

UNLEASH REAL-TIME BROADCAST AV PERFORMANCE WITH AMD KINTEX™ ULTRASCALE+™ GEN 2 FPGAs



together we advance_AV

OVERVIEW

Engineered for next-generation AV and media workflows, AMD Kintex™ UltraScale+™ Gen 2 FPGAs build on the proven Kintex UltraScale+ foundation, combine PCIe® Gen4 bandwidth, FPGA-accelerated video processing, and flexible AV-over-IP (1 GE–100 GE), HDMI™ 2.1, DisplayPort™ 2.1, and SDI to deliver uncompromising real-time video.

From studios to corporate spaces, events, and remote setups, Kintex UltraScale+ Gen 2 FPGAs help eliminate workflow bottlenecks and scale effortlessly, unlocking better productions with less effort.

RELIABLE LIVE PRODUCTION

High-bandwidth performance allows more channels of clean 4K and HD video to move through the system without dropped frames or added latency. This gives operators smoother switching, steadier playback, and greater confidence during live broadcasts, events, and corporate presentations.

FLEXIBLE CONNECTIVITY WITH FEWER BOXES

ST 2110, HDMI, DisplayPort, and 12G-SDI on a single platform helps eliminate multiple converters. Teams can connect to virtually any source—cameras, routing systems, PCs, LED processors, encoders—with less setup time and fewer compatibility issues.

READY FOR MODERN IP WORKFLOWS

Native 100G connectivity to enable ST 2110 helps users migrate to, or expand, IP infrastructures without rebuilding setups. It makes it easier to add new rooms, control spaces, or remote production locations while staying aligned with industry standards.

CONSISTENT QUALITY ACROSS EVERY WORKFLOW

Dedicated video processing and high memory bandwidth helps ensure smooth capture and playback even when multiple streams or formats are in use. This improves the fidelity and stability of recordings, live streams, and internal communications.

SCALABLE FOR ANY ENVIRONMENT

Works in full-sized workstations, compact PCs, or external expansion chassis, allowing teams to build systems that fit their space—whether that's a studio, a flypack, a conference center, or an OB van.

REDUCED COMPLEXITY FOR OPERATORS

Unified I/O and strong real-time performance mean fewer failure points, faster troubleshooting, and simpler day-to-day operation—valuable for both expert engineers and AV teams who need dependable tools.

FUTURE-READY FOR GROWTH

High throughput and format flexibility mean the system can handle rising resolutions, expanding channel counts, and evolving production demands through software-defined updates without needing frequent hardware replacements.

KEY APPLICATIONS

HIGH-DENSITY VIDEO CAPTURE

- More channels per PCIe card
- Smaller racks and lower power
- Replaces multiple single-purpose devices

ULTRA-LOW LATENCY PERFORMANCE

- Near zero-delay workflows
- Native uncompressed video paths
- Frame-accurate switching

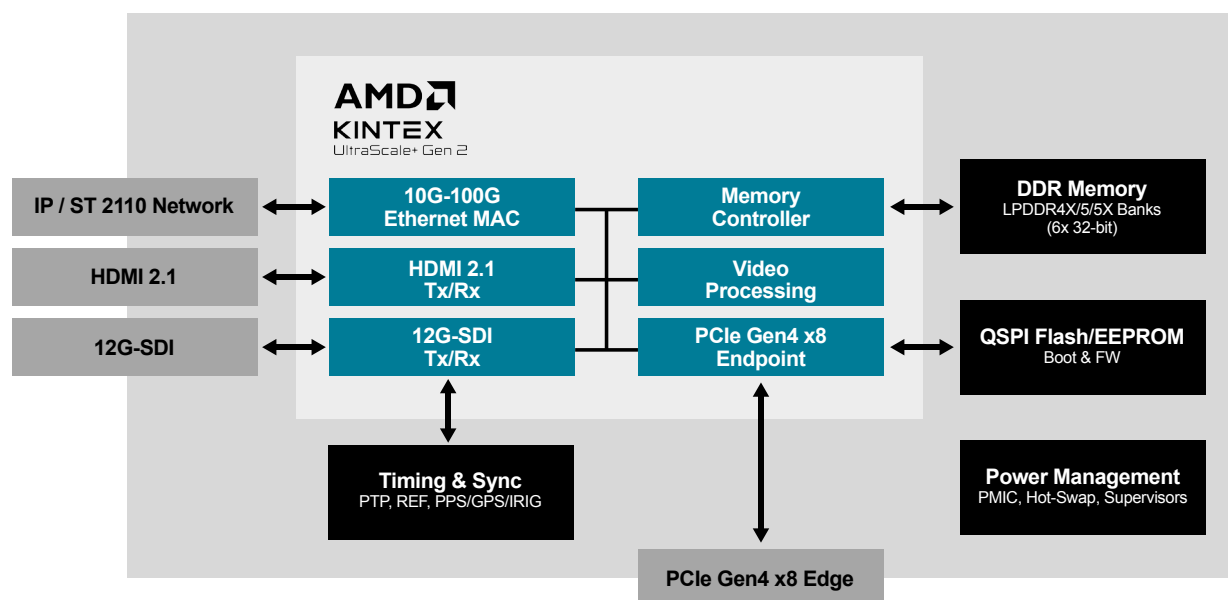
FUTURE-READY ARCHITECTURE

- Scale from multichannel HD/4K to multichannel 4K/8K
- Modular I/O and format flexibility
- Software-defined feature expansion



VIDEO CAPTURE AND PLAYBACK CARDS USING AMD KINTEX ULTRASCALE+ GEN 2 FPGAs

- Users can capture, convert, move, and play multiple channels of uncompressed 4K60 or 1080p60 with proven reliability and ultra-low latency.
- Production teams achieve a smoother, faster, and more flexible way to work with high-quality video.
- Workflow operators can connect to almost any AV source or destination without extra converters or complexity. More channels of 4K or HD video can be captured and delivered at full quality, helping creators switch, stream, record, and display content with total confidence.
- Built-in AV processing keeps everything responsive, even in demanding live environments, so shows run cleaner and installs feel more dependable.



UP TO 2X VIDEO PORTS PER CAPTURE/PLAYBACK CARD¹

- Support up to four HDMI or DisplayPort ports, up to sixteen 12G-SDI ports, and up to two ST 2110-over-100 GE ports.
- Feed NDI, Dante AV Ultra, ST 2110, IPMX, and proprietary IP pipelines into software workflows, reducing CPU load and consolidating entire pipelines.
- Direct feeds from presenters into collaboration systems, gamer and VFX systems, run eSports tournaments with HDMI or DisplayPort PC capture, feed LED walls with pixel-accurate laptop or playback content, or support UC-to-broadcast bridging without conversion latency.

UP TO 2.5X PCIE BANDWIDTH²

- 128 Gb/s with PCIe Gen4 x8 supports up to 8 channels of uncompressed 4K60 video, or up to 48x channels of uncompressed 1080p60 video.
- With sustained throughput, users can push multiple UHD streams directly into server-based GPUs to then run real-time AI inferencing, build GPU-accelerated virtual production systems, and train or deploy AI replay/analysis models live.

UP TO 5X MEMORY BANDWIDTH³

- Up to six dedicated 32-bit LPDDR4X/5/5X-4266 memory controllers per device offering an aggregate bandwidth of up to 102 GB/s.
- Great for low-latency DMA and network jitter smoothing, providing reliable frame delivery and precise timing/sync while remaining stable under heavy workloads.

FEATURES

PLATFORM HIGHLIGHTS	
POWER-OPTIMIZED ARCHITECTURE	<ul style="list-style-type: none"> Optimized logic utilization and 16 nm FinFET enhance energy efficiency for continuous 24/7 broadcast operation. Dedicated hard IP for memory controllers and 100G Ethernet MACs (including FEC) reduce power versus soft IP implementation. Support for LPDDR4X/5/5X versus DDR4 reduces system power. Copious UltraRAM resources available for line buffering that may avoid the use of external memory controllers in some use cases.
HYBRID EDGE-CLOUD PROCESSING	<ul style="list-style-type: none"> Support on-premise and remote production with flexible compute partitioning between edge devices and cloud environments via PCIe Gen4 and 100GE connectivity.
PROVEN TOOLCHAINS	<ul style="list-style-type: none"> Validated using AMD Vivado™ Design Suite across prior generations of AMD Kintex™ FPGAs. Ensures minimized verification risk with high QoR, fast design iterations, and accurate power estimation.
PROVEN IP FOR DEVELOPMENT	<ul style="list-style-type: none"> Leverage industry-leading audio, video, and Ethernet IP from AMD and embedded partners to accelerate system design and integration.
TRUSTED OPERATION	<ul style="list-style-type: none"> Integrated bitstream encryption, anti-cloning, secure key management, and CNSA 2.0-grade crypto protects AV-over-IP streams and control data across distributed production workflows.
LONG-TERM AVAILABILITY	<ul style="list-style-type: none"> Supply through 2045 protects design investments. Support for LPDDR4X/5/5X memory extends design lifetime.

NEXT STEPS

- For more information on Kintex UltraScale+ Gen 2 FPGAs, visit www.amd.com/kintex-ultrascale-plus-gen2
- For more information on Broadcast AV solutions, visit www.amd.com/broadcastav

ENDNOTES

- Based on AMD engineering projections as of December 2025, estimating the number of video ports per card expected with AMD Kintex UltraScale+ Gen 2 FPGAs, over a single PCIe Gen4x8 (128 Gb/s) interface and over a single 100 GbE (hard) Ethernet interface, versus Altera Agilex A5EC065A FPGA with PCIe Gen4x4 (64 Gb/s). Results are AMD engineering projections and may vary when AMD Kintex UltraScale+ Gen 2 products are released in the market. (KUS-002)
- Based on expected PCIe specifications for AMD Kintex UltraScale+ Gen 2 XC2KU050P FPGA and datasheet specifications for previous generation Kintex UltraScale+ XCKU5P FPGA. Results may vary when products are released in the market. (KUS-008)
- Based on AMD projections as of December 2025, estimating the Gb/s expected for AMD Kintex UltraScale+ Gen 2 XC2KU040P and XC2KU050P FPGAs, each to have six (6) 32-bit, hard LPDDR memory controllers @ 4,266 Mb/s, versus the Gb/s offered by the previous generation Kintex UltraScale+ FPGA with one (1) 64-bit DDR4 soft memory controller @ 2666 Mb/s. Results are AMD engineering projections and may vary when AMD products are available in the market. (KUS-001)

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