



# ESPORTS SYSTEMS

## DESIGN GUIDE

**Extron**



# AV SYSTEMS FOR ESPORTS

As schools and universities develop dedicated facilities to support their esports programs, they are quickly discovering that well-designed AV systems can greatly enhance the user experience and maximize the educational benefits for all participants. To ensure optimum performance, AV systems for esports facilities must meet several key design parameters:

- **High Performance Switching** – Supercharged gaming workstations run at high resolutions, refresh rates, and color depths. The AV system must be able to switch and distribute these signals with pristine quality and in many cases, zero latency.
- **Future Proof Designs** – Given the rapid evolution of gaming technology, it is essential for the AV system to be adaptable and capable of accommodating future gaming system advancements.
- **Ease of Use** – An intuitive and user-friendly control system is crucial for esports AV setups due to their complexity, enabling coaching staff to concentrate on the athletes rather than the system operations.

**Extron**









# EXTRON AND ESPORTS

Extron is uniquely positioned to deliver the best solutions for your esports applications. We offer a broad range of industry-leading products and technologies that deliver versatility, reliability, and unsurpassed performance.

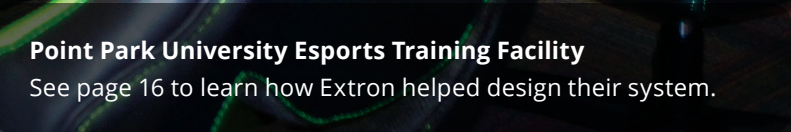
- AV distribution products that support resolutions up to 8K and ensure the image integrity of uncompressed video resolutions, refresh rates, and color space
- Fixed and modular switching platforms with support for HDMI, SDI, twisted pair, and fiber optic signal transport
- Scalable systems support growth and changes that may occur in relation to games of focus and team sizes
- Our system design specialists have the expertise to help you find the optimum solution for your esports facilities.

## Looking to Up Your Esports Game?

Contact us at [esports@extron.com](mailto:esports@extron.com) for design assistance.







**Point Park University Esports Training Facility**  
See page 16 to learn how Extron helped design their system.



# EXTRON PRODUCTS AND TECHNOLOGIES

With over 5,000 products, we have the right ones to fit the scale and budget of nearly any esports project. Extron products switch, distribute, stream, and control AV signals from any source to any destination while maintaining signal integrity. They are carefully engineered to provide best-in-class performance, high energy efficiency, and exceptional reliability. Each product is designed to integrate seamlessly with other products to create comprehensive AV system solutions.

## AV SIGNAL SWITCHING AND DISTRIBUTION



### DXP, DTP, FOX3, AND XTP 4K MATRIX SWITCHING

Matrix switching is an integral part of mid to large size AV systems. Extron offers several platforms for various types of infrastructure. DXP HDMI matrix switchers are available in multiple sizes up to 16x16. Our DTP CrossPoint 4K Series offers integrated twisted pair extension, audio processing and amplification, and built-in control. FOX3 matrix switchers and extenders deliver end-to-end switching of 4K/60 video, stereo audio, USB, and control. The XTP platform offers fully integrated switching and distribution systems for digital video and audio, supporting local AV connectivity as well as remote devices over shielded CATx and fiber optic cable.



### NAV PRO AV OVER IP

NAV® is the only no-compromise Pro AV over IP solution for distribution and switching of ultra-low latency, high quality video and audio signals over an Ethernet network at low bitrates. It delivers groundbreaking performance with real-time, visually lossless video over IP at resolutions up to 4K/60 with 4:4:4 color sampling. NAV combines the flexibility of an IP-based system with the integration-friendly video and audio switching features found in Extron conventional matrix switchers.





## VIDEO WALL PROCESSORS – QUANTUM ULTRA II

Quantum Ultra II is a modular 8K videowall processor with high-performance scaling and windowing technology. Quantum Ultra II's configurability, features, and performance make it a future-ready solution for any videowall application.



## CONTROL SYSTEMS

Extron control systems provide easy, reliable control and monitoring for even the most complex esports installations. Our broad range of control products includes network connected control processors, touchpanels, and control apps.



## STREAMING AND RECORDING – SMP SERIES

The SMP Series is ideal for live streaming, recording, and playback. These processors capture and encode AV signals from HDMI and 3G-SDI sources. They support simultaneous recording and streaming with independent resolutions and bit rates.



## AUDIO PRODUCTS

From speakers and amplifiers, to flexible audio DSP matrix processors, the extensive line of Extron audio products lets you create complete high performance audio systems. Our Dante-enabled offerings provide digital audio distribution over local and wide area network.







# EXTRON ESPORTS DESIGN SOLUTIONS

Esports setups vary in scale and capability, incorporating several AV technologies and specific IT network requirements. Venues are unique in design, often built to suit the needs and specifications of the game, or games, that the organization has chosen for competition. The following designs offer examples of typical esports applications. System drawings depict the sources and displays, signal flows between them, and a recommended approach for an effective system design.



## ESPORTS GAMING CENTER – PAGE 8

Dual-purpose space for competitive and casual PC gaming, console areas, spectator displays, outbound streaming, shoutcasting, system control, and audio system



## COMPETITION ROOM – PAGE 10

Competitive gaming, coaching station, spectator displays, observer, shoutcasting, multi-window processing, software-based outbound streaming, recording, room cameras, system control, and audio system



## ESPORTS ARENA – PAGE 12

Competitive gaming, coaching station, observer, shoutcasting, videowall, broadcast feeds, POV cameras, arena cameras, system control, and audio processing



## STEAM LEARNING CENTER – PAGE 14

Multi-purpose facility, competitive gaming, classrooms and learning labs, streaming AV, shoutcasting, broadcast switcher, videowall, system control, and audio system

*"Extron worked with us to build out an exceptional facility to service our esports program for its inaugural year. The installation was seamless, and the system assists in coaching as well as showing off the space to new recruits. I could not be happier with the project results."*

Chris Gaul  
Esports Director and Head Coach at Point Park University

**The esports systems in this section represent just some of the most common solutions. We have the products and expertise to create a range of customized systems designed for your specific application.**

Email us at [esports@extron.com](mailto:esports@extron.com) for a custom design consultation.





# ESPORTS GAMING CENTER

## SPACE REQUIREMENTS AND CAPABILITIES

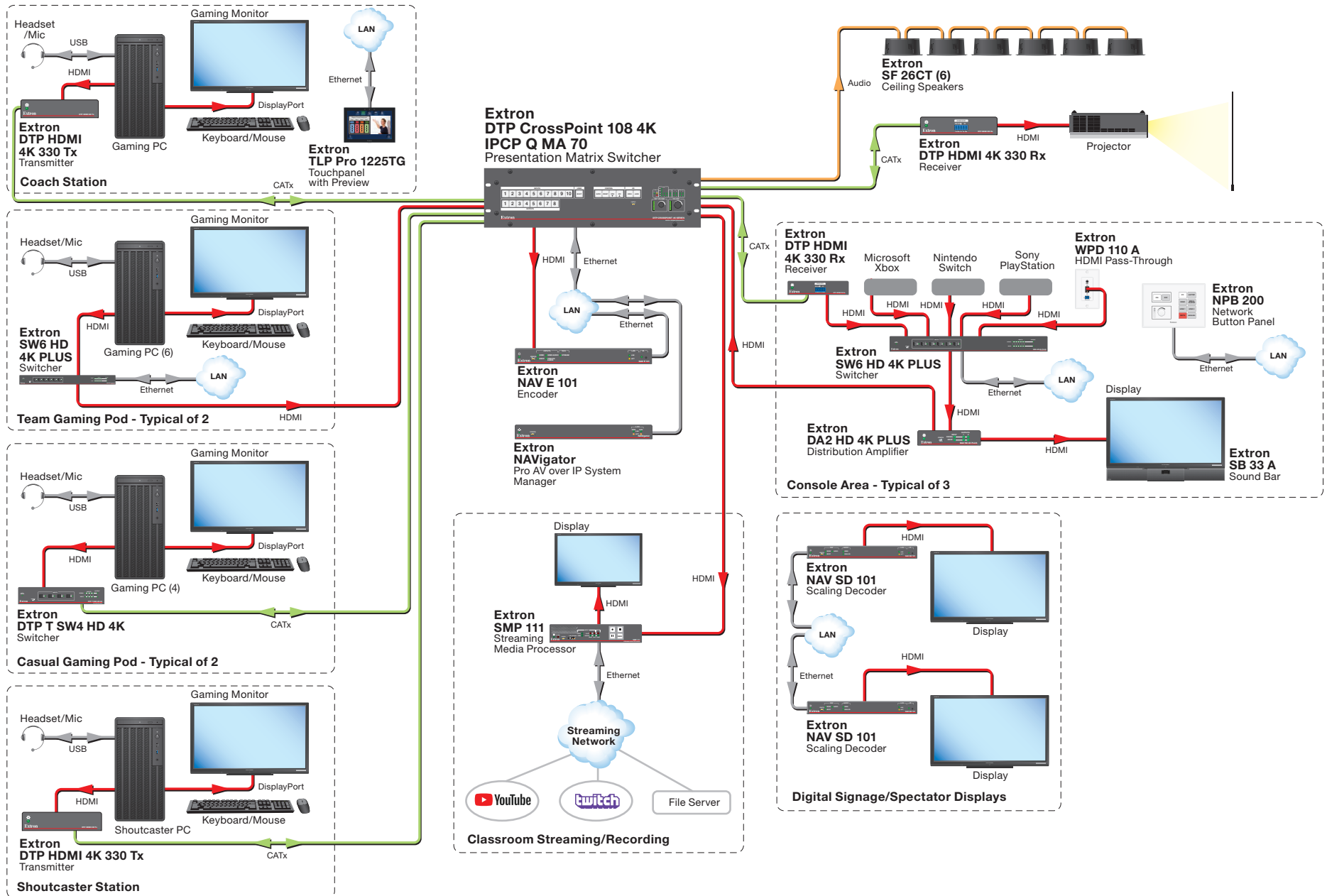
The esports gaming center serves multiple purposes. Depending on its mode of operation, the system can fully support competitive team play with shoutcasting, after-hours gaming for students, and instruction. Gameplay is available via PC, various consoles, and portable BYOD connection. Signals from individual pods and stations are switched through the DTP CrossPoint 108 4K Presentation Matrix Switcher and routed for local viewing, remote delivery via NAV Pro AV over IP to signage displays, and with the SMP 111 providing outbound streaming and recording to engage a larger audience. The matrix provides all-in-one versatility with integrated signal extension, system control for switching and environmental adjustments, and audio processing and amplification for the ceiling speakers.

## EXTRON EQUIPMENT LIST

|                              | Qty.                                             |
|------------------------------|--------------------------------------------------|
| <b>DTP CrossPoint 108 4K</b> | Presentation Matrix Switcher 1                   |
| <b>DTP HDMI 4K 330 Tx</b>    | Twisted Pair Transmitter 2                       |
| <b>DTP HDMI 4K 330 Rx</b>    | Twisted Pair Receiver 4                          |
| <b>DTP T SW4 HD 4K</b>       | 4K HDMI Switcher with Integrated Transmitter 2   |
| <b>SW6 HD 4K PLUS</b>        | 4K/60 HDMI Switcher 5                            |
| <b>DA2 HD 4K PLUS</b>        | 4K/60 HDMI Distribution Amplifier 3              |
| <b>WPD 110 A</b>             | HDMI Pass-Through Wallplate 3                    |
| <b>SF 26CT</b>               | 6.5" Two-Way Ceiling Speaker 6                   |
| <b>SB 33 A</b>               | Adjustable Width Sound Bar 3                     |
| <b>TLP Pro 1225TG</b>        | 12" Tabletop TouchLink Pro Touchpanel 1          |
| <b>NBP 200</b>               | Network Button Panel 3                           |
| <b>NAV E 101</b>             | Pro AV over IP Encoder 1                         |
| <b>NAV SD 101</b>            | Pro AV over IP Scaling Decoder 2                 |
| <b>SMP 111</b>               | Single Channel H.264 Streaming Media Processor 1 |



## ESPORTS GAMING CENTER







# COMPETITION ROOM

## SPACE REQUIREMENTS AND CAPABILITIES

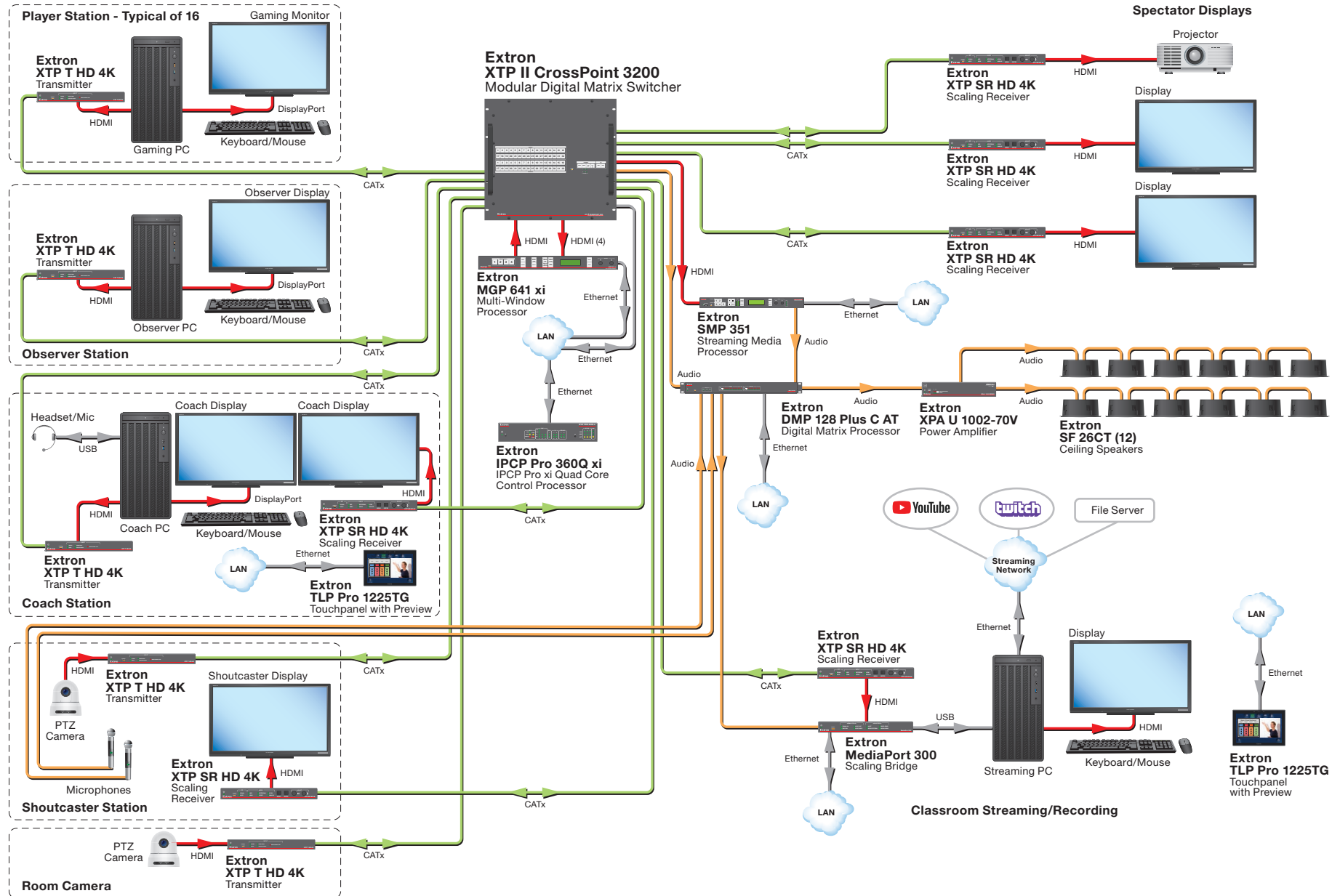
Esports competition facilities are training grounds for future gamers. This venue features the best available gaming stations with 24" gaming monitors and high-performance graphics cards. The XTP II CrossPoint modular matrix switcher supports independent switching between all inputs and outputs, including observer and shoutcasting stations. Multi-window processing delivers customized viewing of simultaneous sources onto one display. A streaming media processor enables multi-channel recording for after action review. A dedicated coaching station features system viewing and full control. The audio system features DSP processing, amplification, and ceiling speakers. An HDMI and Audio to USB bridge delivers all AV signals to a dedicated PC for streaming to services such as YouTube and Twitch.

## EXTRON EQUIPMENT LIST

|                               |                                         | Qty. |
|-------------------------------|-----------------------------------------|------|
| <b>XTP II CrossPoint 3200</b> | Modular Digital Matrix Switcher         | 1    |
| <b>XTP T HD 4K</b>            | Twisted Pair Transmitter                | 19   |
| <b>XTP SR HD 4K</b>           | Twisted Pair Scaling Receiver           | 6    |
| <b>MGP 641 xi</b>             | 4K/60 Multi-Window Processor            | 1    |
| <b>SMP 351</b>                | H.264 Streaming Media Processor         | 1    |
| <b>MediaPort 300</b>          | 4K HDMI and Audio to USB Scaling Bridge | 1    |
| <b>DMP 128 Plus C AT</b>      | 12x8 ProDSP Processor w/AEC and Dante   | 1    |
| <b>XPA U 1002-70V</b>         | Two Channel Amp, 100 watts at 70 volts  | 1    |
| <b>SF 26CT</b>                | 6.5" Two-Way Ceiling Speaker            | 12   |
| <b>IPCP Pro 360Q xi</b>       | IPCP Pro xi Quad Core Control Processor | 1    |
| <b>TLP Pro 1225TG</b>         | 12" Tabletop TouchLink Pro Touchpanel   | 2    |



## COMPETITION ROOM





# ESPORTS ARENA



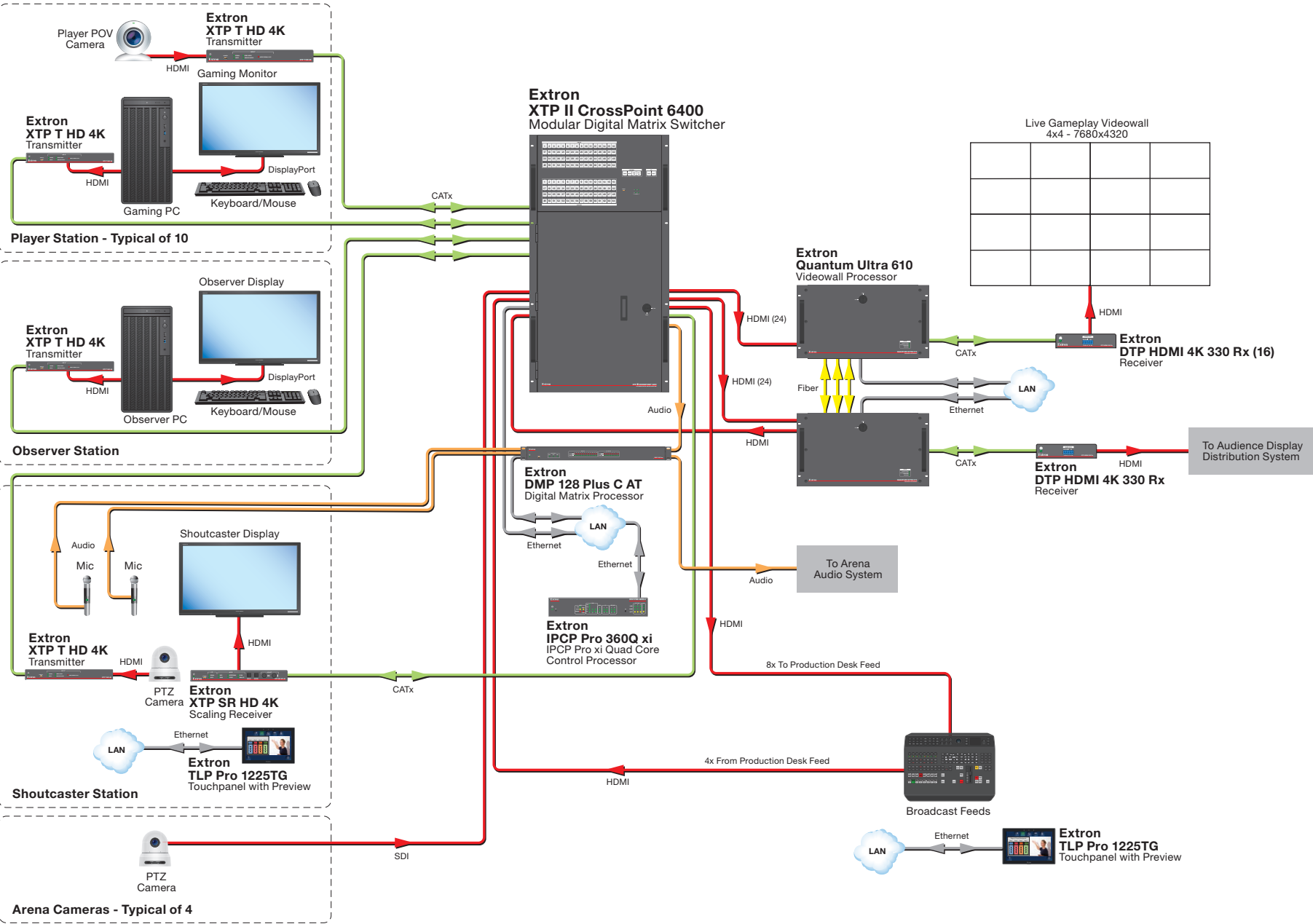
## SPACE REQUIREMENTS AND CAPABILITIES

Esports arenas are used for local competitions, tournaments, and private events. Audience capacity varies but designs prioritize spectators for a dynamic experience. A videowall provides eye-popping visuals of all the action. It is customized to display multiple image combinations across the entire canvas. This includes player shots, game maps, and match overview imagery from the observer station. Shoutcasters add to the experience with energetic commentary and analysis throughout the matches. An XTP II CrossPoint modular matrix switcher manages the diverse signal requirements for the system. This venue is outfitted with POV player cameras, SDI arena cameras, large-scale performance audio, several large displays, and broadcast studios for live streaming. A highly capable control system is deployed for management and operation of the entire space.

## EXTRON EQUIPMENT LIST

|                               |                                             | Qty. |
|-------------------------------|---------------------------------------------|------|
| <b>XTP II CrossPoint 6400</b> | Modular Digital Matrix Switcher             | 1    |
| <b>XTP T HD 4K</b>            | Twisted Pair Transmitter                    | 22   |
| <b>XTP SR HD 4K</b>           | Twisted Pair Scaling Receiver               | 1    |
| <b>Quantum Ultra 610</b>      | Ultra-High Bandwidth 4K Videowall Processor | 2    |
| <b>DTP HDMI 4K 330 Rx</b>     | Twisted Pair Receiver                       | 17   |
| <b>DMP 128 Plus C AT</b>      | 12x8 ProDSP Processor w/AEC and Dante       | 1    |
| <b>IPCP Pro 360Q xi</b>       | IPCP Pro xi Quad Core Control Processor     | 1    |
| <b>TLP Pro 1225TG</b>         | 12" Tabletop TouchLink Pro Touchpanel       | 2    |







# STEAM LEARNING CENTER



## SPACE REQUIREMENTS AND CAPABILITIES

This multipurpose, cutting-edge facility gives students a space for collaborative hands-on learning. Its equipment and supporting technologies are ideal for incorporating esports within STEAM learning environments. The esports lab features powerful gaming computers, a broadcast studio with production capabilities, wireless connectivity, and an extensive audio system. It is dual purpose, serving as both a classroom and competition venue. All the learning spaces transform during competitions and tournaments, taking advantage of the videowall and distributed AV system to deliver an immersive experience for visitors. The audio system leverages Dante networked audio for facility wide distribution. NAV Pro AV over IP is used to deliver scalable AV and control throughout the facility.

## EXTRON EQUIPMENT LIST

|                   |                                                   | Qty. |
|-------------------|---------------------------------------------------|------|
| NAV E 101         | Pro AV over IP Encoder                            | 32   |
| NAV E 201 D       | Pro AV over IP Wallplate Encoder                  | 16   |
| NAV SD 101        | Pro AV over IP Scaling Decoder                    | 32   |
| SW6 HD 4K PLUS    | 4K/60 HDMI Switcher                               | 26   |
| DMP 64 Plus C AT  | 6x4 Digital Matrix Processor w/ AEC and Dante     | 1    |
| AXI 016           | Sixteen Output Audio Expansion Interface          | 1    |
| XMP 240           | Dante Expansion DSP Matrix Processor              | 1    |
| XPA U 1004-70V    | Four Channel Amp, 100 watts at 70 volts           | 1    |
| NetPA U 8001 SUB  | Mono Subwoofer Amp with Dante & DSP 800 watts     | 1    |
| FF 120T           | Full-Range Flat Field Speaker                     | 8    |
| SF 26PT           | 6.5" Two-Way Pendant Speaker                      | 8    |
| SF 10C SUB        | In-Ceiling Subwoofer                              | 1    |
| IPCP Pro 360Q xi  | IPCP Pro xi Quad Core Control Processor           | 1    |
| TLP Pro 1225TG/MG | 12" Tabletop/Wall Mount TouchLink Pro Touchpanels | 2    |







# CASE STUDY: COLLEGE ESPORTS



## CHALLENGES

Point Park University in Pittsburgh, PA, wanted to enrich their athletics program with an exciting foray into esports. After hosting a competition off campus, they hoped to have a varsity team ready to compete in the National Association of Collegiate Esports Rocket League Fall Season and League of Legends. In addition to competitive gaming, students would work with the coach and support staff to learn about the back-of-house processes and supporting technologies. These would include AV streaming, casting, event planning, graphic design, and videography.

The university brought in RPC Video, Inc. to design and install a high performance AV system for the new esports training facility. To provide the kind of system performance necessary for a seamless competitive gaming experience, the design team chose Extron XTP Systems, along with the SMP 111 streaming media processor and Pro Series control products.

## XTP AT CORE OF ESPORTS TRAINING AND COMPETITION

To start the project, an under-utilized aerobics studio in the Student Center was remodeled to accommodate the space. The Media Services and IT departments worked together to deploy a new high-speed data network within the 1,450-square foot room. Then, they teamed with RPC Video to design an AV system to meet the extreme demands of esports.

Source signals originate at 16 gaming stations, each with a custom, Intel Core i7 10700K 8C/16T 5.1 GHz computer and a 144 Hz Asus ROG Strix XG279Q 27" HDR gaming monitor. Coaches, team members, and local spectators can observe the action taking place at any gaming station on 70" and 86" displays, which are mounted to the left, right, and center walls. Additional displays include 24" monitors at the instructor station and within the adjacent equipment room.

Switching hardware with the highest available performance was required for the signal path. An Extron XTP II CrossPoint 3200 modular matrix switcher with a 50 Gbps backplane provides instantaneous switching among the gaming station feeds. It is configured as 20x20, with XTP II CP HD 4K PLUS I/O Boards supporting uncompressed HDMI video resolutions up to 4K/60 4:4:4 at data rates up to 18 Gbps.

## EXTRON FOR AV SIGNAL EXTENSION, SCALING, AND STREAMING

Extron HD Pro Plenum Series hybrid fiber-copper cables carry AV signals between each gaming station and the matrix switcher. The cable's built-in active circuitry is powered by the connected gaming station computer. The HD Pro Plenum cables are an ideal choice for this application since they can send HDMI signals long distances without any compression or latency. They support a wide range of HDMI resolutions, refresh rates, and HDR. Also, the flexibility and narrow bend radius made it easy to install. Integration of HD Pro Plenum cabling reduced overall system complexity and cost.

To scale high frame rate, 2560x1440 signals from the gaming workstations to the 3840x2160 native resolution of the large displays, an Extron DSC HD-HD 4K PLUS A is





mounted to the back of each display. When no signal is present, the scaler's screensaver is configured to show school branding content. The scaler supporting the center display also de-embeds audio, enabling audio extraction for the external sound reinforcement system.

An Extron SMP 111 high-performance recording and streaming media processor captures and distributes the game play for selectable live streaming to Twitch, YouTube, or similar platforms.

## EXTRON PRO SERIES PROVIDES FULL SYSTEM CONTROL

The coach uses a TLP Pro 1025T TouchLink Pro touchpanel at the instructor station to control AV system operations. The touchpanel works in concert with two rack-mounted IP Link Pro control processors to manage the major components in the system. Three AV LAN ports on the Extron IPCP Pro 360 processor allow control of the AV equipment. An IPL Pro S3 processor enables control of the observation displays over the university network. The processors also provide application controls, such as AV system and device power, audio level adjustment, and streaming/recording controls.

## RESULTS

Point Park University saw the interest and potential for its students. Their new esports facility not only allows the varsity team to compete, it enables each enrolled student to explore the business side of esports and to gain valuable hands-on experience with the back-of-house technologies.

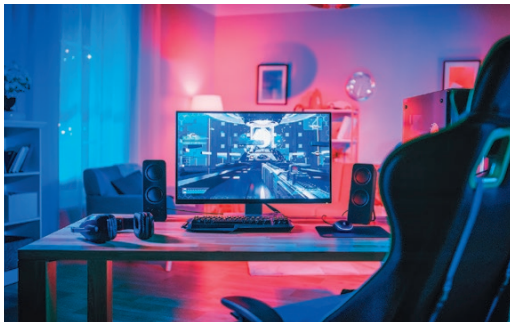
"Esports applications are right in Extron's wheelhouse," says Steve Obenreder, Sales Manager at RPC Video, Inc. "Point Park has a strong preference for Extron solutions because of their reliability and feature sets at reasonable price points, and our experience with Extron products leads us on that same path."

To read the entire case study, visit [www.extron.com/pointpark](http://www.extron.com/pointpark)



# DESIGN CONSIDERATIONS

System design and equipment selection begin once the game titles and team size have been determined. This dictates the type and amount of equipment needed for player stations. Typical gaming stations include several items that need to be addressed. The quality or even brand of peripherals will affect perception.



## A Typical Gaming Station:

- High-performance PC
- Gaming monitor – 24" to 32"
- Dual graphics cards
- Microphone
- Keyboard/mouse
- Webcam
- Headset
- High-end furniture

The high resolutions and frame rates require high-performance AV equipment. HDMI 2.0 products with 18 Gbps capability are necessary for 1080p with a 240 Hz frame rate, amounting to a 17.82 Gbps data rate. Detailed performance capabilities should be clearly listed within product specifications.

## PC Capabilities – Off the shelf and custom

- Motherboard – mid-range generally suffices
- System RAM – 16 GB, recommended
- Drive – SSD recommended over mechanical hard drive
- Processor – AMD and Intel, recommended, 6 core, ideal start point
- GPU – AMD's Radeon or NVIDIA's GeForce, VRAM – 4-16 GB
- Cooling – Standard for CPU and performance GPUs, advanced cooling options available for added protection and noise minimizing
- PSU – important to buy quality for reliability and protection of expensive components

## Gaming Monitors

- Sizes – generally 24", 27", or 32"  
24" most common due to viewability, no need to turn head, eyes on target
- Sync technology – AMD Freesync and NVIDIA G-Sync for compatibility with AMD Radeon and NVIDIA GeForce graphic cards
- Refresh rate affects smoothness of gameplay – image tearing and judder

## Gaming Resolutions and Frame Rates

- Resolutions – 1080p, 1440p (2560x1440) and 4K  
More pixels make GPU work harder - 1080p often preferred due to ability to defer resources to higher frame rate output
- Frame Rates – up to 240 Hz  
Common: 60, 120, 144, 165, and 240 Hz
- Ideal combination: 1080p at 240 Hz = 17.82 Gbps data rate

## DXP HD 4K PLUS Series Specification

### Video input

|                      |                                                 |
|----------------------|-------------------------------------------------|
| Number/signal type   | 4, 8, or 16 HDMI digital video (HDCP compliant) |
| Connectors           | 4, 8, or 16 female HDMI type A                  |
| Horizontal frequency | 15 KHz to 270 KHz for resolutions up to 18 Gbps |
| Vertical frequency   | 24 Hz to 240 Hz for resolutions up to 18 Gbps   |

*NOTE: Use our calculator ([www.extron.com/8Kdata rate](http://www.extron.com/8Kdata rate)) to determine video parameters supported by these data rates.*

An excerpt of the product specifications for the DXP HD 4K PLUS Series





|   |         |         |
|---|---------|---------|
| 1 | NAF     | \$4,000 |
| 2 | ELIGE   | \$1,500 |
| 3 | NITRO   | \$7,750 |
| 4 | TACO    | \$3,450 |
| 5 | TWISTZZ | \$4,500 |

TEAM MONEY  
\$11,100

EQUIP VALUE  
\$12,250



|    |         |         |
|----|---------|---------|
| 6  | DEADFOX | \$4,100 |
| 7  | WOXIC   | \$7,050 |
| 8  | ANGE1   | \$6,550 |
| 9  | ISSAA   | \$5,000 |
| 10 | BO      | \$5,000 |

TEAM MONEY  
\$21,100

EQUIP VALUE  
\$11,100



TEAM LIQUID



HELLRAISERS





## DESIGN CONSIDERATIONS CONTINUED



### OBSERVER MODE

Most games offer an “Observer/Spectator Mode” that can be used to display a mix of important views of the game being played. Options generally include a full map or individual player views plus access to in-game stats. The observer controls in-game camera movement and can jump to the perspective of either team, following the action as they see it to provide an engaging and comprehensive viewing experience for spectators. They identify key plays, make sure the camera is highlighting the most interesting aspects of the match, and highlight replays for highlight reels. The observer PC serves as an integral source within the AV system. Observers work within the production team behind the scenes, liaising closely with the casters and broadcast crew.

### PROPER AUDIO MANAGEMENT AT THE PLAYER STATION

The need to maintain simultaneous audio to player headsets and the HDMI output feeding the AV system is a basic audio requirement. While this may seem like a simple task, it is often problematic for reasons including OS and hardware limitations, software interaction, and system settings. This is further complicated when streaming and more complex setups are utilized, such as capture and recording devices.

In these scenarios, look for external mixers and third-party software solutions for virtual mixers and cables, which are used for internal audio device mapping and signal routing, app support, and auxiliary hardware connections.



### OUTBOUND STREAMING AND RECORDING



Streaming gameplay is a prevalent aspect of esports, encompassing various use cases. Platforms such as Twitch and YouTube facilitate live streaming, allowing broader audiences to view competitions in real time. Additionally, recording gameplay sessions for post-match reviews is crucial for strategy development and improvement. Both hardware and software solutions exist to cater to these needs. Software solutions, while popular, often face challenges such as operating system updates, patches, and plugin incompatibilities, leading to potential disruptions. Conversely, hardware solutions offer a more reliable 'set and forget' approach.





## BENEFITS OF USING A CONTROL SYSTEM

AV control and automation is a key building block for a successful esports system. It enables automation of common tasks such as source selection to deliver content to the appropriate displays, powering the system on or off, adjusting audio levels, lighting adjustments, camera feed selection, triggering streaming and recording activities, and easily switching to another mode of system operation to support additional uses of the space.

An intuitive control interface makes it easier for users to perform tasks quickly or access environmental controls, thus keeping their focus on the esports event.

## COMPUTER GRAPHICS CARD SETUP AND VIDEO SIGNAL FLOW

It is critical to maintain maximum performance to the player's gaming monitor. The high resolution and high frame rate game content should be fed directly to the monitor without interruption. The AV system does not require this level of performance. This enables customized gaming outputs, e.g. 1440p at 240 Hz while providing 1080p or 4K outputs with lower frame rates for AV system usage.

The general recommendation is to utilize performance graphics cards with dedicated GPUs and DisplayPort output for the gaming monitor while using the CPU's integrated HDMI output to support the AV system. This approach devotes maximum processing to support gameplay without straining system resources, ensuring smooth performance, and avoiding the burden of driving two monitors off the same card.



# EQUIPMENT AND REQUIREMENTS

The growth of esports and many types of supporting venues brings numerous opportunities for designers and integrators. Key markets include higher educational institutions with grant availability in this area. Considerable opportunities also exist for other educational environments and private facilities. Esports systems are comprised of specialized equipment that must meet strict requirements to qualify for use in tournaments.

**Player Stations** – Keeping the gameplay pure for the player is the main priority. Player input should register from point of entry to display with zero lag and latency. Compromises in this area could mean the difference between winning and losing.

**Networking** – The network must have high-speed broadband internet with enough bandwidth to support the digital action of all the gamers playing simultaneously. Slow connections will frustrate players and spectators will lose interest quickly—those on-site and streaming from home on Twitch or YouTube.

**AV Infrastructure** – Esports venues provide an engaging experience for players and fans alike. The infrastructure must be robust enough to accommodate all the signals sent throughout the facility. Signal transport technologies include copper, fiber, and streaming. It is best practice to maintain unaltered, end-to-end signal paths.

**Streaming/Broadcasting** – Broadcast stations and production rooms are used for streaming and creating content for programs and events. Streaming is a large part of the esports ecosystem with outbound streaming to Twitch, YouTube, and other platforms. Production switchers and high-end cameras are used for support within the venue and serve as broadcast feeds to ESPN, FOX, and other television networks.

**Account Establishment** – Esports clubs and leagues interact with host service organizations like Twitch, Valve/Steam, Discord, PlayVS, and many others. Participants will need accounts for the selected provider prior to entering tournaments and season gameplay.



## Equipment Associated to Esports Venues

- AV Switching and distribution
- Videowalls and processors
- Streaming and recording
- Flat panel displays
- Projectors and screens
- Sound system
- Control system
- Microphones – fixed and wireless
- Network services
- Digital signage
- Gaming station equipment
- Rigging and lighting
- Broadcast cameras
- Production monitors
- Production switchers
- PTZ cameras
- POV cameras
- High-end furniture





# EVOLUTION OF THE ESPORTS ECOSYSTEM

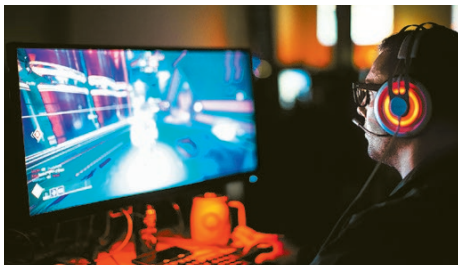
Esports competition continues to enjoy increased popularity and rapid adoption professionally and at educational institutions. According to market research, global esports revenues are expected to surpass \$4.3 billion in 2024. The worldwide esports audience grew by more than 1.5 percent in 2023, reaching 540 million people, with heavy growth in Asia, North America, and Europe.

Like traditional sports, esports fosters teamwork, communication, and problem solving. The unique performance needs of esports facilities requires a broad level of knowledge and expertise to ensure the AV system provides a good experience for players and spectators alike. Even if you are starting completely from scratch, don't feel overwhelmed. We are esports experts.

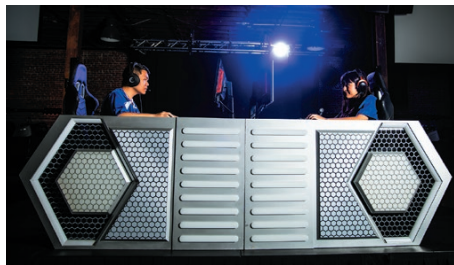
## GAMING VERSUS ESPORTS

Esports originates from gaming. The difference between gaming and esports is easy to understand; think recreational gaming versus competitive gaming for prizes and recognition.

Esports is played at club levels with leagues. Tournaments and championships often involve monetary awards. These matches consist of individuals or teams playing against each other. This can take place directly in game or indirectly against individual times and scores. Popular tournaments are played in large arenas and are set up like a basketball game or concert with audience sizes up to 30,000 people.



Recreational Gamer



Competitive Esports Gamers

## GROWTH AND MARKET POTENTIAL

Esports enjoys hundreds of community-based web sites for news and live streaming. It is expected to cater to over 1.4 billion players and viewers by 2025. Esports is driven by the larger gaming industry, which is estimated to be valued at over \$250 billion USD. Ongoing consideration is taking place by the IOC for esports inclusion in the 2026 Olympics.

Rapid growth continues across private, education, and live event sectors with competition and multipurpose arenas quickly becoming part of the landscape in many cities. These venues offer general gaming for the public and are also used for tournaments. In many cases, repurposing of existing facilities is taking place. For example, movie theaters are finding new life by transforming into esports venues. Fans can watch major tournaments and participate in local competitions.

## PARTICIPANTS AND ROLES

The esports ecosystem is vast. As with any large industry, it is comprised of many supporting groups and disciplines. These include game developers, recruiters, agents, sponsors, and PR managers. Highly involved in daily management, they are exposed to the potential for the industry and its continued growth.

The main cast of characters associated to competitions include:

- Players
- Coaches
- Analysts
- Admins and Referees
- Shoutcasters
- Hosts
- Observers
- Audience
- Organizers and support staff







## EVOLUTION OF THE ESPORTS ECOSYSTEM CONTINUED

### ORGANIZATIONS AND GOVERNING BODIES

The esports industry lacks unified governing bodies at all levels, despite its size, popularity, and influence. It is somewhat fragmented with several organizations around the world vying for supremacy. The intellectual property aspect of the games themselves makes it difficult since these interested groups are not in control of the rules and gameplay. Despite this situation, there is common interest and activity by all to further advance the industry. Mergers and partnerships are announced regularly as this market continues to grow and mature.

### PLATFORMS FOR LEAGUES AND TOURNAMENTS

Individuals, pro teams, and educational institutions participate in competition by establishing clubs and joining leagues. There are several gaming platforms catering at various levels for tournament play, such as Battlefy, Toornament, PlayVS, and others. Many will partner with game publishers to pull data from matches for performance tracking of individual players.

### GAME CATEGORIES AND TEAM FORMATS

Like traditional sports, team size along with player positions and responsibilities depend upon the game being played. Competition usually takes place in 1v1, 3v3, 4v4, and 5v5 formats with backups also included on team rosters. There are four main genres in terms of game types. First, strategy games, which include MOBA – multiplayer online battle arena and RTS – real-time strategy. The other popular genres include FPS – first-person shooter, sports games, and fighting games.



#### Types of Systems:

- General Gaming Centers
- Game Labs
- Practice Facilities
- Multipurpose Spaces
- University Competition Rooms
- Esports Arenas



# BENEFITS OF ESPORTS IN EDUCATION



Esports requires a tremendous amount of critical thinking, collaboration, and creativity from players to achieve and sustain success. With easy access, a low cost to entry, and a supportive environment, esports reaches beyond traditional sports in education to create an all-inclusive environment that breaks barriers.

Engaged students perform better in school. Esports has the unique ability to appeal to and engage a wider audience. For many students, esports is the first time they have participated in a coached, athletic activity. Educators are realizing that like traditional sports, esports fosters teamwork, communication, and problem solving.

Students involved in esports thrive both personally and academically. They acquire and apply knowledge, develop healthy identities, and stay motivated to achieve

personal and collective team goals. Esports participation brings responsibility and helps to promote positive digital citizenship.

By playing games, younger students gain important skills that prepare them for college and career. More than 260 US colleges and universities have introduced varsity esports programs. Colleges actively recruit gamers for their esports teams, courting them with substantial scholarships.



## Esports Benefits for Students:

- Compliments SEL – Social and Emotional Learning
- Sense of Community and Leadership
- Character Development
- Promotes Positive Digital Citizenship
- Scholarship Opportunities
- Embodies ISTE Standards
- Increases Achievement and Accountability

## BENEFITS OF ESPORTS IN EDUCATION CONTINUED

Educational institutions can capitalize on several opportunities provided by a successful esports program. A good program brings increased recruitment initiatives and develops student engagement and retention. It drives interest and can help bring relevance to outdated facilities, bringing a higher level of competitiveness to the school. Community outreach can also be enhanced by conducting local events and competitions.

Esports programs can aid with revenue generation. Sponsorships, building naming rights, summer camp opportunities, and after-hours student usage are great ways to support program funding.

In terms of curriculum, entire programs can be built with supporting majors, minors, certificates, and internships. Esports supports several career pathways for students. At the club level, students function as peer coaches, graphic designers, fundraisers, and game strategists – roles that build career competencies.



### Steps to starting an esports program:

- Reach out to students and staff
- Consider beginning with club to build interest
- Determine the appropriate location for your space
- Research funding opportunities
- Identify which department to house the program
- Engage the IT department
- Build your esports facility
- Assemble support personnel
- Create an esports brand





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