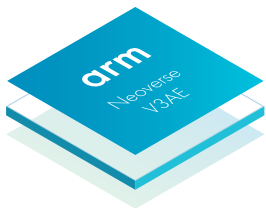




PRODUCT BRIEF

Arm Neoverse V3AE



KEY FEATURES AND BENEFITS

+ Server-Class Performance for Automotive Markets

First Neoverse V3AE CPU for automotive market delivers a 60% performance uplift over Arm Cortex-A78AE across key use cases, including AI-accelerated autonomous and advanced driver-assistance systems (ADAS) workloads.

+ Architectural Improvements

The Neoverse V3 architecture provides performance, security, and scalability benefits, with environmental parity in the cloud and at the edge for seamless development.

+ Advanced Functional Safety Features

Neoverse V3AE integrates hardware safety mechanisms that allow silicon partners to deliver advanced functional safety features.

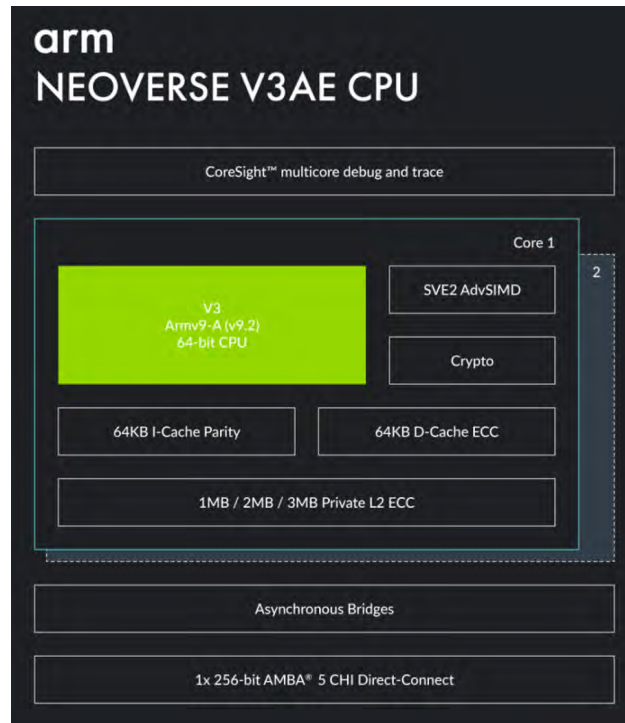
INTRODUCTION

As future AI-based software-defined vehicles (SDVs) demand new features, like autonomous driving, ADAS, digital cockpit, and IVI systems, there is growing demand for high-performance, centralized compute systems.

Alongside high performance to meet future compute requirements, these systems must integrate advanced functional safety features, including fault management, that meet the stringent safety requirements of ISO26262, while also delivering the required compute headroom for vehicles to ensure future SDV features can be delivered over-the-air on a regular basis. To address these performance, computing, software, and safety requirements, Arm introduced our first-ever automotive enhanced (AE) Arm Neoverse CPU.

USE CASES

- + Advanced Driver-Assistance Systems (ADAS)
- + Autonomous Driving
- + Digital Cockpit
- + In-Vehicle Infotainment (IVI)



HIGHLIGHTS

Server-Class Performance

Neoverse V3AE is a CPU that delivers server-class performance to power AI innovation for the automotive market across key use cases, including high-end ADAS and autonomous driving features. It provides a 60% performance uplift over Arm Cortex-A78AE, with performance scaling like Neoverse cores that use mesh fabrics, including the new Arm CMN S3.

Architectural Evolution

The CPU architecture in the Neoverse product line continues to evolve, with the V3 representing significant improvements over the V2 architecture in the following areas:

- + Optimized for *total cost of ownership (TCO) compute*;
- + *Security*, which includes confidential compute capabilities to protect user privacy when running sensitive AI-based workloads;
- + *Scalability benefits*, including the ability to develop customizable hardware to accelerate time to market for different silicon requirements.

The use of the Neoverse architecture in the vehicle and the cloud brings the benefit of environmental parity for automotive partners. This means automotive applications can be developed in the cloud and then deployed at the edge (in the vehicle) for more efficient automotive development and faster time to market.

Advanced Functional Safety Features

Neoverse V3AE is developed to ASIL-D systematic requirements and integrates hardware safety mechanisms that cover transient faults, giving silicon partners a pathway to build system-on-chip (SoC) implementations that meet ASIL-B diagnostic coverage. In many cases, combining hardware safety mechanisms like transient fault protection with other techniques can enable a pathway to more efficient hardware implementations to achieve ASIL-B, versus the use of dual-core lock step to achieve ASIL-B.

Moreover, Arm has added AE features to the coherent mesh network for the Neoverse S3 to achieve enhanced safety features across ADAS, autonomous driving, and digital cockpit use cases. Arm CMN S3AE also enables high core count computing systems in the vehicle, supporting core counts scaling beyond 64-core per chip and coherent multichip designs that can be implemented as chiplets.