PRODUCT BRIEF

Versal™ AI Edge Series

> Accelerates the Whole Application with High Levels of Safety & Security Features
> Scalable and Adaptable Portfolio from Edge to Endpoint

OVERVIEW

The Versal AI Edge series delivers high performance, low latency AI inference for intelligence in automated driving, predictive factory and healthcare systems, multi-mission payloads in aerospace & defense, and a breadth of other applications. More than just AI, the Versal AI Edge series accelerates the whole application from sensor to AI to real-time control, all with the highest levels of safety and security standards to meet the stringent functional safety requirements in IEC 61508 and ISO 26262, among others.

Versal AI Edge series allows developers to rapidly evolve their sensor fusion and AI algorithms while leveraging the world's most scalable device portfolio for diverse performance and power profiles from edge to endpoint.

HIGHLIGHTS

Architectural Innovation for Breakthrough AI Performance/Watt

> Optimized AI Engines-ML for high performance, low latency inference
> Native support for ML data types: INT8, BFLOAT16
> 4 MB on-chip accelerator RAM extends memory hierarchy for AI performance

Accelerates the Whole Application with High Levels of Safety & Security Features

> Programmable I/O to integrate any sensor, any interface
> Programmable Logic for sensor fusion and pre-processing
> AI Engines and DSP Engines for AI, vision processing, and radar & LiDAR processing
> Processing System for embedded compute and real-time control
> Architected to meet IEC 61508 and ISO 26262 safety standards

Scalable and Adaptable Portfolio from Edge to Endpoint

> Broad device selection to scale from edge sensor to CPU accelerator
> Design once and scale with same architecture, tools, and certifications
> Scale for varying levels of compute safety & security targets
> Hardware adaptable for custom AI, vision, and sensor strategies

TARGET APPLICATIONS

ADAS AND AUTOMATED DRIVE

> Edge Sensor (e.g., radar, LiDAR, vision)
> Domain Controllers
> CPU Accelerator

COMPUTER VISION

> Edge AI Box
> Machine Vision Camera
> Security Camera

INDUSTRIAL

> Collaborative Robotics
> Converged Networking
> Industrial-Grade PC

MEDICAL

> Ultrasound
> Endoscopy
> CT Scanner
> Surgical Robotic Systems

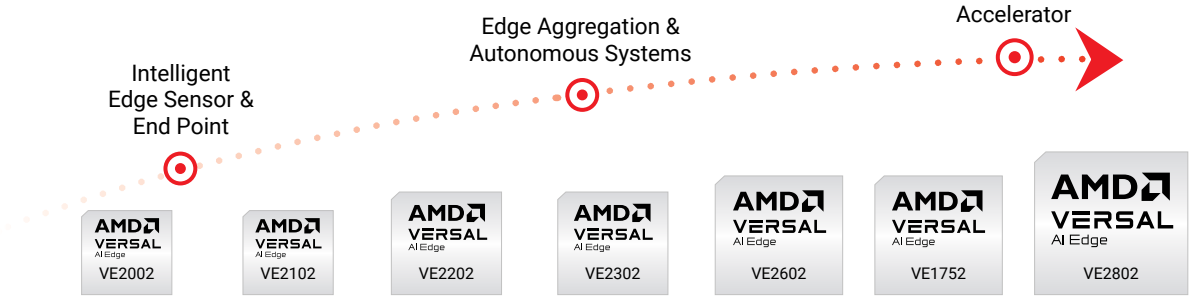
AEROSPACE AND DEFENSE

> Unmanned Aerial Vehicles
> MILCOM Radio

FEATURES

FEATURES HIGHLIGHTS	
Processing System	> Up to 1.65 GHz dual-core Arm® Cortex®-A72 application processor for Linux®-class operating systems > Up to 750 MHz dual-core Arm Cortex-R5F real-time processor with low latency and determinism > Embedded compute for complex algorithms and highest levels of functional safety (ASIL & SIL) > Platform management for quick boot, power & thermal management, and safety & security enclave
Programmable Logic	> Scalable and adaptable sensor fusion for any combination of sensor or data types > Adaptable for any workload, including deterministic networking, motor control, and signal conditioning > Capable of over-the-air hardware updates to instantly update AI acceleration, sensor fusion algorithms, and more > Dynamic Function Exchange (DFx) to swap functionality in milliseconds, reducing device cost and system power
AI Engines and DSP Engines	> AI Engines-ML (AIE-MLs) for low power and low latency inference, with native support for INT8, BFLOAT16 > C-programmable for software developers and library-base design for data scientists > DSP Engines for diverse workloads including image signal processing, support for single-and half-precision floating point
Safety and Security Features	> Built to meet stringent safety and security standards including IEC 61508 and ISO 26262 > Security processing subsystem includes cryptographic acceleration, key management, and anti-tamper > Safety measures across the platform, including triple redundant platform management, system monitoring, and ECC
Accelerator RAM	> 4 MB of on-chip memory for high bandwidth memory access from any engine > Optimizes AI performance by reducing the need for external memory > Extends the platform's adaptable memory hierarchy to optimize for system performance
Programmable I/O	> Hardened memory controller for DDR4-3200 and LPDDR4-4200 > Configure the same I/O for any sensor, network connectivity, or DDR interface > Native MIPI support to handle up to 8- megapixel resolutions and beyond—critical to Level-2 ADAS and above

Scalable Edge AI Platform



	VE2002	VE2102	VE2202	VE2302	VE2602	VE1752	VE2802
AI Compute (INT8 Dense)	5 TOPS	8 TOPS	16 TOPS	23 TOPS	101 TOPS	101 TOPS	202 TOPS
Programmable Logic	20K LUTs	36K LUTs	105K LUTs	150K LUTs	375K LUTs	448K LUTs	520K LUTs
Total Memory	46 Mb	54 Mb	86 Mb	103 Mb	243 Mb	253 Mb	263 Mb

TAKE THE NEXT STEP

For more information about the AMD Versal AI Edge series, visit www.amd.com/versal-ai-edge