HARDWARE

When Building an Esports Arena, CPUs Are an Important Consideration

Investing in the right computer processing unit can turn a recreational on-campus activity into a competitive athletic program.

by Eli Zimmerman

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Universities large and small are investing heavily in esports arenas for what has now become a global phenomenon.

Just as investing in quality football equipment can give athletes a leg up over rival institutions, the **technology components of an esports arena** can help players come out on top in a match. One of the most important components for a high-quality esports arena is the **central processing unit inside of each gaming computer**.

“Keeping the processor, or CPU, up-to-date with cutting-edge technology is essential to maintaining the integrity of esports matches,” according to the National Association of Collegiate Esports. “Processors that are unable to keep up with the proper frame rate, the game’s running speed, can put a player at a big disadvantage.”

Why Are Competitive Gaming CPUs Important?

The CPU is the heart of an esports PC, running the intensive programming that esports-level games rely on.

It "is one of the most important components in any computer, and **what you could consider the brains of your system**," according to an expert in the esports community. "The power of your gaming computer's CPU will have a direct correlation with overall gaming performance." Generally, the graphics processing unit will do most of the heavy lifting, acting as the source for players' frame rates, which determines how smoothly and clearly the game shows up on the monitor. However, **without a strong CPU, the quality of the GPU will be inconsequential**.

"The CPU has to feed information to the graphics card and the CPU can be a limiting factor in gaming if the CPU cannot keep up," writes Talha Amjad in Segment Next.

How to Choose the Best Processor for Gaming Competition Arenas

When it comes to picking the best gaming CPU, one of the most important aspects is **the number of cores in the unit**.

CPU cores **receive programing information, interpret it and then send out instructions** to different parts of the computer in a processing sequence necessary to keep games going. While simpler games, such as Minecraft, may only require one core, common esports games typically require multiple cores to handle the fast-paced nature of competitive play.

Additionally, schools may want to broadcast live events through their players' computers. Having a multi-core processor makes this possible without impacting the computer's performance.

"We're seeing increased demand for premium processors because there's an **insatiable desire for computing power from this gaming audience**," Steve Shakespeare, EMEA enterprise solutions director at Intel, told TechRadar. "Not only do they want to play a great game, which in and of itself is intensive on the CPU, intensive on graphics as well, but they also maybe want to record that, they want to stream it onto Twitch, they want to have a real-time conversation with people."

Current CPUs for gaming vary in the number of cores, but four- or six-core gaming CPUs are the most prevalent for esports competitions, according to an HP blog post.

"Current dual-core processors can bottleneck your graphics card and cause your gaming performance to suffer unless your GPU is also an older and less powerful version," notes Jolene Dobbin, writing for HP Tech Takes. "Quad-core CPUs are also more affordable, better performing and less laggy than earlier versions."

What Competitive Gaming CPUs Are Available for Higher Education?

According to The Verge, the top-performing CPUs will have:

- Turbo-boost frequency above 3.5 gigahertz
- At least four cores
- Base clock speed of at least 2.2GHz
- Level 3 cache of 8 megabytes or more

It's important to note, however, that the **newest processor for gaming on the market may not necessarily be the best choice** for a collegiate esports arena, especially if the institution plans to build several competitive gaming stations.

For example, the University of Washington, which opened its state-of-the-art esports arena in April, added 40 high-end computers to the space. Costs would have added up quickly if administrators had chosen to buy the most expensive gaming CPU for each machine. Instead, university administrators chose computers equipped with Intel's i7-8700K Core processors, a 2018 model that still offers the processing power teams need to compete at the elite level.

Some universities may be tempted to buy CPUs with the greatest number of cores. However, **depending on the games esports teams are playing**, this may be an unnecessary waste of resources.

"If a game is only programmed to use three or four cores then having eight cores won't increase your performance," according to The Verge. "To maximize your budget, you should **check your game specifications** to make sure you're not overspending on CPU without gaining any benefit."

Finally, when trying to find the best CPU for gaming, it's important to think about the demands of future games.

"You need to balance the needs of current titles with the potential demands of future titles," Joshua Pann, a college esports specialist for HP, told *EdTech*.

Ultimately, student esports athletes will determine how well a university's esports team performs. However, supporting players with the right gaming equipment not only will help students achieve their best, but also will **showcase for prospective students the institution's commitment to gaming**.

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