiers drive pro-grade speakers in the theater, backstage, and in the lobby. There are provisions for in-ear monitors for performers and assisted listening devices for audience members.

An XTP® II CrossPoint 1600 Matrix Switcher is at the heart of the video system. It receives XTP and HDMI video inputs from a lectern, XTP HDMI wallplate transmitters, multiple cameras, PCs, a Blu-ray player, and BYOD content from a ShareLink® Pro 1000 presentation system. The switcher distributes video via HDMI and XTP interfaces to multiple flat panel displays in the lobby, displays on mobile carts, and to two projectors. The theater’s main laser projector displays images to a 25 foot diagonal screen on the stage. An IPCP Pro 360 controls all video system functions in response to user selections made at TouchLink Pro touchpanels located on the lectern, in the control booth, and onstage.

## RESULTS

With 200 people in attendance, college leaders, local elected officials, and the benefactors for whom the building is named took part in Central Piedmont Community College’s August 2022 dedication of the Parr Center. The Center is the new front door to the college’s Central Campus and is its signature building. To view a short video clip showing the dedication ceremony highlights Click [▶ HERE](#)

At the ceremony, Dr. Kandi Deitemeyer, Central Piedmont president remarked, “We believe this building will help students be successful. The services they receive here, and the space provided where they can study, collaborate, create, and - yes - rest, will help them persist and stay on the path to completion.”

Extron is gratified to earn Central Piedmont’s continued trust in our products and services. We are proud of our role providing AV switching, distribution and control technology that helps make the Parr Center such an inviting destination for faculty and students.

## EXTRON EQUIPMENT - PARTIAL LIST

Model	Description
HC 404	Meeting Space Collaboration System
SMP 351	H.264 Streaming Media Processor
SMP 352	Dual Recording H.264 Streaming Media Processor
MGP 641	4K/60 HDMI Multi-Window Processor with DTP2 Extension
SMD 101	H.264 Streaming Media Decoder
ShareLink Pro 1000	Wired and Wireless Presentation System
SW4 HD 4K PLUS	4K/60 HDMI Switcher with Ethernet Monitoring and Control
DTP2 T 203	Three Input 4K/60 Switcher with Integrated DTP2 Transmitter
IN1604 DTP	Four Input HDCP-Compliant Scaler
IN1608 xi IPCP Q MA 70	Eight Input Scaling Presentation Switcher with DTP Extension - 100-Watt Mono Amp, AV LAN
IN1608 xi IPCP Q SA	Eight Input Scaling Presentation Switcher with DTP Extension - 2 x 50-Watt Stereo Amp, AV LAN
IN1804 DI/DO	Four Input 4K/60 Seamless Scaling Switcher - DTP2 I/O
XTP II CrossPoint 1600	Modular Matrix Switcher 16x16 with SpeedSwitch® Technology
XTP T USW 103 4K	Three Input Switcher with HDMI Output and Integrated XTP 4K Transmitter
NAV E 101	1G Pro AV over IP Encoder - HDMI
NAV E 501	1G Pro AV over IP Encoder - HDMI, Ethernet, and USB
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
NAVigator	Pro AV over IP System Manager
DMP 64 Plus C AT	6x4 ProDSP Audio DSP Processor with AEC and Dante
DMP 128 Plus C AT	12x8 ProDSP Audio DSP Processor with AEC and Dante
XMP 240	Dante Expansion DSP Matrix Processor
AXI 22 AT	2 Input, 2 Output Dante Audio Interface
MPA 152 Plus	Stereo Amplifier - 15 Watts Per Channel
MPA 601-70V	Mono 70/100 V Amplifier - 60 Watts
NetPA U 1002	Two Channel Power Amplifiers with Dante and DSP - 100 Watts Per Channel
FF 220T	Full-Range Flat Field Speaker
SF 26CT	SoundField XD 6.5" Two-Way Ceiling Speaker
TLP Pro 725C	7" Cable Cubby TouchLink Pro Touchpanel
TLP Pro 725M	7" Wall Mount TouchLink Pro Touchpanel
TLP Pro 725T	7" Tabletop TouchLink Pro Touchpanel
TLP Pro 1025M	10" Wall Mount Touchlink Pro Touchpanel
IPCP Pro 360	IP Link Pro Control Processor
IPCP Pro 255Q xi	IPCP Pro xi Quad Core Control Processor
IPCP Pro 360Q xi	IPCP Pro xi Quad Core Control Processor
Cable Cubby 222 US	Cable Access Enclosure for AV Connectivity – One AC Power Outlet and Two Under-Table 2' AC outlet cords
Cable Cubby 500 CCB	Cable Access Enclosure for AV Connectivity, Power, and 3-Button Contact Closure Remote Control
CCR 30	Contact Closure Remote Control with Three LED Switches
HDMI SM	Show Me Cable for TeamWork Collaboration Systems – 6' HDMI
OCS 100C	Occupancy Sensors – Ceiling Mount

# Extron

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