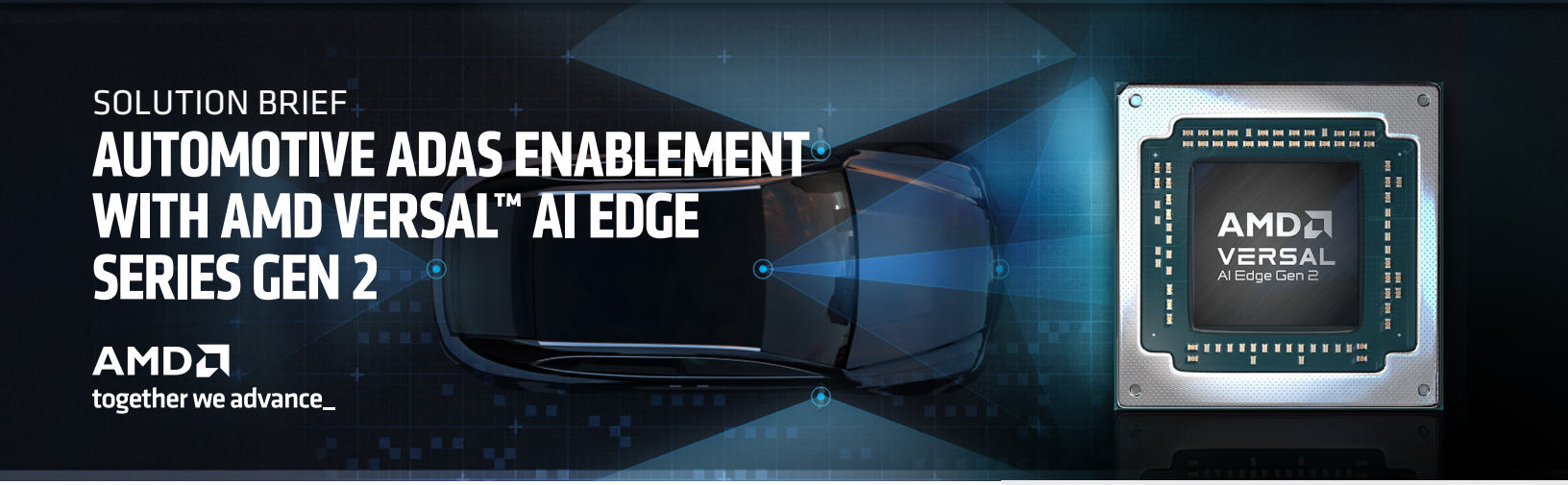
SOLUTION BRIEF

AUTOMOTIVE ADAS ENABLEMENT WITH AMD VERSAL™ AI EDGE SERIES GEN 2

AMD
together we advance_



OVERVIEW

AMD Versal™ AI Edge Series Gen 2 adaptive SoCs offer a high-performance, single-chip solution to tackle automated driving. With hard accelerators for functions like ISP and ASIL-capable GPU & next-generation AI Engines, this series is ideal for ADAS applications.

Able to process a multitude of sensor sets (camera, radar, LiDAR, etc.), Versal AI Edge Series Gen 2 devices offer versatility and scalability to connect sensors seamlessly. These devices also enable real-time image, video processing, and AI inference for ADAS systems.

Engineers can also accelerate their designs reliably, leveraging Versal AI Edge Series Gen 2 devices to meet stringent Functional Safety and Security requirements. These devices are rigorously engineered, proven dependable, and offer security features that help ensure freedom from undesired interference. With Versal devices, developers are empowered to meet the requirements of L2 to L4 systems, where redundancy and faster time to market is critical. Versal AI Edge Series Gen 2 is the latest addition to the broad AMD portfolio of AEC-Q100 qualified products covering a large spectrum of automotive applications, which are further complemented by the AMD Embedded x86 portfolio.

KEY BENEFITS

EFFICIENT AI ENGINES
Optimized performance on AI Engines, reducing the required programmable logic (PL) resources needed to implement AI inference

EXCEPTIONAL VIDEO & IMAGE PERFORMANCE
Hard GPU, ISP, and VCU for video and image processing to offload PL, delivering exceptional performance for camera and smart sensors for ADAS applications

STATE-OF-THE-ART FUNCTIONAL SAFETY
Certified to ISO 26262 ASIL D Standards, on APU and RPU with lock-step, necessary to meet automotive functional safety standards, and eliminating the need for external safety microcontrollers

HIGHLIGHTS

OPTIMAL PERFORMANCE WITH AI ENGINES

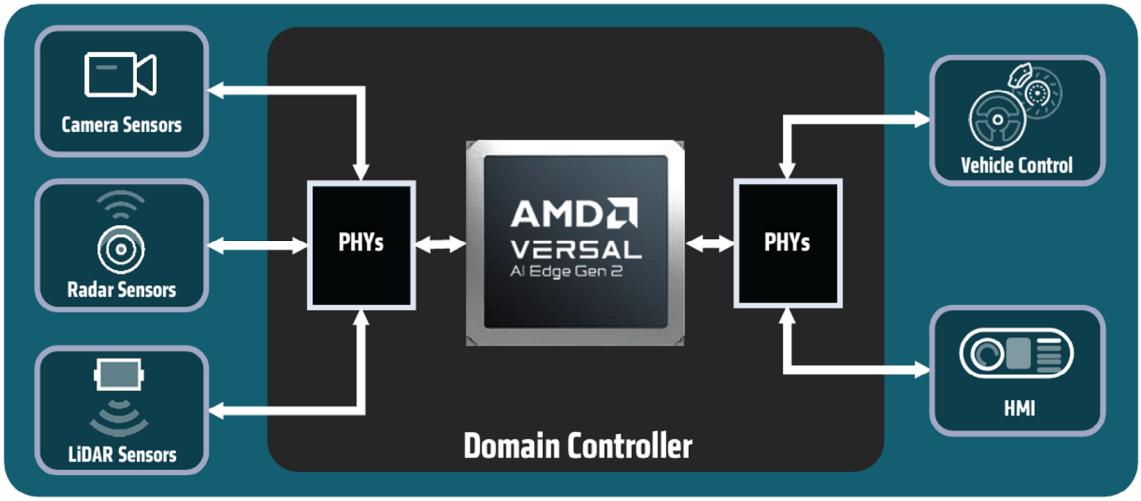
- FP8, FP16, MX6, and MX9 data type support for inference offer flexible precision and a smaller memory footprint, leading to higher performance
- AI Engines can simultaneously process real-time signal processing as well as video, inference, and image processing workloads used in ADAS applications
- Versal AI Edge Series Gen 2 AI Engines are projected to offer up to 3X TOPS/watt over the previous generation AI Engine architecture[1]

DEDICATED HARDWARE - GPU, ISP, AND VCU FOR VISION

- Supports up to 12 camera streams with 1+ Gigapixels per second through a single ISP tile
- VCU hard IP supports multiple streams up to an aggregate bit rate of 4k@60 frames per second, eliminating the need for external or PL-based encoding/decoding

FUNCTIONAL SAFETY LOUNGE

- Available resources include certificate & assessment report, safety manuals, soft IPs, and more for ASIL D/SIL3 designs
- Over the Air (OTA) updates offer long term availability for Functional Safety
- Advanced ISO security features and lidless packaging address key automotive thermal reliability tests
- Faster time to market with certified devices that allow developers to focus on ADAS product differentiation



AMD AEC-Q100 DEVICE PORTFOLIO VS. ALTERA AGILEX PORTFOLIO

FEATURES & CAPABILITIES	AMD AEC-Q100 PORTFOLIO	ALTERA AEC-Q100 PORTFOLIO	ALTERA AGILEX PORTFOLIO*
DEVICE-WIDE PROGRAMMABLE NETWORK ON CHIP	✓	-	-
ISP HARD IP	✓	-	-
VCU HARD IP	✓	-	-
INTEGRATED GPU	✓	-	-
AI ENGINES	✓	-	-
USB HARD IP	USB 3.2	-	USB 3.1
DISPLAYPORT™ HARD IP	✓	-	-
UFS 3.1 AND OCTAL SPI BOOT MODES	✓	-	-
GRANULAR PROCESSOR SYSTEM POWER MANAGEMENT SCHEME	✓	-	-
FUNCTIONAL SAFETY WITH ASIL C/D LOCK-STEP SUPPORT	✓	-	-
MX6, MX9 HARDWARE DATATYPE SUPPORT	✓	-	-
CONTINUUM OF AEC-Q100 DEVICES FROM LOW TO HIGH DENSITY	✓	-	No AEC-Q100
INTEGRATED REAL-TIME PROCESSORS	✓	-	-
PROCESSING SYSTEM MAX DHRYSTONE KMIPS (ESTIMATED)	223.7	-	33.5
MAX LPDDR5 RATE (Mb/s)	8533	-	5600
QNX SUPPORT	✓	One Family	-

* Altera Agilex devices are not AEC-Q100.

NEXT STEPS

- Learn more about **AMD Automotive Solutions**
- Learn more about the **AMD Versal AI Edge Series Gen 2**

ENDNOTES

1. Tera operations per second (TOPS)/watt is based on AMD internal performance and power projections for the AIE-ML v2 compute tile architecture in the Versal AI Edge Series Gen 2 using the MX6 data type, compared to performance specifications and AMD Power Design Manager power results for the AIE-ML compute tile architecture featured in the first-generation Versal AI Edge Series using the INT8 data type. Operating conditions: 1 GHz F_{MAX}, 0.7V AIE operating voltage, 100°C junction temperature, typical process, 60% vector load, % activations = 0 < 10%. Actual performance will vary when final products are released in market. March 2024. (VER-023)

DISCLAIMERS

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