



CASE STUDY

Extron AV Enriches Sports Experiences at Charlotte Country Day School Athletic and Aquatic Center

Extron

The state-of-the-art performance gym (right) hosts volleyball, basketball, and wrestling events and seats over 1,000 spectators. With surrounding reception and concession areas, the facility is easily converted to a presentation venue for hosting large events, such as the graduation ceremony (below).

All photos and video courtesy of Charlotte Country Day School



“Extron products just work. I don't have to worry about running into issues. I've been in the AV business for a long time. I view Extron as a constant; you know what you're getting when you buy the product, and you know it comes with unparalleled customer support.”

Ryan C. Knick, CTS
Technical Services and Operations Manager,
Information Systems Department
Charlotte Country Day School

Charlotte Country Day School is a top-rated private school in Charlotte, North Carolina. Founded in 1941, the school has grown from 18 students to 1,728 students and 328 full-time faculty and staff on two campuses. The Bissell Campus serves middle school students in grades 5-8. Lower and Upper School students in grades PK-4 and 9-12 attend the main Cannon Campus. Recently, the Cannon Campus opened the Klein Aquatic Center and the Harris Performance Gym serving the needs of an athletics program which, on average, has 85 percent of students in grades 7-12 competing on at least one interscholastic team.

The Klein Aquatic Center houses warm-up and competition pools for middle school and varsity swim teams. There's ample seating capacity to accommodate swim competition audiences and large community events. The Harris Performance Gym hosts volleyball, basketball, wrestling, and other sports events. With spectator seating for over 1,000, the main sports court provides a space tailored for heightened competition experiences, as well as a venue for staging large assemblies and community gatherings. The sports complex also includes weight and exercise rooms, a wrestling/multipurpose room, administrative offices, concession counters, and reception areas.

State-of-the-art audiovisual amenities like projectors, flat panel displays, videowalls, digital signage, and sophisticated sound systems enhance every corner of the aquatic and sports facility. Winston-Salem-based pro AV integration firm ClarkPowell worked with Charlotte Country Day School's Technical Services and Operations Manager Ryan Knick, CTS, to design and install



Lobby mobile displays.



Lobby mosaic videowall.

the AV systems. Since the school relies on Extron AV products in just about every other learning space on both campuses and applying his personal experience as a seasoned AV professional, Ryan Knick specified Extron switching, distribution, control, and audio equipment for this project.

CHALLENGES

The building housing the Klein Aquatic Center and Harris Performance Gym was all-new construction. That presented opportunities to design and install audiovisual systems perfectly matched and optimized for the athletic activities conducted in the building's various sports venues, such as the expansive gym, the weight room, the wrestling exercise room, the aquatic center swimming pools, staff offices, and conference rooms. To enhance operability and maintainability, the AV systems in the building's various venues have similar circuit topologies, assembled from the same makes and models of AV equipment.

DESIGN SOLUTION

Entry Lobby AV Informs and Entertains

Two mobile 75" flat panel displays and a mosaic videowall welcome those entering the lobby, providing digital signage messaging and other video content highlighting events and competitions. Hosts and event organizers stationed in the lobby can make announcements using handheld, lavalier, and gooseneck wireless microphones. An Extron XPA® 100-watt amplifier ensures announcements and other program audio sources are heard clearly by driving the lobby's three surface-mount speakers. A DTP® CrossPoint® 84 4K 8x4 matrix



Typical TouchLink Pro touchpanel GUIs used to control AV systems in the gym and lobby.

“My goal for the AV user interfaces is to keep the same look and feel across campus. I have a TouchLink template, which I fine tune in collaboration with the AV integrator for each application. For this project, I worked with ClarkPowell to configure the control GUIs. Extron wrote the drivers that control the Harris Gym lighting system, allowing us to adjust the lighting from the touchpanel interface.”

Ryan C. Knick, CTS
Charlotte Country Day School

switcher selects among the AV content sources available in the lobby, including two PCs, two signage players, and a ShareLink® Pro 500 for sourcing content wirelessly from mobile devices. The lobby AV system is controlled from a roving Apple iPad® running the Extron Control app. Users enter selections using a GUI created with Extron GUI Designer software. The iPad uses a Wi Fi access point in the lobby to connect wirelessly to the control processor located in the gym AV rack.

Pro-Caliber Competition Gym with Massive Projection Screens and Powerful Sound

The Harris Performance Gym is a professional grade arena with courts for various sports competitions and practices. Bleachers seat over 1,000 spectators to cheer on the school's sports teams. Sophisticated video projection and audio systems keep sports fans riveted to the action. The gym also stages large-scale events, including school assemblies, graduation ceremonies, musical and theatrical performances, and community gatherings.

The AV system in the Gym is scaled to match this exceptionally large space, with twin laser projectors aimed at 226" screens mounted on the front and side court walls. The sound system incorporates audio DSP, multiple high-power amplifiers, and 14 concert-rated speakers positioned throughout the cavernous room to ensure voices from various wired and wireless mics and multiple program audio sources reach the audience with clarity.

Extron equipment manages AV signal distribution and control in the gym. A DTP CrossPoint 84 4K 8x4 matrix switcher with integrated IPCP Pro AV control processor is the heart of the system. Working through a variety of DTP® transmitters and receivers, it connects and scales AV content from the room's many wired sources, as well as content delivered wirelessly from mobile devices via a ShareLink Pro 500, to the projectors.

Gym AV equipment racks. Lefthand rack services the lobby; righthand rack services the sports court arena.



The AV control processor not only controls all of the AV equipment in the gym and in the lobby, but it also controls the room lighting system and the motors that raise and lower the projectors and projection screens. Users control the AV system via a 10" TouchLink Pro touchpanel mounted on the gym wall, or wirelessly via a roving iPad running the Extron Control app.

Strength and Conditioning Center – AV for Instruction and Motivation

The sports performance and sports medicine programs work together to implement comprehensive training integrated into the athletic experience for students competing on 36 JV and varsity teams.

The 5,500 square-foot, state-of-the-art strength and conditioning center located on the lower level of the Harris Performance Gym features 18 stations equipped with pro-grade strength training equipment. The facility also features turf and open areas for plyometric, medicine ball, and core training.

AV amenities provide real-time video guidance on exercise routines, as well as high-energy motivational multimedia programming to keep athletes fully engaged in their routines.

Weight Room: In the weight room, an 85" flat panel display dominates one wall to show instructional and motivational videos. For audio, there are 18 SF26 PT SoundField® pendent speakers, one above each weight station, and two weather-resistant speakers that provide sound in the outdoor area.



The weight room includes an 85" flat panel video display and a versatile sound system with wireless mics and SF 26PT SoundField pendant speakers over each weight station.

“The Weight Room video screens show weight station schedules and weight routine demo videos. In the Exercise Room, our Lower School PE instructors show their Pre-K to 4th grade students videos demonstrating exercises and how to play team sports. Kids in these grades are highly visual learners, so the video helps them absorb and retain the lessons.”

Ryan C. Knick, CTS
Charlotte Country Day School

The speakers are driven by the same type of XPA 100-watt amplifiers used elsewhere in the building. The audio system accepts program content from multiple sources, including wireless mics and Bluetooth, allowing fitness trainers to lead group workouts hands-free, or for those doing recreational exercise to play favorite music from their smartphone.

A DTP CrossPoint 84 4K 8x4 matrix switcher selects and scales AV content from multiple sources delivered via HDMI or via DTP shielded twisted pair. Available AV sources include a laptop in the coach's office and a digital signage player. Mobile devices supply AV content wirelessly via a ShareLink Pro 500. Users select AV sources by tapping on a handheld touchpanel displayed on an iPad running the Extron Control app.

Wrestling and Exercise Room: As is the case in the building's other AV systems, a DTP CrossPoint 84 4K 8x4 matrix switcher with integrated IPCP Pro AV control processor is at the center of the action in the Wrestling and Exercise room, with DTP transmitters and receivers in supporting roles. There are two of almost everything in this room's AV system, providing the ability to make the room divisible without a physical partition. The switcher handles AV content from laptop PCs that can plug into HDMI receptacles at the left-front, right-front, or back of the room. Two ShareLink Pro 500's accept wired or wireless signals from mobile devices. The switcher feeds AV content to a pair of laser projectors pointed at 137" screens. Sound is carried throughout the room by two banks of nine SF26 PT pendent speakers on the left and right sides of the room. Two XPA 100-watt amplifiers drive the speakers. Similar to the Weight Room, audio sources include wireless mics and Bluetooth.

Users control the AV system via two 10" TouchLink Pro touchpanels mounted on the left and right walls of the room next to the HDMI receptacles where the laptops plug-in. As in the other venues, users can also control the AV system wirelessly from a roving iPad running the Extron Control app.

Powerful Sound System in Klein Aquatic Center

The aquatic center has an eight-lane 25-yard competition pool and a five-lane 25-yard warm-up activity pool. The two pools support aquatics programs of all levels. With generous seating available, large competitive swim events take place in this venue, allowing the middle school and varsity swim teams to show their mettle.



Klein Aquatic Center competition pool.

Augmenting the video-capable scoreboards, the AV system in the aquatic center is focused on providing clear sound in a challenging acoustic environment. The system employs audio DSP and a studio quality mixer board to tailor the sound, and high-power amplifiers ranging from 700 to 2100 watts to drive multiple zones of high-power, weather-resistant, surface-mount speakers poolside, at the swimmer benches, and at the audience bleachers. Wired and wireless mics allow announcers and coaches to make announcements to swimmers and spectators.

An Extron IPCP Pro 255Q xi control processor manages the operation of the audio equipment in response to user selections made via a 7" TouchLink Pro 725T desktop touchpanel that shares a weatherproof enclosure with the audio mixer and a gooseneck announcer's mic at the back wall of the facility.



AV-equipped conference room is part of the Athletic Director and Coaches office suite.

“In a perfect world, we aim to refresh our AV systems every five years. But we often stretch that to six, seven, or eight years. The Extron equipment just keeps going, with better than 95% uptime. I can’t remember having ever replaced an Extron amplifier. And I’ve got Extron power supplies that have been running for 12 years.”

Ryan C. Knick, CTS
Charlotte Country Day School

AV-Equipped Conference Room Supports Meetings for Athletic Director and Coaches

Situated on the second floor above the sports courts and pools are offices for the Athletic Director and coaches, with a reception area and conference room that seats 12 at the table. The conference room is equipped with a highly capable AV system that supports presentations and videoconferencing.

The conference room shares the same basic AV architecture as other AV-equipped venues in the building, with a DTP2 CrossPoint 82 8x2 Scaling Presentation Matrix Switcher and associated DTP transmitters and receivers providing system connectivity. AV program sources include up to two wired HDMI connections for laptops, made through Cable Cubby® 1202 cable access enclosures at the head and foot of the conference table. A ShareLink Pro 500 allows attendees with mobile devices to share content wirelessly via Wi-Fi. A Blu-ray player is also part of the system.

A 98" flat panel display is at the front of the room. Six SF 26CT SoundField ceiling speakers, driven by the matrix switcher’s integrated 100-watt amplifier, provide clear sound for everyone seated around the table. For videoconferencing, a PTZ camera is mounted above the display to capture images of attendees and ceiling mics above the conference table pick-up their voices. An audio recorder is also part of the system.

Users control the AV system wirelessly from a roving iPad running the Extron Control app. This connects wirelessly to the control processor integrated into the matrix switcher to provide intuitive control over all AV system operations.

RESULTS

Charlotte Country Day School has long recognized the value of audiovisual educational tools. AV is pervasive throughout the school’s two campuses. Almost every classroom and lab is equipped with an interactive flat panel display supported by Extron switching, distribution, amplification, and control.

It’s no surprise that AV plays a large role in the activities taking place in the Klein Aquatic Center and the Harris Performance Gym. AV is not only important for daily teaching activities, but it’s also essential for special events with large audiences. For instance, the gym hosts graduation ceremonies, where parents watch in-person from the stands, from screens in the lobby, and

streamed from the school's website. You can view a video clip of the streamed 2022 graduation ceremony [HERE](#). Ryan Knick ran audio and two of his associates operated cameras and lighting. Viewers appreciated the efforts of the production team in delivering such a polished video program.

Ryan notes that working live productions is one of the challenging parts of his job. But equally important is ensuring all of the school's AV systems run reliably day-in and day-out. Outfitting the Klein Center and Harris Gym was the culmination of a four-phase AV system refresh. Ryan is confident that the Extron AV equipment installed during the refresh will provide years of reliable service for students and instructors.

FEATURED EXTRON PRODUCTS

Model	Description
DTP CrossPoint 84 4K IPCP Q SA	8x4 Scaling Presentation Matrix Switcher with DTP Extension
DTP2 CrossPoint 82 IPCP Q SA	8x2 4K/60 Scaling Presentation Matrix Switcher
DTP2 T 204	Four Input 4K/60 HDMI Switcher with Integrated DTP2 Transmitter
DTP HDMI 4K 330 Tx	Long Distance DTP Transmitter for HDMI
DTP HDMI 4K 330 Rx	Long Distance DTP Receiver for HDMI
DTP T DWP 4K 332 D	Long Distance Two Input DTP Transmitter for DisplayPort and HDMI with Audio Embedding - Decorator-Style Wallplate
DTP2 T 201 D	4K/60 HDMI DTP2 Transmitter – Decorator-Style Wallplate
ShareLink Pro 500	Wired and Wireless Presentation Gateway
XPA U 1004 SB	Four Channel Bridgeable Output Amplifier 100/200 Watts Per Channel
SF 26CT	SoundField XD 6.5" Two-Way Ceiling Speaker
SF 26PT	SoundField 6.5" Two-Way Pendant Speaker
IPCP PRO 255Q xi	IPCP Pro xi Quad Core Control Processor
IPA T RLY4	IP Link Accessory with Four Relays
TLP PRO 725T	7" Tabletop TouchLink Pro Touchpanel
TLP PRO 1025M	10" Wall Mount TouchLink Pro Touchpanel
Extron Control	Control App for TouchLink, eBUS, Network Button Panels, and MediaLink
Cable Cubby 1202	Cable Access Enclosure for AV Connectivity, Remote Control, and Power

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