Solution Brief

Solving big challenges in video streaming

More users, use cases, formats, and devices require new video content delivery systems that can scale fast. Supermicro video processing solutions with Intel® Data Center GPU Flex Series and built-in acceleration on 4th Gen Intel® Xeon® Scalable processors make video processing and data streaming more efficient and scalable.

Key takeaways

1. To keep up with demand for streaming video, businesses need to scale seamlessly, build fast, control costs, and stay open.
2. Intel-powered video processing and transcoding solutions from Supermicro, offer incredible performance from edge to cloud.
3. Intel powers a range of solutions, including GPU-accelerated systems, optimized for advanced workloads and exceptional TCO.
4. 4th Generation Intel® Xeon® Scalable processors and Intel® Acceleration Engines and make streaming faster and more efficient.

From live streaming and social media to cloud gaming and smart city, the market for video streaming is exploding. See how Intel and Supermicro get you ready to deliver.

Surging demand for video streaming

Video streaming is the biggest driving force on the internet. An estimated 80% of online traffic is already dedicated to video[1] and consumer reach and interest is rapidly growing.

Stand-alone streaming subscriptions now exceed multichannel subscriptions in Europe.[2] And as market penetration for streaming video in Europe extends to 32.4% by 2027, millions more users are going to come online to watch live or on-demand streamed video. They'll bring an array of phones, computer screens, smart TVs, and other devices and expect everything to work at the tap of a button.

> Video streaming (SVoD) revenue in Europe is projected to reach US$17.77bn in 2023, and US$25.88bn by 2027.[3]

Video processing systems designed for today's demands

This demand presents a monumental challenge for content delivery networks (CDNs), social media platforms, and all organizations that employ video streaming. Intel and Supermicro, with decades of leadership in data center and video, are bringing a new generation of video processing systems designed to solve the biggest problems in media delivery.

These systems, powered by the latest Intel® data center advancements, offer the performance and features to make streaming content delivery easier to launch and more efficient to run.

Dedicated to making content delivery more cost effective

To be streamed, video content must be encoded, compressed, and made to match the viewers' expected resolution, frame rate, video codec, and network bandwidth. If not, users will experience high latency and poor video quality and the platform will make inefficient use of bandwidth and other resources. This is why transcoding is such a critical step in maintaining a cost effective streaming platform.

Video processing systems from Supermicro, powered by built-in Intel® data center technologies deliver exceptional transcoding performance. This ensures the best possible compression and encoding to maximize network, storage, and compute efficiency.

Intel advancement in video and data streaming

Driving these advances in efficiency are the Intel® Accelerator Engines, built into Intel® Xeon® Scalable processors. These features—which are optimized on Supermicro's systems—reduce the resources required for critical video and data streaming workloads. This allows you to host more streams on each rack and thereby reduces the infrastructure required to scale. Built-in Intel® accelerators also help free up cores for more general-purpose compute tasks, which makes systems more performant from end-to-end.

The new line of 4th Generation Intel® Xeon® Scalable processors, now available on Supermicro data center solutions, deliver more cores, more speed, and more workload-specific performance for streaming. They offer the most built-in accelerators in the market with the Intel Accelerator Engines, which can lower latency, bring down costs, and improve performance. For example, The Intel® Dynamic Load Balancer (Intel® DLB) actively maximizes workload efficiency across cores. The Intel® Data Streaming Accelerator (Intel® DSA) optimizes streaming data and transformation operations for less latency and smoother user experiences.

For smart city, industrial automation, or other applications with video pipelines that employ AI inference or deep learning, Intel® Advanced Vector Extensions 512 (Intel® AVX-512) and Intel® Deep Learning Boost (Intel® DL Boost) accelerate workloads dramatically without adding additional hardware.

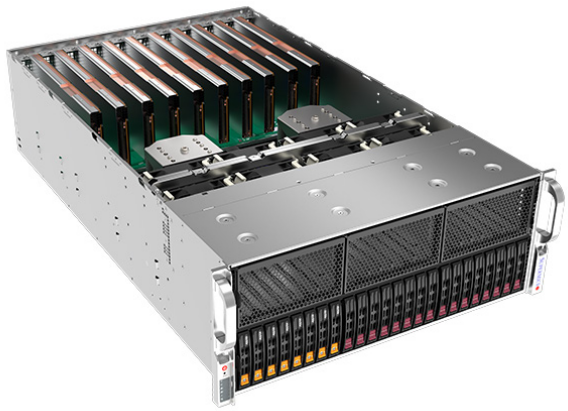
Advanced hardware acceleration with Intel® Data Center GPU Flex Series

By combining Intel Xeon Scalable processors with dedicated hardware acceleration from the Intel® Data Center GPU Flex Series, you can achieve higher compute-per-dollar and efficiency in content delivery while enabling the most demanding use cases.

Thanks to early testing and optimization, Supermicro is the first to market with video processing systems featuring the Intel Data Center GPU Flex Series. The GPU instances deliver higher throughput, lowering cost per video, and directly address the need for increased density. Supermirco's SYS-420GP-TNR systems with ten cards, can deliver 80 4Kp60 or 360 1080p60 streams per rack.

More choices and fewer surprises

Having more options for how you transcode can reduce your costs and lower bandwidth requirements while allowing you to deliver higher-quality graphics. Supermicro supports a range of codecs, including the royalty-free AV1. They also offer a range of solutions with Intel technologies designed to optimize your total cost of ownership (TCO). The 4U GPU SuperServer delivers maximum transcoding density and enables deep learning training in the cloud. The 2U 2-Node SuperServer, however, is designed for the edge and is optimized for cloud gaming.



It's time to scale fast and build faster

Satisfying massive surges in users and delivering new use cases requires performant systems that take little time to set up. By leveraging Intel® architecture, Supermicro can remove boundaries to growth by scaling up to 10 workload optimized systems at once.

Scaling also requires the ability to move your workloads and data to the locations that deliver the best results. Intel-based solutions from Supermicro simplify software development deployment from edge to cloud. Your apps can run on GPU-accelerated cloud servers and edge nodes on CPUs without having to rewrite your code.

Leading the way into the future

The future of the internet is being paved today with video streaming systems. New use cases such as cloud gaming, virtual reality (VR), and augmented reality (AR) are redefining how we entertain and inform ourselves. These new experiences rely on even more efficient and performant video transcoding and delivery solutions.

Staying on top of these developments means staying open. Standards-based Intel architecture solutions from Supermicro allow for quick problem solving while staying free to take advantage of the next big thing.

Learn more

- Explore the new Intel® Data Center GPUFlex Series
- Get the answers for what makes 4th Gen Intel® Xeon® Scalable processors so transformative
- See game-changing video solutions from Supermicro and Intel

[1] Damian Radcliffe, "Over 82% of internet traffic will be online videos by 2022: How publishers can scale their content production," What's New in Publishing, November 11, 2020, https://whatsnewinpublishing.com/over-82-of-internet-traffic-will-be-online-videos-by-2022-how-publishers-can-scale-their-content-production/.

[2] S&P Global Market Intelligence, "5 key OTT trends to watch in 2022," last modified December 9, 2021, https://www.spglobal.com/marketintelligence/en/news-insights/blog/5-key-ott-trends-to-watch-in-2022.

[3] Video Streaming (SVOD) - Europe | Statista Market Forecast," Statista, accessed June 11, 2023, https://www.statista.com/outlook/dmo/digital-media/video-on-demand/video-streaming-svod/europe.